

Supplemental Groundwater Investigation

Former Clothing Care Cleaner
612 11th Ave NW
Rochester, Minnesota
SR #1353

Prepared for

Minnesota Pollution Control Agency

June 29, 2021

Project B14-08949.04

Ms. Brigitte Hay
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155

Re: Site Investigation Activities
Former Clothing Care Cleaner
612 11th Ave NW and Adjacent Properties
Rochester, Minnesota

Dear Ms. Hay:

On behalf of the Minnesota Pollution Control Agency (MPCA), Braun Intertec Corporation conducted a Supplemental Groundwater Environmental Investigation in association with the 612 11th Avenue NW and surrounding properties within the extent of contamination attributed to the Former Clothing Care property (Site) in accordance with the authorized scope of services described in our work plan dated September 13, 2020. For a complete discussion of our assessment, please refer to the attached investigation report.

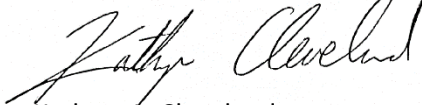
The objective of the Supplemental Groundwater Investigation was to further evaluate the downgradient migration of past volatile organic compound (VOC) releases at the Site.

This Supplemental Groundwater Investigation report was prepared on behalf of and for use by the Minnesota Pollution Control Agency. No other party has a right to rely on the contents of this Additional Environmental Investigation without the written authorization of Braun Intertec.

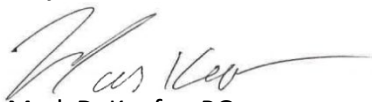
We appreciate the opportunity to provide our professional services to you for this project. If you have any questions or comments regarding this report or the project in general, please contact Kathryn Cleveland at 952.995.2489 or Mark Keefer at 952.995.2493.

Sincerely,

BRAUN INTERTEC CORPORATION



Kathryn L. Cleveland
Project Consultant



Mark D. Keefer, PG
Group Manager, Senior Consultant

Attachment:
Additional Environmental Investigation Report June 2020

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A. Introduction

A.1. Authorization

Braun Intertec Corporation (Braun Intertec) received authorization from Brigitte Hay of Minnesota Pollution Control Agency (MPCA) to conduct a Supplemental Groundwater Environmental Investigation in the area of the Former Clothing Care building located at 612 11th Avenue NW which includes adjacent properties within the extent of potential contamination attributed to the Former Clothing Care property (Site) in accordance with the scope of services described in Braun Intertec's proposal/work plan dated September 13, 2020. These adjacent areas include Ronningen Roofing Inc located between 606-608 11th Avenue NW and Mississippi Welders Supply Co. Inc. located at 910 7th Street NW.

This Supplemental Groundwater Environmental Investigation was prepared on behalf of and for use by the MPCA in accordance with the contract between the Minnesota Pollution Control Agency and Braun Intertec. No other party has a right to rely on the contents of this Supplemental Environmental Investigation without the written authorization of Braun Intertec.

Investigation activities were completed in general accordance with the Work Plan for Site Investigative Activities – FY2021 prepared by Braun Intertec dated November 16, 2020.

A.2. Project Objective

The objective of the Supplemental Groundwater Environmental Investigation was to further evaluate and delineate the volatile organic compound (VOC) detections at the Former Clothing Care and adjacent properties identified in Braun Intertec's 2020 Additional Groundwater Environmental Investigation. The purpose of installing temporary monitoring wells was to collect data to determine the extent of groundwater contamination at off-Site locations to the east and southeast (apparent downgradient direction) of the Site.

B. Site Background

B.1. Site Location and Description

The Site is located across several land parcels between 612 11th Avenue NW and 910 7th Street NW, and 602 through 610 11th Avenue NW, southeast of the intersection of 7th Street NW and 11th Avenue NW in Rochester, MN. The Site is located within the SW quarter of the NW quarter of Section 35, Township 107 North, Range 14 West, in the city of Rochester, Olmsted County, Minnesota.

The 0.7-acre property located at 612 11th Avenue Northwest has one building (Former Clothing Care building) with associated paved parking areas, driveway, and landscaped areas. The Former Clothing Care building is approximately 12,000 square feet on the main level with an approximately 8,000 square-foot basement. The building is located on the southern portion of the Former Clothing Care property, the southern wall of the building is on the property boundary. The western third of the main level of the Former Clothing Care building consisted of the Former Clothing Care Cleaners facility. The eastern two-thirds of the main level of the Former Clothing Care building are currently used as a storage facility. This western one-third of the Site building is slab on grade, the eastern portion of the Site building contains a partial basement. The western portion of the building and the basement was empty at the time of our initial investigation.

The Former Clothing Care building is in a commercial area of Rochester. The Former Clothing Care Cleaners facility portion of the building (western third of the building) sustained significant damage from a fire in 2000 that rendered the Former Clothing Care Cleaners facility portion of the building uninhabitable, and the building remained vacant until at least February 5, 2020. The building was renovated, and the roof replaced in 2015. The building is currently occupied by Rentex Rentals.

A Site Location Map is included as Figure 1.

B.1.a. Previous Investigation Data

The background information for the Former Clothing Care Cleaners Site is summarized below.

Background information regarding the property and adjacent properties was obtained from the following Reports:

Site Status Report, Former Rochester Shopper Property, 1004 87th Street Northwest, Rochester, Minnesota, MPCA Leak #4596, Prepared for Anfinson, Berg and Oordt, LLC, Prepared by Epoch Environmental Group, May 30, 2002.

Phase I Environmental Site Assessment for Professional Instruments Company, Inc., Commercial Building (Former Clothing Care Cleaners), 612 11th Avenue Northwest, Rochester, Minnesota, Prepared by Braun Intertec Corporation, August 18, 2003.

Phase II Environmental Site Assessment, Former Clothing Care Cleaners, 612 11th Avenue Northwest, Rochester, Minnesota, MPCA VIC Site ID #18400, Prepared for Professional Instruments Company, Inc., Prepared by Braun Intertec, February 3, 2006.

Additional Groundwater Investigation report, M & H Strip Mall, Rochester, Minnesota, MPPCA # VP15230, Prepared for US Bank National Associated, Prepared by AET, Inc., July 12, 2007.

Groundwater Monitoring Report, M & H Strip Mall/Former Dry Cleaners Site, 1105 7th Street NE Rochester, MN Minnesota, MPCA # VP15230, Prepared for US Bank National Associated, Prepared by AET, Inc., December 15, 2010.

Additional Phase II Environmental Site Assessment, Former Clothing Care Cleaners, 612 11th Avenue Northwest, Rochester, Minnesota, MPCA VIC Site ID #18400, Prepared for HSL Building, LLC, Prepared by Braun Intertec, March 12, 2012.

Phase I – Environmental Site Assessment, Former Clothing Care Cleaners, 612 11th Avenue NW, Rochester, Minnesota, Prepared for MPCA, Prepared by AECOM Environmental, June 2012.

Environmental Site Assessment Report, Former Clothing Care Cleaners, 612 11th Avenue Northwest, Rochester, Prepared by Braun Intertec, Minnesota, March 17, 2015 (Braun Intertec, 2015).

Environmental Site Assessment, Former Clothing Care Cleaners, 612 11th Avenue Northwest, Rochester, Prepared by Braun Intertec, Minnesota, October 17, 2016 (Braun Intertec, 2016a).

Environmental Site Assessment Report, Former Clothing Care Cleaners, 612 11th Avenue Northwest, Rochester, Prepared by Braun Intertec, Minnesota, December 31, 2016 (Braun Intertec, 2016b).

Supplemental Environmental Investigation Report, Former Clothing Care Cleaners, 612 11th Avenue NW, Rochester, Minnesota, SR #1353, Prepared by Braun Intertec, Minnesota, March 1, 2018.

Additional Environmental Investigation, Former Clothing Care Cleaners, 612 11th Avenue NW, Rochester, Minnesota, Prepared for MPCA, Prepared by Braun Intertec Corporation, June 30, 2020 (2020 Additional Investigation).

B.1.b. Former Clothing Care Cleaners Property

According to the reviewed records, Donald Devlin constructed the existing building in 1951. From 1959 until at least 1969, the Kahler Corporation used the western portion of the building as the Speedwash Laundromat/Northgate Speedwash. During this time frame, it appears that the warehouse portion of the building was occupied by the Northwest Terminal Warehouse and Fernstrom Warehouse. Based on the records, it appears that Fernstrom Warehouse continued to be an occupant at the property until at least 1983. From about 1985 to 2000, Clothing Care Cleaners, a dry-cleaning operations company, occupied the western portion of the building. Information was not available for the western portion of the building

prior to 1959 or between 1969 and 1985. During a conversation that Braun Intertec had on November 24, 2014, with Mr. Ron Braasch (Former Clothing Care property owner), Mr. Braasch stated that the employees of the Former Clothing Care Cleaners facility told him that on several occasions dry cleaning solvents leaked out of the machinery and pooled on the concrete floor, also at various times employees of the Former Clothing Care Cleaners facility would dump spent solvent onto the ground behind the building (south).

Soil borings were previously advanced at the Former Clothing Care property for soil and groundwater collection. Groundwater samples were collected from temporary wells and the three existing permanent monitoring wells (the permanent wells are associated with other off-Site investigations).

Soil beneath the building near the suspected source area (Former dry-cleaning operations) is impacted with PCE above the industrial soil reference value (SRV). In the western portion of the Former Clothing Care building tetrachloroethene (PCE) was detected in soil at a depth of 2.5 feet at a concentration that exceeds the MPCA soil leaching value (SLV).

In the area north of the Former Clothing Care building, DRO and GRO were detected in soil at a depth of 12.5 feet below ground surface (bgs) in a soil boring advanced in the area of a Former underground storage tank (UST) that reportedly contained fuel oil. PAHs and DRO were detected in soil at a depth of 2.5 feet near the loading dock at the Site. PAH concentrations were below the soil reference value (SRV) for industrial land use and the SLV for benzo(a)pyrene (BaP) equivalents.

Groundwater is typically encountered at the Site at depths ranging from approximately 14 to 17 feet below ground surface (feet bgs). Groundwater flow direction at the Site is in an east-southeast direction.

Based on the results of the previous environmental site assessments, groundwater at the Site has been impacted with chlorinated volatile organic compounds (VOCs), including tetrachloroethene (PCE) and trichloroethene (TCE). The sources of these impacts include VOCs migrating onto the Site from upgradient off-Site sources, as well as a release(s) at the Former Clothing Care Cleaner building. The results of the groundwater analysis indicate that groundwater beneath the Former Clothing Care building, south of the building and in the parking lot north of the building are impacted with PCE, TCE, and in places vinyl chloride, at concentrations above drinking water standards. Chlorinated VOC impacted groundwater has migrated downgradient to adjacent properties. The result of historic sampling indicates that VOC impacts from the Site appear to have migrated down into the upper portions of the underlying bedrock unit.

Soil vapor at the Site is impacted with VOCs. The detected concentration of VOCs in sub-slab soil vapor samples collected from beneath the Former Clothing Care building exceeded 33x the intrusion screening value (ISV) in all but one of the sub-slab sample locations. Soil vapor in the sub-slab samples collected from beneath the Former Clothing Care building exceeded 10,000x the ISVs in several samples collected in the vicinity of the former dry-cleaning operations. The elevated sub-slab vapor concentrations in excess of 33x the ISVs indicate that there is an elevated risk for vapor intrusion into the Former Clothing Care building.

Braun Intertec has been performing environmental investigation on behalf of the MPCA related to the Clothing Care site (the Site).

The contaminants of concern at the site include tetrachloroethylene (PCE) and trichloroethylene (TCE). The primary source for the PCE contamination in groundwater and soil vapor is the Former Clothing Care dry cleaner which leased the western half of a commercial building owned by Professional Instruments Company. Clothing Care dry cleaning activities ceased after a fire damaged their portion of the building in 2000. Tetrachloroethene (PCE) and trichloroethene (TCE) groundwater releases at the M&H strip mall located upgradient of the Site and northwest of the 7th Street-11th Ave NW intersection may have also contributed to impacts at the Site.

Previous soil vapor sampling and groundwater sampling have identified elevated concentrations of PCE and TCE in the vicinity of the Site. Additional Environmental Investigation was completed in 2020 to further evaluate VOC contamination in sub-slab, soil vapor probe, and temporary/permanent monitoring well locations and to further delineate the extent of soil vapor and groundwater contamination within both the Site and off-Site locations to the south and east (apparent downgradient Direction). The following properties were included in the investigation: Former Clothing Care Cleaners and Professional Instruments Company, Inc (612 11th Ave NW), 1020 7th Street NW and 602 11th Ave NW.

The highest mass-levels of PCE and trichloroethene (TCE) in soil vapor were found beneath the Former Clothing Care Cleaners facility along the southern wall of the building. Petroleum hydrocarbons and chlorinated VOCs were detected in soil vapor in the subsurface north of the building. The highest mass-levels of petroleum hydrocarbons are located at the property boundaries, primarily in the northern portion of the Site downgradient of the Computer Business Solutions property (Leak Site #14923). Low levels of PCE in soil vapor were also found in the northern portion of the Former Clothing Care property.

Elevated concentrations of VOCs (greater than 33X the ISV) in soil vapor are migrating eastward (down gradient) and are present beneath the parking lot and a portion of the adjacent Seitz Construction building, and immediately south of the Former Clothing Care building on the railroad right-of-way.

The Additional Environmental Investigation performed in 2020 included collection of groundwater samples from permanent and temporary wells, installation of temporary soil vapor probes and soil vapor sample collection, sub-slab soil vapor sample collection, and pressure field extension (PFE) testing, and documentation of layout and flow rates to evaluate the current status of the vapor mitigation system at the Site building (612 11th Avenue NW). All samples were chemically analyzed for VOCs.

Analytical results confirmed VOC impacts in both groundwater and soil vapor within the Site. Groundwater samples exhibited elevated VOC concentrations of tetrachloroethene (PCE), trichloroethane (TCE), and cis-1,2-Dichloroethene. Groundwater samples collected from permanent monitoring wells and temporary wells also provided evidence that off-Site sources are continuing to migrate from the northwest and impact groundwater at the Site.

Soil vapor and sub-slab vapor samples collected throughout the Site area detected varying concentrations of PCE and TCE. Two sub-slab samples located within the 1020 7th Street NW building, and one soil vapor sample located in the gravel parking lot area to the north of the 1020 7th Street NW building had concentrations of PCE and TCE detected that exceeded MPCA 33X Commercial ISVs and/or 33X Commercial EISVs. The 1020 7th Street NW building is currently used as a warehouse for a nearby brewery with no residential use. All locations with 33X Commercial ISV exceedances are immediately downgradient of the Clothing Care Site (source) building. The soil vapor area of concern is defined within the Site and includes the two buildings located at 612 11th Street NW and 1020 7th Street NW, as well as the parking lot area north of the 1020 7th Street NW building.

Based on PFE and flow testing, it appears that the vapor mitigation system previously installed within the 612 11th Avenue NW Former Clothing Care building is operating as designed and is providing mitigation coverage for the entirety of the main level building footprint. However, the lack of any mitigation system within the building's basement area should be considered, especially due to the high concentrations of PCE/TCE detected within the southeast and adjacent 1020 7th Street NW building.

Addition groundwater investigation is needed to further delineate the groundwater impacts associated with the Former Clothing Care Cleaners Site.

B.2. Published Geologic Information

B.2.a. Topography

According to the United States Geological Survey (U.S.G.S) 7.5-minute topographic map series, Rochester, Minnesota quadrangle, the Site is located at an elevation of 1,000 feet above mean sea level and is relatively flat. There is a drop off from the Former Clothing Care Cleaners property to the adjacent site to the east (Seitz Property) of about five feet.

B.2.b. Geology

The published unconsolidated sedimentary deposits in the vicinity of the Site are Pleistocene, Wisconsinian-age, terrace deposits consisting of clean calcareous sand and gravel. The terrace deposits include minor beds of silt and clay (2020 Additional Investigation).

The uppermost bedrock unit in the vicinity of the Site is reportedly the lower Ordovician Prairie du Chien Group (Olsen, 1988). The Prairie du Chien Group consists of dolostone and limestone that varies greatly in thickness because its top is a major erosional surface. It is sandy with minor amounts of shale in the upper third to half. The Prairie du Chien Group is karsted and may be rubbly where remnants less than 50 feet thick are covered by the St. Peter Sandstone (2020 Additional Investigation). Depth to bedrock in the vicinity of the Site is less than 50 feet below land surface (2020 Additional Investigation).

Previous investigations performed at the Site by Braun Intertec encountered 1 to 5 feet of silty sand or poorly graded sand fill. These fill soils were underlain by several feet of lean clay or silt, and/or alternating layers of clay and silt. The lean clay and silts were underlain by poorly graded sands at approximately 8 to 13 feet bgs. These poorly graded sands were underlain by heavily weathered limestone bedrock.

The depth to bedrock varies from north to south across the Former Clothing Care property based upon the borings completed by Braun Intertec. The depth to bedrock in the northern portions of the Former Clothing Care property is approximately 14 to 15 ft. bgs, the depth to bedrock increases to approximately 18.5 to 20 ft. bgs in the parking lot north of the Former Clothing Care building, and the depth to bedrock increases further just north of the Former Clothing Care building with the depth to bedrock of 25.5 feet to over 38 ft. bgs on the southern side of the building.

B.2.c. Hydrogeology

The general groundwater flow direction within the unconsolidated sedimentary deposits in the vicinity of the Site is likely to the east-southeast towards Cascade Creek (Anderson, 1975). The general groundwater flow direction within the uppermost bedrock aquifer in the vicinity of the Site is to the southeast (2020 Additional Investigation).

Groundwater has been measured in shallow monitoring wells at the Site at depths ranging from 13 to 17 ft. bgs. Historically groundwater at the Site has been encountered in the alluvial deposits immediately above the underlying bedrock unit at the Site. Groundwater elevations as measured at the Site, as discussed above, indicate that groundwater flow in the alluvial deposits is to the east-southeast.

C. Scope of Services

The following tasks were conducted at the Site as part of this Supplemental Groundwater Environmental Investigation:

- Subcontracted a licensed drilling contractor to clear public utilities through Gopher State One Call and private utilities for the investigation locations.
- Subcontracted a licensed drilling contractor to install temporary groundwater monitoring wells.
- Installed five temporary monitoring wells (TWS-6 through TWS-10).
- Collected up to three water samples from each temporary monitoring wells.
- Analyzed representative samples of groundwater for VOCs.
- Collected and disposed of soil/investigation derived waste created from the installation of temporary monitoring wells.
- Evaluated the data and prepared this report.

C.1. Deviations from Work Plan/Proposal

During field activities, a petroleum-like odor and sheen was observed in temporary monitoring well TWS-7. After consulting with Ms. Hay, the MPCA project manager, Braun Intertec field personnel directed the drilling contractor to advance an additional boring approximately 25 feet south (TWS-7A) of the impacted groundwater at TWS-7 in attempts to collect a non-petroleum impacted groundwater sample from the vicinity. Similar petroleum contamination indicators were observed, and no groundwater sample was collected from TWS-7A. One groundwater sample was collected from TWS-7; however, it was collected one to two feet below the top of the water table to reduce the likelihood of heavy petroleum contamination in the sample. The borings at TWS-7/7A were not extended to the planned deeper depths in order to prevent spreading the petroleum impacts to deeper groundwater units.

D. Investigation Methods and Procedures

The field work relating to the investigation was conducted in April 2021. Prior to beginning the field investigation, public utilities were cleared through Gopher State One Call and private utilities were cleared through a subcontracted private utility locator.

Field methods and results are discussed in the following sections. Boring log records are provided in Appendix A, laboratory analytical reports are provided in Appendix B, and Braun Intertec Standard Operating Procedures (SOPs) are provided in Appendix C.

Direct push technologies were used to advance five temporary monitoring wells (TWS-6 through TWS-10), shown on Figure 2.

D.1. Groundwater Evaluation

Five temporary monitoring wells (designated as TWS-6 through TWS-10) were installed and sampled to evaluate groundwater conditions at the Site. All wells were permitted with the MDH.

D.1.a. Temporary Monitoring Well Sampling

Temporary monitoring wells were installed to collect three vertically discrete groundwater samples from the saturated zone to the top of bedrock, which was estimated at 35 to 45 feet bgs. As noted above, only one sample was collected from the temporary well installed at location TWS-7. Temporary wells were constructed using 1-inch-diameter PVC riser and a 5-foot long, 10-slot screens. The temporary monitoring wells were sampled using a length of new polyethylene tubing equipped with a check ball valve. Water samples retrieved were examined by the field technician for unusual odors, petroleum-like sheen, and other apparent signs of contamination. The groundwater samples were placed directly into laboratory supplied containers and submitted to MDH, Saint Paul laboratory for chemical analysis.

D.1.b. Groundwater Analyses

The groundwater samples collected from temporary wells were submitted to MDH laboratory and analyzed for VOCs using EPA Method 8260.

E. Investigation Results

E.1. Geologic Conditions

Soil boring logs with descriptions of the various soil strata encountered during the soil boring operations and water level information are contained in Appendix A. The depths shown as changes between the soil types are approximate. The actual changes may be transitional, and the transition depths are likely to be horizontally variable.

Fill soils, consisting primarily of silty sand with intermittent wood debris and asphalt fragments, were encountered from the ground surface to depths down to 9 feet below ground surface (bgs) with an occasional poorly graded sand layer at ground surface. Underlying the fill soil was apparent native soil consisting mainly of poorly graded sand from fine to coarse-grained material to depths of boring termination, up to 49 feet bgs. Bedrock was encountered at depths ranging from 35 to 50 ft bgs.

E.2. Hydrogeology

Based on groundwater elevation data collected from monitoring wells TWS-6 through TWS-10, groundwater measurements and observations showed depth to water ranging between 13.5 and 17.0 feet bgs.

E.3. Field Screening

Groundwater samples were examined by the field technician for evidence of contamination, including unusual odors, petroleum-like sheen, and other apparent signs of contamination. No odors, sheens, or other signs of contamination were observed in the groundwater recovered from monitoring wells excluding TWS-7 and TWS-7A which contained a petroleum-like odor and sheen.

E.4. Groundwater Analytical Results

This section provides a discussion of the groundwater analytical results. A summary of the groundwater analytical results is provided in Table 1. For comparison purposes, Table 1 includes current Drinking Water Criteria (DWC) from the MDH Human Health-Based Water guidance applicable to groundwater. Drinking Water Criteria include a combination of MDH HRLs, MDH Health Based Values (HBVs), MDH Risk Assessment Advice (RAA), and Maximum Contaminant Levels (MCLs) established by the Environmental Protection Agency (EPA). There are no established criteria for DRO and GRO for water that is not collected directly from wells used as drinking water sources. Concentrations of contaminants in water and Drinking Water Criteria are expressed in units of micrograms per liter ($\mu\text{g/L}$).

Figure 3 depicts the depth to groundwater encountered in each temporary monitoring well, and the analytical result exceedances for the groundwater samples collected under this scope of work and the previous groundwater samples collected at the Site by Braun Intertec since 2014. The complete laboratory reports with chain-of-custody forms are included in Appendix B.

The following provides a summary of the groundwater analytical results.

- PCE was not detected at concentrations above laboratory reporting limits in any of the groundwater samples.
- Cis-1,2-DCE was not detected at concentrations above the Drinking Water Criteria (HRL) of 6.0 µg/L in any of the groundwater samples.
- TCE was detected at concentrations greater than the Drinking Water Criteria (HRL) of 0.4 µg/L in all temporary monitoring wells (TWS-6 to TWS-10) at varying depths; TWS-6 (30-34 and 44-48), TWS-7 (16-21), TWS-8 (30-34), TWS-9 (30-34 and 45-49), TWS-10 (36-40), and within both duplicate samples.
- Vinyl chloride was detected in sample TWS-9 (30-34) at a concentration of 0.11 µg/L, greater than Drinking Water Criteria (HRL) of 0.2 µg/L.
- Petroleum VOC constituents benzene, naphthalene, toluene, and total xylenes were detected at concentrations greater than Drinking Water Criteria (HRL) in TWS-7 (16-21).
- Other VOCs were detected in the groundwater samples that were collected and submitted to the laboratory but were below their respective Drinking Water Criteria.

E.5. Quality Assurance/Quality Control

Samples were placed in clean, laboratory supplied containers, labeled, and transported to the MDH Saint Paul laboratory using chain-of-custody procedures. A quality assessment of field procedures and analytical laboratory reports was performed to evaluate potential effects on data quality used to support project objectives. Notable findings are provided in more detail below and incorporated, where necessary, into this report.

MDH laboratory received the sample coolers at temperatures ranging from 8.1 to 9.6 degrees Celsius resulting in out of temperature compliance qualifier. Reusable ice packs were provided with the supplied laboratory containers; however, the ice packs were unable to properly keep the coolers at appropriate temperatures for the duration of sampling and transport activities. Upon receipt of samples at MDH laboratory and discovery of cooler the temperature compliance issue, the MDH laboratory project manager spoke with Braun Intertec's project manager and the decision was made to analyze the samples with data qualifiers (Appendix C).

As the MDH laboratory began processing the groundwater samples, the MDH and Braun Intertec project managers discussed the initial data qualifier issues and decided to proceed with the analysis. The additional laboratory data qualifiers are included in the laboratory report (Appendix C). Various quality control issues were identified, the result of which is that the data is considered estimated values. Analyses were performed using EPA or other recognized standard procedures. The detected results have been annotated with an [E] denoting laboratory estimated values, however, the data are considered useable for the purpose of plotting concentration trends at the Site.

F. Conclusions

The Supplemental Groundwater Environmental Investigation identified VOC impacts in groundwater east and southeast of the Site. Groundwater samples collected exhibited elevated VOC concentrations of TCE, vinyl chloride, and petroleum constituents benzene, naphthalene, toluene, and total xylenes. The petroleum impacts do not appear to be related to the Former Clothing Care source Site. There is insufficient data to determine the source of the encountered petroleum impacts in groundwater at sample location TWS-7/7A.

Vertically stratified discrete groundwater sampling indicated that the chlorinated solvent plume, consisting primarily of TCE a breakdown of PCE, from the Clothing Care source Site moves downgradient to the southeast, and dives until it contacts the underlying shallow bedrock. TCE exceedances were primarily detected at depths greater than 30 up to 48 feet bgs with the inclusion of one exceedance at 16-21 feet bgs.

The data coincides with the previously identified trend shown with the relatively high concentration of PCE in the previous groundwater results closer to Former Clothing Care release, and the reduced PCE and increased TCE concentrations detected downgradient of the source. Detections exceeding applicable criteria levels indicate that the horizontal extent of chlorinated solvent impacts from the Former Clothing Care source site has not yet been defined.

Braun Intertec's previously collected groundwater samples from permanent monitoring wells and temporary wells provide evidence that off-Site sources are continuing to migrate from the northwest and impact groundwater at the Site, as well as additional chlorinated solvents groundwater impacts which are migrating from the onsite sources (former dry cleaner). Tables 2 and 3 present the previously collected groundwater sample data at the site by Braun Intertec.

G. Recommendations

Based on the results of this assessment, the following recommendations are provided:

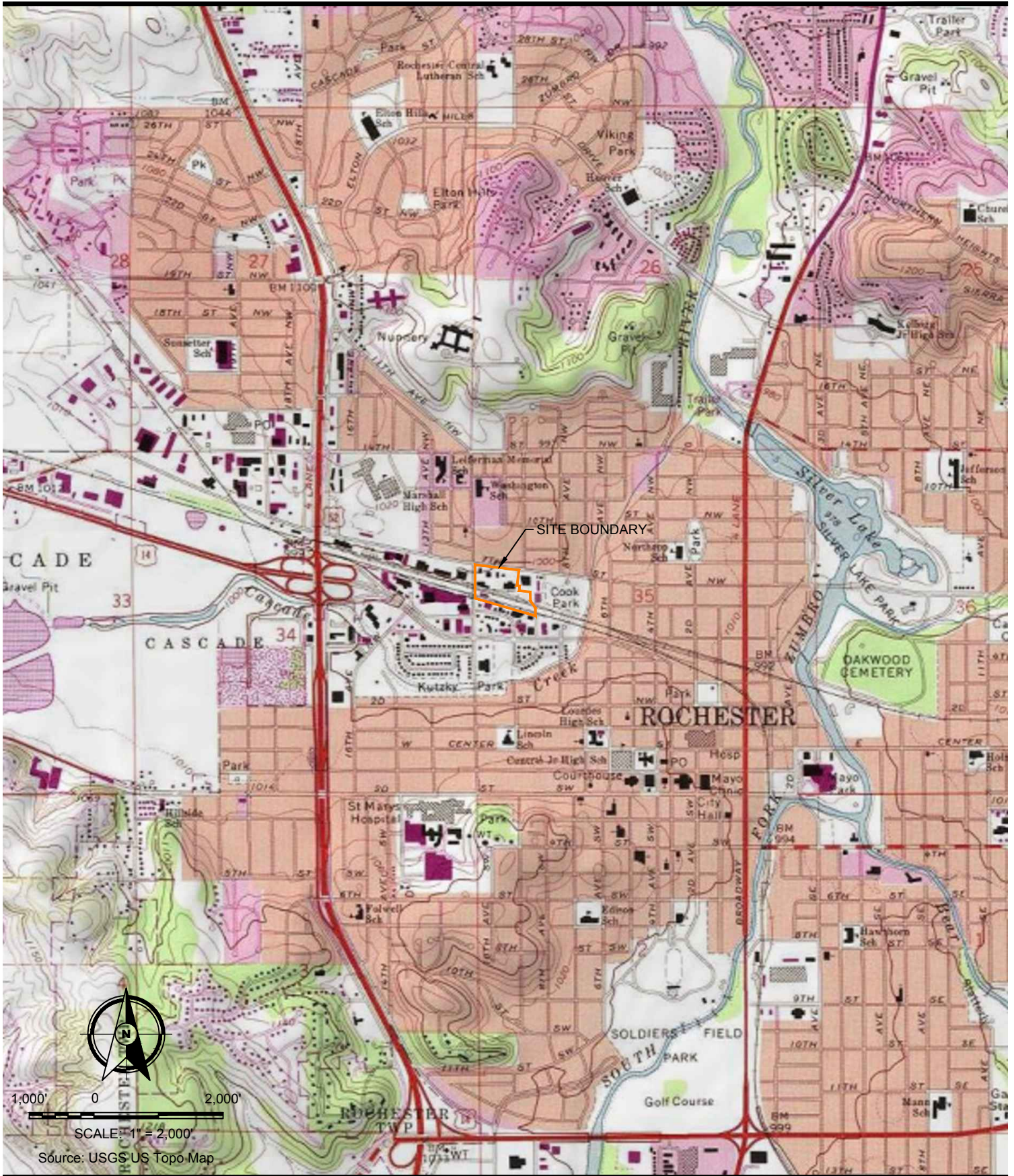
- Additional groundwater investigation continuing east and southeast to determine the front of the chlorinated solvent plume.
- Based on previous sampling results, a soil vapor extraction, sub-slab depressurization, or similar system should be installed at the 1020 7th Street NW warehouse building in order to minimize the potential for vapor intrusion into the building at the Site.
- A vapor mitigation system is currently installed within the main level of the Former Clothing Care building located at 612 11th Street NW, but no mitigation system exists within the building's basement area. Due to the known PCE and TCE contamination at the Former Clothing Care building, an additional soil vapor extraction, sub-slab depressurization, or similar system should be installed in the basement portion the Former Clothing Care Site building to provide mitigation coverage beneath the entire building.

H. Assessment Limitations

The analyses and conclusions submitted in this report are based on field observations and the results of laboratory analyses of groundwater samples collected from the soil borings completed for this project.

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Figures



11001 Hampshire Avenue S
Minneapolis, MN 55438
952.995.2000
braunintertec.com

Project No:
B1408949.04

Drawing No:
B1408949-04

Drawn By: BJB
Date Drawn: 6/2/21
Checked By: GH
Last Modified: 6/2/21

Former Clothing Care Cleaner

612 11th Avenue NW

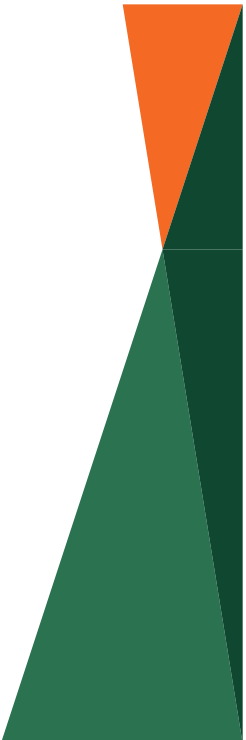
Rochester, Minnesota

Site Location
Map

Figure 1



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Drawing Information	
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Project Information	
Former Clothing Care Cleaner	
612 11th Avenue NW	
Rochester, Minnesota	

**Site Diagram -
FY2021 Sampling
Locations**

⊙ TEMPORARY MONITORING WELL
SAMPLING LOCATION

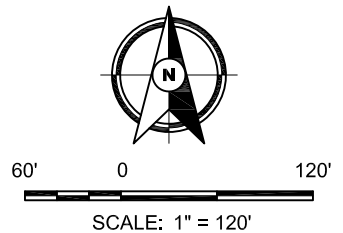
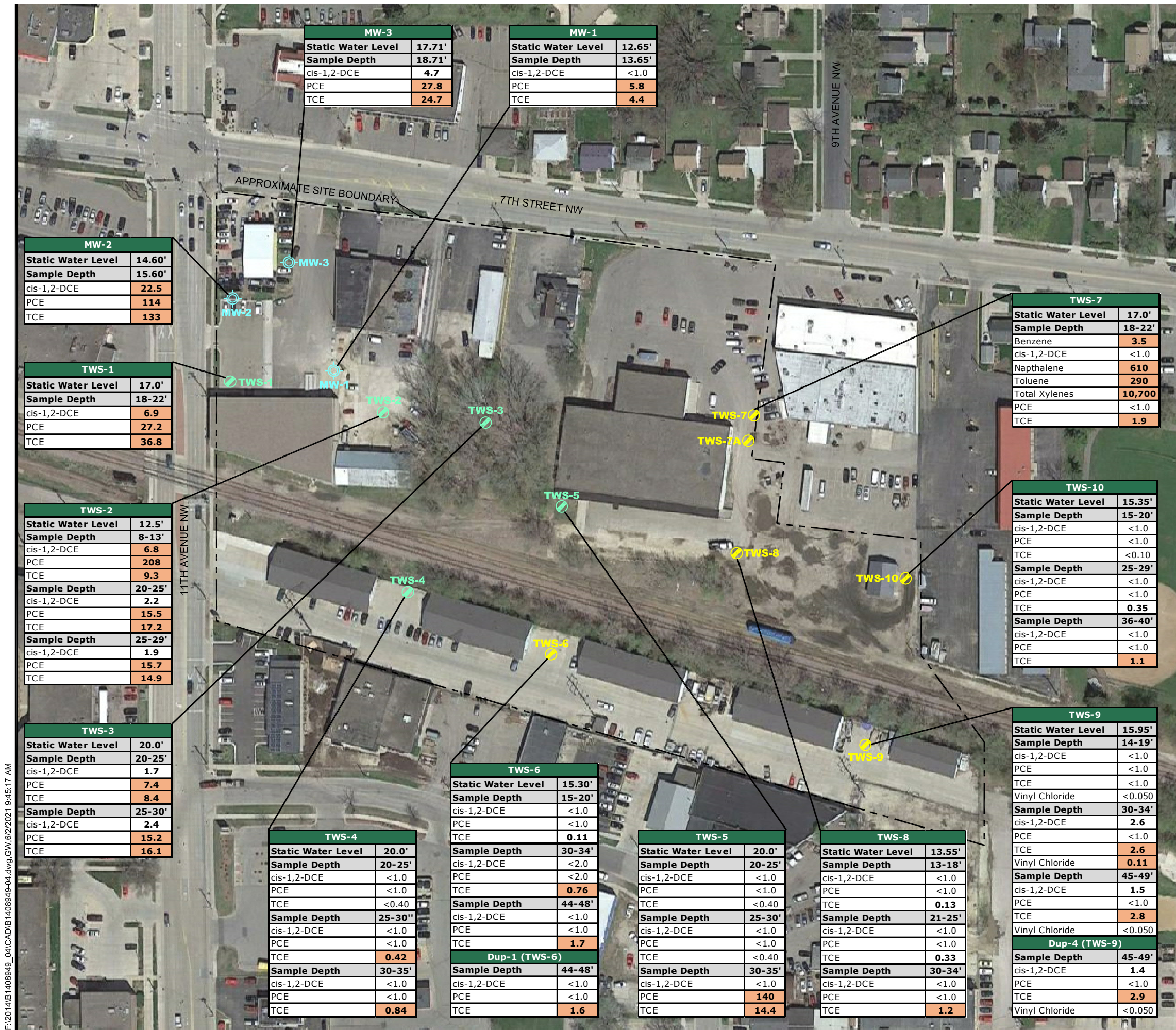


Figure 2



F:\2014\B1408949_04\CAD\B1408949-04.dwg, GW, 6/2/2021 9:45:17 AM

NOTES

Results in microgram per liter (µg/L)
 Indicated depth is feet below ground surface.
 < = Not detected at or above the laboratory reporting limit indicated.

Drinking Water Criteria = The most conservative value for chronic or cancer exposures provided from the following sources including the Minnesota Department of Health (MDH) Health Risk Limit (HRL), MDH Health Based Value (HBV), MDH Risk Assessment Advice (RAA) or Maximum Contaminant Level (MCL). The date of promulgation is provided, if available. Values updated April 2019.

Only compounds that exceed a MDH Recommended Value are Shown

PCE = Tetrachloroethene
 TCE = Trichloroethene
 cis-1,2-DCE = cis-1,2-Dichloroethene

Exceeds Drinking Water Criteria	
Compound	Drinking Water Criteria (µg/L)
Benzene	2
cis-1,2-DCE	6
Naphthalene	70
PCE	4
Toluene	200
TCE	0.4
Vinyl Chloride	0.2
Total Xylenes	300

Compound	Drinking Water Criteria (µg/L)
Benzene	2
cis-1,2-DCE	6
Naphthalene	70
PCE	4
Toluene	200
TCE	0.4
Vinyl Chloride	0.2
Total Xylenes	300

2020 SAMPLING LOCATIONS

- TEMPORARY MONITORING WELL SAMPLING LOCATION
- MONITORING WELL LOCATION
- TEMPORARY MONITORING WELL SAMPLING LOCATION

2020 SAMPLING LOCATIONS

- MONITORING WELL LOCATION
- TEMPORARY MONITORING WELL SAMPLING LOCATION

60' 0 120'
 SCALE: 1" = 120'

Drawing Information

Project No: B1408949.04
 Drawing No: B1408949-04
 Drawn By: BJB
 Date Drawn: 6/2/21
 Checked By: GH
 Last Modified: 6/2/21

Project Information

Former Clothing Care Cleaner
 612 11th Avenue NW
 Rochester, Minnesota

Groundwater Analytical Results

Figure 3

Tables

**Table 1
Groundwater Analytical Results
Rochester Clothing Care
Rochester, Minnesota
Project B14-08949.04**

Compound/Parameter	CAS No.	Sample Identifier, Depth to Groundwater, and Date Collected														Drinking Water Criteria (µg/L)	Source-Date	
		TWS-6 (15-20)	TWS-6 (30-34)	TWS-6 (44-48)	TWS-7 (16-21)	TWS-8 (13-18)	TWS-8 (21-25)	TWS-8 (30-34)	TWS-9 (14-19)	TWS-9 (30-34)	TWS-9 (45-49)	TWS-10 (15-20)	TWS-10 (25-29)	TWS-10 (36-40)	Dup-1			Dup-4
		21D1178-01	21D1178-02	21D1178-03	21D1178-04	21D1178-05	21D1178-06	21D1178-07	21D1178-08	21D1178-09	21D1178-10	21D1178-11	21D1178-12	21D1178-13	21D1178-14			21D1178-15
		15.30'	15.30'	15.30'	14.15'	13.55'	13.55'	13.55'	15.95'	15.95'	15.95'	15.35'	15.35'	15.35'	15.30'			15.95'
		4/21/2021	4/21/2021	4/21/2021	4/20/2021	4/19/2021	4/19/2021	4/19/2021	4/20/2021	4/20/2021	4/20/2021	4/19/2021	4/19/2021	4/19/2021	4/21/2021	4/20/2021		
Volatile Organic Compounds (VOCs) (µg/L)																		
1,1,1-Trichloroethane	71-55-6	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	200	MCL
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	<1.0	2.1 ^[E]	4.6 ^[E]	<1.0	<1.0	2 ^[E]	1.1 ^[E]	4.4 ^[E]	23 ^[E]	6.3 ^[E]	<1.0	1.5 ^[3]	1.0	4.1	3.0	200,000	HRL-93
1,1-Dichloroethane	75-34-3	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3 ^[E]	2.6 ^[E]	1.1 ^[E]	<1.0	<1.0	<1.0	<1.0	1.2	80	RAA-16
Benzene	71-43-2	<0.50	<1.0	<0.50	3.5 ^[E]	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2	HRL-09
cis-1,2-Dichloroethene	156-59-2	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.6 ^[E]	1.5 ^[E]	<1.0	<1.0	<1.0	<1.0	1.4	6	HRL-14
Naphthalene	91-20-3	<1.0	<2.0	<1.0	610 ^[E]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	70	HRL-13
n-Butylbenzene	104-51-8	<1.0	<2.0	<1.0	50 ^[E]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NE	---
n-Propylbenzene	103-65-1	<1.0	<2.0	<1.0	440 ^[E]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NE	---
o-Xylenes	95-47-6	<1.0	<2.0	<1.0	3300 ^[E]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NE	---
p and m-Xylene	179601-23-1	<1.0	<2.0	<1.0	7400 ^[E]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NE	---
p-Isopropyltoluene	99-87-6	<1.0	<2.0	<1.0	22 ^[E]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NE	---
Tetrachloroethene (Perchloroethene, PCE)	127-18-4	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4	HBV-14
Toluene	108-88-3	<1.0	<2.0	<1.0	290 ^[E]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	200	HRL-11
Trichloroethene (TCE)	79-01-6	0.11 ^[E]	0.76 ^[E]	1.7 ^[E]	1.9 ^[E]	0.13 ^[E]	0.33 ^[E]	1.2 ^[E]	<1.0	2.6 ^[E]	2.8 ^[E]	<0.10	0.35 ^[E]	1.1	1.6	2.9	0.4	HRL-15
Vinyl chloride	75-01-4	<0.050	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.11 ^[E]	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.2	HRL-09
Xylenes, total	1330-20-7	<RL	<RL	<RL	10,700 ^[E]	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	300	HRL-11
All other reported VOCs	---	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	---	---

Notes

Drinking Water Criteria = The most conservative value for chronic or cancer exposures provided from the following sources including the Minnesota Department of Health (MDH) Health Risk Limit (HRL), MDH Health Based Value (HBV), MDH Risk Assessment Advice (RAA) or Maximum Contaminant Level (MCL). The date of promulgation is provided, if available. Values updated April 2019.

µg/L = Micrograms per liter.

< = Not detected at or above the laboratory reporting limit indicated.

--- = Not analyzed or calculated for this parameter or not applicable.

RL = Reporting limits for other parameters that are not listed individually in this table because their concentrations were below reporting limits provided in the laboratory report.

NE = Regulatory limit not established for this parameter.

cPAH = Individual regulatory limit not established for this carcinogenic PAH; included in BaP equivalent calculation.

[E] = The reported result is an estimated value.

Exceeds Drinking Water Criteria

**Table 2
FY20 Groundwater Analytical Results
Former Clothing Care Cleaner
Rochester, MN
Project B1408949.04**

Compound/Parameter	CAS No.	Sample Identifier, Depth to Groundwater, and Date Collected														Drinking Water Criteria (µg/L)	Source-Date	
		MW-1	MW-2	MW-3	TWS-1 (18-22)	TWS-2 (8-13)	TWS-2 (20-25)	TWS-2 (25-29)	TWS-3 (20-25)	TWS-3 (25-30)	TWS-4 (20-25)	TWS-4 (25-30)	TWS-4 (30-35)	TWS-5 (20-25)	TWS-5 (25-30)			TWS-5 (30-35)
		12.65-ft	14.6-ft	17.71-ft	17-ft	12.5-ft	12.5-ft	12.5-ft	20-ft	20-ft	20-ft	20-ft	20-ft	20-ft	20-ft			20-ft
Volatile Organic Compounds (VOCs) (µg/L)																		
sec-Butylbenzene	135-98-8	1.5	<5.0	<5.0	<5.0	<1.0 ^[1]	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	<5.0	<1.0 ^[1]	<1.0 ^[1]	NE	---
1,2-Dichloroethane	107-06-2	<1.0	<1.0	<1.0	R ^[2]	<1.0 ^[1]	<1.0	<1.0	R ^[2]	R ^[2]	<1.0	<1.0	<1.0	<1.0	<1.0 ^[1]	<1.0 ^[1]	1	HRL-13
cis-1,2-Dichloroethene	156-59-2	<1.0	22.5	4.7	6.9	6.8 ^[1]	2.2	1.9	1.7	2.4	<1.0	<1.0	<1.0	<1.0	<1.0 ^[1]	<1.0 ^[1]	6	HRL-18
trans-1,2-Dichloroethene	156-60-5	<1.0	1.6	<1.0	<1.0	<1.0 ^[1]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0 ^[1]	<1.0 ^[1]	40	HRL-13
Tetrachloroethene (Perchloroethene, PCE)	127-18-4	5.8	114	27.8	27.2	208 ^[1]	15.5	15.7	7.4	15.2	<1.0	<1.0	<1.0	<1.0	<1.0 ^[1]	140 ^[1]	4	HBV-14
Trichloroethene (TCE)	79-01-6	4.4	133	24.7	36.8	9.3 ^[1]	17.2	14.9	8.4	16.1	<0.40	0.42	0.84	<0.40	<0.40 ^[1]	14.4 ^[1]	0.4	HRL-15
Vinyl chloride	75-01-4	<0.20	<0.20	<0.20	2.0	<0.20 ^[1]	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20 ^[1]	<0.20 ^[1]	0.2	HRL-09
All other reported VOCs	---	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	---	---

Notes
Drinking Water Criteria = The most conservative value for chronic or cancer exposures provided from the following sources including the Minnesota Department of Health (MDH) Health Risk Limit (HRL), MDH Health Based Value (HBV), MDH Risk Assessment Advice (RAA) or Maximum Contaminant Level (MCL). The date of promulgation is provided, if available. Values updated April 2019.
µg/L = Micrograms per liter.
< = Not detected at or above the laboratory reporting limit indicated.
--- = Not analyzed or calculated for this parameter or not applicable.
RL = Reporting limits for other parameters that are not listed individually in this table because their concentrations were below reporting limits provided in the laboratory report.
NE = Regulatory limit not established for this parameter.
cPAH = Individual regulatory limit not established for this carcinogenic PAH; included in BaP equivalent calculation.
^[1] [HS] Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).
^[2] Non-detect results rejected due to samples outside method hold times.

Exceeds Drinking Water Criteria

**Table 3
FY14-FY16 Groundwater Analytical Results
Former Clothing Care Cleaner
Rochester, MN
Project B1408949.04**

Compound/Parameter	CAS No.	Sample Identifier															Drinking Water Criteria (µg/L)	Source-Date	
		Temporary Monitoring Wells													Permanent Monitoring Wells				Surface Water
		GP-1W	GP-2W	GP-3W	GP-4W	GP-5W	GP-6W	GP-8W	GP-9W	GP-10W	GP-11W	GP-12W	GP-13W	TW-1	MW-1	MW-3			SW-1
		12/18/14	12/18/14	12/17/14	12/17/14	12/16/14	12/17/14	12/17/14	12/16/14 11:45 AM	12/16/14 10:30 AM	12/15/14	12/15/14	12/15/14 12:00 PM	04/11/2016	12/18/14	12/18/14			11/23/2016
	10292393001	10292393002	10292059005	10292059006	10291889001	10292059007	10292059008	10291889002	10291889003	10291718001	10291718002	10291718003		10292393003	10292393004				
Volatile Organic Compounds (VOCs) (µg/L)																			
cis-1,2-Dichloroethene	156-59-2	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	6	HRL-18
trans-1,2-Dichloroethene	156-60-5	3.7	<1.0	2.2	1.2	20.0	1.3	2.1	10.7	<1.0	<1.0	1.2	<1.0	<1.0	1.5	1.1	<0.50	40	HRL-13
Tetrachloroethene (Perchloroethene, PCE)	127-18-4	19.0	<1.0	<1.0	<1.0	201	<1.0	24.2	269 ^{[1][J]}	<1.0	<1.0	6.4	1,210 ^{[1][J]}	<1.0	10.0	9.4	<0.50	4	HBV-14
1,1,1-Trichloroethane	71-55-6	<1.0	<1.0	2.5	1.8	<1.0	1.8	2.5	<1.0	<1.0	1.1	<1.0	<1.0	1.9 ^[2]	<1.0	<1.0	<0.50	5,000	HRL-18
Trichloroethene (TCE)	79-01-6	26.8	1.7	5.3	3.8	28.1	3.6	4.1	15.7	<0.40	2.0	8.4	3.2	4.6 ^[2]	9.0	5.5	<0.50	0.4	HRL-15
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	<1.0	8.1	22.5	16.1	<1.0	16.7	21.9	<1.0	<1.0	9.9	2.0	<1.0	16.0 ^[2]	<1.0	<1.0	<0.50	200,000	HRL-93
Vinyl chloride	75-01-4	<0.40	<0.40	<0.40	<0.40	20.2	<0.40	<0.40	7.2	<0.40	<0.40	<0.40	<0.40	<1.0	<0.40	<0.40	<0.50	0.2	HRL-09
All other reported VOCs	---	<RL	<RL												<RL	<RL		---	---
Other Parameters (µg/L)																			
Diesel Range Organics (DRO)	---	<0.10 ^{[1][J]}	<0.11 ^{[1][J]}	<0.11 ^[3]	<0.11 ^[3]	<0.10 ^{[4][J]}	<0.12 ^[3]	<0.12 ^[3]	<0.11 ^{[4][J]}	<0.12 ^{[4][J]}	<0.103 [J]	<0.103 [J]		0.175 [J]	0.15	0.61 ^{[2][J]}		NE ^[e]	---
Gasoline Range Organics (GRO)	---																	NE ^[e]	---
Nitrate (as Nitrogen)	14797-55-8																	10,000	MCL

Notes
 Drinking Water Criteria = The most conservative value for chronic or cancer exposures provided from the following sources including the Minnesota Department of Health (MDH) Health Risk Limit (HRL), MDH Health Based Value (HBV), MDH Risk Assessment Advice (RAA) or Maximum Contaminant Level (MCL). The date of promulgation is provided, if available. Values updated April 2019.
 µg/L = Micrograms per liter.
 < = Not detected at or above the laboratory reporting limit indicated.
 --- = Not analyzed or calculated for this parameter or not applicable.
 RL = Reporting limits for other parameters that are not listed individually in this table because their concentrations were below reporting limits provided in the laboratory report.
 NE = Regulatory limit not established for this parameter.
 [b] = Regulatory limit for 4-methylphenol only.
 [e] = No applicable standard exists. When sampling water directly from drinking water wells, refer to the Minnesota Department of Health's (MDH's) document entitled *Guidance for Evaluating Health Risks for Gasoline and Diesel Contaminated Drinking Water*, dated November 2018.
 [1] [J] Analyte concentration exceeded the calibration range. The reported result is estimated.
 [2] [L2] Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low.
 [3] [L3] Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
 [4] [P4] Sample field preservation does not meet EPA or method recommendations for this analysis.
 [J] The associated detects have been qualify as estimated ("J")

Exceeds Drinking Water Criteria

Appendix A
Boring Logs

Project Number B14-08949.04					BORING: TWS-6	
Environmental Investigation					LOCATION: See attached sketch	
Former Clothing Care Cleaner					Environmental Boring Log - Not for Geotechnical Design	
612 11th Avenue NW					NORTHING: 4875309	EASTING: 541881
Rochester, Minnesota					WEATHER: 30°, Cloudy	
DRILLER: Thein		LOGGED BY: E. Allen		During Drilling 15.30 ft		
SURFACE ELEVATION:		RIG: Subcontractor	METHOD: Direct Push	After Drilling		
START DATE: 04/21/21		END DATE: 04/21/21		SURFACING:		

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Recovery %	PID ppm	Temp. Well	Tests or Remarks
0.5		PAVEMENT, concrete and apparent aggregate base			0.1		
		POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, brown to light brown, moist		70	0.0		
5.0		FILL: SILTY SAND (SM), trace wood debris, trace glass, trace asphalt fragments, brown, black and green, moist	5	60	0.9		
			10		0.2		
12.5		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, moist		80	0.1		
			15		0.1		Temporary well installed with screen set from 15 to 20 feet
				100	0.0		
			20		0.0		Water sample TWS-6 (15-20') @ 08:30 analyzed for VOCs
				80	0.0		
27.0		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, moist		80	0.0		
		<i>1 inch of fine to medium-grained Poorly Graded Sand from 27 1/2 to 28 1/2 feet</i>					
30.0		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, light brown, wet	30		0.0		Temporary well installed with screen set from 30 to 34 feet

Continued on next page

Project Number B14-08949.04					BORING: TWS-6	
Environmental Investigation					LOCATION: See attached sketch	
Former Clothing Care Cleaner					Environmental Boring Log - Not for Geotechnical Design	
612 11th Avenue NW					NORTHING: 4875309	EASTING: 541881
Rochester, Minnesota					WEATHER: 30°, Cloudy	
DRILLER: Thein		LOGGED BY: E. Allen		During Drilling 15.30 ft		
SURFACE ELEVATION:		RIG: Subcontractor	METHOD: Direct Push	After Drilling		
START DATE: 04/21/21		END DATE: 04/21/21		SURFACING:		

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Recovery %	PID ppm	Temp. Well	Tests or Remarks
36.0		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, light brown, wet		80	0.0		Water sample TWS-6 (30-34) @ 12:10 analyzed for VOCs
		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, wet		80	0.0		
				80	0.1		
				100	0.1		
48.0		Bedrock (Sandstone) at 48 feet					Temporary well installed with screen set from 44 to 48 feet Water sample TWS-6 (44-48') @ 11:50 analyzed for VOCs
		END OF BORING					
		Boring immediately backfilled with bentonite grout					

Project Number B14-08949.04					BORING: TWS-7		
Environmental Investigation					LOCATION: See attached sketch. Moving 25 feet south to new location (TWS-7A) to see if we can avoid petroleum contaminants.		
Former Clothing Care Cleaner					Environmental Boring Log - Not for Geotechnical Design		
612 11th Avenue NW					NORTHING: 4875398	EASTING: 541956	
Rochester, Minnesota					WEATHER: 30°, Cloudy		
DRILLER: Thein		LOGGED BY: E. Allen		SURFACE ELEVATION: <input type="checkbox"/> During Drilling 14.15 ft			
RIG: Subcontractor		METHOD: Direct Push		<input checked="" type="checkbox"/> After Drilling			
START DATE: 04/20/21		END DATE: 04/20/21		SURFACING:			
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Recovery %	PID ppm	Temp. Well	Tests or Remarks
0.5		PAVEMENT, asphalt and apparent aggregate base FILL: SILTY SAND (SM), brown, moist		80	0.0		
7.0		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, moist	5	70	0.0		
14.5	<input checked="" type="checkbox"/>	POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, gray and green, moist to wet, faint petroleum-like odor, gray staining	10	100	0.1		
20.0		END OF BORING	15	80	4.3		
		Boring immediately backfilled with bentonite grout			3962		Temporary well installed with screen set from 16 to 21 feet
					561.8		Water sample TWS-7 (16-21') @ 08:50 analyzed for VOCs
							Petroleum sheen noted on water collected for sample TWS-7 (16-21')

Project Number B14-08949.04					BORING: TWS-8	
Environmental Investigation					LOCATION: See attached sketch	
Former Clothing Care Cleaner					Environmental Boring Log - Not for Geotechnical Design	
612 11th Avenue NW					NORTHING: 4875347	EASTING: 541950
Rochester, Minnesota					WEATHER: 35°, Cloudy	
DRILLER: Thein		LOGGED BY: E. Allen		During Drilling 13.55 ft		
SURFACE ELEVATION:		RIG: Subcontractor	METHOD: Direct Push	After Drilling		
START DATE: 04/19/21		END DATE: 04/19/21		SURFACING:		

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Recovery %	PID ppm	Temp. Well	Tests or Remarks
0.5		PAVEMENT, Poorly Graded Sand and apparent aggregate base			0.0		
		FILL: SILTY SAND (SM), fine to medium-grained, brown, moist		80	0.0		
5.0		FILL: POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, light brown, moist	5		0.1		
7.5		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, moist		80	0.1		
			10		0.0		
				80	0.1		Temporary well installed with screen set from 13 to 18 feet
			15		0.1		Water sample TWS-8 (13-18') @ 10:35 analyzed for VOCs
				100	0.0		
20.0		POORLY GRADED SAND (SP), medium to coarse-grained, light brown, moist	20		0.0		Temporary well installed with screen set from 21 to 25 feet
23.0		POORLY GRADED SAND (SP), fine to coarse-grained, light brown, moist		100	0.0		Water sample TWS-8 (21-25') @ 12:45 analyzed for VOCs
			25		0.0		
				100	0.0		
			30		0.1		Temporary well installed with screen set from 30 to 34 feet
				100	0.0		

Continued on next page

Project Number B14-08949.04 Environmental Investigation Former Clothing Care Cleaner 612 11th Avenue NW Rochester, Minnesota				BORING: TWS-8	
				LOCATION: See attached sketch	
				Environmental Boring Log - Not for Geotechnical Design	
DRILLER: Thein		LOGGED BY: E. Allen		NORTHING: 4875347	EASTING: 541950
SURFACE ELEVATION:		RIG: Subcontractor	METHOD: Direct Push	<input checked="" type="checkbox"/> During Drilling 13.55 ft <input checked="" type="checkbox"/> After Drilling	
START DATE: 04/19/21		END DATE: 04/19/21		SURFACING:	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Recovery %	PID ppm	Temp. Well	Tests or Remarks
34.0		POORLY GRADED SAND (SP), fine to coarse-grained, light brown, moist <i>Bedrock (Sandstone) at 34 feet</i> END OF BORING	35		0.0		Water sample TWS-8 (30-34') @ 12:20 analyzed for VOCs
		Boring immediately backfilled with bentonite grout	40				
			45				
			50				
			55				
			60				

Project Number B14-08949.04					BORING: TWS-9	
Environmental Investigation					LOCATION: See attached sketch	
Former Clothing Care Cleaner					Environmental Boring Log - Not for Geotechnical Design	
612 11th Avenue NW					NORTHING: 4875276	EASTING: 541997
Rochester, Minnesota					WEATHER: 30°, Cloudy	
DRILLER: Thein		LOGGED BY: E. Allen		During Drilling 15.95 ft		
SURFACE ELEVATION:		RIG: Subcontractor	METHOD: Direct Push	After Drilling		
START DATE: 04/20/21		END DATE: 04/20/21		SURFACING:		

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Recovery %	PID ppm	Temp. Well	Tests or Remarks
1.0		PAVEMENT, concrete and apparent aggregate base			0.0		
		FILL: SILTY SAND (SM), trace Gravel, trace asphalt fragments, trace plastic, dark brown, moist		80	0.0		
		<i>2 inches of Poorly Graded Sand and Gravel starting at 3 1/2 feet</i>	5		0.1		
8.5		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, moist (NATIVE)		80	0.1		
		<i>6 inches of fine to medium-grained Poorly Graded Sand from 15 1/2 to 16 feet</i>	15		0.0		Temporary well installed with screen set from 14 to 19 feet
		<i>4 inches of fine to medium-grained Poorly Graded Sand starting at 16 feet</i>			0.0		
		<i>4 inches of fine to medium-grained Poorly Graded Sand starting at 18 feet</i>			0.1		
20.0		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, light brown, wet		100	0.0		Water sample TWS-9 (14-19') @ 12:00 analyzed for VOCs
					0.0		
25.0		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, wet		100	0.3		Temporary well installed with screen set from 30 to 34 feet
					0.2		
30.0		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, light brown, wet			0.1		

Continued on next page

Project Number B14-08949.04				BORING: TWS-9	
Environmental Investigation				LOCATION: See attached sketch	
Former Clothing Care Cleaner				Environmental Boring Log - Not for Geotechnical Design	
612 11th Avenue NW				NORTHING: 4875276	EASTING: 541997
Rochester, Minnesota				WEATHER: 30°, Cloudy	
DRILLER: Thein	LOGGED BY: E. Allen		During Drilling 15.95 ft		
SURFACE ELEVATION:	RIG: Subcontractor	METHOD: Direct Push	After Drilling		
START DATE: 04/20/21	END DATE: 04/20/21	SURFACING:			

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Recovery %	PID ppm	Temp. Well	Tests or Remarks
32.5		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, light brown, wet		80	0.1		Water sample TWS-9 (30-34') @ 15:30 analyzed for VOCs
		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, wet					
			35		0.1		
				100	0.0		
41.5		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, light brown, wet			0.0		
43.5		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, wet		100	0.2		
			45				Temporary well installed with screen set from 45 to 49 feet
				100			
49.0		Bedrock (Sandstone) at 49 feet					Water sample TWS-9 (45-49') @ 15:05 analyzed for VOCs
		END OF BORING	50				
		Boring immediately backfilled with bentonite grout					
			55				
			60				

Project Number B14-08949.04			BORING: TWS-10	
Environmental Investigation			LOCATION: See attached sketch	
Former Clothing Care Cleaner			Environmental Boring Log - Not for Geotechnical Design	
612 11th Avenue NW			NORTHING: 4875338	EASTING: 542012
Rochester, Minnesota			WEATHER: 35°, Cloudy	
DRILLER: Thein	LOGGED BY: E. Allen		During Drilling 15.35 ft	
SURFACE ELEVATION:	RIG: Subcontractor	METHOD: Direct Push	After Drilling	
START DATE: 04/19/21	END DATE: 04/19/21	SURFACING:		

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Recovery %	PID ppm	Temp. Well	Tests or Remarks
0.5		PAVEMENT, Poorly Graded Sand and apparent aggregate base			0.0		
		SILTY SAND (SM), fine to medium-grained, brown, moist		80	0.1		
5					0.0		
7.0		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, moist (NATIVE)		80	0.0		
				100	0.0		
					0.0		Temporary well installed with screen set from 15 to 20 feet
					0.1		Water sample TWS-10 (15-20') @ 15:00 analyzed for VOCs
					0.1		
					0.0		Temporary well installed with screen set from 25 to 29 feet
					0.0		Water sample TWS-10 (25-29') @ 12:00 analyzed for VOCs
					0.1		
		Lenses of fine Sand beginning at 31 1/2 feet					

Continued on next page

Project Number B14-08949.04					BORING: TWS-10		
Environmental Investigation					LOCATION: See attached sketch		
Former Clothing Care Cleaner					Environmental Boring Log - Not for Geotechnical Design		
612 11th Avenue NW					NORTHING: 4875338	EASTING: 542012	
Rochester, Minnesota					WEATHER: 35°, Cloudy		
DRILLER: Thein		LOGGED BY: E. Allen		During Drilling 15.35 ft			
SURFACE ELEVATION:		RIG: Subcontractor	METHOD: Direct Push	After Drilling			
START DATE: 04/19/21		END DATE: 04/19/21		SURFACING:			
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Recovery %	PID ppm	Temp. Well	Tests or Remarks
40.0		POORLY GRADED SAND (SP), fine to coarse-grained, trace Gravel, light brown, moist (NATIVE)		80	0.0		Temporary well installed with screen set from 36 to 40 feet Water sample TWS-10 (36-40') @ 16:40 analyzed for VOCs
		<i>Lenses of fine Sand beginning at 33 feet</i>	35				
		<i>Bedrock (Sandstone) at 40 feet</i>	40	60	0.1		
		END OF BORING					
		Boring immediately backfilled with bentonite grout					

Appendix B
Laboratory Analytical Reports



Protecting, maintaining and improving the health of all Minnesotans

Report Date: 5/25/21

Client Name: PL - MPCA - Metro MERLA-SF

Project Code: PL

Project Name: Metro MERLA-SF

Work Order Number: 21D1178

Report To: PL - MPCA - Metro MERLA-SF

Eric Pederson

520 Lafayette Rd.

Saint Paul, MN 55155

The MDH Public Health Laboratory performs chemical, bacteriological and radiological analyses of environmental samples including water, waste water, sediment, air, soil and hazardous material. The laboratory provides testing services in accordance with standard operating procedures referencing approved methodology as defined in Standard Methods for the Examination of Water and Wastewater, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods: EPA SW-846, and 40 Code of Federal Regulation (CFR) parts 136, 141, and 261. In cases where analytes of interest do not have corresponding EPA approved methodology, the MDH Public Health Laboratory uses in-house methods that have undergone rigorous validation and documentation.

The results within this report are in compliance with the terms and conditions stated in the standard operating procedures, reference methodologies, and quality assurance project plan; unless otherwise narrated in the attached report.

Release of the data contained in this report has been authorized by laboratory management and is verified with the following signature affirmation. Thank you for using the MDH Public Health Laboratory.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Moyer", is written over a light gray rectangular background.

Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Public Health Laboratory . Environmental Laboratory Section . 601 Robert St. N . PO Box 64899 . St Paul, MN 55164
(651) 201-5300

<http://www.health.mn.us/divs/phl/environmental>

Final Report
 Summary of Samples Received

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Work Order Comment: Program: PL, samples rcvd @ temp > 6 deg C (8.1/9.6 deg C), ok to rpt w/qualifiers per B Hay. SP-05 thru -07, -16, -17 coll date: 4/20/21, SP-16, -17 coll time: 1200 per M Keefer -CNN 4/22/21 SP-04, -12 VOC ok to rpt w/qualifiers per M Keefer -CCS 4/28/21

Field ID	MDH Sample Number	Matrix	Date & Time Collected	Date & Time Received	Receipt °C
2001008153	21D1178-01	Wtr-Ground	04/21/21 8:30	04/21/21 14:49	9.6
2001008153	21D1178-02	Wtr-Ground	04/21/21 12:10	04/21/21 14:49	9.6
2001008153	21D1178-03	Wtr-Ground	04/21/21 11:50	04/21/21 14:49	9.6
2001008154	21D1178-04	Wtr-Ground	04/20/21 8:50	04/21/21 14:49	9.6
2001008155	21D1178-05	Wtr-Ground	04/20/21 10:35	04/21/21 14:49	9.6
2001008155	21D1178-06	Wtr-Ground	04/20/21 12:45	04/21/21 14:49	9.6
2001008155	21D1178-07	Wtr-Ground	04/20/21 12:20	04/21/21 14:49	9.6
2001008156	21D1178-08	Wtr-Ground	04/20/21 12:00	04/21/21 14:49	9.6
2001008156	21D1178-09	Wtr-Ground	04/20/21 15:30	04/21/21 14:49	9.6
2001008156	21D1178-10	Wtr-Ground	04/20/21 15:05	04/21/21 14:49	9.6
2001008157	21D1178-11	Wtr-Ground	04/19/21 15:00	04/21/21 14:49	9.6
2001008157	21D1178-12	Wtr-Ground	04/19/21 17:00	04/21/21 14:49	9.6
2001008157	21D1178-13	Wtr-Ground	04/19/21 16:40	04/21/21 14:49	9.6
2001008153	21D1178-14	Wtr-Ground	04/21/21 11:50	04/21/21 14:49	9.6
2001008156	21D1178-15	Wtr-Ground	04/20/21 15:30	04/21/21 14:49	9.6
QC-BLANK	21D1178-16	QC-BLANK	04/20/21 12:00	04/21/21 14:49	9.6
QC-BLANK	21D1178-17	QC-BLANK	04/20/21 12:00	04/21/21 14:49	9.6

Field ID	MDH Sample Number	Receiving Comments
2001008153	21D1178-01	Samples did not meet method temperature requirements. -CNN
2001008153	21D1178-02	Samples did not meet method temperature requirements. -CNN
2001008153	21D1178-03	Samples did not meet method temperature requirements. -CNN
2001008154	21D1178-04	Samples did not meet method temperature requirements. -CNN
2001008155	21D1178-05	Samples did not meet method temperature requirements/No collection date. -CNN
2001008155	21D1178-06	Samples did not meet method temperature requirements/No collection date. -CNN

FINAL REPORT

Report ID: 05252021 95926

Authorized by:

*The results in this report apply only to the samples analyzed.
 This report must not be reproduced, except in full, without the written approval of the laboratory.*



Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Field ID	MDH Sample Number	Receiving Comments
2001008155	21D1178-07	Samples did not meet method temperature requirements/No collection date. -CNN
2001008156	21D1178-08	Samples did not meet method temperature requirements. -CNN
2001008156	21D1178-09	Samples did not meet method temperature requirements. -CNN
2001008156	21D1178-10	Samples did not meet method temperature requirements. -CNN
2001008157	21D1178-11	Samples did not meet method temperature requirements. -CNN
2001008157	21D1178-12	Samples did not meet method temperature requirements. -CNN
2001008157	21D1178-13	Samples did not meet method temperature requirements. -CNN
2001008153	21D1178-14	Samples did not meet method temperature requirements. -CNN
2001008156	21D1178-15	Samples did not meet method temperature requirements. -CNN
QC-BLANK	21D1178-16	Samples did not meet method temperature requirements/No collection date/time. -CNN
QC-BLANK	21D1178-17	Samples did not meet method temperature requirements/No collection date/time. -CNN

Authorized by:

*The results in this report apply only to the samples analyzed.
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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health



Minnesota Pollution Control Agency

MPCA Chain-of-Custody Form revision 2017-01-28

* Indicates a required field

PROJECT/CLIENT INFO

Program Code (MDH Lab Only):

Facility Code: * SR0001333

Project Name: * FY21 Groundwater Investigation

Project Task Code: * PRJ07955

Lab Name: Minnesota Department of Health Public Health Laboratory

Address: 601 Robert Street North

St. Paul, MN 55155-2531

Project Manager: Brigitte Hay, MPCA, Mark Keefer, Braun (Braun Project # B14-08949-04)

Potential Hazard? N

If yes, add information to Sampler Comments field

EPA Lab ID: *

SAMPLE DETAILS

ANALYSIS REQUESTED

SAMPLE TYPES	SAMPLING METHODS	LAB MATRICES	Depth		Sampling Method* (mm/dd/yyyy)	End Date (mm/dd/yyyy)	End Time (hr:mm)	Lab Matrix*	Field Matrix* AIS	Sampler Comments (filter volume, special handling, etc.)	# of Cont	ANALYSIS*	FF	PRESERV.	VOCs by USEPA 8260
			Start Time* 24 hr (hh:mm)	Start											

2001008153	TWS-6-15-20	Sample	4/21	930	15	20	11	NW	Wtr-Ground			X					-01	1
2001008153	TWS-6-50-34	Sample	4/21	1210	30	34		NW	Wtr-Ground			X					-02	2
2001008153	TWS-6-14-58	Sample	4/21	1150	44	48		NW	Wtr-Ground			X					-03	3
2001008154	TWS-7-16-21	Sample	4/20	850	16	21		NW	Wtr-Ground			X					-04	4
2001008154	TWS-7-16-21	Sample	4/20	850	16	21		NW	Wtr-Ground			X					-05	5
2001008155	TWS-8-13-18	Sample	4/21	1035	13	18		NW	Wtr-Ground			X					-06	6
2001008155	TWS-8-21-25	Sample	4/21	1245	21	25		NW	Wtr-Ground			X					-07	7
2001008155	TWS-8-30-34	Sample	4/21	1220	30	34		NW	Wtr-Ground			X					-08	8
2001008156	TWS-9-11-19	Sample	4/20	1200	14	19		NW	Wtr-Ground			X					-09	9
2001008156	TWS-9-11-19	Sample	4/20	1200	14	19		NW	Wtr-Ground			X					-10	10

Sampler's Name: * Elliott Allen
 Sampler's Signature:
 Sampler's Organization:
 Address:
 Billing Organization:
 Address:
 Courier Name:
 Tracking#:
 Acct#:
 Receiving Comments:
 Date/Time: 4/21 1445
 Accepted By/Affiliation: T. D. [Signature] MDH
 Date/Time: 04-21-21 14:58



21D1178



MPCA Chain-of-Custody Form revision 2017-01-28

PROJECT/CLIENT INFO

Program Code (MDH Lab Only):

Project Task Code: * PRJ07955

Project Name: * BRIGITTE HAY, MPCA, MARK KEELER, BRAUN (BRAUN PROJECT # B14-08949.04)

Project Manager: BRIGITTE HAY, MPCA, MARK KEELER, BRAUN (BRAUN PROJECT # B14-08949.04)

Potential Hazard? N

Facility Code: * SR0001353

Project Name: * FY21 Groundwater Investigation

Address: 601 Robert Street North

City: St. Paul, MN 55155-2531

EPA Lab ID: *

Lab Name: Minnesota Department of Health Public Health Laboratory

Work Order Number: 3000027582

Turnaround Time: Standard

COC Type: Standard

COC ID: FY21_TempWells

LABORATORY

Page: 2 of 3



21D1178

SAMPLE DETAILS

ANALYSIS REQUESTED

MIN Location Identifier*	Field Name	Sample Type*	Start Date* (mm/dd/yyyy)	Start Time* 24 hr (hh:mm)	Start	End	Units (m or ft.)	Sampling Method*	End Date (mm/dd/yyyy)	End Time 24 hr (hh:mm)	Lab Matrix*	Field Matrix*	AIS	Sampler Comments (filter volume, special handling, etc.)	# of Cont	ANALYSIS*	FF	PRESERV.	VOCs by USEPA 8260	Lab Sample No.	#
2001008156	TWS-930-34	Sample	4/20	1530	30	34	ft	WELL-BAIL			NW	Wt-Ground	N							09	1
2001008156	TWS-945-47	Sample	4/19	1500	15	20		WELL-BAIL			NW	Wt-Ground	N							10	2
2001008157	TWS-1015-20	Sample	4/19	1700	25	29		WELL-BAIL			NW	Wt-Ground	N							11	3
2001008157	TWS-1036-10	Sample	4/21	1640	36	46		WELL-BAIL			NW	Wt-Ground	N							12	4
2001008153	Dup-14	QC-FR	4/21	1150				WELL-BAIL			NW	Wt-Ground	N							13	5
2001008154	Dup-34	QC-FR						WELL-BAIL			NW	Wt-Ground	N							14	6
2001008155	Dup-34	QC-FR						WELL-BAIL			NW	Wt-Ground	N							15	7
2001008156	Dup-44	QC-FR	4/20	1530				WELL-BAIL			NW	Wt-Ground	N							15	8
2001008157	Dup-54	QC-FR						WELL-BAIL			NW	Wt-Ground	N							15	9

Sampler's Name: * Alison Allen Phone#: _____

Sampler's Signature: * [Signature] Address: _____

Sampler's Organization: _____ Billing Organization: _____ Acct#: _____

Counter Name: _____ Tracking#: _____

Relinquished By/Affiliation: [Signature] / Braun Date/Time: 4/21/19

Accepted By/Affiliation: [Signature] MDH Date/Time: 04-21-21

Receiving Comments: _____

Sample Condition Upon Receipt
Minnesota Department of Health Public Health Laboratory



21D1178

Data Entry Worksheet

Parcel Information

Date & time of receipt: APR 21 '21 14:49

Courier: Walk-in FedEx Spee-Dee UPS USPS Other courier _____

Tracking # _____

After hours drop-off: Refrigerator (207) (186) () Freezer (185) () Unrefrigerated

Parcel: Plastic cooler Styrofoam/cardboard cooler Cardboard box Envelope Plastic can

None Other _____ Info: _____

Custody seals present: No; Yes, If "Yes" Custody seals intact: Yes; No _____

Custody seal # _____ Evidentiary samples identified: No; Yes

Packaging & Temperature Information

Packing material: Bubble wrap Styrofoam Paper None Other _____

Cooling material: Wet ice (loose) Wet ice pack #() Gel pack #(6) Dry ice None

Other _____

Condition of cooling material: Solid Partially frozen Liquid; Liquid temperature: 9.6 °C N/A

Representative sample temperature: 9.6 °C IR thermometer instrument used: B14

Samples received without evidence of freezing: Yes; No _____

Initials of person receiving parcel: DD

Chain of Custody, Sample Container & Analysis Information

Chain of custody received with sample containers: Yes; No

Chain of custody type: Standard Civil Criminal Priority/Emergency Unknown

All sample containers are unique to a sample point listed on the chain of custody: Yes; No

All sample containers have been collected prior to the expiration date listed on container label:
 Yes; No; Unknown _____

All sample containers received intact: Yes; No _____

All sample containers received per COC submission: Yes; No _____

All sample containers are appropriate for requested analysis: Yes; No; Unknown

All analysis have been received within the specified holding time for analysis: Yes; No Unknown

NO COLLECTION DATE FOR SP -05, -06, -07, NO TIME FOR SP

Rad Chem. request received: Yes; No, If "Yes" sample survey results: < 0.5 mrem/hr ≥ 0.5 mrem/hr

Rad Chem. meter calibration date verified: Yes; No

-16 AND -17.

Sample submission details are entered in the Environmental Laboratory LIMS.
Initials of person logging in the work order request into LIMS: DD

Sample Condition Upon Receipt
 Minnesota Department of Health Public Health Laboratory
Data Entry Worksheet
 Parcel Information



Date & time of receipt: APR 21 '21 14:58

Courier: Walk-in FedEx Spee-Dee UPS USPS Other courier _____

Tracking # _____

After hours drop-off: Refrigerator (207) (186) () Freezer (185) () Unrefrigerated

Parcel: Plastic cooler Styrofoam/cardboard cooler Cardboard box Envelope Plastic can
 None Other _____ Info: _____

Custody seals present: No; Yes, If "Yes" Custody seals intact: Yes; No _____

Custody seal # _____ Evidentiary samples identified: No; Yes

Packaging & Temperature Information

Packing material: Bubble wrap Styrofoam Paper None Other _____

Cooling material: Wet ice (loose) Wet ice pack #() Gel pack #(6) Dry ice None
 Other _____

Condition of cooling material: Solid Partially frozen Liquid; Liquid temperature: 7.9 °C N/A

Representative sample temperature: 8.1 °C IR thermometer instrument used: B14

Samples received without evidence of freezing: Yes; No _____

Initials of person receiving parcel: DD

Chain of Custody, Sample Container & Analysis Information

Chain of custody received with sample containers: Yes; No

Chain of custody type: Standard Civil Criminal Priority/Emergency Unknown

All sample containers are unique to a sample point listed on the chain of custody: Yes; No

All sample containers have been collected prior to the expiration date listed on container label:
 Yes; No; Unknown _____

All sample containers received intact: Yes; No _____

All sample containers received per COC submission: Yes; No _____

All sample containers are appropriate for requested analysis: Yes; No; Unknown

All analysis have been received within the specified holding time for analysis: Yes; No Unknown
NO COLLECTION DATE OR TIME FOR SP-05, -06, -07, NO TIME FOR SP-16 AND -17,

Rad Chem. request received: Yes; No, If "Yes" sample survey results: < 0.5 mrem/hr ≥ 0.5 mrem/hr

Rad Chem. meter calibration date verified: Yes; No

Sample submission details are entered in the Environmental Laboratory LIMS.

Initials of person logging in the work order request into LIMS: DD

Final Report
Case Narrative

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name: SR0001353
Collected by: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/2021 9:58

Except where noted in this report, no additional comments are needed for this Work Order.

Authorized by:

*The results in this report apply only to the samples analyzed.
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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-01

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (15-20)	Collect Time: 8:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 15/20	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, F5, T5, Z-01a, Q6	100	70-130	%	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, F5, T5, Z-01a, Q6	103	70-130	%	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, F5, T5, Z-01a, Q6	102	70-130	%	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,1,1-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,1,2-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,1-Dichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,1-Dichloroethene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,1-Dichloropropene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,2,3-Trichloropropane	F5, F7, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,2,4-Trimethylbenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,2-Dibromoethane (EDB)	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,2-Dichlorobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-01

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (15-20)	Collect Time: 8:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 15/20	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichloroethane	F7, F5, T5, Z-01a, Q6	<	0.20	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,2-Dichloropropane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,3,5-Trimethylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,3-Dichlorobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,3-Dichloropropane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
1,4-Dichlorobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
2,2-Dichloropropane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
2-Chlorotoluene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
4-Chlorotoluene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Acetone	F7, F5, T5, Z-01a, Q6	<	20	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Allyl chloride	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Benzene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Bromobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Bromochloromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Bromodichloromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Bromoform	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Bromomethane	F7, F5, V1, T5, Z-01a, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Carbon tetrachloride	F7, F5, T5, Z-01a, Q6	<	0.20	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-01

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (15-20)	Collect Time: 8:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 15/20	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Chlorobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Chlorodibromomethane	F7, F5, Z-01a, Q6, V1, T5	<	0.50	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Chloroethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Chloroform	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Chloromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
cis-1,2-Dichloroethene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
cis-1,3-Dichloropropene	F7, V1, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Dibromomethane	F7, F5, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Dichlorodifluoromethane	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Dichlorofluoromethane	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Ethyl ether	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Ethylbenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Hexachlorobutadiene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Isopropylbenzene	F7, F5, V1, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D

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Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-01

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (15-20)	Collect Time: 8:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 15/20	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Methyl ethyl ketone (MEK)	F7, F5, T5, Z-01a, Q6	<	10	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Methyl isobutyl ketone (MIBK)	F7, T5, F5, Z-01a, Q6	<	5.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Methyl tertiary butyl ether (MTBE)	F7, F5, T5, Z-01a, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Methylene chloride	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Naphthalene	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
n-Butylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
n-Propylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
o-Xylene	F7, F5, T5, V1, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
p and m-Xylene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
p-Isopropyltoluene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
sec-Butylbenzene	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Styrene	F7, F5, V1, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
tert-Butylbenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Tetrachloroethene	F7, T5, Q6, F5, V1, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Tetrahydrofuran (THF)	F7, Z-01a, Q6, F5, T5	<	10	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-01

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (15-20)	Collect Time: 8:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 15/20	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Toluene	F7, V1, T5, Z-01a, Q6, F5	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
trans-1,2-Dichloroethene	F7, Z-01a, Q6, F5, T5	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
trans-1,3-Dichloropropene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Trichloroethene (TCE)	F7, Z-01a, Q6, F5, T5	0.11	0.10	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Trichlorofluoromethane	F7, Z-01a, Q6, F5, T5	<	1.0	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D
Vinyl chloride	F7, F5, Z-01a, Q6, T5	<	0.050	ug/L	1	B1D1080	04/23/21 17:10	04/23/21 17:10	EPA 8260D

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Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-02RE1

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (30-34)	Collect Time: 12:10	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, Q6, T5	100	70-130	%	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, T5, Q6	100	70-130	%	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, T5, Q6	100	70-130	%	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,1,1,2-Tetrachloroethane	D2, F7, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,1,1-Trichloroethane	D2, F7, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,1,2,2-Tetrachloroethane	D2, F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,1,2-Trichloroethane	D2, F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,1,2-Trichlorotrifluoroethane	D2, F7, Q6, T5	2.1	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,1-Dichloroethane	Q6, T5, D2, F7	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,1-Dichloroethene	D2, F7, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,1-Dichloropropene	D2, F7, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,2,3-Trichlorobenzene	D2, F7, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,2,3-Trichloropropane	D2, F7, Q6, T5	<	0.40	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,2,4-Trichlorobenzene	D2, F7, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,2,4-Trimethylbenzene	D2, F7, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	D2, F7, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,2-Dibromoethane (EDB)	D2, F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,2-Dichlorobenzene	Q6, T5, D2, F7	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,2-Dichloroethane	D2, F7, T5, Q6	<	0.40	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-02RE1

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (30-34)	Collect Time: 12:10	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichloropropane	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,3,5-Trimethylbenzene	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,3-Dichlorobenzene	D2, F7, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,3-Dichloropropane	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
1,4-Dichlorobenzene	D2, F7, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
2,2-Dichloropropane	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
2-Chlorotoluene	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
4-Chlorotoluene	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Acetone	F7, D2, T5, Q6	<	40	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Allyl chloride	F7, D2, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Benzene	F7, D2, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Bromobenzene	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Bromochloromethane	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Bromodichloromethane	F7, D2, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Bromoform	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Bromomethane	F7, D2, V1, Q6, T5	<	4.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Carbon tetrachloride	F7, D2, Q6, T5	<	0.40	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Chlorobenzene	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-02RE1

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (30-34)	Collect Time: 12:10	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Chlorodibromomethane	F7, D2, T5, Q6, V1	<	1.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Chloroethane	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Chloroform	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Chloromethane	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
cis-1,2-Dichloroethene	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
cis-1,3-Dichloropropene	F7, D2, Q6, V1, T5	<	1.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Dibromomethane	D2, F7, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Dichlorodifluoromethane	F7, D2, Q6, T5	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Dichlorofluoromethane	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Ethyl ether	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Ethylbenzene	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Hexachlorobutadiene	F7, D2, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Isopropylbenzene	F7, D2, T5, V1, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Methyl ethyl ketone (MEK)	F7, D2, Q6, T5	<	20	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Methyl isobutyl ketone (MIBK)	F7, D2, Q6, T5	<	10	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Methyl tertiary butyl ether (MTBE)	F7, D2, T5, Q6	<	4.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Methylene chloride	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Naphthalene	T5, F7, D2, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-02RE1

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (30-34)	Collect Time: 12:10	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
n-Butylbenzene	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
n-Propylbenzene	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
o-Xylene	F7, T5, V1, Q6, D2	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
p and m-Xylene	T5, Q6, F7, D2	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
p-Isopropyltoluene	D2, T5, F7, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
sec-Butylbenzene	D2, T5, F7, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Styrene	T5, F7, D2, V1, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
tert-Butylbenzene	D2, T5, F7, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Tetrachloroethene	V1, F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Tetrahydrofuran (THF)	F7, D2, T5, Q6	<	20	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Toluene	F7, D2, V1, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
trans-1,2-Dichloroethene	F7, D2, T5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
trans-1,3-Dichloropropene	D2, T5, F7, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Trichloroethene (TCE)	F7, T5, Q6, D2	0.76	0.20	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Trichlorofluoromethane	T5, F7, D2, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D
Vinyl chloride	T5, F7, D2, Q6	<	0.10	ug/L	1	B1D1080	04/23/21 15:51	04/23/21 15:51	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-03

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (44-48)	Collect Time: 11:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 44/48	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, F5, T5, Z-01a, Q6	98	70-130	%	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, F5, T5, Z-01a, Q6	122	70-130	%	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, F5, T5, Z-01a, Q6	104	70-130	%	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,1,1-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,1,2-Trichloroethane	T5, Z-01a, F5, F7, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F5, F7, Q6, T5, Z-01a	4.6	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,1-Dichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,1-Dichloroethene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,1-Dichloropropene	F7, Q6, T5, Z-01a, F5	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,2,3-Trichloropropane	F5, F7, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,2,4-Trimethylbenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	T5, F5, F7, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,2-Dibromoethane (EDB)	F7, F5, Z-01a, Q6, T5	<	0.50	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-03

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (44-48)	Collect Time: 11:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 44/48	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichlorobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,2-Dichloroethane	F7, F5, Z-01a, Q6, T5	<	0.20	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,2-Dichloropropane	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,3,5-Trimethylbenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,3-Dichlorobenzene	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,3-Dichloropropane	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
1,4-Dichlorobenzene	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
2,2-Dichloropropane	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
2-Chlorotoluene	F7, F5, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
4-Chlorotoluene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Acetone	F5, F7, T5, Q6, Z-01a	<	20	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Allyl chloride	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Benzene	F5, F7, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Bromobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Bromochloromethane	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Bromodichloromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-03

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (44-48)	Collect Time: 11:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 44/48	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Bromoform	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Bromomethane	F5, V1, F7, T5, Z-01a, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Carbon tetrachloride	F7, F5, T5, Z-01a, Q6	<	0.20	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Chlorobenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Chlorodibromomethane	F7, F5, V1, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Chloroethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Chloroform	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Chloromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
cis-1,2-Dichloroethene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
cis-1,3-Dichloropropene	F7, F5, V1, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Dibromomethane	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Dichlorodifluoromethane	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Dichlorofluoromethane	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Ethyl ether	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Ethylbenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-03

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (44-48)	Collect Time: 11:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 44/48	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Hexachlorobutadiene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Isopropylbenzene	F7, F5, V1, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Methyl ethyl ketone (MEK)	F7, F5, T5, Z-01a, Q6	<	10	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Methyl isobutyl ketone (MIBK)	F7, F5, Z-01a, T5, Q6	<	5.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Methyl tertiary butyl ether (MTBE)	F7, F5, T5, Z-01a, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Methylene chloride	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Naphthalene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
n-Butylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
n-Propylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
o-Xylene	F7, F5, V1, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
p and m-Xylene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
p-Isopropyltoluene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
sec-Butylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Styrene	V1, F5, F7, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
tert-Butylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Tetrachloroethene	F5, F7, V1, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-03

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: TWS-6 (44-48)	Collect Time: 11:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 44/48	Field PO ₄ Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Tetrahydrofuran (THF)	F7, F5, T5, Z-01a, Q6	<	10	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Toluene	F5, V1, F7, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
trans-1,2-Dichloroethene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
trans-1,3-Dichloropropene	F5, F7, Z-01a, T5, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Trichloroethene (TCE)	F7, F5, T5, Z-01a, Q6	1.7	0.10	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Trichlorofluoromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D
Vinyl chloride	F7, F5, T5, Z-01a, Q6	<	0.050	ug/L	1	B1D1080	04/23/21 16:17	04/23/21 16:17	EPA 8260D

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Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-04

Location ID: 2001008154	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-7 16-21	Collect Time: 8:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 16/21	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, F5, T5, Z-01a, Q6	94	70-130	%	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, F5, T5, Q6, Z-01a	72	70-130	%	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, F5, T5, Z-01a, Q6	84	70-130	%	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,1,1,2-Tetrachloroethane	Z-01a, F5, F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,1,1-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,1,2-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,1,2-Trichlorotrifluoroethane	Q6, T5, Z-01a, F5, F7	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,1-Dichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,1-Dichloroethene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,1-Dichloropropene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,2,3-Trichloropropane	Z-01a, F5, F7, Q6, T5	<	0.20	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,2-Dibromoethane (EDB)	F7, T5, F5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,2-Dichlorobenzene	T5, F7, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-04

Location ID: 2001008154	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-7 16-21	Collect Time: 8:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 16/21	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichloroethane	F7, T5, F5, Z-01a, Q6	<	0.20	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,2-Dichloropropane	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,3-Dichlorobenzene	T5, F7, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,3-Dichloropropane	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
1,4-Dichlorobenzene	T5, F5, F7, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
2,2-Dichloropropane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
2-Chlorotoluene	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
4-Chlorotoluene	F7, T5, Q6, F5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Acetone	F7, F5, T5, Z-01a, Q6	<	20	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Allyl chloride	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Benzene	T5, F7, F5, Z-01a, Q6	3.5	0.50	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Bromobenzene	T5, F7, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Bromochloromethane	F7, T5, Z-01a, Q6, F5	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Bromodichloromethane	T5, F7, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Bromoform	F7, T5, Z-01a, F5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Bromomethane	F5, V1, F7, T5, Z-01a, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-04

Location ID: 2001008154	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-7 16-21	Collect Time: 8:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 16/21	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Carbon tetrachloride	F7, T5, Z-01a, Q6, F5	<	0.20	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Chlorobenzene	T5, F7, Z-01a, Q6, F5	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Chlorodibromomethane	F7, T5, V1, F5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Chloroethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Chloroform	T5, F7, Z-01a, F5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Chloromethane	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
cis-1,2-Dichloroethene	F7, T5, Z-01a, F5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
cis-1,3-Dichloropropene	T5, F7, V1, Z-01a, F5, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Dibromomethane	T5, F7, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Dichlorodifluoromethane	F5, T5, F7, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Dichlorofluoromethane	F5, T5, F7, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Ethyl ether	F5, T5, F7, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Hexachlorobutadiene	F7, T5, F5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Methyl ethyl ketone (MEK)	F7, T5, Z-01a, F5, Q6	<	10	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Methyl isobutyl ketone (MIBK)	F7, T5, F5, Z-01a, Q6	<	5.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D

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Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-04

Location ID: 2001008154	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-7 16-21	Collect Time: 8:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 16/21	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Methyl tertiary butyl ether (MTBE)	F7, T5, F5, Z-01a, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Methylene chloride	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
p-Isopropyltoluene	F7, T5, F5, Z-01a, Q6	22	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Styrene	F7, V1, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
tert-Butylbenzene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Tetrachloroethene	T5, F7, V1, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Tetrahydrofuran (THF)	F7, T5, Z-01a, F5, Q6	<	10	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
trans-1,2-Dichloroethene	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
trans-1,3-Dichloropropene	T5, F7, F5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Trichloroethene (TCE)	T5, F7, F5, Z-01a, Q6	1.9	0.10	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Trichlorofluoromethane	F5, T5, F7, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D
Vinyl chloride	F5, T5, F7, Z-01a, Q6	<	0.050	ug/L	1	B1D1080	04/23/21 19:21	04/23/21 19:21	EPA 8260D

FINAL REPORT

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Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-04RE1

Location ID: 2001008154	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-7 16-21	Collect Time: 8:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 16/21	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, Q6, T5	99	70-130	%	1	B1D1098	04/26/21 18:08	04/26/21 18:08	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, T5, Q6	101	70-130	%	1	B1D1098	04/26/21 18:08	04/26/21 18:08	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, T5, Q6	106	70-130	%	1	B1D1098	04/26/21 18:08	04/26/21 18:08	EPA 8260D
1,2,4-Trimethylbenzene	D2, F7, Q6, T5	2400	100	ug/L	1	B1D1098	04/26/21 18:08	04/26/21 18:08	EPA 8260D
Ethylbenzene	F7, T5, D2, Q6	3000	100	ug/L	1	B1D1098	04/26/21 18:08	04/26/21 18:08	EPA 8260D
o-Xylene	F7, D2, T5, Q6	3300	100	ug/L	1	B1D1098	04/26/21 18:08	04/26/21 18:08	EPA 8260D

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-04RE2

Location ID: 2001008154	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-7 16-21	Collect Time: 8:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 16/21	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, Q6, T5	102	70-130	%	1	B1D1098	04/26/21 18:34	04/26/21 18:34	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, T5, Q6	101	70-130	%	1	B1D1098	04/26/21 18:34	04/26/21 18:34	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, T5, Q6	103	70-130	%	1	B1D1098	04/26/21 18:34	04/26/21 18:34	EPA 8260D
1,3,5-Trimethylbenzene	F7, D2, T5, Q6	560	25	ug/L	1	B1D1098	04/26/21 18:34	04/26/21 18:34	EPA 8260D
Isopropylbenzene	F7, D2, T5, Q6	150	25	ug/L	1	B1D1098	04/26/21 18:34	04/26/21 18:34	EPA 8260D
Naphthalene	F7, D2, T5, Q6	610	25	ug/L	1	B1D1098	04/26/21 18:34	04/26/21 18:34	EPA 8260D
n-Butylbenzene	F7, D2, T5, Q6	50	25	ug/L	1	B1D1098	04/26/21 18:34	04/26/21 18:34	EPA 8260D
n-Propylbenzene	F7, D2, T5, Q6	440	25	ug/L	1	B1D1098	04/26/21 18:34	04/26/21 18:34	EPA 8260D
sec-Butylbenzene	F7, D2, T5, Q6	<	25	ug/L	1	B1D1098	04/26/21 18:34	04/26/21 18:34	EPA 8260D
Toluene	D2, F7, Q6, T5	290	25	ug/L	1	B1D1098	04/26/21 18:34	04/26/21 18:34	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-04RE3

Location ID: 2001008154	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-7 16-21	Collect Time: 8:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 16/21	Field PO ₄ Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, T5, H2, Q6	98	70-130	%	1	B1D1105	04/28/21 16:14	04/28/21 16:14	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, T5, H2, Q6	111	70-130	%	1	B1D1105	04/28/21 16:14	04/28/21 16:14	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, H2, T5, Q6	108	70-130	%	1	B1D1105	04/28/21 16:14	04/28/21 16:14	EPA 8260D
p and m-Xylene	F7, D2, T5, H2, Q6	7400	1000	ug/L	1	B1D1105	04/28/21 16:14	04/28/21 16:14	EPA 8260D

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-05

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 13-18	Collect Time: 10:35	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 13/18	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, F5, T5, Z-01a, Q6	96	70-130	%	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, F5, T5, Z-01a, Q6	103	70-130	%	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, F5, T5, Z-01a, Q6	105	70-130	%	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,1,1-Trichloroethane	Q6, T5, Z-01a, F5, F7	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,1,2-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,1-Dichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,1-Dichloroethene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,1-Dichloropropene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,2,3-Trichloropropane	F5, F7, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,2,4-Trimethylbenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F7, Q6, T5, F5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,2-Dibromoethane (EDB)	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-05

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 13-18	Collect Time: 10:35	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 13/18	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichlorobenzene	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,2-Dichloroethane	F7, F5, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,2-Dichloropropane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,3,5-Trimethylbenzene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,3-Dichlorobenzene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,3-Dichloropropane	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
1,4-Dichlorobenzene	F5, F7, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
2,2-Dichloropropane	F7, F5, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
2-Chlorotoluene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
4-Chlorotoluene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Acetone	F7, F5, Z-01a, Q6, T5	<	20	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Allyl chloride	F7, F5, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Benzene	F7, F5, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Bromobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Bromochloromethane	F7, F5, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Bromodichloromethane	F7, F5, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Bromoform	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-05

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 13-18	Collect Time: 10:35	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 13/18	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Bromomethane	F7, F5, T5, Z-01a, Q6, V1	<	2.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Carbon tetrachloride	F7, F5, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Chlorobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Chlorodibromomethane	F7, F5, V1, Z-01a, T5, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Chloroethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Chloroform	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Chloromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
cis-1,2-Dichloroethene	F5, F7, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
cis-1,3-Dichloropropene	F7, F5, V1, Z-01a, T5, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Dibromomethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Dichlorodifluoromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Dichlorofluoromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Ethyl ether	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Ethylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Hexachlorobutadiene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-05

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 13-18	Collect Time: 10:35	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 13/18	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Isopropylbenzene	V1, F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Methyl ethyl ketone (MEK)	F5, F7, T5, Z-01a, Q6	<	10	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Methyl isobutyl ketone (MIBK)	F7, F5, Z-01a, T5, Q6	<	5.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Methyl tertiary butyl ether (MTBE)	F5, F7, T5, Z-01a, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Methylene chloride	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Naphthalene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
n-Butylbenzene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
n-Propylbenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
o-Xylene	F7, F5, V1, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
p and m-Xylene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
p-Isopropyltoluene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
sec-Butylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Styrene	F7, F5, V1, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
tert-Butylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Tetrachloroethene	F7, F5, T5, V1, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-05

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 13-18	Collect Time: 10:35	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 13/18	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Tetrahydrofuran (THF)	F7, F5, T5, Z-01a, Q6	<	10	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Toluene	F5, V1, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
trans-1,2-Dichloroethene	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
trans-1,3-Dichloropropene	F5, F7, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Trichloroethene (TCE)	F5, F7, T5, Z-01a, Q6	0.13	0.10	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Trichlorofluoromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D
Vinyl chloride	F7, T5, F5, Q6, Z-01a	<	0.050	ug/L	1	B1D1080	04/23/21 17:36	04/23/21 17:36	EPA 8260D

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-06

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 21-25	Collect Time: 12:45	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 21/25	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, T5, Z-01a, Q6, F5	98	70-130	%	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, T5, Z-01a, F5, Q6	102	70-130	%	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, T5, F5, Z-01a, Q6	104	70-130	%	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,1,1-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,1,2-Trichloroethane	Z-01a, F5, F7, Q6, T5	<	0.50	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F5, F7, Q6, T5, Z-01a	2.0	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,1-Dichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,1-Dichloroethene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,1-Dichloropropene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,2,3-Trichloropropane	F7, Q6, T5, Z-01a, F5	<	0.20	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,2,4-Trimethylbenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,2-Dibromoethane (EDB)	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-06

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 21-25	Collect Time: 12:45	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 21/25	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichlorobenzene	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,2-Dichloroethane	F7, F5, T5, Z-01a, Q6	<	0.20	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,2-Dichloropropane	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,3,5-Trimethylbenzene	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,3-Dichlorobenzene	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,3-Dichloropropane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
1,4-Dichlorobenzene	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
2,2-Dichloropropane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
2-Chlorotoluene	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
4-Chlorotoluene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Acetone	F7, T5, F5, Z-01a, Q6	<	20	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Allyl chloride	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Benzene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Bromobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Bromochloromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Bromodichloromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Bromoform	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-06

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 21-25	Collect Time: 12:45	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 21/25	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Bromomethane	F7, T5, Z-01a, F5, V1, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Carbon tetrachloride	F7, F5, T5, Z-01a, Q6	<	0.20	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Chlorobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Chlorodibromomethane	F7, F5, V1, T5, Q6, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Chloroethane	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Chloroform	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Chloromethane	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
cis-1,2-Dichloroethene	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
cis-1,3-Dichloropropene	F7, F5, V1, Z-01a, T5, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Dibromomethane	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Dichlorodifluoromethane	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Dichlorofluoromethane	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Ethyl ether	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Ethylbenzene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Hexachlorobutadiene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Isopropylbenzene	F5, F7, T5, V1, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-06

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 21-25	Collect Time: 12:45	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 21/25	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Methyl ethyl ketone (MEK)	F5, F7, T5, Z-01a, Q6	<	10	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Methyl isobutyl ketone (MIBK)	F7, F5, T5, Z-01a, Q6	<	5.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Methyl tertiary butyl ether (MTBE)	F7, F5, T5, Z-01a, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Methylene chloride	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Naphthalene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
n-Butylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
n-Propylbenzene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
o-Xylene	F7, F5, T5, V1, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
p and m-Xylene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
p-Isopropyltoluene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
sec-Butylbenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Styrene	F7, F5, V1, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
tert-Butylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Tetrachloroethene	F7, F5, T5, V1, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Tetrahydrofuran (THF)	F7, F5, T5, Z-01a, Q6	<	10	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Toluene	F5, F7, T5, V1, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-06

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 21-25	Collect Time: 12:45	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 21/25	Field PO ₄ Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
trans-1,2-Dichloroethene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
trans-1,3-Dichloropropene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Trichloroethene (TCE)	F7, F5, T5, Z-01a, Q6	0.33	0.10	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Trichlorofluoromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D
Vinyl chloride	F7, T5, F5, Z-01a, Q6	<	0.050	ug/L	1	B1D1080	04/23/21 18:02	04/23/21 18:02	EPA 8260D

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-07

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 30-34	Collect Time: 12:20	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, T5, Z-01a, F5, Q6	98	70-130	%	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, T5, Z-01a, F5, Q6	103	70-130	%	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, F5, T5, Q6, Z-01a	102	70-130	%	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,1,1-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,1,2-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,1,2-Trichlorotrifluoroethane	T5, Z-01a, F5, F7, Q6	1.1	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,1-Dichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,1-Dichloroethene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,1-Dichloropropene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,2,3-Trichloropropane	F5, F7, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,2,4-Trimethylbenzene	Z-01a, F5, F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,2-Dibromoethane (EDB)	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-07

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 30-34	Collect Time: 12:20	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichlorobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,2-Dichloroethane	F7, T5, Z-01a, Q6, F5	<	0.20	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,2-Dichloropropane	F7, T5, Z-01a, Q6, F5	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,3,5-Trimethylbenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,3-Dichlorobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,3-Dichloropropane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
1,4-Dichlorobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
2,2-Dichloropropane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
2-Chlorotoluene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
4-Chlorotoluene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Acetone	F7, F5, T5, Z-01a, Q6	<	20	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Allyl chloride	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Benzene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Bromobenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Bromochloromethane	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Bromodichloromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-07

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 30-34	Collect Time: 12:20	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Bromoform	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Bromomethane	F7, V1, T5, Z-01a, F5, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Carbon tetrachloride	F7, T5, F5, Z-01a, Q6	<	0.20	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Chlorobenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Chlorodibromomethane	F7, F5, V1, T5, Q6, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Chloroethane	F5, F7, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Chloroform	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Chloromethane	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
cis-1,2-Dichloroethene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
cis-1,3-Dichloropropene	F7, F5, T5, V1, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Dibromomethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Dichlorodifluoromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Dichlorofluoromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Ethyl ether	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Ethylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Hexachlorobutadiene	F5, F7, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-07

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 30-34	Collect Time: 12:20	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Isopropylbenzene	F7, F5, Z-01a, V1, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Methyl ethyl ketone (MEK)	F7, F5, T5, Z-01a, Q6	<	10	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Methyl isobutyl ketone (MIBK)	F7, F5, T5, Z-01a, Q6	<	5.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Methyl tertiary butyl ether (MTBE)	F7, F5, T5, Z-01a, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Methylene chloride	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Naphthalene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
n-Butylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
n-Propylbenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
o-Xylene	F7, F5, V1, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
p and m-Xylene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
p-Isopropyltoluene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
sec-Butylbenzene	F5, F7, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Styrene	F7, F5, Z-01a, V1, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
tert-Butylbenzene	F7, F5, T5, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Tetrachloroethene	F7, F5, T5, V1, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-07

Location ID: 2001008155	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-8 30-34	Collect Time: 12:20	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Tetrahydrofuran (THF)	F7, F5, Z-01a, T5, Q6	<	10	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Toluene	F7, F5, T5, V1, Q6, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
trans-1,2-Dichloroethene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
trans-1,3-Dichloropropene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Trichloroethene (TCE)	F7, F5, T5, Z-01a, Q6	1.2	0.10	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Trichlorofluoromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D
Vinyl chloride	F7, F5, T5, Z-01a, Q6	<	0.050	ug/L	1	B1D1080	04/23/21 18:29	04/23/21 18:29	EPA 8260D

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Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-08

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 14-19	Collect Time: 12:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 14/19	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F5, T5, Z-01a, Q6, F7	101	70-130	%	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F5, T5, F7, Z-01a, Q6	103	70-130	%	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, T5, Z-01a, F5, Q6	103	70-130	%	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,1,1-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,1,2-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F5, F7, Q6, T5, Z-01a	4.4	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,1-Dichloroethane	T5, Z-01a, F5, F7, Q6	1.3	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,1-Dichloroethene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,1-Dichloropropene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,2,3-Trichloropropane	F5, F7, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,2,4-Trimethylbenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,2-Dibromoethane (EDB)	F7, Q6, F5, T5, Z-01a	<	0.50	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-08

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 14-19	Collect Time: 12:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 14/19	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichlorobenzene	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,2-Dichloroethane	F7, F5, T5, Z-01a, Q6	<	0.20	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,2-Dichloropropane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,3,5-Trimethylbenzene	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,3-Dichlorobenzene	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,3-Dichloropropane	F7, F5, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
1,4-Dichlorobenzene	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
2,2-Dichloropropane	F7, F5, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
2-Chlorotoluene	F7, F5, Z-01a, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
4-Chlorotoluene	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Acetone	F5, T5, Z-01a, F7, Q6	<	20	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Allyl chloride	F5, T5, Z-01a, F7, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Benzene	T5, Z-01a, F7, F5, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Bromobenzene	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Bromochloromethane	F7, T5, Z-01a, F5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-08

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 14-19	Collect Time: 12:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 14/19	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Bromodichloromethane	F7, T5, Z-01a, F5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Bromoform	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Bromomethane	F5, V1, T5, F7, Z-01a, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Carbon tetrachloride	F7, T5, Z-01a, F5, Q6	<	0.20	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Chlorobenzene	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Chlorodibromomethane	F7, V1, Z-01a, F5, T5, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Chloroethane	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Chloroform	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Chloromethane	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
cis-1,2-Dichloroethene	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
cis-1,3-Dichloropropene	F7, V1, Z-01a, F5, T5, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Dibromomethane	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Dichlorodifluoromethane	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Dichlorofluoromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Ethyl ether	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-08

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 14-19	Collect Time: 12:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 14/19	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Ethylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Hexachlorobutadiene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Isopropylbenzene	F7, V1, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Methyl ethyl ketone (MEK)	F7, F5, T5, Z-01a, Q6	<	10	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Methyl isobutyl ketone (MIBK)	F7, F5, T5, Z-01a, Q6	<	5.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Methyl tertiary butyl ether (MTBE)	F7, T5, F5, Z-01a, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Methylene chloride	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Naphthalene	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
n-Butylbenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
n-Propylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
o-Xylene	F7, F5, V1, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
p and m-Xylene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
p-Isopropyltoluene	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
sec-Butylbenzene	F7, T5, Z-01a, F5, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Styrene	F7, V1, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-08

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 14-19	Collect Time: 12:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 14/19	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
tert-Butylbenzene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Tetrachloroethene	F7, V1, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Tetrahydrofuran (THF)	F7, F5, T5, Z-01a, Q6	<	10	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Toluene	F7, F5, V1, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
trans-1,2-Dichloroethene	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
trans-1,3-Dichloropropene	F7, F5, T5, Z-01a, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Trichloroethene (TCE)	F7, F5, T5, Z-01a, Q6	<	0.10	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Trichlorofluoromethane	F7, F5, T5, Z-01a, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D
Vinyl chloride	F7, F5, T5, Z-01a, Q6	<	0.050	ug/L	1	B1D1080	04/23/21 18:55	04/23/21 18:55	EPA 8260D

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-09

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 30-34	Collect Time: 15:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	Z-01a, F7, T5, Q6, F5	98	70-130	%	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Surrogate: 4-Bromofluorobenzene	Z-01a, F7, T5, Q6, F5	103	70-130	%	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, Z-01a, T5, F5, Q6	105	70-130	%	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,1,1-Trichloroethane	F5, F7, Q6, T5, Z-01a	1.5	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,1,2-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F5, F7, Q6, T5, Z-01a	23	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,1-Dichloroethane	F5, F7, Q6, T5, Z-01a	2.6	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,1-Dichloroethene	T5, Z-01a, F5, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,1-Dichloropropene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,2,3-Trichloropropane	F5, F7, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,2,4-Trichlorobenzene	F7, Q6, T5, Z-01a, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,2,4-Trimethylbenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,2-Dibromoethane (EDB)	Z-01a, F7, T5, Q6, F5	<	0.50	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,2-Dichlorobenzene	F7, Z-01a, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-09

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 30-34	Collect Time: 15:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichloroethane	Z-01a, F7, T5, Q6, F5	<	0.20	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,2-Dichloropropane	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,3,5-Trimethylbenzene	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,3-Dichlorobenzene	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,3-Dichloropropane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
1,4-Dichlorobenzene	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
2,2-Dichloropropane	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
2-Chlorotoluene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
4-Chlorotoluene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Acetone	Z-01a, F7, T5, F5, Q6	<	20	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Allyl chloride	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Benzene	Z-01a, F7, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Bromobenzene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Bromochloromethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Bromodichloromethane	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Bromoform	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Bromomethane	Z-01a, F7, T5, F5, V1, Q6	<	2.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Carbon tetrachloride	Z-01a, F7, T5, F5, Q6	<	0.20	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-09

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 30-34	Collect Time: 15:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Chlorobenzene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Chlorodibromomethane	Z-01a, F7, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Chloroethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Chloroform	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Chloromethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
cis-1,2-Dichloroethene	Z-01a, F7, T5, F5, Q6	2.6	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
cis-1,3-Dichloropropene	Z-01a, F7, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Dibromomethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Dichlorodifluoromethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Dichlorofluoromethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Ethyl ether	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Ethylbenzene	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Hexachlorobutadiene	Z-01a, F7, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Isopropylbenzene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Methyl ethyl ketone (MEK)	F7, Z-01a, T5, F5, Q6	<	10	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Methyl isobutyl ketone (MIBK)	Z-01a, F7, T5, F5, Q6	<	5.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Methyl tertiary butyl ether (MTBE)	Z-01a, T5, F7, F5, Q6	<	2.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Methylene chloride	Z-01a, T5, F7, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-09

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 30-34	Collect Time: 15:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 30/34	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Naphthalene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
n-Butylbenzene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
n-Propylbenzene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
o-Xylene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
p and m-Xylene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
p-Isopropyltoluene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
sec-Butylbenzene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Styrene	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
tert-Butylbenzene	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Tetrachloroethene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Tetrahydrofuran (THF)	Z-01a, F7, T5, F5, Q6	<	10	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Toluene	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
trans-1,2-Dichloroethene	Z-01a, T5, F7, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
trans-1,3-Dichloropropene	Z-01a, F7, T5, Q6, F5	<	0.50	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Trichloroethene (TCE)	Z-01a, F7, T5, F5, Q6	2.6	0.10	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Trichlorofluoromethane	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D
Vinyl chloride	Z-01a, F7, T5, Q6, F5	0.11	0.050	ug/L	1	B1D1098	04/26/21 15:04	04/26/21 15:04	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-10

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 45-49	Collect Time: 15:05	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 45/49	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	Z-01a, Q6, F7, T5, F5	98	70-130	%	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Surrogate: 4-Bromofluorobenzene	Z-01a, Q6, F7, T5, F5	104	70-130	%	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	Z-01a, F5, F7, T5, Q6	104	70-130	%	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,1,1-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,1,2-Trichloroethane	T5, Z-01a, F5, F7, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F5, F7, Q6, T5, Z-01a	6.3	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,1-Dichloroethane	F5, F7, Q6, T5, Z-01a	1.1	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,1-Dichloroethene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,1-Dichloropropene	F7, Q6, T5, Z-01a, F5	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,2,3-Trichloropropane	F5, F7, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,2,4-Trimethylbenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	T5, F5, F7, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,2-Dibromoethane (EDB)	Z-01a, T5, F7, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,2-Dichlorobenzene	Z-01a, T5, F5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-10

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 45-49	Collect Time: 15:05	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 45/49	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichloroethane	T5, F5, Z-01a, F7, Q6	<	0.20	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,2-Dichloropropane	F5, Z-01a, F7, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,3,5-Trimethylbenzene	Z-01a, F5, F7, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,3-Dichlorobenzene	Z-01a, T5, F5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,3-Dichloropropane	Z-01a, T5, Q6, F7, F5	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
1,4-Dichlorobenzene	Z-01a, T5, F5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
2,2-Dichloropropane	Z-01a, T5, F7, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
2-Chlorotoluene	Z-01a, F5, Q6, F7, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
4-Chlorotoluene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Acetone	Z-01a, F7, T5, F5, M1, Q6	<	20	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Allyl chloride	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Benzene	Z-01a, T5, F5, F7, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Bromobenzene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Bromochloromethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Bromodichloromethane	Z-01a, F5, F7, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Bromoform	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Bromomethane	Z-01a, T5, F5, Q6, F7, V1, M1	<	2.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-10

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 45-49	Collect Time: 15:05	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 45/49	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Carbon tetrachloride	Z-01a, F7, T5, F5, Q6	<	0.20	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Chlorobenzene	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Chlorodibromomethane	F7, Z-01a, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Chloroethane	Z-01a, F7, F5, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Chloroform	Z-01a, T5, F5, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Chloromethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
cis-1,2-Dichloroethene	Z-01a, T5, F5, F7, Q6	1.5	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
cis-1,3-Dichloropropene	F7, Z-01a, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Dibromomethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Dichlorodifluoromethane	Z-01a, T5, F5, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Dichlorofluoromethane	T5, F5, Z-01a, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Ethyl ether	T5, F5, Z-01a, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Ethylbenzene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Hexachlorobutadiene	Z-01a, F5, F7, T5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Isopropylbenzene	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Methyl ethyl ketone (MEK)	Z-01a, F7, T5, F5, M1, Q6	<	10	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-10

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 45-49	Collect Time: 15:05	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 45/49	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Methyl isobutyl ketone (MIBK)	F7, F5, Z-01a, T5, Q6	<	5.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Methyl tertiary butyl ether (MTBE)	Z-01a, F7, T5, F5, Q6	<	2.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Methylene chloride	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Naphthalene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
n-Butylbenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
n-Propylbenzene	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
o-Xylene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
p and m-Xylene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
p-Isopropyltoluene	F7, T5, F5, Z-01a, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
sec-Butylbenzene	F7, F5, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Styrene	F7, Z-01a, F5, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
tert-Butylbenzene	F5, Z-01a, F7, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Tetrachloroethene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Tetrahydrofuran (THF)	Z-01a, F7, T5, F5, Q6	<	10	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Toluene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
trans-1,2-Dichloroethene	Z-01a, T5, F7, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
trans-1,3-Dichloropropene	F7, Z-01a, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-10

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: TWS-9 45-49	Collect Time: 15:05	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 45/49	Field PO ₄ Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Trichloroethene (TCE)	Z-01a, F7, T5, F5, Q6	2.8	0.10	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Trichlorofluoromethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D
Vinyl chloride	Z-01a, F7, T5, F5, Q6	<	0.050	ug/L	1	B1D1098	04/26/21 14:37	04/26/21 14:37	EPA 8260D

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-11

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 15-20	Collect Time: 15:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 15/20	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	Z-01a, F7, T5, F5, Q6	98	70-130	%	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Surrogate: 4-Bromofluorobenzene	Z-01a, F7, T5, F5, Q6	103	70-130	%	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	Z-01a, F7, T5, Q6, F5	101	70-130	%	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,1,1-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,1,2-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,1-Dichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,1-Dichloroethene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,1-Dichloropropene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,2,3-Trichlorobenzene	T5, Z-01a, F5, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,2,3-Trichloropropane	F5, F7, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,2,4-Trimethylbenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F7, Q6, T5, F5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,2-Dibromoethane (EDB)	Z-01a, F7, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,2-Dichlorobenzene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-11

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 15-20	Collect Time: 15:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 15/20	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichloroethane	F7, Z-01a, T5, F5, Q6	<	0.20	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,2-Dichloropropane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,3,5-Trimethylbenzene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,3-Dichlorobenzene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,3-Dichloropropane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
1,4-Dichlorobenzene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
2,2-Dichloropropane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
2-Chlorotoluene	Z-01a, F7, F5, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
4-Chlorotoluene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Acetone	Z-01a, F7, T5, F5, Q6	<	20	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Allyl chloride	Z-01a, F7, F5, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Benzene	Z-01a, F7, T5, Q6, F5	<	0.50	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Bromobenzene	Z-01a, F7, F5, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Bromochloromethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Bromodichloromethane	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Bromoform	Z-01a, F7, F5, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Bromomethane	Z-01a, F5, F7, T5, V1, Q6	<	2.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Carbon tetrachloride	Z-01a, F7, T5, F5, Q6	<	0.20	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-11

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 15-20	Collect Time: 15:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 15/20	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Chlorobenzene	Z-01a, F7, T5, Q6, F5	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Chlorodibromomethane	Z-01a, F7, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Chloroethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Chloroform	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Chloromethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
cis-1,2-Dichloroethene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
cis-1,3-Dichloropropene	Z-01a, F7, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Dibromomethane	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Dichlorodifluoromethane	Z-01a, T5, F7, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Dichlorofluoromethane	Z-01a, T5, F7, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Ethyl ether	Z-01a, T5, F7, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Ethylbenzene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Hexachlorobutadiene	Z-01a, F7, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Isopropylbenzene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Methyl ethyl ketone (MEK)	Z-01a, F7, T5, F5, Q6	<	10	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Methyl isobutyl ketone (MIBK)	Z-01a, F7, T5, F5, Q6	<	5.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Methyl tertiary butyl ether (MTBE)	Z-01a, F7, T5, Q6, F5	<	2.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Methylene chloride	Z-01a, T5, F7, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-11

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 15-20	Collect Time: 15:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 15/20	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Naphthalene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
n-Butylbenzene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
n-Propylbenzene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
o-Xylene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
p and m-Xylene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
p-Isopropyltoluene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
sec-Butylbenzene	F7, Z-01a, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Styrene	Z-01a, T5, F5, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
tert-Butylbenzene	Z-01a, T5, F7, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Tetrachloroethene	Z-01a, T5, F7, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Tetrahydrofuran (THF)	Z-01a, T5, F7, F5, Q6	<	10	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Toluene	Z-01a, T5, F7, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
trans-1,2-Dichloroethene	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
trans-1,3-Dichloropropene	Z-01a, F7, T5, F5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Trichloroethene (TCE)	Z-01a, F7, T5, F5, Q6	<	0.10	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Trichlorofluoromethane	Z-01a, F7, T5, F5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D
Vinyl chloride	Z-01a, F7, T5, F5, Q6	<	0.050	ug/L	1	B1D1098	04/26/21 15:30	04/26/21 15:30	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-12RE1

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 25-29	Collect Time: 17:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 25/29	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, H1, Z-01a, T5, Q6	97	70-130	%	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, H1, Z-01a, T5, Q6	111	70-130	%	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, Z-01a, T5, H1, Q6	107	70-130	%	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,1,1,2-Tetrachloroethane	T5, Z-01a, F7, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,1,1-Trichloroethane	F7, H1, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,1,2,2-Tetrachloroethane	F7, H1, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,1,2-Trichloroethane	F7, H1, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,1,2-Trichlorotrifluoroethane	H1, Q6, T5, Z-01a, F7	1.5	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,1-Dichloroethane	F7, H1, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,1-Dichloroethene	F7, H1, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,1-Dichloropropene	F7, H1, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,2,3-Trichlorobenzene	F7, H1, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,2,3-Trichloropropane	T5, Z-01a, F7, H1, Q6	<	0.20	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,2,4-Trichlorobenzene	F7, H1, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,2,4-Trimethylbenzene	F7, H1, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F7, H1, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,2-Dibromoethane (EDB)	F7, T5, H1, Z-01a, Q6	<	0.50	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-12RE1

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 25-29	Collect Time: 17:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 25/29	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichlorobenzene	F7, T5, H1, Z-01a, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,2-Dichloroethane	F7, T5, H1, Z-01a, Q6	<	0.20	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,2-Dichloropropane	F7, T5, H1, Z-01a, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,3,5-Trimethylbenzene	F7, H1, Q6, Z-01a, T5	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,3-Dichlorobenzene	F7, T5, H1, Z-01a, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,3-Dichloropropane	F7, T5, H1, Q6, Z-01a	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
1,4-Dichlorobenzene	F7, H1, Q6, Z-01a, T5	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
2,2-Dichloropropane	F7, Z-01a, H1, T5, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
2-Chlorotoluene	F7, Z-01a, H1, Q6, T5	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
4-Chlorotoluene	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Acetone	F7, Z-01a, T5, H1, Q6	<	20	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Allyl chloride	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Benzene	F7, Z-01a, T5, H1, Q6	<	0.50	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Bromobenzene	F7, Q6, Z-01a, T5, H1	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Bromochloromethane	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Bromodichloromethane	F7, T5, Z-01a, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Bromoform	F7, Q6, Z-01a, T5, H1	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-12RE1

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 25-29	Collect Time: 17:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 25/29	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Bromomethane	F7, V1, T5, Q6, Z-01a, H1	<	2.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Carbon tetrachloride	F7, Z-01a, T5, H1, Q6	<	0.20	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Chlorobenzene	F7, T5, Q6, Z-01a, H1	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Chlorodibromomethane	F7, T5, Z-01a, H1, Q6	<	0.50	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Chloroethane	F7, V1, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Chloroform	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Chloromethane	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
cis-1,2-Dichloroethene	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
cis-1,3-Dichloropropene	F7, T5, Z-01a, H1, Q6	<	0.50	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Dibromomethane	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Dichlorodifluoromethane	F7, Z-01a, H1, T5, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Dichlorofluoromethane	F7, Z-01a, H1, T5, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Ethyl ether	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Ethylbenzene	F7, T5, H1, Z-01a, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Hexachlorobutadiene	F7, Z-01a, T5, H1, Q6	<	0.50	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Isopropylbenzene	F7, H1, Q6, Z-01a, T5	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-12RE1

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 25-29	Collect Time: 17:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 25/29	Field PO ₄ Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Methyl ethyl ketone (MEK)	F7, Z-01a, T5, H1, Q6	<	10	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Methyl isobutyl ketone (MIBK)	F7, H1, Q6, Z-01a, T5	<	5.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Methyl tertiary butyl ether (MTBE)	F7, Z-01a, T5, H1, Q6	<	2.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Methylene chloride	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Naphthalene	F7, Q6, Z-01a, T5, H1	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
n-Butylbenzene	F7, Z-01a, Q6, T5, H1	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
n-Propylbenzene	F7, Q6, Z-01a, T5, H1	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
o-Xylene	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
p and m-Xylene	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
p-Isopropyltoluene	F7, Q6, Z-01a, T5, H1	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
sec-Butylbenzene	F7, T5, Q6, Z-01a, H1	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Styrene	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
tert-Butylbenzene	F7, H1, Q6, Z-01a, T5	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Tetrachloroethene	F7, H1, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Tetrahydrofuran (THF)	F7, Z-01a, T5, H1, Q6	<	10	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Toluene	F7, H1, Z-01a, T5, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-12RE1

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 25-29	Collect Time: 17:00	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 25/29	Field PO ₄ Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
trans-1,2-Dichloroethene	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
trans-1,3-Dichloropropene	F7, Z-01a, T5, H1, Q6	<	0.50	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Trichloroethene (TCE)	F7, Z-01a, T5, H1, Q6	0.35	0.10	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Trichlorofluoromethane	F7, Z-01a, T5, H1, Q6	<	1.0	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D
Vinyl chloride	F7, V1, Z-01a, T5, H1, Q6	<	0.050	ug/L	1	B1D1105	04/28/21 15:21	04/28/21 15:21	EPA 8260D

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-13

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 36-40	Collect Time: 16:40	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 36/40	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	T5, F7, F5, Q6, Z-01a	100	70-130	%	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, T5, F5, Q6, Z-01a	102	70-130	%	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, T5, F5, Q6, Z-01a	102	70-130	%	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,1,1-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,1,2-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F7, Q6, T5, Z-01a, F5	1.0	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,1-Dichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,1-Dichloroethene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,1-Dichloropropene	Z-01a, F5, F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,2,3-Trichloropropane	F5, F7, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,2,4-Trimethylbenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,2-Dibromoethane (EDB)	T5, Q6, F7, F5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,2-Dichlorobenzene	F5, T5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-13

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 36-40	Collect Time: 16:40	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 36/40	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichloroethane	F7, T5, Q6, Z-01a, F5	<	0.20	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,2-Dichloropropane	F7, T5, Q6, F5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,3,5-Trimethylbenzene	F5, T5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,3-Dichlorobenzene	F5, T5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,3-Dichloropropane	T5, Q6, F7, F5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
1,4-Dichlorobenzene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
2,2-Dichloropropane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
2-Chlorotoluene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
4-Chlorotoluene	T5, F5, F7, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Acetone	F7, T5, F5, Q6, Z-01a	<	20	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Allyl chloride	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Benzene	F7, T5, F5, Q6, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Bromobenzene	T5, F5, F7, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Bromochloromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Bromodichloromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Bromoform	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Bromomethane	F7, T5, F5, V1, Q6, Z-01a	<	2.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Carbon tetrachloride	F7, T5, F5, Q6, Z-01a	<	0.20	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-13

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 36-40	Collect Time: 16:40	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 36/40	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Chlorobenzene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Chlorodibromomethane	T5, F5, Q6, F7, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Chloroethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Chloroform	T5, F7, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Chloromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
cis-1,2-Dichloroethene	T5, F7, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
cis-1,3-Dichloropropene	F7, T5, F5, Z-01a, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Dibromomethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Dichlorodifluoromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Dichlorofluoromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Ethyl ether	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Ethylbenzene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Hexachlorobutadiene	T5, F5, Q6, F7, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Isopropylbenzene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Methyl ethyl ketone (MEK)	F7, T5, F5, Q6, Z-01a	<	10	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Methyl isobutyl ketone (MIBK)	F7, T5, F5, Q6, Z-01a	<	5.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Methyl tertiary butyl ether (MTBE)	T5, F7, F5, Q6, Z-01a	<	2.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Methylene chloride	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-13

Location ID: 2001008157	Collect Date: 04/19/21	Field Residual Chlorine Result: None
Field Name: TWS-10 36-40	Collect Time: 16:40	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: None	Depth (top)/depth (bottom): 36/40	Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Naphthalene	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
n-Butylbenzene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
n-Propylbenzene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
o-Xylene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
p and m-Xylene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
p-Isopropyltoluene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
sec-Butylbenzene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Styrene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
tert-Butylbenzene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Tetrachloroethene	T5, F7, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Tetrahydrofuran (THF)	F7, T5, F5, Q6, Z-01a	<	10	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Toluene	T5, F7, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
trans-1,2-Dichloroethene	F7, T5, Q6, F5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
trans-1,3-Dichloropropene	T5, F5, Q6, F7, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Trichloroethene (TCE)	F7, T5, F5, Q6, Z-01a	1.1	0.10	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Trichlorofluoromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D
Vinyl chloride	F7, T5, F5, Q6, Z-01a	<	0.050	ug/L	1	B1D1098	04/26/21 16:22	04/26/21 16:22	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-14

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: Dup-1	Collect Time: 11:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: Field Dup/Rep		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, T5, F5, Q6, Z-01a	99	70-130	%	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Surrogate: 4-Bromofluorobenzene	F7, T5, F5, Q6, Z-01a	104	70-130	%	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	F7, T5, F5, Q6, Z-01a	103	70-130	%	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,1,1-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,1,2-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F5, F7, Q6, T5, Z-01a	4.1	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,1-Dichloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,1-Dichloroethene	Q6, T5, Z-01a, F5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,1-Dichloropropene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,2,3-Trichloropropane	F5, F7, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,2,4-Trimethylbenzene	Z-01a, F5, F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,2-Dibromoethane (EDB)	T5, F5, Q6, F7, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-14

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: Dup-1	Collect Time: 11:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: Field Dup/Rep		Field PO ₄ Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dichlorobenzene	T5, F5, F7, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,2-Dichloroethane	T5, F5, Q6, F7, Z-01a	<	0.20	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,2-Dichloropropane	F5, T5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,3,5-Trimethylbenzene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,3-Dichlorobenzene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,3-Dichloropropane	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
1,4-Dichlorobenzene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
2,2-Dichloropropane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
2-Chlorotoluene	F5, T5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
4-Chlorotoluene	F5, T5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Acetone	F7, T5, F5, Q6, Z-01a	<	20	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Allyl chloride	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Benzene	T5, F5, Q6, F7, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Bromobenzene	F5, T5, F7, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Bromochloromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Bromodichloromethane	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Bromoform	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Bromomethane	F7, T5, F5, V1, Q6, Z-01a	<	2.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
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Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-14

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: Dup-1	Collect Time: 11:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: Field Dup/Rep		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Carbon tetrachloride	F7, T5, F5, Q6, Z-01a	<	0.20	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Chlorobenzene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Chlorodibromomethane	T5, F5, Z-01a, F7, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Chloroethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Chloroform	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Chloromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
cis-1,2-Dichloroethene	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
cis-1,3-Dichloropropene	T5, F5, F7, Q6, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Dibromomethane	F5, T5, F7, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Dichlorodifluoromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Dichlorofluoromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Ethyl ether	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Ethylbenzene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Hexachlorobutadiene	T5, F5, F7, Q6, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Isopropylbenzene	F5, T5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Methyl ethyl ketone (MEK)	F7, T5, F5, Q6, Z-01a	<	10	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Methyl isobutyl ketone (MIBK)	F5, T5, Q6, F7, Z-01a	<	5.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Methyl tertiary butyl ether (MTBE)	F7, T5, F5, Q6, Z-01a	<	2.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-14

Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: Dup-1	Collect Time: 11:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: Field Dup/Rep		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Methylene chloride	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Naphthalene	F5, T5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
n-Butylbenzene	T5, F5, Z-01a, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
n-Propylbenzene	T5, F5, F7, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
o-Xylene	T5, F5, F7, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
p and m-Xylene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
p-Isopropyltoluene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
sec-Butylbenzene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Styrene	T5, Q6, F5, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
tert-Butylbenzene	T5, Q6, Z-01a, F5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Tetrachloroethene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Tetrahydrofuran (THF)	F7, T5, Q6, F5, Z-01a	<	10	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Toluene	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
trans-1,2-Dichloroethene	F7, T5, Q6, F5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
trans-1,3-Dichloropropene	T5, F5, Q6, F7, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Trichloroethene (TCE)	T5, F5, Q6, F7, Z-01a	1.6	0.10	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D
Trichlorofluoromethane	F7, T5, Q6, F5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-14


Location ID: 2001008153	Collect Date: 04/21/21	Field Residual Chlorine Result: None
Field Name: Dup-1	Collect Time: 11:50	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: Field Dup/Rep		Field PO ₄ Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Vinyl chloride	F7, T5, Q6, F5, Z-01a	<	0.050	ug/L	1	B1D1098	04/26/21 17:15	04/26/21 17:15	EPA 8260D

<p>Authorized by:</p>  <p>Paul Moyer, Environmental Laboratory Manager Public Health Laboratory, Minnesota Department of Health</p>	<p><i>The results in this report apply only to the samples analyzed. This report must not be reproduced, except in full, without the written approval of the laboratory.</i></p>
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Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-15

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: Dup-4	Collect Time: 15:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: Field Dup/Rep		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	T5, Q6, Z-01a, F5, F7	99	70-130	%	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Surrogate: 4-Bromofluorobenzene	T5, F5, Q6, Z-01a, F7	102	70-130	%	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	T5, F5, Q6, Z-01a, F7	106	70-130	%	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,1,1,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,1,1-Trichloroethane	Z-01a, F5, F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,1,2,2-Tetrachloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,1,2-Trichloroethane	F5, F7, Q6, T5, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F5, F7, Q6, T5, Z-01a	3.0	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,1-Dichloroethane	Q6, T5, Z-01a, F5, F7	1.2	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,1-Dichloroethene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,1-Dichloropropene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,2,3-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,2,3-Trichloropropane	F5, F7, Q6, T5, Z-01a	<	0.20	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,2,4-Trichlorobenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,2,4-Trimethylbenzene	F5, F7, Q6, T5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	T5, F5, F7, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-15

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: Dup-4	Collect Time: 15:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: Field Dup/Rep		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2-Dibromoethane (EDB)	T5, Q6, Z-01a, F7, F5	<	0.50	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,2-Dichlorobenzene	T5, Q6, Z-01a, F5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,2-Dichloroethane	F7, T5, Z-01a, F5, Q6	<	0.20	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,2-Dichloropropane	T5, Z-01a, F5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,3,5-Trimethylbenzene	T5, Q6, Z-01a, F5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,3-Dichlorobenzene	T5, Q6, Z-01a, F5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,3-Dichloropropane	T5, Q6, F7, F5, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
1,4-Dichlorobenzene	T5, Q6, Z-01a, F5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
2,2-Dichloropropane	F7, T5, Q6, Z-01a, F5	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
2-Chlorotoluene	T5, Q6, F5, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
4-Chlorotoluene	T5, Q6, F5, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Acetone	T5, F5, Q6, Z-01a, F7	<	20	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Allyl chloride	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Benzene	F7, T5, F5, Q6, Z-01a	<	0.50	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Bromobenzene	T5, Q6, Z-01a, F5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-15

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: Dup-4	Collect Time: 15:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: Field Dup/Rep		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Bromochloromethane	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Bromodichloromethane	T5, F5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Bromoform	T5, Z-01a, Q6, F5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Bromomethane	T5, F5, Q6, Z-01a, V1, F7	<	2.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Carbon tetrachloride	F7, T5, F5, Q6, Z-01a	<	0.20	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Chlorobenzene	F5, T5, Q6, F7, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Chlorodibromomethane	F5, T5, Q6, Z-01a, F7	<	0.50	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Chloroethane	F5, T5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Chloroform	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Chloromethane	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
cis-1,2-Dichloroethene	F7, T5, F5, Q6, Z-01a	1.4	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
cis-1,3-Dichloropropene	F5, T5, Q6, Z-01a, F7	<	0.50	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Dibromomethane	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Dichlorodifluoromethane	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Dichlorofluoromethane	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Ethyl ether	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Ethylbenzene	T5, Q6, F5, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-15

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: Dup-4	Collect Time: 15:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: Field Dup/Rep		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Hexachlorobutadiene	T5, Q6, Z-01a, F5, F7	<	0.50	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Isopropylbenzene	T5, Q6, F5, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Methyl ethyl ketone (MEK)	F7, F5, T5, Q6, Z-01a	<	10	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Methyl isobutyl ketone (MIBK)	F5, T5, Q6, Z-01a, F7	<	5.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Methyl tertiary butyl ether (MTBE)	F5, F7, T5, Q6, Z-01a	<	2.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Methylene chloride	T5, F5, Z-01a, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Naphthalene	T5, F5, Z-01a, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
n-Butylbenzene	T5, Q6, F5, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
n-Propylbenzene	T5, Q6, F5, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
o-Xylene	T5, Q6, F5, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
p and m-Xylene	T5, Q6, F5, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
p-Isopropyltoluene	T5, Q6, F5, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
sec-Butylbenzene	T5, F5, Q6, Z-01a, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Styrene	T5, Z-01a, Q6, F5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
tert-Butylbenzene	T5, Z-01a, Q6, F5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Tetrachloroethene	T5, F5, Z-01a, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-15

Location ID: 2001008156	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: Dup-4	Collect Time: 15:30	Field Fluoride Result: None
Sampling Point: None	Matrix: Wtr-Ground	Field pH Result: None
QA Type: Field Dup/Rep		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Tetrahydrofuran (THF)	F5, F7, T5, Q6, Z-01a	<	10	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Toluene	T5, F5, Z-01a, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
trans-1,2-Dichloroethene	F7, T5, F5, Q6, Z-01a	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
trans-1,3-Dichloropropene	T5, F5, Q6, Z-01a, F7	<	0.50	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Trichloroethene (TCE)	T5, F5, Z-01a, Q6, F7	2.9	0.10	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Trichlorofluoromethane	T5, F5, Z-01a, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D
Vinyl chloride	T5, F5, Q6, Z-01a, F7	0.050	0.050	ug/L	1	B1D1098	04/26/21 17:42	04/26/21 17:42	EPA 8260D

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Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-16

Location ID: QC-BLANK	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: Trip Blank-1	Collect Time: 12:00	Field Fluoride Result: None
Sampling Point: None	Matrix: QC-BLANK	Field pH Result: None
QA Type: Trip Blank		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date/time. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, Q6, T5	99	70-130	%	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Surrogate: 4-Bromofluorobenzene	T5, Q6, F7	103	70-130	%	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	T5, F7, Q6	100	70-130	%	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,1,1,2-Tetrachloroethane	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,1,1-Trichloroethane	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,1,2,2-Tetrachloroethane	F7, Q6, T5	<	0.50	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,1,2-Trichloroethane	F7, Q6, T5	<	0.50	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,1-Dichloroethane	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,1-Dichloroethene	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,1-Dichloropropene	Q6, T5, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,2,3-Trichlorobenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,2,3-Trichloropropane	F7, Q6, T5	<	0.20	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,2,4-Trichlorobenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,2,4-Trimethylbenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,2-Dibromoethane (EDB)	F7, Q6, T5	<	0.50	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,2-Dichlorobenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,2-Dichloroethane	F7, Q6, T5	<	0.20	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,2-Dichloropropane	Q6, T5, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,3,5-Trimethylbenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,3-Dichlorobenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,3-Dichloropropane	F7, Q6, T5	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
1,4-Dichlorobenzene	T5, F7, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
2,2-Dichloropropane	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
2-Chlorotoluene	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-16

Location ID: QC-BLANK	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: Trip Blank-1	Collect Time: 12:00	Field Fluoride Result: None
Sampling Point: None	Matrix: QC-BLANK	Field pH Result: None
QA Type: Trip Blank		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date/time. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
4-Chlorotoluene	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Acetone	T5, Q6, F7	<	20	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Allyl chloride	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Benzene	T5, Q6, F7	<	0.50	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Bromobenzene	Q6, T5, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Bromochloromethane	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Bromodichloromethane	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Bromoform	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Bromomethane	T5, V1, Q6, F7	<	2.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Carbon tetrachloride	T5, Q6, F7	<	0.20	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Chlorobenzene	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Chlorodibromomethane	V1, T5, Q6, F7	<	0.50	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Chloroethane	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Chloroform	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Chloromethane	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
cis-1,2-Dichloroethene	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
cis-1,3-Dichloropropene	T5, V1, F7, Q6	<	0.50	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Dibromomethane	T5, F7, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Dichlorodifluoromethane	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Dichlorofluoromethane	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Ethyl ether	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Ethylbenzene	T5, F7, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Hexachlorobutadiene	T5, Q6, F7	<	0.50	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Isopropylbenzene	V1, T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Methyl ethyl ketone (MEK)	T5, F7, Q6	<	10	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-16

Location ID: QC-BLANK	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: Trip Blank-1	Collect Time: 12:00	Field Fluoride Result: None
Sampling Point: None	Matrix: QC-BLANK	Field pH Result: None
QA Type: Trip Blank		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date/time. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Methyl isobutyl ketone (MIBK)	T5, Q6, F7	<	5.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Methyl tertiary butyl ether (MTBE)	T5, F7, Q6	<	2.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Methylene chloride	T5, F7, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Naphthalene	Q6, T5, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
n-Butylbenzene	Q6, T5, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
n-Propylbenzene	Q6, T5, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
o-Xylene	V1, T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
p and m-Xylene	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
p-Isopropyltoluene	T5, F7, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
sec-Butylbenzene	T5, F7, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Styrene	T5, F7, V1, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
tert-Butylbenzene	T5, F7, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Tetrachloroethene	T5, F7, V1, Q6	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Tetrahydrofuran (THF)	T5, Q6, F7	<	10	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Toluene	T5, V1, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
trans-1,2-Dichloroethene	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
trans-1,3-Dichloropropene	T5, Q6, F7	<	0.50	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Trichloroethene (TCE)	T5, Q6, F7	<	0.10	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Trichlorofluoromethane	T5, Q6, F7	<	1.0	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D
Vinyl chloride	T5, Q6, F7	<	0.050	ug/L	1	B1D1080	04/23/21 14:58	04/23/21 14:58	EPA 8260D

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-17

Location ID: QC-BLANK	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: Trip Blank-2	Collect Time: 12:00	Field Fluoride Result: None
Sampling Point: None	Matrix: QC-BLANK	Field pH Result: None
QA Type: Trip Blank		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date/time. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Surrogate: 1,2-Dichlorobenzene-d4	F7, Q6, T5	100	70-130	%	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Surrogate: 4-Bromofluorobenzene	T5, Q6, F7	104	70-130	%	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Surrogate: Methyl tertiary butyl ether-d3	T5, F7, Q6	103	70-130	%	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,1,1,2-Tetrachloroethane	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,1,1-Trichloroethane	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,1,2,2-Tetrachloroethane	F7, Q6, T5	<	0.50	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,1,2-Trichloroethane	F7, Q6, T5	<	0.50	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,1,2-Trichlorotrifluoroethane	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,1-Dichloroethane	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,1-Dichloroethene	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,1-Dichloropropene	T5, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,2,3-Trichlorobenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,2,3-Trichloropropane	F7, Q6, T5	<	0.20	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,2,4-Trichlorobenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,2,4-Trimethylbenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,2-Dibromoethane (EDB)	F7, Q6, T5	<	0.50	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,2-Dichlorobenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,2-Dichloroethane	F7, Q6, T5	<	0.20	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,2-Dichloropropane	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,3,5-Trimethylbenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,3-Dichlorobenzene	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,3-Dichloropropane	F7, Q6, T5	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
1,4-Dichlorobenzene	F7, T5, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
2,2-Dichloropropane	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
2-Chlorotoluene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-17

Location ID: QC-BLANK	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: Trip Blank-2	Collect Time: 12:00	Field Fluoride Result: None
Sampling Point: None	Matrix: QC-BLANK	Field pH Result: None
QA Type: Trip Blank		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date/time. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
4-Chlorotoluene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Acetone	Q6, T5, F7	<	20	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Allyl chloride	Q6, T5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Benzene	Q6, T5, F7	<	0.50	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Bromobenzene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Bromochloromethane	Q6, T5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Bromodichloromethane	Q6, T5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Bromoform	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Bromomethane	V1, T5, Q6, F7	<	2.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Carbon tetrachloride	Q6, T5, F7	<	0.20	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Chlorobenzene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Chlorodibromomethane	T5, Q6, F7	<	0.50	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Chloroethane	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Chloroform	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Chloromethane	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
cis-1,2-Dichloroethene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
cis-1,3-Dichloropropene	T5, Q6, F7	<	0.50	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Dibromomethane	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Dichlorodifluoromethane	T5, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Dichlorofluoromethane	T5, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Ethyl ether	T5, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Ethylbenzene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Hexachlorobutadiene	T5, Q6, F7	<	0.50	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Isopropylbenzene	T5, F7, Q6	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Methyl ethyl ketone (MEK)	T5, Q6, F7	<	10	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Methyl isobutyl ketone (MIBK)	T5, Q6, F7	<	5.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Methyl tertiary butyl ether (MTBE)	T5, Q6, F7	<	2.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Analytical Results

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

MDH Sample Number: 21D1178-17

Location ID: QC-BLANK	Collect Date: 04/20/21	Field Residual Chlorine Result: None
Field Name: Trip Blank-2	Collect Time: 12:00	Field Fluoride Result: None
Sampling Point: None	Matrix: QC-BLANK	Field pH Result: None
QA Type: Trip Blank		Field PO4 Result: None

Receiving Comments: Samples did not meet method temperature requirements/No collection date/time. -CNN

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Methylene chloride	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Naphthalene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
n-Butylbenzene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
n-Propylbenzene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
o-Xylene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
p and m-Xylene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
p-Isopropyltoluene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
sec-Butylbenzene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Styrene	T5, Q6, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
tert-Butylbenzene	Q6, T5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Tetrachloroethene	Q6, T5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Tetrahydrofuran (THF)	Q6, T5, F7	<	10	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Toluene	Q6, T5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
trans-1,2-Dichloroethene	Q6, T5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
trans-1,3-Dichloropropene	F7, T5, Q6	<	0.50	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Trichloroethene (TCE)	F7, T5, Q6	<	0.10	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Trichlorofluoromethane	Q6, T5, F7	<	1.0	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D
Vinyl chloride	Q6, T5, F7	<	0.050	ug/L	1	B1D1098	04/26/21 14:11	04/26/21 14:11	EPA 8260D

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Batch Summary

Samples in Batch: B1D1080 - EPA 5030B Preparation

21D1178-01 21D1178-02RE1 21D1178-03 21D1178-04 21D1178-05 21D1178-06 21D1178-07
21D1178-08 21D1178-16

Samples in Batch: B1D1098 - EPA 5030B Preparation

21D1178-04RE1 21D1178-04RE2 21D1178-09 21D1178-10 21D1178-11 21D1178-13 21D1178-14
21D1178-15 21D1178-17

Samples in Batch: B1D1105 - EPA 5030B Preparation

21D1178-04RE3 21D1178-12RE1

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Final Report
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Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1080 - EPA 5030B Preparation

Blank (B1D1080-BLK1)

Prepared: 04/23/21 14:22 Analyzed: 04/23/21 14:22

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4		97	70-130	%	10					
Surrogate: 4-Bromofluorobenzene		89	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3		102	70-130	%	10					
1,1,1,2-Tetrachloroethane		<	1.0	ug/L						
1,1,1-Trichloroethane		<	1.0	ug/L						
1,1,2,2-Tetrachloroethane		<	0.50	ug/L						
1,1,2-Trichloroethane		<	0.50	ug/L						
1,1,2-Trichlorotrifluoroethane		<	1.0	ug/L						
1,1-Dichloroethane		<	1.0	ug/L						
1,1-Dichloroethene		<	1.0	ug/L						
1,1-Dichloropropene		<	1.0	ug/L						
1,2,3-Trichlorobenzene		<	1.0	ug/L						
1,2,3-Trichloropropane		<	0.20	ug/L						
1,2,4-Trichlorobenzene		<	1.0	ug/L						
1,2,4-Trimethylbenzene		<	1.0	ug/L						
1,2-Dibromo-3-chloropropane (DBCP)		<	1.0	ug/L						
1,2-Dibromoethane (EDB)		<	0.50	ug/L						
1,2-Dichlorobenzene		<	1.0	ug/L						
1,2-Dichloroethane		<	0.20	ug/L						
1,2-Dichloropropane		<	1.0	ug/L						
1,3,5-Trimethylbenzene		<	1.0	ug/L						
1,3-Dichlorobenzene		<	1.0	ug/L						
1,3-Dichloropropane		<	1.0	ug/L						
1,4-Dichlorobenzene		<	1.0	ug/L						
2,2-Dichloropropane		<	1.0	ug/L						
2-Chlorotoluene		<	1.0	ug/L						
4-Chlorotoluene		<	1.0	ug/L						
Acetone		<	20	ug/L						
Allyl chloride		<	1.0	ug/L						
Benzene		<	0.50	ug/L						
Bromobenzene		<	1.0	ug/L						
Bromochloromethane		<	1.0	ug/L						
Bromodichloromethane		<	1.0	ug/L						
Bromoform		<	1.0	ug/L						

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1080 - EPA 5030B Preparation

Blank (B1D1080-BLK1)

Prepared: 04/23/21 14:22 Analyzed: 04/23/21 14:22

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Bromomethane	V1	<	2.0	ug/L						
Carbon tetrachloride		<	0.20	ug/L						
Chlorobenzene		<	1.0	ug/L						
Chlorodibromomethane	V1	<	0.50	ug/L						
Chloroethane		<	1.0	ug/L						
Chloroform		<	1.0	ug/L						
Chloromethane		<	1.0	ug/L						
cis-1,2-Dichloroethene		<	1.0	ug/L						
cis-1,3-Dichloropropene	V1	<	0.50	ug/L						
Dibromomethane		<	1.0	ug/L						
Dichlorodifluoromethane		<	1.0	ug/L						
Dichlorofluoromethane		<	1.0	ug/L						
Ethyl ether		<	1.0	ug/L						
Ethylbenzene		<	1.0	ug/L						
Hexachlorobutadiene		<	0.50	ug/L						
Isopropylbenzene	V1	<	1.0	ug/L						
Methyl ethyl ketone (MEK)		<	10	ug/L						
Methyl isobutyl ketone (MIBK)		<	5.0	ug/L						
Methyl tertiary butyl ether (MTBE)		<	2.0	ug/L						
Methylene chloride		<	1.0	ug/L						
Naphthalene		<	1.0	ug/L						
n-Butylbenzene		<	1.0	ug/L						
n-Propylbenzene		<	1.0	ug/L						
o-Xylene	V1	<	1.0	ug/L						
p and m-Xylene		<	1.0	ug/L						
p-Isopropyltoluene		<	1.0	ug/L						
sec-Butylbenzene		<	1.0	ug/L						
Styrene	V1	<	1.0	ug/L						
tert-Butylbenzene		<	1.0	ug/L						
Tetrachloroethene	V1	<	1.0	ug/L						
Tetrahydrofuran (THF)		<	10	ug/L						
Toluene	V1	<	1.0	ug/L						
trans-1,2-Dichloroethene		<	1.0	ug/L						
trans-1,3-Dichloropropene		<	0.50	ug/L						
Trichloroethene (TCE)		<	0.10	ug/L						

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1080 - EPA 5030B Preparation

Blank (B1D1080-BLK1)

Prepared: 04/23/21 14:22 Analyzed: 04/23/21 14:22

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Trichlorofluoromethane		<	1.0	ug/L						
Vinyl chloride		<	0.050	ug/L						

LCS (B1D1080-BS1)

Prepared: 04/23/21 12:28 Analyzed: 04/23/21 12:28

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4		99	70-130	%	10					
Surrogate: 4-Bromofluorobenzene		100	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3		98	70-130	%	10					
1,1,1,2-Tetrachloroethane		11	1.0	ug/L	10		111	70-130		
1,1,1-Trichloroethane		11	1.0	ug/L	10		112	70-130		
1,1,2,2-Tetrachloroethane		10	0.50	ug/L	10		100	70-130		
1,1,2-Trichloroethane		9.9	0.50	ug/L	10		99	70-130		
1,1,2-Trichlorotrifluoroethane		11	1.0	ug/L	10		111	70-130		
1,1-Dichloroethane		11	1.0	ug/L	10		112	70-130		
1,1-Dichloroethene		11	1.0	ug/L	10		107	70-130		
1,1-Dichloropropene		11	1.0	ug/L	10		114	70-130		
1,2,3-Trichlorobenzene		11	1.0	ug/L	10		107	70-130		
1,2,3-Trichloropropane		10	0.20	ug/L	10		101	70-130		
1,2,4-Trichlorobenzene		11	1.0	ug/L	10		111	70-130		
1,2,4-Trimethylbenzene		12	1.0	ug/L	10		116	70-130		
1,2-Dibromo-3-chloropropane (DBCP)		9.6	1.0	ug/L	10		96	70-130		
1,2-Dibromoethane (EDB)		10	0.50	ug/L	10		100	70-130		
1,2-Dichlorobenzene		11	1.0	ug/L	10		109	70-130		
1,2-Dichloroethane		11	0.20	ug/L	10		111	70-130		
1,2-Dichloropropane		11	1.0	ug/L	10		111	70-130		
1,3,5-Trimethylbenzene		11	1.0	ug/L	10		115	70-130		
1,3-Dichlorobenzene		8.4	1.0	ug/L	10		84	70-130		
1,3-Dichloropropane		10	1.0	ug/L	10		105	70-130		
1,4-Dichlorobenzene		11	1.0	ug/L	10		115	70-130		
2,2-Dichloropropane		12	1.0	ug/L	10		116	70-130		
2-Chlorotoluene		11	1.0	ug/L	10		112	70-130		
4-Chlorotoluene		11	1.0	ug/L	10		112	70-130		
Acetone		92	20	ug/L	100		92	70-130		

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1080 - EPA 5030B Preparation

LCS (B1D1080-BS1)

Prepared: 04/23/21 12:28 Analyzed: 04/23/21 12:28

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Allyl chloride		11	1.0	ug/L	10		111	70-130		
Benzene		11	0.50	ug/L	10		109	70-130		
Bromobenzene		11	1.0	ug/L	10		109	70-130		
Bromochloromethane		11	1.0	ug/L	10		111	70-130		
Bromodichloromethane		11	1.0	ug/L	10		112	70-130		
Bromoform		11	1.0	ug/L	10		109	70-130		
Bromomethane	V1	14	2.0	ug/L	10		136	70-130		
Carbon tetrachloride		11	0.20	ug/L	10		109	70-130		
Chlorobenzene		11	1.0	ug/L	10		111	70-130		
Chlorodibromomethane	V1	11	0.50	ug/L	10		113	70-130		
Chloroethane		8.1	1.0	ug/L	10		81	70-130		
Chloroform		11	1.0	ug/L	10		109	70-130		
Chloromethane		11	1.0	ug/L	10		107	70-130		
cis-1,2-Dichloroethene		11	1.0	ug/L	10		109	70-130		
cis-1,3-Dichloropropene	V1	11	0.50	ug/L	10		110	70-130		
Dibromomethane		11	1.0	ug/L	10		108	70-130		
Dichlorodifluoromethane		10	1.0	ug/L	10		103	70-130		
Dichlorofluoromethane		11	1.0	ug/L	10		111	70-130		
Ethyl ether		10	1.0	ug/L	10		104	70-130		
Ethylbenzene		11	1.0	ug/L	10		111	70-130		
Hexachlorobutadiene		11	0.50	ug/L	10		109	70-130		
Isopropylbenzene	V1	12	1.0	ug/L	10		117	70-130		
Methyl ethyl ketone (MEK)		47	10	ug/L	50		95	70-130		
Methyl isobutyl ketone (MIBK)		50	5.0	ug/L	50		99	70-130		
Methyl tertiary butyl ether (MTBE)		10	2.0	ug/L	10		101	70-130		
Methylene chloride		11	1.0	ug/L	10		106	70-130		
Naphthalene		10	1.0	ug/L	10		105	70-130		
n-Butylbenzene		12	1.0	ug/L	10		115	70-130		
n-Propylbenzene		12	1.0	ug/L	10		117	70-130		
o-Xylene	V1	11	1.0	ug/L	10		109	70-130		
p and m-Xylene		11	1.0	ug/L	10		113	70-130		
p-Isopropyltoluene		9.4	1.0	ug/L	10		94	70-130		
sec-Butylbenzene		12	1.0	ug/L	10		119	70-130		
Styrene	V1	12	1.0	ug/L	10		123	70-130		
tert-Butylbenzene		11	1.0	ug/L	10		113	70-130		

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1080 - EPA 5030B Preparation

LCS (B1D1080-BS1)

Prepared: 04/23/21 12:28 Analyzed: 04/23/21 12:28

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Tetrachloroethene	V1	11	1.0	ug/L	10		110	70-130		
Tetrahydrofuran (THF)		95	10	ug/L	100		95	70-130		
Toluene	V1	11	1.0	ug/L	10		108	70-130		
trans-1,2-Dichloroethene		11	1.0	ug/L	10		108	70-130		
trans-1,3-Dichloropropene		11	0.50	ug/L	10		108	70-130		
Trichloroethene (TCE)		10	0.10	ug/L	10		103	70-130		
Trichlorofluoromethane		11	1.0	ug/L	10		109	70-130		
Vinyl chloride		8.5	0.050	ug/L	10		85	70-130		

LCS Dup (B1D1080-BSD1)

Prepared: 04/23/21 13:03 Analyzed: 04/23/21 13:03

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4		97	70-130	%	10					
Surrogate: 4-Bromofluorobenzene		99	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3		100	70-130	%	10					
1,1,1,2-Tetrachloroethane		11	1.0	ug/L	10		113	70-130	1	30
1,1,1-Trichloroethane		12	1.0	ug/L	10		116	70-130	3	30
1,1,2,2-Tetrachloroethane		9.8	0.50	ug/L	10		98	70-130	1	30
1,1,2-Trichloroethane		12	0.50	ug/L	10		118	70-130	18	30
1,1,2-Trichlorotrifluoroethane		10	1.0	ug/L	10		101	70-130	10	30
1,1-Dichloroethane		11	1.0	ug/L	10		114	70-130	2	30
1,1-Dichloroethene		9.5	1.0	ug/L	10		95	70-130	11	30
1,1-Dichloropropene		12	1.0	ug/L	10		117	70-130	3	30
1,2,3-Trichlorobenzene		11	1.0	ug/L	10		105	70-130	2	30
1,2,3-Trichloropropane		10	0.20	ug/L	10		101	70-130	0.1	30
1,2,4-Trichlorobenzene		11	1.0	ug/L	10		106	70-130	4	30
1,2,4-Trimethylbenzene		11	1.0	ug/L	10		115	70-130	1	30
1,2-Dibromo-3-chloropropane (DBCP)		9.5	1.0	ug/L	10		95	70-130	1	30
1,2-Dibromoethane (EDB)		12	0.50	ug/L	10		118	70-130	17	30
1,2-Dichlorobenzene		11	1.0	ug/L	10		105	70-130	3	30
1,2-Dichloroethane		11	0.20	ug/L	10		111	70-130	0.09	30
1,2-Dichloropropane		11	1.0	ug/L	10		113	70-130	2	30
1,3,5-Trimethylbenzene		11	1.0	ug/L	10		113	70-130	1	30
1,3-Dichlorobenzene		11	1.0	ug/L	10		110	70-130	27	30

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1080 - EPA 5030B Preparation

LCS Dup (B1D1080-BSD1)

Prepared: 04/23/21 13:03 Analyzed: 04/23/21 13:03

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,3-Dichloropropane		12	1.0	ug/L	10		125	70-130	17	30
1,4-Dichlorobenzene		11	1.0	ug/L	10		110	70-130	4	30
2,2-Dichloropropane		12	1.0	ug/L	10		122	70-130	5	30
2-Chlorotoluene		11	1.0	ug/L	10		112	70-130	0.4	30
4-Chlorotoluene		11	1.0	ug/L	10		112	70-130	0.4	30
Acetone		96	20	ug/L	100		96	70-130	5	30
Allyl chloride		10	1.0	ug/L	10		105	70-130	6	30
Benzene		11	0.50	ug/L	10		111	70-130	2	30
Bromobenzene		11	1.0	ug/L	10		107	70-130	2	30
Bromochloromethane		11	1.0	ug/L	10		110	70-130	0.8	30
Bromodichloromethane		11	1.0	ug/L	10		114	70-130	2	30
Bromoform		13	1.0	ug/L	10		126	70-130	15	30
Bromomethane	V1	13	2.0	ug/L	10		135	70-130	1	30
Carbon tetrachloride		11	0.20	ug/L	10		112	70-130	3	30
Chlorobenzene		11	1.0	ug/L	10		114	70-130	3	30
Chlorodibromomethane	V1	13	0.50	ug/L	10		132	70-130	15	30
Chloroethane		9.2	1.0	ug/L	10		92	70-130	12	30
Chloroform		11	1.0	ug/L	10		110	70-130	0.9	30
Chloromethane		10	1.0	ug/L	10		100	70-130	6	30
cis-1,2-Dichloroethene		11	1.0	ug/L	10		112	70-130	3	30
cis-1,3-Dichloropropene	V1	13	0.50	ug/L	10		130	70-130	16	30
Dibromomethane		11	1.0	ug/L	10		106	70-130	1	30
Dichlorodifluoromethane		9.2	1.0	ug/L	10		92	70-130	11	30
Dichlorofluoromethane		10	1.0	ug/L	10		101	70-130	10	30
Ethyl ether		8.9	1.0	ug/L	10		89	70-130	15	30
Ethylbenzene		12	1.0	ug/L	10		115	70-130	4	30
Hexachlorobutadiene		11	0.50	ug/L	10		110	70-130	1	30
Isopropylbenzene	V1	14	1.0	ug/L	10		140	70-130	18	30
Methyl ethyl ketone (MEK)		49	10	ug/L	50		98	70-130	3	30
Methyl isobutyl ketone (MIBK)		60	5.0	ug/L	50		120	70-130	19	30
Methyl tertiary butyl ether (MTBE)		10	2.0	ug/L	10		104	70-130	2	30
Methylene chloride		11	1.0	ug/L	10		107	70-130	2	30
Naphthalene		11	1.0	ug/L	10		105	70-130	0.5	30
n-Butylbenzene		12	1.0	ug/L	10		115	70-130	0	30
n-Propylbenzene		12	1.0	ug/L	10		117	70-130	0.3	30

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1080 - EPA 5030B Preparation

LCS Dup (B1D1080-BSD1)

Prepared: 04/23/21 13:03 Analyzed: 04/23/21 13:03

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
o-Xylene	V1	13	1.0	ug/L	10		132	70-130	19	30
p and m-Xylene		12	1.0	ug/L	10		117	70-130	4	30
p-Isopropyltoluene		11	1.0	ug/L	10		115	70-130	19	30
sec-Butylbenzene		12	1.0	ug/L	10		120	70-130	0.8	30
Styrene	V1	15	1.0	ug/L	10		146	70-130	17	30
tert-Butylbenzene		11	1.0	ug/L	10		111	70-130	2	30
Tetrachloroethene	V1	14	1.0	ug/L	10		138	70-130	22	30
Tetrahydrofuran (THF)		98	10	ug/L	100		98	70-130	3	30
Toluene	V1	13	1.0	ug/L	10		130	70-130	19	30
trans-1,2-Dichloroethene		11	1.0	ug/L	10		111	70-130	3	30
trans-1,3-Dichloropropene		13	0.50	ug/L	10		126	70-130	16	30
Trichloroethene (TCE)		10	0.10	ug/L	10		105	70-130	1	30
Trichlorofluoromethane		9.4	1.0	ug/L	10		94	70-130	14	30
Vinyl chloride		9.7	0.050	ug/L	10		97	70-130	13	30

Duplicate (B1D1080-DUP1)

Source: 21D1178-03

Prepared: 04/23/21 16:43 Analyzed: 04/23/21 16:43

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4	F5, Z-01a	100	70-130	%	10					
Surrogate: 4-Bromofluorobenzene	F5, Z-01a	102	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3	F5, Z-01a	104	70-130	%	10					
1,1,1,2-Tetrachloroethane	F5, Z-01a	<	1.0	ug/L		<				30
1,1,1-Trichloroethane	F5, Z-01a	0.36	1.0	ug/L		<			0	30
1,1,2,2-Tetrachloroethane	F5, Z-01a	<	0.50	ug/L		<				30
1,1,2-Trichloroethane	F5, Z-01a	<	0.50	ug/L		<				30
1,1,2-Trichlorotrifluoroethane	Z-01a, F5	4.3	1.0	ug/L		4.6			8	30
1,1-Dichloroethane	F5, Z-01a	0.36	1.0	ug/L		<			3	30
1,1-Dichloroethene	F5, Z-01a	<	1.0	ug/L		<				30
1,1-Dichloropropene	F5, Z-01a	<	1.0	ug/L		<				30
1,2,3-Trichlorobenzene	F5, Z-01a	<	1.0	ug/L		<				30
1,2,3-Trichloropropane	F5, Z-01a	<	0.20	ug/L		<				30
1,2,4-Trichlorobenzene	F5, Z-01a	<	1.0	ug/L		<				30
1,2,4-Trimethylbenzene	F5, Z-01a	<	1.0	ug/L		<				30
1,2-Dibromo-3-chloropropane (DBCP)	F5, Z-01a	<	1.0	ug/L		<				30

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1080 - EPA 5030B Preparation

Duplicate (B1D1080-DUP1)		Source: 21D1178-03		Prepared: 04/23/21 16:43		Analyzed: 04/23/21 16:43		RPD	RPD Limit
Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD
1,2-Dibromoethane (EDB)	F5, Z-01a	<	0.50	ug/L	<	<			30
1,2-Dichlorobenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
1,2-Dichloroethane	Z-01a, F5	<	0.20	ug/L	<	<			30
1,2-Dichloropropane	F5, Z-01a	<	1.0	ug/L	<	<			30
1,3,5-Trimethylbenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
1,3-Dichlorobenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
1,3-Dichloropropane	F5, Z-01a	<	1.0	ug/L	<	<			30
1,4-Dichlorobenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
2,2-Dichloropropane	Z-01a, F5	<	1.0	ug/L	<	<			30
2-Chlorotoluene	F5, Z-01a	<	1.0	ug/L	<	<			30
4-Chlorotoluene	F5, Z-01a	<	1.0	ug/L	<	<			30
Acetone	F5, Z-01a	<	20	ug/L	<	<			30
Allyl chloride	F5, Z-01a	<	1.0	ug/L	<	<			30
Benzene	F5, Z-01a	<	0.50	ug/L	<	<			30
Bromobenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
Bromochloromethane	F5, Z-01a	<	1.0	ug/L	<	<			30
Bromodichloromethane	F5, Z-01a	<	1.0	ug/L	<	<			30
Bromoform	F5, Z-01a	<	1.0	ug/L	<	<			30
Bromomethane	V1, F5, Z-01a	<	2.0	ug/L	<	<			30
Carbon tetrachloride	F5, Z-01a	<	0.20	ug/L	<	<			30
Chlorobenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
Chlorodibromomethane	F5, V1, Z-01a	<	0.50	ug/L	<	<			30
Chloroethane	F5, Z-01a	<	1.0	ug/L	<	<			30
Chloroform	F5, Z-01a	<	1.0	ug/L	<	<			30
Chloromethane	F5, Z-01a	<	1.0	ug/L	<	<			30
cis-1,2-Dichloroethene	F5, Z-01a	0.59	1.0	ug/L	<	<			30
cis-1,3-Dichloropropene	V1, F5, Z-01a	<	0.50	ug/L	<	<			30
Dibromomethane	F5, Z-01a	<	1.0	ug/L	<	<			30
Dichlorodifluoromethane	F5, Z-01a	<	1.0	ug/L	<	<			30
Dichlorofluoromethane	F5, Z-01a	<	1.0	ug/L	<	<			30
Ethyl ether	F5, Z-01a	<	1.0	ug/L	<	<			30
Ethylbenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
Hexachlorobutadiene	F5, Z-01a	<	0.50	ug/L	<	<			30
Isopropylbenzene	F5, V1, Z-01a	<	1.0	ug/L	<	<			30
Methyl ethyl ketone (MEK)	F5, Z-01a	<	10	ug/L	<	<			30

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1080 - EPA 5030B Preparation

Duplicate (B1D1080-DUP1)		Source: 21D1178-03		Prepared: 04/23/21 16:43 Analyzed: 04/23/21 16:43						
Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Methyl isobutyl ketone (MIBK)	F5, Z-01a	<	5.0	ug/L		<				30
Methyl tertiary butyl ether (MTBE)	F5, Z-01a	<	2.0	ug/L		<				30
Methylene chloride	F5, Z-01a	<	1.0	ug/L		<				30
Naphthalene	F5, Z-01a	<	1.0	ug/L		<				30
n-Butylbenzene	F5, Z-01a	<	1.0	ug/L		<				30
n-Propylbenzene	F5, Z-01a	<	1.0	ug/L		<				30
o-Xylene	F5, V1, Z-01a	<	1.0	ug/L		<				30
p and m-Xylene	F5, Z-01a	<	1.0	ug/L		<				30
p-Isopropyltoluene	F5, Z-01a	<	1.0	ug/L		<				30
sec-Butylbenzene	F5, Z-01a	<	1.0	ug/L		<				30
Styrene	V1, F5, Z-01a	<	1.0	ug/L		<				30
tert-Butylbenzene	F5, Z-01a	<	1.0	ug/L		<				30
Tetrachloroethene	V1, F5, Z-01a	0.27	1.0	ug/L		<			17	30
Tetrahydrofuran (THF)	F5, Z-01a	<	10	ug/L		<				30
Toluene	F5, V1, Z-01a	<	1.0	ug/L		<				30
trans-1,2-Dichloroethene	F5, Z-01a	<	1.0	ug/L		<				30
trans-1,3-Dichloropropene	F5, Z-01a	<	0.50	ug/L		<				30
Trichloroethene (TCE)	F5, Z-01a	1.7	0.10	ug/L		1.7			4	30
Trichlorofluoromethane	F5, Z-01a	<	1.0	ug/L		<				30
Vinyl chloride	F5, Z-01a	<	0.050	ug/L		<				30

Matrix Spike (B1D1080-MS1)		Source: 21D1178-02		Prepared: 04/23/21 13:29 Analyzed: 04/23/21 13:29						
Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4		97	70-130	%	10					
Surrogate: 4-Bromofluorobenzene		70	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3		104	70-130	%	10					
1,1,1,2-Tetrachloroethane	D2	9.8		ug/L	10		98	70-130		
1,1,1-Trichloroethane	D2	11		ug/L	10		106	70-130		
1,1,2,2-Tetrachloroethane	D2	8.8		ug/L	10		88	70-130		
1,1,2-Trichloroethane	D2	8.5		ug/L	10		85	70-130		
1,1,2-Trichlorotrifluoroethane	D2	11		ug/L	10		104	70-130		
1,1-Dichloroethane	D2	10		ug/L	10		102	70-130		
1,1-Dichloroethene	D2	10		ug/L	10		103	70-130		
1,1-Dichloropropene	D2	11		ug/L	10		107	70-130		

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1080 - EPA 5030B Preparation

Matrix Spike (B1D1080-MS1)

Source: 21D1178-02

Prepared: 04/23/21 13:29 Analyzed: 04/23/21 13:29

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,2,3-Trichlorobenzene	D2	9.6		ug/L	10		96	70-130		
1,2,3-Trichloropropane	D2	8.9		ug/L	10		89	70-130		
1,2,4-Trichlorobenzene	D2	9.4		ug/L	10		94	70-130		
1,2,4-Trimethylbenzene	D2	10		ug/L	10		102	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	D2	8.9		ug/L	10		89	70-130		
1,2-Dibromoethane (EDB)	D2	8.8		ug/L	10		88	70-130		
1,2-Dichlorobenzene	D2	9.5		ug/L	10		95	70-130		
1,2-Dichloroethane	D2	10		ug/L	10		100	70-130		
1,2-Dichloropropane	D2	10		ug/L	10		101	70-130		
1,3,5-Trimethylbenzene	D2	10		ug/L	10		102	70-130		
1,3-Dichlorobenzene	D2	9.7		ug/L	10		97	70-130		
1,3-Dichloropropane	D2	9.3		ug/L	10		93	70-130		
1,4-Dichlorobenzene	D2	9.6		ug/L	10		96	70-130		
2,2-Dichloropropane	D2	11		ug/L	10		112	70-130		
2-Chlorotoluene	D2	10		ug/L	10		100	70-130		
4-Chlorotoluene	D2	9.9		ug/L	10		99	70-130		
Acetone	D2	84		ug/L	100		83	70-130		
Allyl chloride	D2	10		ug/L	10		104	70-130		
Benzene	D2	9.9		ug/L	10		99	70-130		
Bromobenzene	D2	8.6		ug/L	10		86	70-130		
Bromochloromethane	D2	9.7		ug/L	10		97	70-130		
Bromodichloromethane	D2	10		ug/L	10		100	70-130		
Bromoform	D2	9.2		ug/L	10		92	70-130		
Bromomethane	D2, V1, Z-01	14		ug/L	10		136	70-130		
Carbon tetrachloride	D2	10		ug/L	10		105	70-130		
Chlorobenzene	D2	9.7		ug/L	10		97	70-130		
Chlorodibromomethane	D2, V1	9.7		ug/L	10		97	70-130		
Chloroethane	D2	11		ug/L	10		105	70-130		
Chloroform	D2	9.8		ug/L	10		98	70-130		
Chloromethane	D2	10		ug/L	10		103	70-130		
cis-1,2-Dichloroethene	D2	10		ug/L	10		100	70-130		
cis-1,3-Dichloropropene	D2, V1	9.5		ug/L	10		95	70-130		
Dibromomethane	D2	9.3		ug/L	10		93	70-130		
Dichlorodifluoromethane	D2	9.8		ug/L	10		98	70-130		
Dichlorofluoromethane	D2	11		ug/L	10		105	70-130		

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1080 - EPA 5030B Preparation

Matrix Spike (B1D1080-MS1)		Source: 21D1178-02		Prepared: 04/23/21 13:29		Analyzed: 04/23/21 13:29		RPD	RPD Limit	
Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Ethyl ether	D2	9.4		ug/L	10		94	70-130		
Ethylbenzene	D2	10		ug/L	10		101	70-130		
Hexachlorobutadiene	D2	10		ug/L	10		101	70-130		
Isopropylbenzene	D2, V1	11		ug/L	10		107	70-130		
Methyl ethyl ketone (MEK)	D2	44		ug/L	50		89	70-130		
Methyl isobutyl ketone (MIBK)	D2	46		ug/L	50		91	70-130		
Methyl tertiary butyl ether (MTBE)	D2	9.2		ug/L	10		92	70-130		
Methylene chloride	D2	9.6		ug/L	10		96	70-130		
Naphthalene	D2	9.6		ug/L	10		96	70-130		
n-Butylbenzene	D2	10		ug/L	10		103	70-130		
n-Propylbenzene	D2	10		ug/L	10		104	70-130		
o-Xylene	D2, V1	9.7		ug/L	10		97	70-130		
p and m-Xylene	D2	10		ug/L	10		101	70-130		
p-Isopropyltoluene	D2	10		ug/L	10		103	70-130		
sec-Butylbenzene	D2	11		ug/L	10		109	70-130		
Styrene	V1, D2	11		ug/L	10		107	70-130		
tert-Butylbenzene	D2	10		ug/L	10		104	70-130		
Tetrachloroethene	V1, D2	10		ug/L	10		101	70-130		
Tetrahydrofuran (THF)	D2	89		ug/L	100		88	70-130		
Toluene	V1, D2	9.6		ug/L	10		96	70-130		
trans-1,2-Dichloroethene	D2	10		ug/L	10		101	70-130		
trans-1,3-Dichloropropene	D2	9.3		ug/L	10		93	70-130		
Trichloroethene (TCE)	D2	9.4		ug/L	10		94	70-130		
Trichlorofluoromethane	D2	12		ug/L	10		122	70-130		
Vinyl chloride	D2	12		ug/L	10		122	70-130		

Batch B1D1098 - EPA 5030B Preparation

Blank (B1D1098-BLK1)				Prepared: 04/26/21 13:33		Analyzed: 04/26/21 13:33		RPD	RPD Limit	
Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4		99	70-130	%	10					
Surrogate: 4-Bromofluorobenzene		102	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3		103	70-130	%	10					
1,1,1,2-Tetrachloroethane		<	1.0	ug/L						

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Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1098 - EPA 5030B Preparation

Blank (B1D1098-BLK1)

Prepared: 04/26/21 13:33 Analyzed: 04/26/21 13:33

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,1,1-Trichloroethane		<	1.0	ug/L						
1,1,2,2-Tetrachloroethane		<	0.50	ug/L						
1,1,2-Trichloroethane		<	0.50	ug/L						
1,1,2-Trichlorotrifluoroethane		<	1.0	ug/L						
1,1-Dichloroethane		<	1.0	ug/L						
1,1-Dichloroethene		<	1.0	ug/L						
1,1-Dichloropropene		<	1.0	ug/L						
1,2,3-Trichlorobenzene		<	1.0	ug/L						
1,2,3-Trichloropropane		<	0.20	ug/L						
1,2,4-Trichlorobenzene		<	1.0	ug/L						
1,2,4-Trimethylbenzene		<	1.0	ug/L						
1,2-Dibromo-3-chloropropane (DBCP)		<	1.0	ug/L						
1,2-Dibromoethane (EDB)		<	0.50	ug/L						
1,2-Dichlorobenzene		<	1.0	ug/L						
1,2-Dichloroethane		<	0.20	ug/L						
1,2-Dichloropropane		<	1.0	ug/L						
1,3,5-Trimethylbenzene		<	1.0	ug/L						
1,3-Dichlorobenzene		<	1.0	ug/L						
1,3-Dichloropropane		<	1.0	ug/L						
1,4-Dichlorobenzene		<	1.0	ug/L						
2,2-Dichloropropane		<	1.0	ug/L						
2-Chlorotoluene		<	1.0	ug/L						
4-Chlorotoluene		<	1.0	ug/L						
Acetone		<	20	ug/L						
Allyl chloride		<	1.0	ug/L						
Benzene		<	0.50	ug/L						
Bromobenzene		<	1.0	ug/L						
Bromochloromethane		<	1.0	ug/L						
Bromodichloromethane		<	1.0	ug/L						
Bromoform		<	1.0	ug/L						
Bromomethane	V1	<	2.0	ug/L						
Carbon tetrachloride		<	0.20	ug/L						
Chlorobenzene		<	1.0	ug/L						
Chlorodibromomethane		<	0.50	ug/L						
Chloroethane		<	1.0	ug/L						

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1098 - EPA 5030B Preparation

Blank (B1D1098-BLK1)

Prepared: 04/26/21 13:33 Analyzed: 04/26/21 13:33

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chloroform		<	1.0	ug/L						
Chloromethane		<	1.0	ug/L						
cis-1,2-Dichloroethene		<	1.0	ug/L						
cis-1,3-Dichloropropene		<	0.50	ug/L						
Dibromomethane		<	1.0	ug/L						
Dichlorodifluoromethane		<	1.0	ug/L						
Dichlorofluoromethane		<	1.0	ug/L						
Ethyl ether		<	1.0	ug/L						
Ethylbenzene		<	1.0	ug/L						
Hexachlorobutadiene		<	0.50	ug/L						
Isopropylbenzene		<	1.0	ug/L						
Methyl ethyl ketone (MEK)		<	10	ug/L						
Methyl isobutyl ketone (MIBK)		<	5.0	ug/L						
Methyl tertiary butyl ether (MTBE)		<	2.0	ug/L						
Methylene chloride		<	1.0	ug/L						
Naphthalene		<	1.0	ug/L						
n-Butylbenzene		<	1.0	ug/L						
n-Propylbenzene		<	1.0	ug/L						
o-Xylene		<	1.0	ug/L						
p and m-Xylene		<	1.0	ug/L						
p-Isopropyltoluene		<	1.0	ug/L						
sec-Butylbenzene		<	1.0	ug/L						
Styrene		<	1.0	ug/L						
tert-Butylbenzene		<	1.0	ug/L						
Tetrachloroethene		<	1.0	ug/L						
Tetrahydrofuran (THF)		<	10	ug/L						
Toluene		<	1.0	ug/L						
trans-1,2-Dichloroethene		<	1.0	ug/L						
trans-1,3-Dichloropropene		<	0.50	ug/L						
Trichloroethene (TCE)		<	0.10	ug/L						
Trichlorofluoromethane		<	1.0	ug/L						
Vinyl chloride		<	0.050	ug/L						

FINAL REPORT

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Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1098 - EPA 5030B Preparation

LCS (B1D1098-BS1)

Prepared: 04/26/21 11:27 Analyzed: 04/26/21 11:27

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4		98	70-130	%	10					
Surrogate: 4-Bromofluorobenzene		100	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3		96	70-130	%	10					
1,1,1,2-Tetrachloroethane		11	1.0	ug/L	10		107	70-130		
1,1,1-Trichloroethane		11	1.0	ug/L	10		109	70-130		
1,1,2,2-Tetrachloroethane		9.0	0.50	ug/L	10		90	70-130		
1,1,2-Trichloroethane		9.6	0.50	ug/L	10		96	70-130		
1,1,2-Trichlorotrifluoroethane		11	1.0	ug/L	10		112	70-130		
1,1-Dichloroethane		11	1.0	ug/L	10		108	70-130		
1,1-Dichloroethene		11	1.0	ug/L	10		110	70-130		
1,1-Dichloropropene		11	1.0	ug/L	10		109	70-130		
1,2,3-Trichlorobenzene		10	1.0	ug/L	10		102	70-130		
1,2,3-Trichloropropane		9.0	0.20	ug/L	10		90	70-130		
1,2,4-Trichlorobenzene		11	1.0	ug/L	10		106	70-130		
1,2,4-Trimethylbenzene		11	1.0	ug/L	10		109	70-130		
1,2-Dibromo-3-chloropropane (DBCP)		8.3	1.0	ug/L	10		83	70-130		
1,2-Dibromoethane (EDB)		9.5	0.50	ug/L	10		95	70-130		
1,2-Dichlorobenzene		10	1.0	ug/L	10		102	70-130		
1,2-Dichloroethane		10	0.20	ug/L	10		104	70-130		
1,2-Dichloropropane		10	1.0	ug/L	10		104	70-130		
1,3,5-Trimethylbenzene		11	1.0	ug/L	10		108	70-130		
1,3-Dichlorobenzene		11	1.0	ug/L	10		106	70-130		
1,3-Dichloropropane		9.8	1.0	ug/L	10		98	70-130		
1,4-Dichlorobenzene		11	1.0	ug/L	10		108	70-130		
2,2-Dichloropropane		11	1.0	ug/L	10		112	70-130		
2-Chlorotoluene		11	1.0	ug/L	10		106	70-130		
4-Chlorotoluene		11	1.0	ug/L	10		107	70-130		
Acetone		83	20	ug/L	100		83	70-130		
Allyl chloride		11	1.0	ug/L	10		110	70-130		
Benzene		11	0.50	ug/L	10		106	70-130		
Bromobenzene		11	1.0	ug/L	10		105	70-130		
Bromochloromethane		11	1.0	ug/L	10		105	70-130		
Bromodichloromethane		11	1.0	ug/L	10		106	70-130		
Bromoform		10	1.0	ug/L	10		101	70-130		

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1098 - EPA 5030B Preparation

LCS (B1D1098-BS1)

Prepared: 04/26/21 11:27 Analyzed: 04/26/21 11:27

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Bromomethane	V1	12	2.0	ug/L	10		122	70-130		
Carbon tetrachloride		11	0.20	ug/L	10		106	70-130		
Chlorobenzene		11	1.0	ug/L	10		106	70-130		
Chlorodibromomethane		11	0.50	ug/L	10		108	70-130		
Chloroethane		8.6	1.0	ug/L	10		86	70-130		
Chloroform		11	1.0	ug/L	10		106	70-130		
Chloromethane		10	1.0	ug/L	10		102	70-130		
cis-1,2-Dichloroethene		11	1.0	ug/L	10		106	70-130		
cis-1,3-Dichloropropene		10	0.50	ug/L	10		103	70-130		
Dibromomethane		10	1.0	ug/L	10		101	70-130		
Dichlorodifluoromethane		10	1.0	ug/L	10		103	70-130		
Dichlorofluoromethane		11	1.0	ug/L	10		106	70-130		
Ethyl ether		9.9	1.0	ug/L	10		99	70-130		
Ethylbenzene		11	1.0	ug/L	10		107	70-130		
Hexachlorobutadiene		11	0.50	ug/L	10		109	70-130		
Isopropylbenzene		11	1.0	ug/L	10		112	70-130		
Methyl ethyl ketone (MEK)		44	10	ug/L	50		87	70-130		
Methyl isobutyl ketone (MIBK)		45	5.0	ug/L	50		89	70-130		
Methyl tertiary butyl ether (MTBE)		9.8	2.0	ug/L	10		98	70-130		
Methylene chloride		10	1.0	ug/L	10		104	70-130		
Naphthalene		9.7	1.0	ug/L	10		97	70-130		
n-Butylbenzene		11	1.0	ug/L	10		108	70-130		
n-Propylbenzene		11	1.0	ug/L	10		110	70-130		
o-Xylene		11	1.0	ug/L	10		107	70-130		
p and m-Xylene		11	1.0	ug/L	10		109	70-130		
p-Isopropyltoluene		11	1.0	ug/L	10		110	70-130		
sec-Butylbenzene		11	1.0	ug/L	10		113	70-130		
Styrene		12	1.0	ug/L	10		118	70-130		
tert-Butylbenzene		11	1.0	ug/L	10		106	70-130		
Tetrachloroethene		11	1.0	ug/L	10		112	70-130		
Tetrahydrofuran (THF)		88	10	ug/L	100		88	70-130		
Toluene		10	1.0	ug/L	10		103	70-130		
trans-1,2-Dichloroethene		11	1.0	ug/L	10		107	70-130		
trans-1,3-Dichloropropene		9.9	0.50	ug/L	10		99	70-130		
Trichloroethene (TCE)		10	0.10	ug/L	10		100	70-130		

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Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1098 - EPA 5030B Preparation

LCS (B1D1098-BS1)

Prepared: 04/26/21 11:27 Analyzed: 04/26/21 11:27

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Trichlorofluoromethane		11	1.0	ug/L	10		108	70-130		
Vinyl chloride		9.8	0.050	ug/L	10		98	70-130		

LCS Dup (B1D1098-BSD1)

Prepared: 04/26/21 12:02 Analyzed: 04/26/21 12:02

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4		98	70-130	%	10					
Surrogate: 4-Bromofluorobenzene		100	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3		100	70-130	%	10					
1,1,1,2-Tetrachloroethane		11	1.0	ug/L	10		108	70-130	1	30
1,1,1-Trichloroethane		11	1.0	ug/L	10		114	70-130	4	30
1,1,2,2-Tetrachloroethane		9.5	0.50	ug/L	10		95	70-130	6	30
1,1,2-Trichloroethane		9.7	0.50	ug/L	10		97	70-130	1	30
1,1,2-Trichlorotrifluoroethane		11	1.0	ug/L	10		110	70-130	2	30
1,1-Dichloroethane		11	1.0	ug/L	10		109	70-130	1	30
1,1-Dichloroethene		11	1.0	ug/L	10		105	70-130	4	30
1,1-Dichloropropene		11	1.0	ug/L	10		113	70-130	4	30
1,2,3-Trichlorobenzene		11	1.0	ug/L	10		106	70-130	3	30
1,2,3-Trichloropropane		9.8	0.20	ug/L	10		98	70-130	9	30
1,2,4-Trichlorobenzene		11	1.0	ug/L	10		108	70-130	3	30
1,2,4-Trimethylbenzene		11	1.0	ug/L	10		111	70-130	2	30
1,2-Dibromo-3-chloropropane (DBCP)		9.7	1.0	ug/L	10		97	70-130	16	30
1,2-Dibromoethane (EDB)		10	0.50	ug/L	10		100	70-130	5	30
1,2-Dichlorobenzene		10	1.0	ug/L	10		103	70-130	1	30
1,2-Dichloroethane		11	0.20	ug/L	10		106	70-130	2	30
1,2-Dichloropropane		11	1.0	ug/L	10		107	70-130	3	30
1,3,5-Trimethylbenzene		11	1.0	ug/L	10		110	70-130	2	30
1,3-Dichlorobenzene		11	1.0	ug/L	10		108	70-130	2	30
1,3-Dichloropropane		10	1.0	ug/L	10		102	70-130	4	30
1,4-Dichlorobenzene		11	1.0	ug/L	10		108	70-130	0.3	30
2,2-Dichloropropane		12	1.0	ug/L	10		116	70-130	3	30
2-Chlorotoluene		11	1.0	ug/L	10		108	70-130	1	30
4-Chlorotoluene		11	1.0	ug/L	10		107	70-130	0.09	30
Acetone		92	20	ug/L	100		92	70-130	10	30

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1098 - EPA 5030B Preparation

LCS Dup (B1D1098-BSD1)

Prepared: 04/26/21 12:02 Analyzed: 04/26/21 12:02

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Allyl chloride		11	1.0	ug/L	10		109	70-130	0.9	30
Benzene		11	0.50	ug/L	10		111	70-130	4	30
Bromobenzene		10	1.0	ug/L	10		105	70-130	0.2	30
Bromochloromethane		11	1.0	ug/L	10		107	70-130	1	30
Bromodichloromethane		11	1.0	ug/L	10		109	70-130	2	30
Bromoform		11	1.0	ug/L	10		107	70-130	5	30
Bromomethane	V1	12	2.0	ug/L	10		124	70-130	2	30
Carbon tetrachloride		11	0.20	ug/L	10		111	70-130	4	30
Chlorobenzene		11	1.0	ug/L	10		108	70-130	1	30
Chlorodibromomethane		11	0.50	ug/L	10		108	70-130	0.3	30
Chloroethane		8.1	1.0	ug/L	10		81	70-130	5	30
Chloroform		11	1.0	ug/L	10		108	70-130	2	30
Chloromethane		9.9	1.0	ug/L	10		99	70-130	4	30
cis-1,2-Dichloroethene		11	1.0	ug/L	10		109	70-130	3	30
cis-1,3-Dichloropropene		11	0.50	ug/L	10		106	70-130	3	30
Dibromomethane		10	1.0	ug/L	10		103	70-130	2	30
Dichlorodifluoromethane		11	1.0	ug/L	10		106	70-130	3	30
Dichlorofluoromethane		11	1.0	ug/L	10		109	70-130	2	30
Ethyl ether		10	1.0	ug/L	10		102	70-130	3	30
Ethylbenzene		11	1.0	ug/L	10		109	70-130	2	30
Hexachlorobutadiene		11	0.50	ug/L	10		112	70-130	3	30
Isopropylbenzene		12	1.0	ug/L	10		115	70-130	3	30
Methyl ethyl ketone (MEK)		50	10	ug/L	50		100	70-130	13	30
Methyl isobutyl ketone (MIBK)		50	5.0	ug/L	50		100	70-130	12	30
Methyl tertiary butyl ether (MTBE)		10	2.0	ug/L	10		102	70-130	4	30
Methylene chloride		10	1.0	ug/L	10		100	70-130	4	30
Naphthalene		11	1.0	ug/L	10		107	70-130	10	30
n-Butylbenzene		11	1.0	ug/L	10		111	70-130	3	30
n-Propylbenzene		11	1.0	ug/L	10		113	70-130	3	30
o-Xylene		11	1.0	ug/L	10		107	70-130	0	30
p and m-Xylene		11	1.0	ug/L	10		111	70-130	2	30
p-Isopropyltoluene		11	1.0	ug/L	10		112	70-130	2	30
sec-Butylbenzene		12	1.0	ug/L	10		116	70-130	3	30
Styrene		12	1.0	ug/L	10		120	70-130	2	30
tert-Butylbenzene		11	1.0	ug/L	10		110	70-130	3	30

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1098 - EPA 5030B Preparation

LCS Dup (B1D1098-BSD1)

Prepared: 04/26/21 12:02 Analyzed: 04/26/21 12:02

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Tetrachloroethene		11	1.0	ug/L	10		114	70-130	2	30
Tetrahydrofuran (THF)		98	10	ug/L	100		98	70-130	11	30
Toluene		10	1.0	ug/L	10		105	70-130	1	30
trans-1,2-Dichloroethene		11	1.0	ug/L	10		106	70-130	0.4	30
trans-1,3-Dichloropropene		10	0.50	ug/L	10		104	70-130	6	30
Trichloroethene (TCE)		10	0.10	ug/L	10		104	70-130	4	30
Trichlorofluoromethane		11	1.0	ug/L	10		110	70-130	3	30
Vinyl chloride		8.1	0.050	ug/L	10		81	70-130	19	30

Duplicate (B1D1098-DUP1)

Source: 21D1178-13

Prepared: 04/26/21 16:49 Analyzed: 04/26/21 16:49

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4	F5, Z-01a	99	70-130	%	10					
Surrogate: 4-Bromofluorobenzene	F5, Z-01a	103	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3	Z-01a, F5	105	70-130	%	10					
1,1,1,2-Tetrachloroethane	F5, Z-01a	<	1.0	ug/L		<				30
1,1,1-Trichloroethane	F5, Z-01a	0.12	1.0	ug/L		<			9	30
1,1,2,2-Tetrachloroethane	F5, Z-01a	<	0.50	ug/L		<				30
1,1,2-Trichloroethane	F5, Z-01a	<	0.50	ug/L		<				30
1,1,2-Trichlorotrifluoroethane	F5, Z-01a	1.1	1.0	ug/L		1.0			7	30
1,1-Dichloroethane	F5, Z-01a	0.29	1.0	ug/L		<			3	30
1,1-Dichloroethene	F5, Z-01a	<	1.0	ug/L		<				30
1,1-Dichloropropene	F5, Z-01a	<	1.0	ug/L		<				30
1,2,3-Trichlorobenzene	F5, Z-01a	<	1.0	ug/L		<				30
1,2,3-Trichloropropane	F5, Z-01a	<	0.20	ug/L		<				30
1,2,4-Trichlorobenzene	F5, Z-01a	<	1.0	ug/L		<				30
1,2,4-Trimethylbenzene	F5, Z-01a	<	1.0	ug/L		<				30
1,2-Dibromo-3-chloropropane (DBCP)	F5, Z-01a	<	1.0	ug/L		<				30
1,2-Dibromoethane (EDB)	F5, Z-01a	<	0.50	ug/L		<				30
1,2-Dichlorobenzene	F5, Z-01a	<	1.0	ug/L		<				30
1,2-Dichloroethane	F5, Z-01a	<	0.20	ug/L		<				30
1,2-Dichloropropane	F5, Z-01a	<	1.0	ug/L		<				30
1,3,5-Trimethylbenzene	F5, Z-01a	<	1.0	ug/L		<				30
1,3-Dichlorobenzene	F5, Z-01a	<	1.0	ug/L		<				30

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Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1098 - EPA 5030B Preparation

Duplicate (B1D1098-DUP1)		Source: 21D1178-13		Prepared: 04/26/21 16:49		Analyzed: 04/26/21 16:49		RPD	RPD Limit
Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD
1,3-Dichloropropane	F5, Z-01a	<	1.0	ug/L	<	<			30
1,4-Dichlorobenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
2,2-Dichloropropane	F5, Z-01a	<	1.0	ug/L	<	<			30
2-Chlorotoluene	F5, Z-01a	<	1.0	ug/L	<	<			30
4-Chlorotoluene	F5, Z-01a	<	1.0	ug/L	<	<			30
Acetone	F5, Z-01a	<	20	ug/L	<	<			30
Allyl chloride	F5, Z-01a	<	1.0	ug/L	<	<			30
Benzene	F5, Z-01a	<	0.50	ug/L	<	<			30
Bromobenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
Bromochloromethane	F5, Z-01a	<	1.0	ug/L	<	<			30
Bromodichloromethane	Z-01a, F5	<	1.0	ug/L	<	<			30
Bromoform	F5, Z-01a	<	1.0	ug/L	<	<			30
Bromomethane	V1, F5, Z-01a	0.49	2.0	ug/L	<	<			30
Carbon tetrachloride	Z-01a, F5	<	0.20	ug/L	<	<			30
Chlorobenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
Chlorodibromomethane	Z-01a, F5	<	0.50	ug/L	<	<			30
Chloroethane	F5, Z-01a	<	1.0	ug/L	<	<			30
Chloroform	Z-01a, F5	<	1.0	ug/L	<	<			30
Chloromethane	F5, Z-01a	<	1.0	ug/L	<	<			30
cis-1,2-Dichloroethene	F5, Z-01a	0.38	1.0	ug/L	<	<			17 30
cis-1,3-Dichloropropene	F5, Z-01a	<	0.50	ug/L	<	<			30
Dibromomethane	F5, Z-01a	<	1.0	ug/L	<	<			30
Dichlorodifluoromethane	F5, Z-01a	<	1.0	ug/L	<	<			30
Dichlorofluoromethane	F5, Z-01a	<	1.0	ug/L	<	<			30
Ethyl ether	F5, Z-01a	<	1.0	ug/L	<	<			30
Ethylbenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
Hexachlorobutadiene	Z-01a, F5	<	0.50	ug/L	<	<			30
Isopropylbenzene	F5, Z-01a	<	1.0	ug/L	<	<			30
Methyl ethyl ketone (MEK)	F5, Z-01a	<	10	ug/L	<	<			30
Methyl isobutyl ketone (MIBK)	F5, Z-01a	<	5.0	ug/L	<	<			30
Methyl tertiary butyl ether (MTBE)	F5, Z-01a	<	2.0	ug/L	<	<			30
Methylene chloride	F5, Z-01a	<	1.0	ug/L	<	<			30
Naphthalene	F5, Z-01a	<	1.0	ug/L	<	<			30
n-Butylbenzene	Z-01a, F5	<	1.0	ug/L	<	<			30
n-Propylbenzene	F5, Z-01a	<	1.0	ug/L	<	<			30

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1098 - EPA 5030B Preparation

Duplicate (B1D1098-DUP1)

Source: 21D1178-13

Prepared: 04/26/21 16:49 Analyzed: 04/26/21 16:49

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
o-Xylene	F5, Z-01a	<	1.0	ug/L		<				30
p and m-Xylene	F5, Z-01a	<	1.0	ug/L		<				30
p-Isopropyltoluene	Z-01a, F5	<	1.0	ug/L		<				30
sec-Butylbenzene	Z-01a, F5	<	1.0	ug/L		<				30
Styrene	F5, Z-01a	<	1.0	ug/L		<				30
tert-Butylbenzene	F5, Z-01a	<	1.0	ug/L		<				30
Tetrachloroethene	F5, Z-01a	0.86	1.0	ug/L		<			5	30
Tetrahydrofuran (THF)	F5, Z-01a	<	10	ug/L		<				30
Toluene	F5, Z-01a	<	1.0	ug/L		<				30
trans-1,2-Dichloroethene	F5, Z-01a	0.36	1.0	ug/L		<			3	30
trans-1,3-Dichloropropene	F5, Z-01a	<	0.50	ug/L		<				30
Trichloroethene (TCE)	F5, Z-01a	1.1	0.10	ug/L		1.1			0.9	30
Trichlorofluoromethane	F5, Z-01a	<	1.0	ug/L		<				30
Vinyl chloride	F5, Z-01a	<	0.050	ug/L		<				30

Matrix Spike (B1D1098-MS1)

Source: 21D1178-10

Prepared: 04/26/21 12:40 Analyzed: 04/26/21 12:40

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4	F5, Z-01a	98	70-130	%	10					
Surrogate: 4-Bromofluorobenzene	F5, Z-01a	101	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3	Z-01a, F5	100	70-130	%	10					
1,1,1,2-Tetrachloroethane	F5, Z-01a	11	1.0	ug/L	10	<	113	70-130		
1,1,1-Trichloroethane	F5, Z-01a	13	1.0	ug/L	10	<	124	70-130		
1,1,2,2-Tetrachloroethane	Z-01a, F5	9.9	0.50	ug/L	10	<	99	70-130		
1,1,2-Trichloroethane	F5, Z-01a	10	0.50	ug/L	10	<	101	70-130		
1,1,2-Trichlorotrifluoroethane	F5, Z-01a	18	1.0	ug/L	10	6.3	115	70-130		
1,1-Dichloroethane	F5, Z-01a	13	1.0	ug/L	10	1.1	114	70-130		
1,1-Dichloroethene	F5, Z-01a	12	1.0	ug/L	10	<	117	70-130		
1,1-Dichloropropene	F5, Z-01a	12	1.0	ug/L	10	<	123	70-130		
1,2,3-Trichlorobenzene	F5, Z-01a	11	1.0	ug/L	10	<	106	70-130		
1,2,3-Trichloropropane	F5, Z-01a	10	0.20	ug/L	10	<	100	70-130		
1,2,4-Trichlorobenzene	Z-01a, F5	11	1.0	ug/L	10	<	106	70-130		
1,2,4-Trimethylbenzene	F5, Z-01a	12	1.0	ug/L	10	<	117	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	F5, Z-01a	9.5	1.0	ug/L	10	<	95	70-130		

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1098 - EPA 5030B Preparation

Matrix Spike (B1D1098-MS1)

Source: 21D1178-10

Prepared: 04/26/21 12:40 Analyzed: 04/26/21 12:40

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,2-Dibromoethane (EDB)	F5, Z-01a	10	0.50	ug/L	10	<	102	70-130		
1,2-Dichlorobenzene	F5, Z-01a	11	1.0	ug/L	10	<	106	70-130		
1,2-Dichloroethane	F5, Z-01a	11	0.20	ug/L	10	<	113	70-130		
1,2-Dichloropropane	F5, Z-01a	11	1.0	ug/L	10	<	113	70-130		
1,3,5-Trimethylbenzene	F5, Z-01a	12	1.0	ug/L	10	<	118	70-130		
1,3-Dichlorobenzene	F5, Z-01a	11	1.0	ug/L	10	<	111	70-130		
1,3-Dichloropropane	F5, Z-01a	11	1.0	ug/L	10	<	107	70-130		
1,4-Dichlorobenzene	F5, Z-01a	11	1.0	ug/L	10	<	110	70-130		
2,2-Dichloropropane	F5, Z-01a	13	1.0	ug/L	10	<	128	70-130		
2-Chlorotoluene	F5, Z-01a	11	1.0	ug/L	10	<	114	70-130		
4-Chlorotoluene	F5, Z-01a	11	1.0	ug/L	10	<	113	70-130		
Acetone	F5, M1, Z-01a	210	20	ug/L	100	<	210	70-130		
Allyl chloride	F5, Z-01a	12	1.0	ug/L	10	<	117	70-130		
Benzene	F5, Z-01a	12	0.50	ug/L	10	<	114	70-130		
Bromobenzene	Z-01a, F5	11	1.0	ug/L	10	<	109	70-130		
Bromochloromethane	Z-01a, F5	11	1.0	ug/L	10	<	109	70-130		
Bromodichloromethane	Z-01a, F5	12	1.0	ug/L	10	<	118	70-130		
Bromoform	Z-01a, F5	12	1.0	ug/L	10	<	120	70-130		
Bromomethane	Z-01a, M1, F5, V1	14	2.0	ug/L	10	<	138	70-130		
Carbon tetrachloride	Z-01a, F5	12	0.20	ug/L	10	<	121	70-130		
Chlorobenzene	Z-01a, F5	11	1.0	ug/L	10	<	114	70-130		
Chlorodibromomethane	Z-01a, F5	12	0.50	ug/L	10	<	119	70-130		
Chloroethane	Z-01a, F5	8.3	1.0	ug/L	10	<	83	70-130		
Chloroform	Z-01a, F5	12	1.0	ug/L	10	<	115	70-130		
Chloromethane	Z-01a, F5	12	1.0	ug/L	10	<	116	70-130		
cis-1,2-Dichloroethene	Z-01a, F5	13	1.0	ug/L	10	1.5	117	70-130		
cis-1,3-Dichloropropene	Z-01a, F5	11	0.50	ug/L	10	<	114	70-130		
Dibromomethane	Z-01a, F5	11	1.0	ug/L	10	<	109	70-130		
Dichlorodifluoromethane	Z-01a, F5	12	1.0	ug/L	10	<	117	70-130		
Dichlorofluoromethane	Z-01a, F5	12	1.0	ug/L	10	<	120	70-130		
Ethyl ether	Z-01a, F5	10	1.0	ug/L	10	<	103	70-130		
Ethylbenzene	Z-01a, F5	12	1.0	ug/L	10	<	117	70-130		
Hexachlorobutadiene	Z-01a, F5	11	0.50	ug/L	10	<	109	70-130		
Isopropylbenzene	Z-01a, F5	12	1.0	ug/L	10	<	123	70-130		
Methyl ethyl ketone (MEK)	M1, Z-01a, F5	77	10	ug/L	50	<	152	70-130		

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1098 - EPA 5030B Preparation

Matrix Spike (B1D1098-MS1)		Source: 21D1178-10		Prepared: 04/26/21 12:40		Analyzed: 04/26/21 12:40		RPD	RPD Limit	
Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Methyl isobutyl ketone (MIBK)	Z-01a, F5	55	5.0	ug/L	50	<	110	70-130		
Methyl tertiary butyl ether (MTBE)	Z-01a, F5	10	2.0	ug/L	10	<	102	70-130		
Methylene chloride	Z-01a, F5	11	1.0	ug/L	10	<	108	70-130		
Naphthalene	Z-01a, F5	11	1.0	ug/L	10	<	106	70-130		
n-Butylbenzene	Z-01a, F5	11	1.0	ug/L	10	<	113	70-130		
n-Propylbenzene	Z-01a, F5	12	1.0	ug/L	10	<	120	70-130		
o-Xylene	Z-01a, F5	12	1.0	ug/L	10	<	115	70-130		
p and m-Xylene	Z-01a, F5	12	1.0	ug/L	10	<	120	70-130		
p-Isopropyltoluene	Z-01a, F5	12	1.0	ug/L	10	<	117	70-130		
sec-Butylbenzene	Z-01a, F5	12	1.0	ug/L	10	<	122	70-130		
Styrene	Z-01a, F5	13	1.0	ug/L	10	<	128	70-130		
tert-Butylbenzene	Z-01a, F5	12	1.0	ug/L	10	<	117	70-130		
Tetrachloroethene	Z-01a, F5	12	1.0	ug/L	10	<	119	70-130		
Tetrahydrofuran (THF)	Z-01a, F5	96	10	ug/L	100	<	96	70-130		
Toluene	Z-01a, F5	12	1.0	ug/L	10	<	114	70-130		
trans-1,2-Dichloroethene	Z-01a, F5	11	1.0	ug/L	10	<	112	70-130		
trans-1,3-Dichloropropene	Z-01a, F5	11	0.50	ug/L	10	<	111	70-130		
Trichloroethene (TCE)	Z-01a, F5	14	0.10	ug/L	10	2.8	111	70-130		
Trichlorofluoromethane	Z-01a, F5	12	1.0	ug/L	10	<	123	70-130		
Vinyl chloride	Z-01a, F5	8.0	0.050	ug/L	10	<	80	70-130		

Batch B1D1105 - EPA 5030B Preparation

Blank (B1D1105-BLK1)		Prepared: 04/28/21 14:55		Analyzed: 04/28/21 14:55		RPD	RPD Limit			
Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4		97	70-130	%	10					
Surrogate: 4-Bromofluorobenzene		113	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3		107	70-130	%	10					
1,1,1,2-Tetrachloroethane		<	1.0	ug/L						
1,1,1-Trichloroethane		<	1.0	ug/L						
1,1,2,2-Tetrachloroethane		<	0.50	ug/L						
1,1,2-Trichloroethane		<	0.50	ug/L						
1,1,2-Trichlorotrifluoroethane		<	1.0	ug/L						
1,1-Dichloroethane		<	1.0	ug/L						

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1105 - EPA 5030B Preparation

Blank (B1D1105-BLK1)

Prepared: 04/28/21 14:55 Analyzed: 04/28/21 14:55

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,1-Dichloroethene		<	1.0	ug/L						
1,1-Dichloropropene		<	1.0	ug/L						
1,2,3-Trichlorobenzene		<	1.0	ug/L						
1,2,3-Trichloropropane		<	0.20	ug/L						
1,2,4-Trichlorobenzene		<	1.0	ug/L						
1,2,4-Trimethylbenzene		<	1.0	ug/L						
1,2-Dibromo-3-chloropropane (DBCP)		<	1.0	ug/L						
1,2-Dibromoethane (EDB)		<	0.50	ug/L						
1,2-Dichlorobenzene		<	1.0	ug/L						
1,2-Dichloroethane		<	0.20	ug/L						
1,2-Dichloropropane		<	1.0	ug/L						
1,3,5-Trimethylbenzene		<	1.0	ug/L						
1,3-Dichlorobenzene		<	1.0	ug/L						
1,3-Dichloropropane		<	1.0	ug/L						
1,4-Dichlorobenzene		<	1.0	ug/L						
2,2-Dichloropropane		<	1.0	ug/L						
2-Chlorotoluene		<	1.0	ug/L						
4-Chlorotoluene		<	1.0	ug/L						
Acetone		<	20	ug/L						
Allyl chloride		<	1.0	ug/L						
Benzene		<	0.50	ug/L						
Bromobenzene		<	1.0	ug/L						
Bromochloromethane		<	1.0	ug/L						
Bromodichloromethane		<	1.0	ug/L						
Bromoform		<	1.0	ug/L						
Bromomethane	V1	<	2.0	ug/L						
Carbon tetrachloride		<	0.20	ug/L						
Chlorobenzene		<	1.0	ug/L						
Chlorodibromomethane		<	0.50	ug/L						
Chloroethane	V1	<	1.0	ug/L						
Chloroform		<	1.0	ug/L						
Chloromethane		<	1.0	ug/L						
cis-1,2-Dichloroethene		<	1.0	ug/L						
cis-1,3-Dichloropropene		<	0.50	ug/L						
Dibromomethane		<	1.0	ug/L						

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1105 - EPA 5030B Preparation

Blank (B1D1105-BLK1)

Prepared: 04/28/21 14:55 Analyzed: 04/28/21 14:55

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Dichlorodifluoromethane		<	1.0	ug/L						
Dichlorofluoromethane		<	1.0	ug/L						
Ethyl ether		<	1.0	ug/L						
Ethylbenzene		<	1.0	ug/L						
Hexachlorobutadiene		<	0.50	ug/L						
Isopropylbenzene		<	1.0	ug/L						
Methyl ethyl ketone (MEK)		<	10	ug/L						
Methyl isobutyl ketone (MIBK)		<	5.0	ug/L						
Methyl tertiary butyl ether (MTBE)		<	2.0	ug/L						
Methylene chloride		<	1.0	ug/L						
Naphthalene		<	1.0	ug/L						
n-Butylbenzene		<	1.0	ug/L						
n-Propylbenzene		<	1.0	ug/L						
o-Xylene		<	1.0	ug/L						
p and m-Xylene		<	1.0	ug/L						
p-Isopropyltoluene		<	1.0	ug/L						
sec-Butylbenzene		<	1.0	ug/L						
Styrene		<	1.0	ug/L						
tert-Butylbenzene		<	1.0	ug/L						
Tetrachloroethene		<	1.0	ug/L						
Tetrahydrofuran (THF)		<	10	ug/L						
Toluene		<	1.0	ug/L						
trans-1,2-Dichloroethene		<	1.0	ug/L						
trans-1,3-Dichloropropene		<	0.50	ug/L						
Trichloroethene (TCE)		<	0.10	ug/L						
Trichlorofluoromethane		<	1.0	ug/L						
Vinyl chloride	V1	<	0.050	ug/L						

FINAL REPORT

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Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1105 - EPA 5030B Preparation

LCS (B1D1105-BS1)

Prepared: 04/28/21 12:49 Analyzed: 04/28/21 12:49

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4		100	70-130	%	10					
Surrogate: 4-Bromofluorobenzene		112	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3		109	70-130	%	10					
1,1,1,2-Tetrachloroethane		9.8	1.0	ug/L	10		98	70-130		
1,1,1-Trichloroethane		11	1.0	ug/L	10		106	70-130		
1,1,2,2-Tetrachloroethane		11	0.50	ug/L	10		106	70-130		
1,1,2-Trichloroethane		9.9	0.50	ug/L	10		99	70-130		
1,1,2-Trichlorotrifluoroethane		10	1.0	ug/L	10		104	70-130		
1,1-Dichloroethane		12	1.0	ug/L	10		116	70-130		
1,1-Dichloroethene		10	1.0	ug/L	10		102	70-130		
1,1-Dichloropropene		11	1.0	ug/L	10		114	70-130		
1,2,3-Trichlorobenzene		9.4	1.0	ug/L	10		94	70-130		
1,2,3-Trichloropropane		11	0.20	ug/L	10		108	70-130		
1,2,4-Trichlorobenzene		9.5	1.0	ug/L	10		95	70-130		
1,2,4-Trimethylbenzene		11	1.0	ug/L	10		111	70-130		
1,2-Dibromo-3-chloropropane (DBCP)		10	1.0	ug/L	10		102	70-130		
1,2-Dibromoethane (EDB)		9.4	0.50	ug/L	10		94	70-130		
1,2-Dichlorobenzene		9.9	1.0	ug/L	10		99	70-130		
1,2-Dichloroethane		11	0.20	ug/L	10		111	70-130		
1,2-Dichloropropane		12	1.0	ug/L	10		118	70-130		
1,3,5-Trimethylbenzene		11	1.0	ug/L	10		110	70-130		
1,3-Dichlorobenzene		10	1.0	ug/L	10		101	70-130		
1,3-Dichloropropane		11	1.0	ug/L	10		108	70-130		
1,4-Dichlorobenzene		10	1.0	ug/L	10		100	70-130		
2,2-Dichloropropane		11	1.0	ug/L	10		111	70-130		
2-Chlorotoluene		11	1.0	ug/L	10		112	70-130		
4-Chlorotoluene		11	1.0	ug/L	10		113	70-130		
Acetone		110	20	ug/L	100		108	70-130		
Allyl chloride		11	1.0	ug/L	10		111	70-130		
Benzene		11	0.50	ug/L	10		111	70-130		
Bromobenzene		9.7	1.0	ug/L	10		97	70-130		
Bromochloromethane		9.7	1.0	ug/L	10		97	70-130		
Bromodichloromethane		11	1.0	ug/L	10		111	70-130		
Bromoform		9.3	1.0	ug/L	10		93	70-130		

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1105 - EPA 5030B Preparation

LCS (B1D1105-BS1)

Prepared: 04/28/21 12:49 Analyzed: 04/28/21 12:49

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Bromomethane	V1	12	2.0	ug/L	10		122	70-130		
Carbon tetrachloride		9.7	0.20	ug/L	10		97	70-130		
Chlorobenzene		10	1.0	ug/L	10		102	70-130		
Chlorodibromomethane		10	0.50	ug/L	10		100	70-130		
Chloroethane	V1	13	1.0	ug/L	10		126	70-130		
Chloroform		11	1.0	ug/L	10		106	70-130		
Chloromethane		12	1.0	ug/L	10		120	70-130		
cis-1,2-Dichloroethene		11	1.0	ug/L	10		106	70-130		
cis-1,3-Dichloropropene		11	0.50	ug/L	10		109	70-130		
Dibromomethane		10	1.0	ug/L	10		104	70-130		
Dichlorodifluoromethane		9.6	1.0	ug/L	10		96	70-130		
Dichlorofluoromethane		12	1.0	ug/L	10		116	70-130		
Ethyl ether		11	1.0	ug/L	10		106	70-130		
Ethylbenzene		11	1.0	ug/L	10		107	70-130		
Hexachlorobutadiene		9.2	0.50	ug/L	10		92	70-130		
Isopropylbenzene		11	1.0	ug/L	10		109	70-130		
Methyl ethyl ketone (MEK)		58	10	ug/L	50		116	70-130		
Methyl isobutyl ketone (MIBK)		59	5.0	ug/L	50		118	70-130		
Methyl tertiary butyl ether (MTBE)		10	2.0	ug/L	10		103	70-130		
Methylene chloride		10	1.0	ug/L	10		105	70-130		
Naphthalene		10	1.0	ug/L	10		101	70-130		
n-Butylbenzene		12	1.0	ug/L	10		115	70-130		
n-Propylbenzene		12	1.0	ug/L	10		119	70-130		
o-Xylene		10	1.0	ug/L	10		102	70-130		
p and m-Xylene		10	1.0	ug/L	10		104	70-130		
p-Isopropyltoluene		11	1.0	ug/L	10		108	70-130		
sec-Butylbenzene		12	1.0	ug/L	10		116	70-130		
Styrene		11	1.0	ug/L	10		113	70-130		
tert-Butylbenzene		11	1.0	ug/L	10		106	70-130		
Tetrachloroethene		9.3	1.0	ug/L	10		93	70-130		
Tetrahydrofuran (THF)		120	10	ug/L	100		119	70-130		
Toluene		10	1.0	ug/L	10		103	70-130		
trans-1,2-Dichloroethene		10	1.0	ug/L	10		100	70-130		
trans-1,3-Dichloropropene		11	0.50	ug/L	10		107	70-130		
Trichloroethene (TCE)		8.8	0.10	ug/L	10		88	70-130		

FINAL REPORT

Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1105 - EPA 5030B Preparation

LCS (B1D1105-BS1)

Prepared: 04/28/21 12:49 Analyzed: 04/28/21 12:49

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Trichlorofluoromethane		10	1.0	ug/L	10		104	70-130		
Vinyl chloride	V1	14	0.050	ug/L	10		144	70-130		

LCS Dup (B1D1105-BSD1)

Prepared: 04/28/21 13:26 Analyzed: 04/28/21 13:26

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4		98	70-130	%	10					
Surrogate: 4-Bromofluorobenzene		111	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3		108	70-130	%	10					
1,1,1,2-Tetrachloroethane		9.5	1.0	ug/L	10		95	70-130	3	30
1,1,1-Trichloroethane		10	1.0	ug/L	10		103	70-130	3	30
1,1,2,2-Tetrachloroethane		10	0.50	ug/L	10		104	70-130	2	30
1,1,2-Trichloroethane		9.7	0.50	ug/L	10		97	70-130	2	30
1,1,2-Trichlorotrifluoroethane		10	1.0	ug/L	10		102	70-130	2	30
1,1-Dichloroethane		11	1.0	ug/L	10		112	70-130	3	30
1,1-Dichloroethene		9.7	1.0	ug/L	10		97	70-130	4	30
1,1-Dichloropropene		11	1.0	ug/L	10		110	70-130	3	30
1,2,3-Trichlorobenzene		9.3	1.0	ug/L	10		93	70-130	1	30
1,2,3-Trichloropropane		11	0.20	ug/L	10		107	70-130	1	30
1,2,4-Trichlorobenzene		9.3	1.0	ug/L	10		93	70-130	2	30
1,2,4-Trimethylbenzene		11	1.0	ug/L	10		108	70-130	3	30
1,2-Dibromo-3-chloropropane (DBCP)		9.5	1.0	ug/L	10		95	70-130	7	30
1,2-Dibromoethane (EDB)		9.2	0.50	ug/L	10		92	70-130	2	30
1,2-Dichlorobenzene		9.6	1.0	ug/L	10		96	70-130	3	30
1,2-Dichloroethane		10	0.20	ug/L	10		104	70-130	6	30
1,2-Dichloropropane		11	1.0	ug/L	10		112	70-130	5	30
1,3,5-Trimethylbenzene		11	1.0	ug/L	10		107	70-130	3	30
1,3-Dichlorobenzene		10	1.0	ug/L	10		100	70-130	1	30
1,3-Dichloropropane		10	1.0	ug/L	10		105	70-130	3	30
1,4-Dichlorobenzene		9.9	1.0	ug/L	10		99	70-130	2	30
2,2-Dichloropropane		10	1.0	ug/L	10		104	70-130	7	30
2-Chlorotoluene		11	1.0	ug/L	10		110	70-130	1	30
4-Chlorotoluene		11	1.0	ug/L	10		109	70-130	4	30
Acetone		100	20	ug/L	100		102	70-130	5	30

FINAL REPORT

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1105 - EPA 5030B Preparation

LCS Dup (B1D1105-BSD1)

Prepared: 04/28/21 13:26 Analyzed: 04/28/21 13:26

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Allyl chloride		11	1.0	ug/L	10		105	70-130	6	30
Benzene		11	0.50	ug/L	10		107	70-130	3	30
Bromobenzene		9.5	1.0	ug/L	10		95	70-130	2	30
Bromochloromethane		9.5	1.0	ug/L	10		95	70-130	2	30
Bromodichloromethane		10	1.0	ug/L	10		103	70-130	8	30
Bromoform		9.1	1.0	ug/L	10		91	70-130	2	30
Bromomethane	V1	12	2.0	ug/L	10		116	70-130	4	30
Carbon tetrachloride		9.7	0.20	ug/L	10		97	70-130	0.6	30
Chlorobenzene		9.9	1.0	ug/L	10		99	70-130	3	30
Chlorodibromomethane		9.8	0.50	ug/L	10		98	70-130	2	30
Chloroethane	V1	12	1.0	ug/L	10		121	70-130	4	30
Chloroform		10	1.0	ug/L	10		102	70-130	3	30
Chloromethane		12	1.0	ug/L	10		116	70-130	4	30
cis-1,2-Dichloroethene		10	1.0	ug/L	10		103	70-130	2	30
cis-1,3-Dichloropropene		10	0.50	ug/L	10		104	70-130	5	30
Dibromomethane		9.8	1.0	ug/L	10		98	70-130	6	30
Dichlorodifluoromethane		9.4	1.0	ug/L	10		94	70-130	2	30
Dichlorofluoromethane		11	1.0	ug/L	10		111	70-130	5	30
Ethyl ether		10	1.0	ug/L	10		103	70-130	2	30
Ethylbenzene		10	1.0	ug/L	10		104	70-130	3	30
Hexachlorobutadiene		9.3	0.50	ug/L	10		93	70-130	1	30
Isopropylbenzene		11	1.0	ug/L	10		105	70-130	4	30
Methyl ethyl ketone (MEK)		56	10	ug/L	50		111	70-130	5	30
Methyl isobutyl ketone (MIBK)		57	5.0	ug/L	50		113	70-130	4	30
Methyl tertiary butyl ether (MTBE)		10	2.0	ug/L	10		101	70-130	2	30
Methylene chloride		10	1.0	ug/L	10		102	70-130	3	30
Naphthalene		10	1.0	ug/L	10		100	70-130	1	30
n-Butylbenzene		11	1.0	ug/L	10		112	70-130	3	30
n-Propylbenzene		11	1.0	ug/L	10		114	70-130	4	30
o-Xylene		10	1.0	ug/L	10		100	70-130	2	30
p and m-Xylene		10	1.0	ug/L	10		101	70-130	2	30
p-Isopropyltoluene		10	1.0	ug/L	10		105	70-130	3	30
sec-Butylbenzene		11	1.0	ug/L	10		114	70-130	2	30
Styrene		11	1.0	ug/L	10		110	70-130	3	30
tert-Butylbenzene		10	1.0	ug/L	10		105	70-130	1	30

FINAL REPORT

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1105 - EPA 5030B Preparation

LCS Dup (B1D1105-BSD1)

Prepared: 04/28/21 13:26 Analyzed: 04/28/21 13:26

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Tetrachloroethene		9.2	1.0	ug/L	10		92	70-130	0.8	30
Tetrahydrofuran (THF)		110	10	ug/L	100		114	70-130	4	30
Toluene		10	1.0	ug/L	10		100	70-130	2	30
trans-1,2-Dichloroethene		10	1.0	ug/L	10		102	70-130	1	30
trans-1,3-Dichloropropene		10	0.50	ug/L	10		100	70-130	7	30
Trichloroethene (TCE)		8.7	0.10	ug/L	10		87	70-130	1	30
Trichlorofluoromethane		10	1.0	ug/L	10		101	70-130	3	30
Vinyl chloride	V1	14	0.050	ug/L	10		142	70-130	1	30

Duplicate (B1D1105-DUP1)

Source: 21D1178-12RE1

Prepared: 04/28/21 15:48 Analyzed: 04/28/21 15:48

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4	H1, Z-01a	100	70-130	%	10					
Surrogate: 4-Bromofluorobenzene	H1, Z-01a	113	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3	Z-01a, H1	109	70-130	%	10					
1,1,1,2-Tetrachloroethane	H1, Z-01a	<	1.0	ug/L		<				30
1,1,1-Trichloroethane	H1, Z-01a	0.20	1.0	ug/L		<			5	30
1,1,2,2-Tetrachloroethane	H1, Z-01a	<	0.50	ug/L		<				30
1,1,2-Trichloroethane	H1, Z-01a	<	0.50	ug/L		<				30
1,1,2-Trichlorotrifluoroethane	H1, Z-01a	1.5	1.0	ug/L		1.5			0	30
1,1-Dichloroethane	H1, Z-01a	0.25	1.0	ug/L		<			4	30
1,1-Dichloroethene	H1, Z-01a	<	1.0	ug/L		<				30
1,1-Dichloropropene	H1, Z-01a	<	1.0	ug/L		<				30
1,2,3-Trichlorobenzene	H1, Z-01a	<	1.0	ug/L		<				30
1,2,3-Trichloropropane	Z-01a, H1	<	0.20	ug/L		<				30
1,2,4-Trichlorobenzene	H1, Z-01a	<	1.0	ug/L		<				30
1,2,4-Trimethylbenzene	H1, Z-01a	<	1.0	ug/L		<				30
1,2-Dibromo-3-chloropropane (DBCP)	H1, Z-01a	<	1.0	ug/L		<				30
1,2-Dibromoethane (EDB)	H1, Z-01a	<	0.50	ug/L		<				30
1,2-Dichlorobenzene	H1, Z-01a	<	1.0	ug/L		<				30
1,2-Dichloroethane	H1, Z-01a	<	0.20	ug/L		<				30
1,2-Dichloropropane	H1, Z-01a	<	1.0	ug/L		<				30
1,3,5-Trimethylbenzene	H1, Z-01a	<	1.0	ug/L		<				30
1,3-Dichlorobenzene	H1, Z-01a	<	1.0	ug/L		<				30

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Report ID: 05252021 95926

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1105 - EPA 5030B Preparation

Duplicate (B1D1105-DUP1)

Source: 21D1178-12RE1

Prepared: 04/28/21 15:48 Analyzed: 04/28/21 15:48

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,3-Dichloropropane	H1, Z-01a	<	1.0	ug/L		<				30
1,4-Dichlorobenzene	H1, Z-01a	<	1.0	ug/L		<				30
2,2-Dichloropropane	H1, Z-01a	<	1.0	ug/L		<				30
2-Chlorotoluene	H1, Z-01a	<	1.0	ug/L		<				30
4-Chlorotoluene	H1, Z-01a	<	1.0	ug/L		<				30
Acetone	H1, Z-01a	<	20	ug/L		<				30
Allyl chloride	H1, Z-01a	<	1.0	ug/L		<				30
Benzene	H1, Z-01a	<	0.50	ug/L		<				30
Bromobenzene	H1, Z-01a	<	1.0	ug/L		<				30
Bromochloromethane	Z-01a, H1	<	1.0	ug/L		<				30
Bromodichloromethane	Z-01a, H1	<	1.0	ug/L		<				30
Bromoform	Z-01a, H1	<	1.0	ug/L		<				30
Bromomethane	V1, H1, Z-01a	<	2.0	ug/L		<				30
Carbon tetrachloride	Z-01a, H1	<	0.20	ug/L		<				30
Chlorobenzene	Z-01a, H1	<	1.0	ug/L		<				30
Chlorodibromomethane	Z-01a, H1	<	0.50	ug/L		<				30
Chloroethane	V1, Z-01a, H1	<	1.0	ug/L		<				30
Chloroform	Z-01a, H1	<	1.0	ug/L		<				30
Chloromethane	H1, Z-01a	<	1.0	ug/L		<				30
cis-1,2-Dichloroethene	H1, Z-01a	<	1.0	ug/L		<				30
cis-1,3-Dichloropropene	Z-01a, H1	<	0.50	ug/L		<				30
Dibromomethane	Z-01a, H1	<	1.0	ug/L		<				30
Dichlorodifluoromethane	Z-01a, H1	<	1.0	ug/L		<				30
Dichlorofluoromethane	Z-01a, H1	<	1.0	ug/L		<				30
Ethyl ether	Z-01a, H1	<	1.0	ug/L		<				30
Ethylbenzene	Z-01a, H1	<	1.0	ug/L		<				30
Hexachlorobutadiene	Z-01a, H1	<	0.50	ug/L		<				30
Isopropylbenzene	Z-01a, H1	<	1.0	ug/L		<				30
Methyl ethyl ketone (MEK)	Z-01a, H1	<	10	ug/L		<				30
Methyl isobutyl ketone (MIBK)	Z-01a, H1	<	5.0	ug/L		<				30
Methyl tertiary butyl ether (MTBE)	Z-01a, H1	<	2.0	ug/L		<				30
Methylene chloride	Z-01a, H1	<	1.0	ug/L		<				30
Naphthalene	Z-01a, H1	<	1.0	ug/L		<				30
n-Butylbenzene	Z-01a, H1	<	1.0	ug/L		<				30
n-Propylbenzene	Z-01a, H1	<	1.0	ug/L		<				30

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Paul Moyer, Environmental Laboratory Manager
 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1105 - EPA 5030B Preparation

Duplicate (B1D1105-DUP1)

Source: 21D1178-12RE1

Prepared: 04/28/21 15:48 Analyzed: 04/28/21 15:48

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
o-Xylene	Z-01a, H1	<	1.0	ug/L		<				30
p and m-Xylene	Z-01a, H1	<	1.0	ug/L		<				30
p-Isopropyltoluene	Z-01a, H1	<	1.0	ug/L		<				30
sec-Butylbenzene	Z-01a, H1	<	1.0	ug/L		<				30
Styrene	Z-01a, H1	<	1.0	ug/L		<				30
tert-Butylbenzene	Z-01a, H1	<	1.0	ug/L		<				30
Tetrachloroethene	Z-01a, H1	<	1.0	ug/L		<				30
Tetrahydrofuran (THF)	Z-01a, H1	<	10	ug/L		<				30
Toluene	Z-01a, H1	<	1.0	ug/L		<				30
trans-1,2-Dichloroethene	Z-01a, H1	<	1.0	ug/L		<				30
trans-1,3-Dichloropropene	Z-01a, H1	<	0.50	ug/L		<				30
Trichloroethene (TCE)	Z-01a, H1	0.34	0.10	ug/L		0.35			3	30
Trichlorofluoromethane	Z-01a, H1	<	1.0	ug/L		<				30
Vinyl chloride	Z-01a, V1, H1	<	0.050	ug/L		<				30

Matrix Spike (B1D1105-MS1)

Source: 21D1178-04RE3

Prepared: 04/28/21 14:02 Analyzed: 04/28/21 14:02

Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 1,2-Dichlorobenzene-d4	H1	99	70-130	%	10					
Surrogate: 4-Bromofluorobenzene	H1	107	70-130	%	10					
Surrogate: Methyl tertiary butyl ether-d3	H1	108	70-130	%	10					
1,1,1,2-Tetrachloroethane	D2, H1	9.1		ug/L	10		91	70-130		
1,1,1-Trichloroethane	D2, H1	10		ug/L	10		103	70-130		
1,1,2,2-Tetrachloroethane	D2, H1	9.2		ug/L	10		92	70-130		
1,1,2-Trichloroethane	H1, D2	8.9		ug/L	10		89	70-130		
1,1,2-Trichlorotrifluoroethane	D2, H1	10		ug/L	10		104	70-130		
1,1-Dichloroethane	D2, H1	11		ug/L	10		112	70-130		
1,1-Dichloroethene	D2, H1	10		ug/L	10		101	70-130		
1,1-Dichloropropene	D2, H1	11		ug/L	10		114	70-130		
1,2,3-Trichlorobenzene	D2, H1	8.4		ug/L	10		84	70-130		
1,2,3-Trichloropropane	D2, H1	9.3		ug/L	10		93	70-130		
1,2,4-Trichlorobenzene	D2, H1	8.4		ug/L	10		84	70-130		
1,2,4-Trimethylbenzene	D2, H1	13		ug/L	10		103	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	D2, H1	8.6		ug/L	10		86	70-130		

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 Public Health Laboratory, Minnesota Department of Health

Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1105 - EPA 5030B Preparation

Matrix Spike (B1D1105-MS1)		Source: 21D1178-04RE3	Prepared: 04/28/21 14:02		Analyzed: 04/28/21 14:02					
Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,2-Dibromoethane (EDB)	D2, H1	8.5		ug/L	10		85	70-130		
1,2-Dichlorobenzene	D2, H1	8.8		ug/L	10		88	70-130		
1,2-Dichloroethane	D2, H1	10		ug/L	10		101	70-130		
1,2-Dichloropropane	D2, H1	11		ug/L	10		110	70-130		
1,3,5-Trimethylbenzene	H1, D2	11		ug/L	10		103	70-130		
1,3-Dichlorobenzene	D2, H1	9.4		ug/L	10		94	70-130		
1,3-Dichloropropane	D2, H1	9.5		ug/L	10		95	70-130		
1,4-Dichlorobenzene	D2, H1	9.2		ug/L	10		92	70-130		
2,2-Dichloropropane	D2, H1	11		ug/L	10		106	70-130		
2-Chlorotoluene	D2, H1	11		ug/L	10		105	70-130		
4-Chlorotoluene	D2, H1	10		ug/L	10		104	70-130		
Acetone	D2, H1	95		ug/L	100		95	70-130		
Allyl chloride	D2, H1	11		ug/L	10		107	70-130		
Benzene	D2, H1	11		ug/L	10		106	70-130		
Bromobenzene	D2, H1	8.9		ug/L	10		89	70-130		
Bromochloromethane	D2, H1	9.1		ug/L	10		91	70-130		
Bromodichloromethane	D2, H1	10		ug/L	10		100	70-130		
Bromoform	H1, D2	8.1		ug/L	10		81	70-130		
Bromomethane	V1, H1, D2	13		ug/L	10		120	70-130		
Carbon tetrachloride	H1, D2	9.6		ug/L	10		96	70-130		
Chlorobenzene	H1, D2	9.5		ug/L	10		95	70-130		
Chlorodibromomethane	H1, D2	9.1		ug/L	10		91	70-130		
Chloroethane	V1, M1, H1, D2	13		ug/L	10		132	70-130		
Chloroform	H1, D2	10		ug/L	10		102	70-130		
Chloromethane	H1, D2	13		ug/L	10		128	70-130		
cis-1,2-Dichloroethene	H1, D2	10		ug/L	10		102	70-130		
cis-1,3-Dichloropropene	H1, D2	9.8		ug/L	10		98	70-130		
Dibromomethane	H1, D2	9.2		ug/L	10		92	70-130		
Dichlorodifluoromethane	H1, D2	11		ug/L	10		105	70-130		
Dichlorofluoromethane	H1, D2	11		ug/L	10		111	70-130		
Ethyl ether	H1, D2	9.5		ug/L	10		95	70-130		
Ethylbenzene	H1, D2	14		ug/L	10		101	70-130		
Hexachlorobutadiene	H1, D2	8.7		ug/L	10		87	70-130		
Isopropylbenzene	H1, D2	10		ug/L	10		103	70-130		
Methyl ethyl ketone (MEK)	H1, D2	50		ug/L	50		100	70-130		

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Final Report
 Quality Control

Program Code: PL	Project ID: PRJ07955
Program Name: Metro MERLA-SF	Facility Name/ID: SR0001353
Collected By: Elliott Allen	City: FY21 Groundwater Investigation
Collector ID: None	Generated: 05/25/21 9:58

Results were produced by Minnesota Department of Health, except where noted.

Batch B1D1105 - EPA 5030B Preparation

Matrix Spike (B1D1105-MS1)		Source: 21D1178-04RE3	Prepared: 04/28/21 14:02		Analyzed: 04/28/21 14:02					
Analyte	Analyte Qualifier(s)	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Methyl isobutyl ketone (MIBK)	H1, D2	50		ug/L	50		100	70-130		
Methyl tertiary butyl ether (MTBE)	D2, H1	9.3		ug/L	10		93	70-130		
Methylene chloride	H1, D2	9.9		ug/L	10		99	70-130		
Naphthalene	D2, H1	9.4		ug/L	10		88	70-130		
n-Butylbenzene	D2, H1	11		ug/L	10		107	70-130		
n-Propylbenzene	H1, D2	12		ug/L	10		111	70-130		
o-Xylene	D2, H1	13		ug/L	10		96	70-130		
p and m-Xylene	D2, H1	17		ug/L	10		97	70-130		
p-Isopropyltoluene	H1, D2	10		ug/L	10		101	70-130		
sec-Butylbenzene	H1, D2	11		ug/L	10		110	70-130		
Styrene	D2, H1	11		ug/L	10		106	70-130		
tert-Butylbenzene	H1, D2	10		ug/L	10		101	70-130		
Tetrachloroethene	H1, D2	9.1		ug/L	10		91	70-130		
Tetrahydrofuran (THF)	H1, D2	100		ug/L	100		102	70-130		
Toluene	H1, D2	10		ug/L	10		98	70-130		
trans-1,2-Dichloroethene	H1, D2	10		ug/L	10		100	70-130		
trans-1,3-Dichloropropene	H1, D2	9.3		ug/L	10		93	70-130		
Trichloroethene (TCE)	H1, D2	8.5		ug/L	10		85	70-130		
Trichlorofluoromethane	H1, D2	11		ug/L	10		110	70-130		
Vinyl chloride	V1, H1, D2, Z-01	16		ug/L	10		157	70-130		

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Final Report Quality Control

Data Qualifiers and Definitions

Z-01a	Unpreserved sample container. Sample and all QC ran with a calibration that used HCl preserved vials.
Z-01	Matrix spike and/or matrix spike duplicate recovery was outside the laboratory limits.
V1	Calibration verification standard recovery was above method acceptance limits. This target analyte was not detected in the sample.
T5	The reported result cannot be used for compliance purposes.
Q6	Sample was received outside of recommended temperature range.
M1	Matrix spike and/or matrix spike duplicate recovery was high; the associated laboratory control sample and/or laboratory control sample duplicate recovery was acceptable.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H1	Sample analysis performed past holding time.
F7	Submission does not meet Laboratory Sample Acceptance Policy. See comments or additional qualifiers.
F5	The sample pH was greater than 2. The sample was analyzed within the 7 day holding time.
D2	Sample required dilution due to high concentration of target analyte(s). Reporting limit has been raised.
Dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%REC	Percent Recovery


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Appendix C
Standard Operating Procedures

	Standard Operating Procedure Environmental Consulting	Creation Date:	Issue Date:	Rev.:
		08/21/2015	02/01/2018	2
SOP 101 – Field Notes and Documentation			Page 1 of 5	

A. Purpose

The objective of this Standard Operating Procedure (SOP) is to establish a consistent method and format for the use and control of documentation generated during field activities. Field notes, records, and photographs are intended to provide sufficient information that can be used to recreate the field activities and collection of environmental data. The information placed in these documents and/or records should be factual, detailed, and free of personal opinions.

A.1. Scope and Applicability

This SOP is applicable to Phase I Environmental Site Assessments (ESAs), Phase II ESAs, remedial investigations, and Response Action Plan (RAP) implementation. Documentation includes Field Report Form, additional field forms that are part of method SOPs, and photographs.

A.2. Personnel Responsibilities

The project manager (or designee) is responsible for properly preparing field personnel to perform the field work and to oversee that field documentation is collected in accordance with this SOP, site-specific or project-specific planning documents, and other applicable SOPs.

Field personnel are responsible for understanding and implementing this SOP during field activities, as well as completing appropriate Field Report Form to properly document the field activities. Field observations should be discussed with the project manager on a daily basis. If conditions change from initial expectations, a call should also be made to the project manager. Field personnel should document field activities and record field measurements as they occur and complete documentation prior to leaving the site. Field personnel are responsible for tracking the location of field documentation. Field personnel are responsible for preserving original documentation until it is provided to the project manager and placed into the permanent file or archived. Field personnel are responsible for distributing copies (or electronically preserving copies) of the documentation in a timely manner.

B. Health and Safety


Field work should be performed in accordance with the *Braun Intertec Corporate Health and Safety Manual Standard Operating Procedures* and the site-specific health and safety plan (HASP), if applicable.

C. Referenced SOPs

- None

D. Equipment and Supplies

- Field Report Form (see Attachment A) or field logbook
- Waterproof and/or indelible ink pens
- Cell phone camera or digital camera

	Standard Operating Procedure Environmental Consulting	Creation Date:	Issue Date:	Rev.:
		08/21/2015	02/01/2018	2
SOP 101 – Field Notes and Documentation			Page 2 of 5	

E. Procedure

This SOP primarily addresses documentation using the Field Report Form (see Attachment A) or field logbook. However, procedures discussed in this SOP are applicable to other types of field documentation collected. Other field records and forms (e.g., soil boring logs, Chain-of-Custody records, water sample collection records, soil vapor monitoring forms) are discussed in the specific SOP associated with that particular activity and are not described in this SOP.

E.1. Field Report Form

Field personnel will keep accurate written records of their daily activities in chronological order on a Field Report Form that will be sufficient to recreate the project field activities without reliance on memory. Entries should be legible and written in black, waterproof or indelible ink. Each page should be numbered sequentially, dated, and signed by the field author. There should be no blank lines on a page. If only part of a page is used, the remainder of the page should have an "X" drawn over it. The completion of each day's work and the end of the field project should be clearly indicated with "END DAY" or "END FIELD INVESTIGATION."


If pre-printed adhesive labels or other added information are glued or taped onto a Field Report Form, the note taker should sign the addition. The signature should begin on the addition and extend onto the Field Report Form page so that the addition cannot be removed without detection.

At a minimum the following information should be recorded for each project:

- Site/project name
- Site location
- Site project number
- Name of project manager
- Full name of Field Report Form author
- Names of other Braun Intertec personnel on site and their role (full name and initials)
- Name of subcontractors performing work for Braun Intertec (or whose work Braun Intertec is monitoring) and the full name and phone number of their site superintendent

At a minimum, the following information should be recorded each day:

- Date
- Purpose of the day's activities
- Pertinent weather conditions (temperature, precipitation events, wind direction and speed, general air quality, particularly any ambient odors). Significant weather changes during the day should be noted
- Full name and initials of Field Report Form author, if different from previous day
- Full name and initials of other Braun Intertec personnel on site and their role, if different from previous day
- Documentation of exclusion zone setup and decontamination procedures, if applicable
- Record safety related monitoring information, including the time and location of the measurements or observations
- If not Level D, record the Personal Protective Equipment (PPE) level in which work is conducted and change in levels and the reason for the change

	Standard Operating Procedure Environmental Consulting	Creation Date:	Issue Date:	Rev.:
		08/21/2015	02/01/2018	2
SOP 101 – Field Notes and Documentation			Page 3 of 5	

- Names, phone numbers, and affiliation of all site visitors and their reason for visiting, as well as their time of arrival(s) and departure(s). The project manager should be notified immediately if regulators (e.g., Minnesota Pollution Control Agency [MPCA], Environmental Protection Agency [EPA], Occupational Safety & Health Administration [OSHA]) visit the site. [Note: “all site visitors” means those who are inspecting or observing our work or the work we are overseeing. It is not intended to include unrelated site activities or personnel.]
- Persons contacted, name, and reason for contact, and decisions made. If the person contacted is not Braun Intertec personnel, also record the phone number.

E.2. Environmental Media Sampling Data


The information below should be recorded on specific forms if they are required by the data collection method SOP, but use of the form should be documented on the Field Report Form. The following information should be recorded:

- A chronological description of field observations and sampling events (i.e., date and time)
- Sampling locations (referenced/scaled drawings or global positioning system [GPS] coordinates, if not logged) should be identified. The project manager should provide the sample nomenclature system to the field personnel for consistency and continuity on sites with multiple rounds of data collection.
- Specific data associated with sample acquisition (e.g., field parameter measurements, field screening data, and HASP monitoring data)
- Source of samples, matrix, sample identification, sample container types and preservatives (including ice), field quality assurance/quality control sample collection, preparation, and origin
- Conditions that could adversely impact samples, such as smoke, wind, rain, or dust
- Make, model, and serial number of field instruments should be recorded in the Field Report Form or in a separate calibration log along with calibration data
- Deviations from the work plan and/or SOPs
- Sketches or scaled diagrams
- Process diagrams
- Waste generated and management methods (i.e., investigation derived waste [IDW]).

E.3. Sketches and Scaled Diagrams

Draw a site map using accurate measurements or make notes on a photocopy of an existing site map. The site map should include:

- Site boundaries (or features such as street curbs, fence lines, etc., that can later be related to site boundaries)
- Street names or other references that can be related to a site location map
- Investigation and well locations with dimensions to site landmarks
- Major structures with dimensions
- North arrow
- Scale
- Date
- Initials of field personnel

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E.4. Photographs

Subject

Photographs should be taken to document existing conditions pertinent to the subject evaluation or remediation at a project site. Except when specifically required, it is unnecessary to photograph processes that are described by SOPs, but rather photograph the results of the process. **Note: Some restrictions may apply regarding Site photographic documentation.**

Composition

The three most common mistakes to avoid in providing photographic documentation are (1) too few photographs, (2) poor quality photographs, and (3) lack of subject identification in photographs. Photographic documentation should tell the story with as little need for narrative as possible.

When photographing several similar subjects or details that are not necessarily well identified in an establishing shot, such as a test excavations or test excavation spoil piles, it is recommended that you place a clip board with an identifying description in at least the first in the sequence of photographs of that subject or detail.

Scale

Where there are insufficient objects of widely known scale in a photograph, one should be placed in the photograph to provide scale. Some examples include a coin, ruler, clipboard, or cell phone.

Photographic Log


The following information should be recorded in the Field Report Form or field logbook:

- Site name, location, and field task
- Name of photographer
- Date and time the photograph was taken (verify the date/time stamp is correct if using a digital camera)
- Sequential number of the photograph
- Brief description of the subject of the photograph
- Site plan or site sketch showing the location from which the photograph was taken and the direction the photographer was facing.

E.5. Additional Field Forms/Records

Additional field records may be required for some field events. As an example, these may include soil boring logs during drilling, well construction and development records, groundwater purge and sample collection records, water level measurement records, instrument calibration records, sample container labels, sample container security tags and seals, Chain-of-Custody forms, field equipment calibration and maintenance logs and commercial shipping manifests. Use of these records described in the SOPs associated with the particular activity.

Prior to beginning field activities, field personnel will coordinate with the project manager, or designee, to determine which SOPs will be used and identify additional field forms that are required. These additional records will be maintained in a field file throughout the duration of the field activities. Copies of the records will be forwarded to the project manager (or designee) on a daily basis, if practical to do so.

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E.6. Corrections

If an error is made in an entry in the field records, corrections will be made by drawing a SINGLE straight line through the error, entering the correct information, initialing, and dating the change. Materials that obliterate the original information, such as correction fluids, tapes or markers are prohibited. If the reason for the change is not obvious, provide a brief explanation.

E.7. Data and Records Management

Field records should be forwarded to the project manager or designated staff on a daily basis, if practical. The project manager should review progress and results in detail on a daily basis and evaluate the quality of the documentation. The field personnel should scan the field records and place them in the project folder in OnBase. This preserves documentation in the event that the Field Report Form is lost, stolen, or damaged. Copies of the field notes should be maintained in accordance with the Braun Intertec Records Retention Policy and Procedures. Photographs should be uploaded to the EnCon DRAFTS project folder as soon as possible.

Individual logbooks may be assigned to large projects. These logbooks will be returned to the project manager at the completion of field work and archived with the project file. Logbooks assigned to individual personnel for recording multiple project information from multiple projects should be provided to the designated EnCon project assistant for archiving when the logbooks are filled. Each logbook should have a table of contents (TOC) and be kept up to date by the personnel to which the book is assigned.


The TOC for each logbook should list the project names and locations, project numbers, inclusive dates and logbook page numbers.

E.8. Quality Assurance/Quality Control

All personnel that perform field work will be trained in the use of this SOP. Project managers or project staff who use the field notes for interpreting data and preparing reports should provide immediate feedback to those recording field information to reinforce conformance with the SOP and correct deficiencies. Periodic random audits of all field personnel documentation will be performed by the quality assurance (QA) manager or designees.

F. References

U.S. Environmental Protection Agency, Region 4, Science and Ecosystem Support Division, Athens, Georgia, Operating Procedure: Logbooks, SESDPROC-010-R3, October 31, 2007.

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A. Purpose

The objective of this Standard Operating Procedure (SOP) is to establish a consistent method and format for visual identification and description of soil samples collected in the field. This SOP is applicable to soil samples collected during completion of soil borings (see SOP 203 – Soil Boring Observation and Sampling) and test trench excavations (see SOP 211 – Test Pit and Test Trench Observation and Sampling).

B. Health and Safety

Field work should be performed in accordance with the [Braun Intertec Corporate Health and Safety Manual Standard Operating Procedures](#) and the site-specific health and safety plan (HASP).

C. Referenced SOPs

- SOP 101 – Field Notes and Documentation
- SOP 203 – Soil Boring Observation and Sampling
- SOP 207 – Use of Hand Auger
- SOP 208 – Soil Grab Sample Collection
- SOP 209 – Soil Composite Sample Collection
- SOP 210 – Soil Stockpile Sampling
- SOP 211 – Test Pit and Test Trench Observation and Sampling
- SOP 301 – Water Level Measurement

D. Equipment and Supplies

- Soil boring or test trench log forms (see SOP 203 – Soil Boring Observation and Sampling, SOP 207 – Use of Hand Auger or SOP 211 – Test Pit and Test Trench Observation and Sampling)
- Field Report Form (see SOP 101 – Field Notes and Documentation) or field logbook
- Waterproof and/or indelible ink pens
- [Field Guide for Soil and Stratigraphic Analysis, V. 2](#), Midwest Geosciences Group Press (Field Guide)
- (Optional, but preferred) [Munsell® Soil Color Book](#) or [Munsell® Soil Color Pages](#) (Soil Color Chart)

E. Procedure


As soil samples are collected in the field, a visual identification and description will be completed as described below. The [Standard Practice for Description and Identification of Soils](#) (American Society for Testing and Materials [ASTM] D2488-17) was used to prepare this SOP, and soil descriptions should follow that document as applicable.

When visually describing soils in the field, the following information should be provided at a minimum; however, more detailed descriptions are encouraged.

Prepare the soil description **in the order shown**, separated by commas. All field personnel should have a laminated copy of the Field Guide and use it for classification of soil.

E.1. Main Soil

A description of the main soil group name using the United Soil Classification System (USCS) nomenclature (e.g., gravel, sand, silt, clay, silty sand, clayey sand, organic soil, etc.).

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E.2. Group Symbol

List the Group Symbol in parenthesis after the main soil group name. Group symbols include the following:

- SP = Well Graded Sand/Poorly Graded Sand
- SP-SM = Poorly Graded Sand with Silt
- SP-SC = Poorly Graded Sand with Clay
- SM = Silty Sand
- SC = Clayey Sand
- ML = Silt; Silt with Sand
- CL = Lean Clay; Lean Clay with Sand
- CH = Fat Clay
- GP = Well Graded Gravel/Poorly Graded Gravel
- GP-SM = Poorly Graded Gravel with Silt
- GP-SC = Poorly Graded Gravel with Clay
- GM = Silty Gravel
- GC = Clayey Gravel
- OL = Organic Clay
- OH = Organic Silt
- PT = Peat

E.3. Grain Size for Sand and Gravel

If the soil is coarse-grained (i.e., sand or gravel), include a brief description of the predominant particle grain size(s) (e.g., fine, medium, coarse) (see Field Guide).

E.4. Inclusions

Describe the percentage by volume of the soil type(s) present in the sample using ASTM adjectives based on the percentages present within the sample:


- Trace = < 5%
- Few = 5 to 10%
- Little = 10 to 25%
- Some = 30 to 45%
- Mostly = 50 to 100%

Note that whichever soil type is 50% or more of the sample will be the main soil type for Section E.1.

E.5. Unusual Materials or Debris

Note the presence of any unusual materials or debris (e.g., bricks, glass, wood). Include the specific depth interval of the occurrence of unique material in the description or in the Remarks. See SOP 203 – Soil Boring Observation and Sampling, SOP 207 – Use of Hand Auger, SOP 210 – Soil Stockpile Sampling, and SOP 211 – Test Pit and Test Trench Observation and Sampling for additional information.

Waste/debris terminology should be as specific and descriptive as possible (e.g., concrete and glass vs. demolition debris). Category names of waste/debris should not be used. Imprecise or incorrect terminology may cause undue concern among regulators. Several important distinctions should be drawn:

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- **Wood:** The term wood should not be used alone. Differentiate between tree/brush waste and lumber. To the extent feasible, lumber should be further qualified as unadulterated or treated and the type of treatment described (e.g., painted, green treated, brown treated, creosote, etc.).
- **Debris:** The term debris should not be used alone. Most often, the term is used to refer to demolition debris; however, the distinction should be drawn between demolition debris consisting of road/paving demolition debris and building demolition debris.
 - Note and carefully describe the presence of concrete pieces or blocks, bricks, bituminous/asphalt, recycled gravel, pipe, or tubing.
 - Asbestos is more frequently associated with building demolition debris; although, it can also be present with road/paving materials, particularly in cementitious utility conduits.
 - Household waste or garbage should be noted as such if present.
- **Sizes/Amounts:** Qualitative terms like small, medium, large, etc., should be avoided in favor of dimensions (i.e., inches, feet, etc.), unless they are defined by ASTM or other commonly understood conventions. When reasonable, descriptions of sizes and approximate volumes should be quantitative (e.g., “3 to 4 feet” or “less than 1 %”) rather than qualitative (e.g., “large”) or semi-quantitative (e.g., “several,” or “a few”).

E.6. Color

Describe the color of the main soil group (e.g., brown, gray, etc.). Preferably, the color should be identified using a Soil Color Chart. The Soil Color Chart is a good resource for characterization of color at sites with complicated geology. The soil color should be described for moist samples along with the color code from the Soil Color Chart in parentheses. If the soil sample contains layers or patches of varying colors (e.g., mottled), this should be noted and representative colors shall be described. If the color described is for dry soils, this must be noted on the log.

Mottling

Mottling is a patchwork of different colors in mineral soil (usually orange or rust against a background of grey or blue) which indicates periods of anaerobic (wet) conditions. If mottling is present, note the fraction of the sample that is mottled (e.g., 1/2 mottled and the color of the mottle).

E.7. Moisture


Describe the overall moisture of the soil sample using the terms dry, moist, or wet (do not use the term “saturated”):

- Dry = absence of moisture, dusty, dry
- Moist = damp, but no visible water
- Wet = visible water; usually soil is below the water table or perched water

E.8. Consistency

If the soil is fine-grained (i.e., clay or silt), describe the consistency based on finger pressure:

- Very soft = thumb will penetrate soil more than 1 inch
- Soft = thumb will penetrate soil about 1 inch
- Firm = thumb will penetrate soil about 1/4 inch
- Hard = thumb will not indent soil, but thumbnail will easily make a mark
- Very hard = thumbnail will not indent soil

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E.9. Staining

Indicate if the soil appears to have staining, for example from petroleum or chemical contamination.

E.10. Odor

Indicate any odors that are present such as organic or unusual odors. Soils that have a significant amount of organic content usually have a distinct color and odor. If the odor is of decaying vegetation, state that there is an “organic odor” present. If the odor is unusual (petroleum, herbicides, chemicals) describe the odor intensity (strong, moderate, mild, no odor) and a general descriptor. However, do not use specific chemical names to describe the odor. For example, stating that “a strong petroleum-like odor is present from 2 to 3 feet bgs” is correct; however, stating that the soil “has a gasoline odor” is NOT correct.

Note: When smelling soil, do not inhale deeply or repeatedly; the chemicals present may represent a health risk.

E.11. Structure

Describe any structures present in the soil sample as follows:

- Stratified = alternating layer of varying materials or color layers at least 1/4 inch or greater, note thickness.
- Laminated = alternating layer of varying materials or color layers less than 1/4 inch thick, note thickness.
- Fissured = Breaks along definite planes of fracture with little resistant to fracturing.
- Slickensided = Fracture planes appear polished or glossy.
- Blocky = cohesive soil that can be broken down into angular lumps which resist further breakdown.
- Lensed = Inclusions of small pockets of different soils such as small lenses of sand scattered in a mass of clay, note thickness.
- Homogeneous = same color and appearance throughout.

E.12. Plasticity

Describe the plasticity of the soil sample as follows:


- Nonplastic = A 1/8-inch (3-mm) thread cannot be rolled at any water content.
- Low = The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.
- Medium = The thread is easily rolled and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
- High = It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

E.13. Cementation

Note if any cementation is present.

E.14. Fill

If the soil is fill or probable fill, note in brackets (e.g., [fill], [probable fill]).

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E.15. Examples

The following are examples of correct visual soil classifications:

- Poorly graded sand with silt (SP-SM), fine- to medium-grained, light brown, moist.
- Silty sand (SM), mostly sand with some low plasticity fines and trace gravel, sand is fine- to medium-grained, dark brown (10YR 3/3), moist, firm, homogeneous.
- Clay (CL), mostly fines with trace sand, soft, gray (7.5YR 5/1), wet, laminated, moderate chemical odor(s), medium to high plasticity, [fill].
- Silty sand (SM), medium- to coarse-grained, 25-30% debris—concrete 4-6" pieces, glass <1" pieces, very dark brown, moist [fill].

E.16. Groundwater

If groundwater is encountered, note the depth to water in the log (refer to SOP 301 – Water Level Measurement).

E.17. Collecting Soil Samples

If soil samples are collected for laboratory analysis, refer to the appropriate SOPs including SOP 203 – Soil Boring Observation and Sampling, SOP 207 – Use of Hand Auger, SOP 208 – Soil Grab Sample Collection, SOP 209 – Soil Composite Sample Collection, SOP 210 – Soil Stockpile Sampling, and SOP 211 – Test Pit and Test Trench Observation and Sampling.

E.18. Geotechnical Logs

To ensure consistent logs across Braun Intertec disciplines, soil samples will be collected and classified by a Braun Intertec Geotechnical Engineer. The Geotechnical Engineer’s log is a supplement to the field log and is not meant to be a replacement for the field log.

Place one or more representative portions of each two-foot interval into sealable moisture-proof containers (jars or quart-sized polyethylene sealable bags) without ramming or distorting any apparent stratification. Seal the containers to prevent evaporation of soil moisture.

Affix labels to the containers indicating job designation, boring number, and sample depth. If there is a soil change within the interval, collect a soil sample for each stratum and note its depth.


Deliver the samples to a Braun Intertec soil classification lab. Include a copy of the soil boring log form.

E.19. Data and Records Management

Observations should be documented in accordance with SOP 101 – Field Notes and Documentation.

E.20. Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) procedures described in the work plan should be followed.

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A. Purpose

This Standard Operating Procedure (SOP) describes procedure for screening soil potentially contaminated with volatile organic chemicals, such as petroleum, and/or hazardous substances that can be ionized within the energy range of the photoionization detector (PID) lamp being used. The purpose of the bag headspace procedure is to assist with site soil characterization of organic chemical contamination, soil sample selection for laboratory analysis, and soil management during excavation.

A.1. Scope and Applicability

This procedure should be used during field activities where bag headspace procedures are required by regulatory guidance or site-specific work plans. This procedure is used for soil characterization and not for health and safety monitoring.

A.2. Summary of Method

A quart-size polyethylene bag with a tight sealing closure is filled with soil (approximately 1 cup) and immediately closed leaving air in the top portion of the bag (headspace). Organic vapors are allowed to accumulate in the headspace for approximately 10 minutes at room temperature. The bag is opened slightly and the tip of the PID probe is inserted to the middle of the headspace. The highest PID response observed is recorded in the field notes.

A.3. Definitions

Background Readings: The PID measurement of ambient air and bag headspace reading without soil in the bag.

Ionization energy (IE): The energy required to displace an electron and “ionize” a compound. Used more commonly than the old, but equivalent, term Ionization Potential (IP).

Photoionization Detector (PID): The PID is a portable, nonspecific, vapor/gas detector employing the principle of photoionization to detect and measure real-time concentrations of a variety of chemical compounds, both organic and inorganic, in air.

B. Health and Safety


Field work should be performed in accordance with the *Braun Intertec Corporate Health and Safety Manual Standard Operating Procedures* and the site-specific health and safety plan (HASP).

C. Referenced SOPs

- SOP 101 – Field Notes and Documentation
- SOP 201 – Classification of Soil
- SOP 205 – Calibration of MiniRAE PID

D. Equipment and Supplies

- Quart-size polyethylene sealable bags
- PID with appropriate lamp (10.6 or 11.7 electron volts [eV])
- Field Report Form (see SOP 101 – Field Notes and Documentation) or field logbook
- Waterproof and/or indelible ink pens
- Personal Protective Equipment (PPE)

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E. Procedure


E.1. Preparation

PID lamps with two different light energy (in electron volts or eV) are available for use. The 11.7-eV lamp measures the broadest range of compounds at lower sensitivity; while the 10.6-eV lamp is responsive to most commonly-studied VOCs and has higher sensitivity. The standard lamp used is 10.6 eV unless otherwise specified by the technical project manager.

Calibrate the PID onsite at least daily to yield total organic vapors in parts per million (ppm) using an isobutylene standard. If field personnel are at multiple project locations in one day, calibrate the PID upon arrival to each project location. See SOP 205 – Calibration and Operation of MiniRAE PID for calibration procedures. Record the date and results of the daily calibration.

E.2. Collection

- Visually examine the soil for staining or sheens. Note observations in field logbook. Describe the type and general amount of debris, if present, in the field logbook (see SOP 201 – Classification of Soil).
- Do not intentionally smell the soil for odors, but note unintentional olfactory indication of contamination in the field logbook.
- Collect soil samples in increments according to instructions established by the project manager or the site-specific work plan.
- **Soil samples for laboratory analysis should not be collected from the sealable bag used for headspace analysis.**
- While wearing proper PPE (Nitrile gloves at a minimum), field personnel should fill approximately one-quarter of a quart-size polyethylene sealable bag with a tight sealing closure (about 1 cup of soil), leaving air in the upper portion of the sealable bag (the volume ratio of soil: headspace should be 1:3). Close the quart-size polyethylene sealable bag immediately, making sure all soil is clear from the path of the bag's seal. Break apart the soil while vigorously shaking the bag for 15 seconds, avoiding puncturing a hole in the bag or tearing apart the zipper.
- Allow the headspace to develop in the sealable bag at room temperature (e.g., approximately 50 °F or greater) for 10 to 20 minutes. If the temperature is below approximately 50 °F, allow the headspace to develop within a heated vehicle or building. Record the ambient temperature during headspace screening.
- Vigorously shake the sealable bag again for 15 seconds. Open the sealable bag slightly, enough for the end of the PID probe tip to enter the bag and insert the tip to the middle of the headspace, avoiding contact with the soil and/or potential moisture from condensation in the sealable bag. Watch the PID screen for the highest reading (ppm). The maximum reading should appear in less than 5 seconds. Record the maximum PID reading reached in the field notes. Record the actual PID reading, do not round the number.
- In addition to screening a soil sample, a background PID headspace reading should be established in the field. Under the same conditions as the screened soil sample (heated vehicle or building, etc.), take an empty quart-size polyethylene sealable bag, puff it up with air, and insert the probe of the PID in the same way as the soil sample. Watch the screen of the PID for the highest PID reading (ppm). Record the maximum PID reading reached in the field notes. Record the actual PID reading, do not round the number.

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E.3. Cautions

PIDs provide non-specific measurement of the presence of organic compounds including the following: aromatics, ketones and aldehydes, amines and amides, chlorinated hydrocarbons, sulfur compounds, saturated and unsaturated hydrocarbons, and alcohols. The light energy in eV emitted by the PID lamp must be greater than the IE of the compound(s) of interest. However, 11.7-eV lamps should only be used when compounds with IEs over 10.6 eV are expected and are the primary contaminants. Examples include carbon tetrachloride, methylene chloride, chloroform, and 1,1,1-trichloroethane.

Consult the NIOSH Guide to Chemical Hazards for ionization energies for most common contaminants. The PID will not measure the following: radiation, air (N₂, O₂, CO₂, H₂O), natural gas (methane, ethane, propane), acid gases (HCl, HF, HNO₃), common toxics (CO, HCN, SO₂), freons, ozone, hydrogen peroxide, polychlorinated biphenyls (PCBs), or greases.

E.4. Interferences

Excessive moisture in the air or dust on the PID lamp and sensor housing can cause a false positive response on the PID. This problem can be demonstrated by a “drift” upward of the measurement or could be a sharp response to inserting the probe either into an empty sealable bag or into a sealable bag filled by blowing air into it. See SOP 205 – Calibration and Operation of MiniRAE PID for steps to take to resolve this.

E.5. Data and Records Management

Field data should be recorded and managed in accordance with SOP 101 – Field Notes and Documentation. Documentation should include the following:

- Calibration: date and result
- Maintenance performed, if any
- Background readings: ambient air and quart-size sealable bag
- Ambient air temperature at which headspace screened
- Sample identification information per sample method SOP
- General observations: condensed moisture in the bag, unusual odors associated with the soil sample and/or ambient air

E.6. Quality Assurance/Quality Control

Field personnel should check the PID maintenance log before beginning each new job to make sure that scheduled maintenance is current. Erratic PID responses in the field should be evaluated, and field maintenance performed or the PID should be replaced. The PID should be calibrated daily in the field.


Ambient air quality at the work site should be checked and recorded, as should a headspace sample of an empty sealable bag. All quality assurance (QA) checks should be documented in the field logbook.

Quality assurance/quality control (QA/QC) procedures described in the work plan should be followed.

F. References

Minnesota Pollution Control Agency, Soil Sample Collection and Analysis Procedures, Field Screening Procedures. Guidance Document 4-04, c-prp4-04. Petroleum Remediation Program, Minnesota Pollution Control Agency; St. Paul, MN, September 2008.

NIOSH, Pocket Guide to Chemical Hazards, NIOSH Publications; Cincinnati, OH, September 2007.

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	SOP 205 – Calibration and Operation of MiniRAE PID			Page 1 of 5

A. Purpose

The purpose of this Standard Operating Procedure (SOP) is to provide the procedure to calibrate a MiniRAE 3000 or MiniRAE Lite Photoionization Detector (PID). Proper calibration of the PID will help produce consistent and defensible field measurements. In addition, this SOP describes procedures to identify and address simple issues related to dust accumulation on the lamp and internal housing.

B. Health and Safety

The use of the MiniRAE 3000 or MiniRAE Lite PID should be in accordance with the *Braun Intertec Corporate Health and Safety Manual Standard Operating Procedures* and the site-specific health and safety plan (HASP).

C. Referenced SOPs

- SOP 101 – Field Notes and Documentation
- SOP 202 – Organic Vapor Soil Screening

D. Equipment and Supplies


- MiniRAE 3000 or MiniRAE Lite PID with appropriate lamp
- Clean moisture filter
- Isobutylene span gas (100 parts per million [ppm])
- Regulator
- Polyethylene tubing with T-connection
- Bound Calibration Record (in PID case)
- Isopropanol cleaner and Q-tips
- Field Report Form (see SOP 101 – Field Notes and Documentation) or field logbook
- Waterproof and/or indelible ink pens

E. Procedure

E.1. Prior to Leaving Office

Prior to leaving the office, ensure that the PID has power and the span gas canister is full.

Attach the regulator to the 100 ppm isobutylene span gas. The regulator has a gauge on it to show how much span gas remains in the canister. The gauge should show more than 100 pounds per square inch (PSI) of gas. If not, replace the canister with a new one.

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E.2. To Turn On

Check the probe tip for dirt or other obstructions. Clean as necessary.

Check the moisture filter for visible dirt. Replace as necessary.

Screw the probe tip and filter assembly onto the PID.

There are three buttons on the screen face of the PID:

- MODE (Φ)
- Y/+
- N/-

There is one button on the body of the instrument:

- LIGHT

Press and hold the center MODE button for a few seconds, then release. The screen will flash through a series of screens. Screens will display:

RAE
SYSTEMS

PGM-7320
VOL 01.01

MINIRAE 3000
SN 952-001736

Self test....

Test Passed!

Ready...Start Sampling?

Press the Y/+ key.


An audible whirring sound will begin, which is the air pump inside the PID.

Note: If the screen displays “Lamp” alarm, the internal lamp has failed to light. Wait for several minutes until it lights. If the “Lamp” display remains, turn off the PID, and retry turning on the instrument.

E.3. To Calibrate

Press and hold the MODE (Φ) and N/- buttons at the same time for approximately two (2) seconds. The screen will display:

ENTER PASSWORD _____

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Do not enter a password. Press MODE (Φ), or enter, again. The screen will give the options of:

CALIBRATION
 ZERO CALIB (highlighted)
 SPAN CALIB

Press the **Y/+** key to select Zero Calibration. Be sure the PID is in “zero” (i.e., fresh) air.

Press the **Y/+** key again to start the zero air calibration. Zeroing starts a 30 second countdown. When complete the screen says:

Zeroing Is Done!
 Reading = 0.0 PPM

Then the screen will give the options of:

Calibration
 Zero Calib
 Span Calib (highlighted)

Press **Y/+** to select Span Calibration. The screen will display:

C. Gas = Isobutylene
 Span = 100 ppm
 Please apply Gas 1

Attach the regulator to the 100 ppm isobutylene span gas. The regulator has gauge on it to show how much span gas remains in the canister. The gauge should show more than 50 PSI gas. If not, do not use it because the calibration may not work, replace the canister with a new one. Attach one end of the polyethylene tubing to the top of the regulator. Tubing should have a T-joint on it to provide span gas at atmospheric pressure during calibration. Attach the other end of the tubing to the PID probe. Push in and twist the control button on the regulator until the gas can be heard escaping the canister.


As soon as the tubing is in place, the PID may begin a 30 second countdown. Press “start” if the countdown does not begin automatically. After 30 seconds the screen will display:

Span 1 is done
 Reading __. __ ppm.

Turn off the span gas by pressing and twisting the control button on the regulator until the gas does not escape from the canister any longer.

Wait for the reading to drop as fresh air enters the tubing. If the reading does not drop below 1.0 ppm, repeat the calibration. If it does drop below 1.0 ppm, record the lowest number displayed as the Ambient Air Reading in the Calibration Log. Turn the span gas back on and wait for the reading to stabilize. If the reading is not within ± 5 ppm of 100 ppm, repeat the calibration. If the reading is within ± 5 ppm of 100 ppm, turn off the gas and record the number displayed as the Span Gas Reading on the Calibration Log.

Release the tubing from the PID probe and regulator. Unscrew the regulator from span gas canister.

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Complete the calibration information in the bound Calibration Record. Also note in field notes that the calibration was completed.

If the calibration does not complete normally, or if the instrument will not produce the expected readings during the calibration verification, note the failure and attempted remedy on the Calibration Record. After attempting a remedy, repeat the calibration. If the calibration does not produce the expected result contact the office to obtain instructions for other potential remedies or to obtain a replacement PID. Do not use a PID that does not calibrate properly.

E.4. To Turn Off

Press and hold the MODE (Φ) button. The instrument will count down for 5 seconds. The lights and/or alarm may flash and sound during the countdown. Release the MODE (Φ) button when the screen displays:

UNIT OFF!

E.5. Interference and Cleaning

Excessive moisture in the air can cause dust on the PID lamp and sensor housing to produce a false positive response on the PID due to current leakage across the electrodes. This problem can be demonstrated either by a “drift” upward of the measurement or a sharp response to inserting the probe either into an empty sealable bag or into a sealable bag filled by blowing air into it. Dust on the lamp and sensor is the primary reason for these responses. The sensor has two electrodes. With clean dry air and sensor components, no current can leak across the air space between the two electrodes. However, even microscopic dirt accumulations on the electrodes and Teflon parts can promote leakage. A sensor may appear to be clean, but may be dirty enough to cause current leakage.


If field personnel are observing false positive responses with the PID, they must perform a humidity response test. The humidity response test includes exhaling gently into an empty sealable bag and then inserting the probe tip into the bag. The PID should show little to no response from this test. If the PID reads more than 5 ppm, the lamp and sensor may need cleaning. Record the results of the humidity response test in the field logbook.

Take the following steps to attempt to resolve the high ambient PID readings. After each step, repeat the humidity response test. If the humidity response test passes (i.e., < 5 ppm reading), record the action in the field notes and proceed with using the PID. If the humidity response test does not pass, proceed to the next step:

- Replace or temporarily remove the moisture filter – The case should have a spare moisture filter. Discard the used filter and connect the new filter to the probe tip.
- Clean the PID lamp and sensor.
 1. Unscrew the large silver sensor cover from the front of the PID. Be careful, in some cases, the white-plastic sensor detector or lamp inside the cover may be loose. Take care not to drop them.
 2. Carefully remove the white plastic sensor detector from the PID housing. It may be necessary to hold the edges of the sensor detector and use a gentle rocking motion to remove it.

Note: Never touch the lamp surface or the gold-colored sensors with your fingers.

3. Dip a clean cotton swab into the isopropanol cleaner. Gently swab the flat surface of the lamp and the gold-colored electrodes on the back of the sensor detector.
4. Let the cleaner evaporate from the components in the air for about five minutes.

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5. Replace the sensor detector and screw the cover back onto the PID. Re-connect the probe.
 6. Allow the PID to run several minutes until the ambient reading returns to 0.
- Stop using the PID and obtain a different PID to complete the work. The PID must be professionally serviced.

E.6. Data and Records Management


Observations should be documented in accordance with SOP 101 – Field Notes and Documentation.

E.7. Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) procedures described in the work plan should be followed.

F. References

Addressing PID Instruments Moisture Sensitivity: Humidity Effect on PID Instruments, Technical Note TN-163, RAE Systems by Honeywell; San Jose, CA, February 2014.

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	SOP 308 – Trip Blanks			Page 1 of 1

A. Purpose

The purpose of this Standard Operating Procedure is to check for contamination of gasoline range organics (GRO) and volatile organic compounds (VOCs) during handling, storage, and shipment from the laboratory to the field and back to the laboratory. If contaminants are reported in the trip blank it may indicate that the investigative samples from that sampling event have been contaminated during handling, transportation, or shipment.

B. Health and Safety

Field work should be performed in accordance with the *Braun Intertec Corporate Health and Safety Manual Standard Operating Procedures* and the site-specific health and safety plan (HASP).

C. Referenced SOPs

- SOP 101 – Field Notes and Documentation
- SOP 602 – Chain-of-Custody Procedures

D. Equipment and Supplies

- Field Report Form (see SOP 101 – Field Notes and Documentation) or field logbook
- Waterproof and/or indelible ink pens
- Chain-of-Custody (COC) Form (see SOP 602 – Chain-of-Custody Procedure)
- For Water Sampling:
 - Two laboratory-prepared 40-milliliter (mL) glass vials with organic-free water in hydrochloric (HCl) acid preservative. Commonly provided in a small bubble-wrap bag.
- For Soil Sampling:
 - One laboratory-prepared 40-mL glass container with methanol preservative. Commonly provided in a small bubble-wrap bag.

E. Procedure


- The laboratory should prepare and provide VOC trip blanks with every bottle order. If it is necessary to prepare a trip blank in the office or in the field, note the exception in the field report form or field logbook and the investigation report. **Note: New trip blanks must be provided along with the laboratory bottle order for a specific project. Trip blanks prepared for a prior sampling event cannot be used.**
- Label sample containers using the identifier “TB,” “TB-#,” or a blind identifier, as necessary.
- Ensure a trip blank is located in each cooler to be used to hold the investigative samples. Preserve and handle the trip blank(s) in the same manner as investigative samples.
- Include a sample called “TB,” “TB-#,” or “Trip Blank” on the COC Form. Do not include a date or time for the sample. Check the appropriate column to indicate that the trip blank should be analyzed for GRO and/or VOCs per the investigation work plan (see SOP 602 – Chain-of-Custody Procedures).

E.1. Data and Records Management

Observations should be documented in accordance with SOP 101 – Field Notes and Documentation.

E.2. Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) procedures described in the work plan should be followed.

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SOP 311 – Groundwater Sample Collection			Page 1 of 4	

A. Purpose

This Standard Operating Procedure (SOP) provides guidelines for collection of groundwater samples for laboratory analytical testing. Groundwater samples can be collected from temporary wells (e.g., polyvinyl-chloride [PVC] casing pipe and screen installed in a soil boring) and from permanent monitoring wells. Groundwater samples can be analyzed for the presence of organic compounds, inorganic constituents, biological parameters, and radiological parameters.

Note: Wells with measurable levels of light non-aqueous phase liquid (LNAPL) are usually not sampled. Check with the project manager prior to proceeding with sampling.

B. Health and Safety


Field work should be performed in accordance with the *Braun Intertec Corporate Health and Safety Manual Standard Operating Procedures* and the site-specific health and safety plan (HASP).

C. Referenced SOPs

- SOP 101 – Field Notes and Documentation
- SOP 301 – Water Level Measurement
- SOP 308 – Trip Blanks
- SOP 309 – Field Filtering of Groundwater Samples
- SOP 312 – Well Purging and Stabilization
- SOP 316 – Calibration of Water Quality Meters
- SOP 602 – Chain-of-Custody Procedures
- SOP 603 – Sample Shipping
- SOP 701 – Decontamination of Sampling Equipment

D. Equipment and Supplies

- Pumping equipment (see applicable Sampling and Analysis Plan):
 - Low-flow submersible pump with appropriate tubing,
 - Peristaltic pump with appropriate tubing (polyethylene or silicon)
 - Inertial pump (e.g., Waterra, Solinst) with foot/check valve and appropriate tubing,
 - Tubing with bottom filling check valve (hand actuated), or
 - Bottom filling disposable bailer and rope (polypropylene or cotton)
- Appropriate laboratory-supplied containers and preservatives (see applicable Sampling and Analysis Plan)
- Sample container labels
- Trip blank, if necessary (see SOP 308 – Trip Blanks)
- Temperature blanks (one per sample cooler)
- Chain-of-Custody (COC) forms (see SOP 602 – Chain-of-Custody Procedures)
- Sample coolers
- Ice
- Gallon-size plastic bag
- Electronic water level indicator (see SOP 301 – Water Level Measurement)
- Water quality meters (if purging and stabilization required by Sampling and Analysis Plan) and purge bucket
- Spare batteries for pump equipment

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- Hand tools (such as wrenches or sockets for at grade wells or knife for cutting tubing/rope)
- Well keys, if necessary
- Groundwater Monitoring Data Sheet (see Attachment A)
- Field Report Form (see SOP 101 – Field Notes and Documentation) or field logbook
- Waterproof and/or indelible ink pens
- Cell phone camera or digital camera
- Decontamination products (see SOP 701 – Decontamination of Sampling Equipment)
- Personal Protective Equipment (PPE)

E. Procedures

E.1. Prior to Leaving for the Field

- Several days before field work is scheduled to begin, call or email the laboratory to order sample containers. It is a good idea to order extra bottles to allow for breakage, extra samples, etc. If you are unsure of the required sample volumes or proper laboratory sample containers for specific analytical parameters, ask that a written description be included with the bottle order clarifying sample container requirements.
- Before you leave for the field, be sure that you have the appropriate sample containers (including appropriate preservative) and that extra containers are included, if requested.
- **Be sure you are aware of sample volume and container requirements (discuss with analytical laboratory or project manager if unsure).**
- Place ice into each sample cooler before collecting any samples. Double-bag the ice in sealable gallon bags or sealed garbage bags to avoid potential contact of water in the cooler with sample containers.
- Place a temperature blank in each cooler and under the ice.
- If some samples will be analyzed for gasoline range organics (GRO), benzene, ethylbenzene, toluene and xylenes (BETX), or volatile organic compounds (VOCs), include a trip blank in each cooler.

E.2. Prior to Groundwater Sample Collection


- Don appropriate PPE as prescribed by the HASP.
- Sample from the least to the most contaminated well or as specified in the Sampling and Analysis Plan.
- Measure the depth to groundwater either from the top of the well casing pipe or from the ground surface. Measure the depth to groundwater to the nearest 0.01 foot using an electronic water level indicator in accordance with SOP 301 – Water Level Measurement.
- Prior to sampling the well, purging and stabilization may be required by the Sampling and Analysis Plan (see SOP 312 – Well Purging and Stabilization).

E.3. Groundwater Sample Collection

There are several ways to bring groundwater to the surface for sample collection including pumps, bailers, check valves, etc. Follow the procedure below for the appropriate sampling device.

E.3.a. Submersible Pump for Sampling

When using a submersible pump ensure that the appropriate decontamination has been completed prior to sampling and between sampling points (see SOP 701 – Decontamination of Sampling Equipment). When sampling, direct a steady stream of water into the appropriate sample container(s) at a rate specified on the applicable Sampling and Analysis Plan.

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E.3.b. Peristaltic Pump for Sampling


- Insert a length of new plastic tubing inside the well. Attach the top end of the tubing to a fitting on the peristaltic pump.
- Activate the pump to draw water into the tubing and direct the stream of water into appropriate sample container(s).
- For VOCs/GRO, the water for the sample cannot pass through the peristaltic pump body. Fill the sample vials for VOCs/GRO with water that has not passed through the pump body. Manually kink the tubing to temporarily prevent water from flowing back down the tubing, remove the tubing from the sampling point and pour the water into the sample containers after removing the kink in the tubing. Alternatively, the peristaltic pump may be reversed to push water out of the tubing into the sample containers.
- Once the sample containers are filled, remove the tubing and properly dispose (temporary well) or leave in well (permanent well) for future sampling.

E.3.c. Inertial Pump (Plastic Tubing with a Bottom Check Valve) for Sampling

- Insert a length of new or dedicated plastic tubing with a clean, bottom-mounted, stainless steel or plastic check/foot valve inside the temporary or permanent well.
- Manually or mechanically oscillate the tubing up and down. The tubing will fill with water as the ball repeatedly lifts and seats.
- Once the tubing is filled, either lift the tubing out of the well and pour the water into the sample containers or fill the sample containers from the top while the tubing is being oscillated.
- Once the sample containers are filled, remove the tubing and properly dispose (temporary well) or leave in well (permanent well) for future sampling.

E.3.d. Bailer for Sampling

- Attach an appropriate length of new polypropylene or cotton rope to a bailer.
- Lower the bailer slowly into the well, allow it to fill, and then lift it out while preventing the bailer or the rope from contacting any potentially contaminated surface, such as the ground. When using a bailer to remove the groundwater sample, take care to minimize agitation or aeration of the water as this could lead to the loss of volatiles and a non-representative sample.
- For sample collection, slowly pour the contents of the bailer into the appropriate sample container(s).

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E.4. Guidelines for Filling Sample Containers:

- Containerize samples by order of the volatilization potential of the desired analytes. For example, volatile organic analysis (VOA) vials should be filled first, followed by semi-volatiles.
- For VOCs/GRO samples, fill the container to the top so that a positive meniscus is formed. Allow air bubbles to rise to the surface, carefully and quickly screw the cap onto the container and finger tighten. Invert the sample and tap it gently, looking for any air bubbles. If the sample contains air bubbles, open the container to add more water. If bubbles continue to form because the preservative is reacting with the sample matrix there are two options: 1) discard the sample with preservative, rinse the vial with sample water, discard the rinse water, and fill the container with unpreserved sample water or 2) collect the water sample in a new unpreserved sample container. The sample with preservative and the rinse water from the sample vial should be discarded with the purge water. Note that the allowable sample hold time is reduced from 14 days to 7 days for unpreserved samples. For unpreserved samples, make a note on the COC stating that the VOC sample is unpreserved and notify the technical project manager.
- For sample containers with preservative, be careful not to overfill the container, since this would dilute the preservative.
- If the sample analysis requires field filtering of the groundwater (e.g., samples for dissolved metals analysis) follow SOP 309 – Field Filtering of Groundwater Samples.
- Complete an appropriate sample container label on all containers. Include the following information: sample identification number, date and time of collection, field personnel, job site location, well number, preservation, and analysis requested. Complete the information related to sample collection and containers used on the bottom of the Groundwater Monitoring Data Sheet (Attachment A).
- Place all samples on ice in a cooler.

E.5. After Groundwater Sample Collection

- If groundwater sampling equipment is re-used between sampling points, refer to SOP 701 – Decontamination of Sampling Equipment for decontamination of groundwater sampling equipment.
- Water samples collected in the field should be recorded on the COC (see SOP 602 – Chain-of-Custody Procedures). Information recorded on the COC should be identical to the information listed on the sample container label(s).
- Arrange for pick-up/drop off of groundwater samples in laboratory-provided coolers to the analytical laboratory. If shipping of groundwater samples to the analytical laboratory is required, follow SOP 603 – Sample Shipping.

E.6. Data and Records Management


Observations should be documented on the Groundwater Monitoring Data Sheet, field report form or field logbook in accordance with SOP 101 – Field Notes and Documentation.

E.7. Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) procedures described in the work plan should be followed.

Groundwater Monitoring Data Sheet

Client Name:			Project Name:			Well # or Sample ID:				
Contact:			Project Number:			Date:				
Weather Conditions:						Field Personnel:				
Well Information										
Chronology:			Key Number:			Casing Locked: Y N				
Casing Diameter, in:			X (casing conversion), gal/ft: 2" = 0.16, 4" = 0.65, 6" = 1.5			Well Material:				
Depth to Water (DTW), ft:			Well Depth (WD), ft:			Tubing Material:				
Water Column (WC), ft (WD - DTW):			Well Volume, gal: WC x X =							
Equipment Used:			Pump Intake Depth, ft:			Purge Start Time:				
Well Purging Procedure(s): Volume Purge Low-Flow Micropurge										
Stabilization Information										
Water Meter Used:						Calibrated Today? Y N				
	Time	Depth to Water (ft)	Purge Rate* ()	Volume Purged ()	Temp (°C)	Spec. Cond. (µS/cm)	pH	ORP** (mV)	D.O.** (mg/L)	Turbidity** (NTU)
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
* Purge Rate (GPM) = Volume (ml) * 0.00026 / Time (minutes)						** If required by sampling plan				
Stabilization Criteria (difference in final three well volumes or final turbidity result)					±0.1 °C	±5%	±0.1	±10 mV	±0.5 mg/L	±5% if >10 NTU
Stabilization Criteria in units (conductivity and turbidity)										
Actual differences or turbidity in final 3 well volumes										
Stabilized: Y N			Purge Rate ():			Comments/Observations:				
Purge Stop Time:			Purged Dry: Y N							
Duration, min:			Final Depth to Water (ft.):							
Total Volume Purged ():			No. of Well Volumes Purged = Total Volume Purged / Well Volume =							
Sample Collection										
Sample Date:			Color:			Odor:				
Sample Time:			Phases:			Sampling Method:				
Field Filtered?: Y N			Filter Method:			Parameters Filtered:				
ID	Quantity	Vendor	Sample Parameter			Material	Type	Volume	Pres.	
Duplicate Collected Here?		Y	Duplicate ID:							

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SOP 602 – Chain-of-Custody Procedures			Page 1 of 3	

A. Purpose

The purpose of the Chain-of-Custody (COC) Standard Operating Procedure (SOP) is to control environmental samples from the time they are collected until custody of the samples is accepted by the laboratory sample custodian. COC documentation serves three main purposes:

- Communicates the analytical instructions from the sampler to the analytical laboratory.
- Provides a permanent record of samples provided to the laboratory.
- Documents that samples were handled only by authorized personnel and were not available for tampering prior to analysis.

A.1. Scope and Applicability

Although few environmental samples will ever be used in criminal or civil litigation cases, most samples are collected in support of government-regulated activities. In addition, it is possible that the results of the sample analyses will be used in future litigation even if none was contemplated at the time the samples were collected. Therefore, it is important that a record of sample possession (i.e., COC) be maintained, so that control of the samples from the time of collection to the time of sample laboratory check-in can be demonstrated.

Laboratory-related sample control is described in laboratory operating and quality-control documents and is not discussed in this standard operating procedure (SOP).


This procedure should be used for control of environmental samples that include, but are not limited to those of groundwater (see SOP 311 – Groundwater Sample Collection), surface water (see SOP 314 – Surface Water Sampling), soil (see SOP 208 – Soil Grab Sample Collection and SOP 209 – Soil Composite Sample Collection), air (see SOP 402 – Indoor Air Sampling), soil vapor (see SOP 403 – Soil Vapor Sampling from a Borehole and with a Hand Probe and SOP 405 – Sub-Slab Soil Vapor Sampling), and waste.

A.2. Summary of Method

Environmental samples are collected using methods specified in the work plan or other SOPs. The samples are collected in sampling containers for the desired analyses, preserved as appropriate, and a label is affixed to each container specifying the project name and number, sample identification, date and time of collection, and sample collector. The information is entered onto the COC form and the desired analyses are indicated on the form, which also serves as the analytical request. Sample custody (possession) is maintained individually until the samples are delivered to the laboratory sample check-in. Transfer of custody is documented on the COC form by printed name, signature, date and time.

A.3. Personnel Qualifications and Responsibilities

The sampler is responsible for understanding, implementing and documenting activities related to this SOP during field activities. The sampler is responsible for transmitting a copy of field notes that have not been forwarded to the project manager or designee, as well as a copy of the COC form(s) immediately after sample check-in. If there is more than one sampler, the lead field sampler assumes these responsibilities.

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A.4. Definitions

Chain-of-Custody Procedure: A procedure whereby a sample or set of samples is maintained under physical possession or control.

Custody: Samples and data are considered to be in your custody when:

- They are in your physical possession,
- They are in your view, after being in your physical possession,
- They are in your physical possession and then locked in a room or vehicle so that tampering cannot occur, or
- They are kept in a secured area, with access restricted to authorized personnel only.

Chain-of-Custody Form: Form used to record sample identification information, test(s) requested, result reporting instructions, and sample custody.

Sample: A portion of an environmental or source matrix that is collected and used to characterize the matrix.

B. Health and Safety

Field work should be performed in accordance with the *Braun Intertec Corporate Health and Safety Manual Standard Operating Procedures* and the site-specific health and safety plan (HASP).


Department of Transportation (DOT), United States Postal Service (USPS), and Federal Aviation Administration (FAA) shipping/labeling regulations must be followed for shipped samples.

C. Referenced SOPs

- SOP 208 – Soil Grab Sample Collection
- SOP 209 – Soil Composite Sample Collection
- SOP 314 – Surface Water Sampling
- SOP 402 – Indoor Air Sampling
- SOP 403 – Soil Vapor Sampling from a Borehole and with a Hand Probe
- SOP 405 – Sub-Slab Soil Vapor Sampling

D. Equipment and Supplies

- Field Report Form (see SOP 101 – Field Notes and Documentation) or field logbook
- Waterproof or indelible ink pens
- Sample labels
- Custody seals
- Chain-of-Custody (COC) forms (see SOP 602 – Chain-of-Custody Procedure)

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E. Procedure

E.1. General Guidelines

- Keep the number of people involved in collecting and handling samples and data to a minimum.
- Only personnel associated with the project should handle samples and data.
- Always document the transfer of samples and data from one person to another on the COC form.
- Always accompany samples and data with the COC form.
- Samples should be uniquely identified, legibly, in permanent ink.
- Fill out the COC form as completely as possible. The sample identification information on the sample containers must match the COC form.
- Use a separate COC form for each cooler.

E.2. Completing COC Form

The COC form should be filled out by the sampler or designee as the samples are being collected and containerized.

E.3. Securing Samples

If you cannot maintain personal possession of the samples prior to sample check-in, they may be secured. A locked vehicle is considered controlled access (i.e., secured). A cooler sitting on the tailgate of a pickup truck or under an unlocked topper, out of direct view of the custodian is not secure. An unsecured cooler in a locked hotel room is also not within controlled access as hotel staff have access to the room. In this case, the cooler could be padlocked or custody seals could be used to secure the samples or cooler.


E.4. Data and Records Management

The original COC form is maintained by the laboratory in accordance with their file retention guidance. A copy of the record should be provided to the project manager or designee with a copy of the sampling field notes by the sampler immediately after sample check-in.

E.5. Quality Assurance Quality Control

Quality assurance/quality control (QA/QC) procedures described in the work plan should be followed.

The project manager or designee should review the COC form as soon as possible after sample check-in to verify that the information on the COC form is correct.

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	SOP 701 – Decontamination of Sampling Equipment			Page 1 of 3

A. Purpose

The purpose of the Standard Operating Procedure (SOP) is the procedure of decontaminating reusable equipment involved in soil, groundwater, and soil vapor activities. Reusable equipment must be properly decontaminated to provide chemical analysis results which are reflective of the actual concentrations present at sampling locations, and to minimize the potential for cross-contamination between sampling locations and the transfer of contamination off-site.

Applicable soil SOPs include SOP 203 – Soil Boring Observation and Sampling, SOP 208 – Soil Grab Sample Collection, SOP 209 – Soil Composite Sample Collection, SOP 210 – Soil Stockpile Sampling, and SOP 211 – Test Pit and Test Trench Observation and Sampling.

Applicable water SOPs include SOP 301 – Water Level Measurement, SOP 302 – LNAPL Level Measurement, SOP 303 – Monitoring Well Development, SOP 304 – Slug Testing, SOP 309 – Field Filtering of Groundwater Samples, SOP 310 – Monitoring Well and Piezometer Installation, SOP 311 – Groundwater Sample Collection, SOP 312 – Well Purging and Stabilization, SOP 314 – Surface Water Sampling, and SOP 316 – Calibration of Water Meters.

The applicable soil vapor SOP includes SOP 405 – Sub-Slab Soil Vapor Sampling.

Be sure to follow the site-specific sampling plan that may require special cleaning or rinsing methods, and/or special handling and disposal of wash and rinse water (also see SOP 702 – Management of Investigation Derived Waste). Additional rinses with solvents such as hexane, acetone, or acid may be required by the site-specific sampling plan, but are not covered in this SOP.


B. Health and Safety

Field work should be performed in accordance with the *Braun Intertec Corporate Health and Safety Manual Standard Operating Procedures* and the site-specific health and safety plan (HASP).

Nitrile gloves should be worn during decontamination activities to reduce the incidence of skin contact with potentially contaminated soil/groundwater and to reduce the risk of cross-contamination. In certain situations, long-sleeved rubber gloves may be needed to prevent contact.

C. Referenced SOPs

- SOP 101 – Field Notes and Documentation
- SOP 203 – Soil Boring Observation and Sampling
- SOP 208 – Soil Grab Sample Collection
- SOP 209 – Soil Composite Sample Collection
- SOP 210 – Soil Stockpile Sampling
- SOP 211 – Test Pit and Test Trench Observation and Sampling
- SOP 301 – Water Level Measurement
- SOP 302 – LNAPL Level Measurement
- SOP 303 – Monitoring Well Development
- SOP 304 – Slug Testing
- SOP 309 – Field Filtering of Groundwater Samples
- SOP 310 – Monitoring Well and Piezometer Installation
- SOP 311 – Groundwater Sample Collection
- SOP 312 – Well Purging and Stabilization
- SOP 314 – Surface Water Sampling
- SOP 316 – Calibration of Water Meters

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- SOP 405 – Sub-Slab Soil Vapor Sampling
- SOP 702 – Management of Investigation Derived Waste

D. Equipment and Supplies

- Clean tap water (for washing and rinsing soil sampling equipment)
- Distilled or deionized water (for washing and rinsing groundwater sampling equipment)
- Clean container for wash water (bucket, spray bottle, etc.)
- Phosphate-free detergent (i.e., Alconox or Liquinox in bulk containers or individual packets)
- Scrub brush (soil sampling equipment decontamination)
- Paper towels
- Field Report Form (see SOP 101 – Field Notes and Documentation) or field logbook
- Personal Protective Equipment (PPE)

E. Procedures

E.1. Soil Sampling Equipment

E.1.a. Hand Tools

Hand tools used for sampling include shovels, hand trowels, hand augers, etc. Before collecting each new soil sample, clean the equipment as follows:

- Remove loose or attached soil from the tool with a gloved hand, paper towel, or brush.
- Wash and brush the tool in a solution of phosphate-free detergent in tap water.
- Rinse the tool with tap water.
- Inspect for remaining particles or surface film, and repeat cleaning and rinsing procedures if necessary.

E.1.b. Direct-Push Sampling Equipment and Split Spoon Sampler


The drilling contractor is responsible for cleaning reusable sampling equipment; however, field personnel must ensure that proper procedures are followed. Prior to collecting each sample the reusable sampling equipment should be cleaned as follows:

- Remove loose or attached soil from the sampler components.
- Wash the sampler components in a solution of phosphate-free detergent in tap water.
- Rinse the sampler components with tap water.
- Inspect for remaining particles or surface film, and repeat cleaning and rinsing procedures if necessary.

E.1.c. Drill Rig Auger Flights

The drilling contractor is responsible for providing clean auger equipment; however, field personnel must ensure that proper procedures are followed. Prior to each use the auger flights should be cleaned as follows:

- Remove loose or attached soil from the auger flight.
- Wash the auger flight with a pressure washer and clean tap water.
- Inspect for remaining particles or surface film, and repeat cleaning and rinsing procedures if necessary.

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E.2. Groundwater Sampling Equipment

E.2.a. Groundwater Measuring and Sampling Equipment

This procedure applies to all reusable equipment that will be placed into a well (including water level indicators, transducers, slugs, groundwater sample equipment, and pumps). Groundwater measuring and sampling equipment should be decontaminated after use at each well or sampling point as follows:

- Wash the exterior with a solution of phosphate-free detergent in distilled or deionized water.
- Rinse with distilled or deionized water.
- Inspect for remaining particles or surface film and repeat cleaning and rinsing procedures if necessary.
- Do not wipe dry.

E.3. Product Interface Probe

The product interface probe is only used in wells that may contain light non-aqueous phase liquid (LNAPL). Prior to each use the product interface probe should be cleaned as follows:

- After fluid levels in each well are measured, wipe the probe and tape with a paper towel.
- After returning to the office, clean the probe and tape in a solution of phosphate-free detergent and tap water. Allow the probe and tape to soak in the solution up to 24 hours, if possible.

E.4. Vapor Sampling Equipment

E.4.a. Vapor Pins® – Used for Sub-Slab Soil Gas Sampling

This office-only procedure applies solely to the Vapor Pin® itself that will be used to obtain a soil gas sample. Once the Vapor Pin® has been used it will be brought back to the office and cleaned as follows:


- Remove the silicone sleeve and discard.
- Wash the Vapor Pin® in a hot water and phosphate-free detergent wash.
- Bake in an oven to a temperature of 130°C (266°F) for at least one hour.

E.5. Data and Records Management

Observations should be documented in accordance with SOP 101 – Field Notes and Documentation.

E.6. Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) procedures described in the work plan should be followed.

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A. Purpose

In the process of collecting environmental samples during field investigation activities, several different types of waste may be generated. These wastes are referred to as investigation derived waste (IDW). Some of these waste materials may be hazardous wastes and must be properly managed in accordance with Environmental Protection Agency (EPA) regulations. Materials which may become IDW requiring proper management include:

- Used Personal Protective Equipment (PPE) such as gloves, boots, Tyvek® clothing, spent respirator cartridges, etc.
- Disposable sampling equipment including bailers, filters, rope, sleeves from soil probes, tubing, sealable plastic bags, etc.
- Soil cuttings from drilling, probing, hand augering, or test trenching.
- Drilling mud or water used for rotary drilling.
- Groundwater obtained through well development or purging.
- Light non-aqueous phase liquid (LNAPL) combined with groundwater obtained through well development or purging.

B. Health and Safety

Field work should be performed in accordance with the *Braun Intertec Corporate Health and Safety Manual Standard Operating Procedures* and the site-specific health and safety plan (HASP).

C. Referenced SOPs

- SOP 101 – Field Notes and Documentation

D. Equipment and Supplies

Some or all of the following materials may be needed for the proper management of IDW:


- Plastic or galvanized tubs or pails
- Plastic garbage bags
- 55-gallon drums
- Drum wrench
- Roll-off dumpster
- Poly-sheeting (10 mil or thicker)
- Self-adhesive labels and permanent marker
- Field Report Form (see SOP 101 – Field Notes and Documentation) or field logbook
- PPE

E. Procedure

E.1. Characterization of IDW

IDW must be characterized in accordance with applicable state and federal hazardous waste regulations. In some cases, wastes are hazardous waste regardless of test results (i.e., listed hazardous wastes). Characterization of IDW includes activities performed before, during, and after the wastes are generated. IDW characterization may include:

- **Historical Research** – A Phase I Environmental Site Assessment (ESA), Phase II ESA, prior analytical data, and/or environmental permits can provide information regarding potential and existing

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contaminants of concern. In cases where prior investigations and/or analytical data are not available, additional steps should be taken to properly characterize IDW.

- **Visual and Olfactory Observations** – Some contaminants of concern can be detected using visual and/or olfactory observations such as the presence of staining and odors, respectively. However, visual and olfactory observations should only be used as a qualitative determination regarding the presence or absence of contamination.
- **Field Screening** – Field screening equipment such as a photoionization detector (PID), Draeger tubes, and/or colorimetric tubes can provide an approximation of the magnitude of contamination present. Appropriate field screening equipment should be selected based on historical research and applicable site-specific work plans.
- **Laboratory Analysis** – Analytical data provides the highest degree of accuracy regarding the magnitude of contamination present. Analytical parameters should be selected based on historical research and analytical data from site investigations. Disposal facilities may require toxicity characteristic leaching procedure (TCLP) analysis if elevated contaminants are present in IDW.

E.2. Temporary Storage of IDW

IDW may require temporary storage pending characterization. Containers should be selected based on the physical and chemical characteristics of the contaminants of concern being investigated using available characterization data. Other considerations include weather conditions, security of the storage facility, mobility of the container, and duration of storage. Commonly used waste disposal containers include 55-gallon drums, garbage bags, and roll-off dumpsters. IDW containers must be labeled with the following information:

- Date of generation
- Description of contents
- Emergency contact information


IDW may also be stockpiled on site by placing the material on polyethylene sheeting or an impermeable surface such as asphalt or concrete, covering the material with polyethylene sheeting, and anchoring polyethylene sheeting to prevent infiltration of contaminants of concern from precipitation.

When containing IDW in drums, solids and liquids must be kept in separate drums. Each drum should be labeled with:

- “Braun Intertec” and a contact phone number,
- A unique identification number,
- Date(s) material was containerized,
- Source locations (if applicable), and
- Collector’s initials.

Secure the drum cover and take precautions to ensure that the drum will not be disturbed.

Appropriate characterization must precede disposal of contained materials. The site-specific Sampling and Analysis Plan or project manager will determine the appropriate testing based on the anticipated contaminants of concern in the IDW and the anticipated disposal method.

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E.3. Disposal of IDW

IDW should be managed as described in Attachments A and B or as determined by the project manager and/or the site-specific Sampling and Analysis Plan. Field personnel should consult with the project manager to assess if leaving IDW on-site has the potential to endanger human health or the environment. More conservative IDW management methods may be appropriate if the client does not own the property where field activities are performed and during winter conditions.

Information regarding IDW requiring off-site disposal should be recorded in the field logbook or on the field report form, including the drum number or stockpile identifier, a description of the waste including location generated and estimated volume, and a list of samples collected for characterization of the IDW.

If the IDW is classified as non-hazardous waste or petroleum, or as potentially hazardous, it should be disposed of promptly where permitted (see Attachment A and Attachment B).

If the IDW is classified as hazardous waste, it must be labeled, stored, handled, transported and treated/disposed according to state and federal hazardous waste regulations and the generator's classification (large, small, or very-small quantity generator).

In all cases, IDW must be properly disposed in 90 days or fewer. Braun Intertec field personnel should not sign waste profiles or shipping documents on behalf of clients or as an "agent" for clients unless a formal agreement has been executed with the client.

E.4. Data and Records Management

Observations should be documented in accordance with SOP 101 – Field Notes and Documentation.

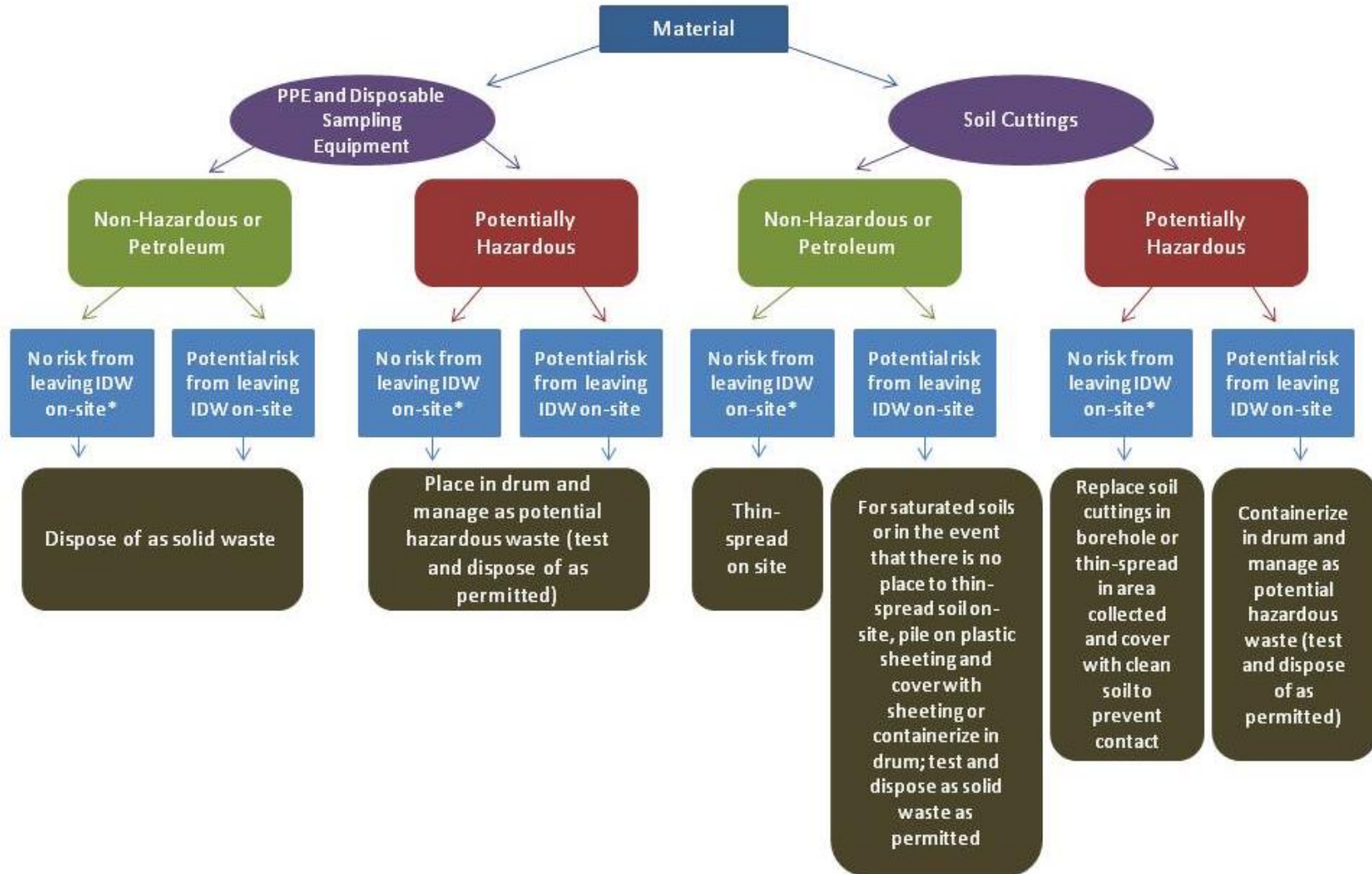
E.5. Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) procedures described in the work plan should be followed.

F. References

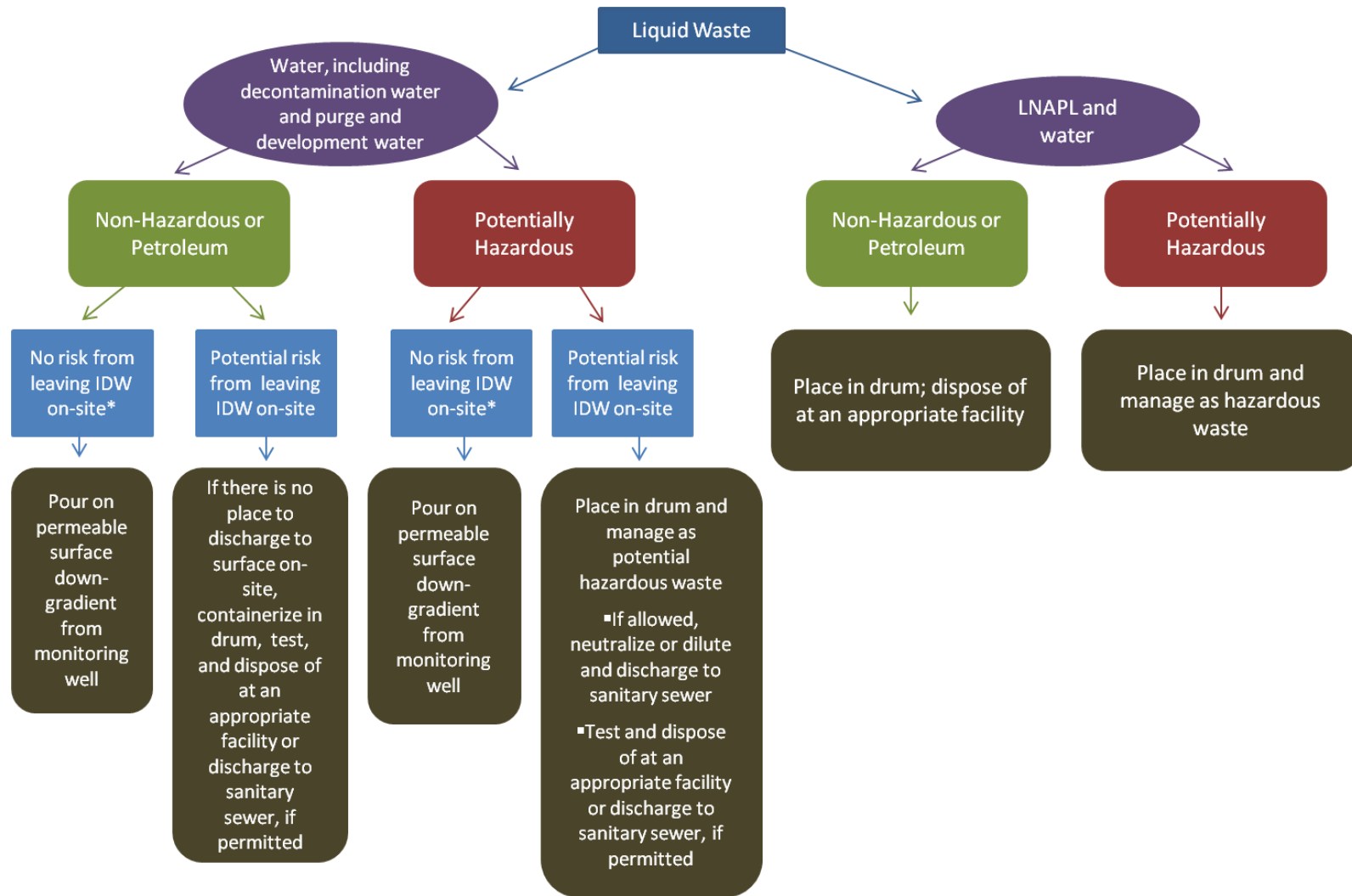
United States Environmental Protection Agency, July 3, 2014, Region 4, Science and Ecosystem Support Division Operating Procedure, Management of Investigation Derived Waste, SESDPROC-202-R3, Athens, GA.

Attachment A
Management of Solid Investigation Derived Waste



* Management method for IDW at sites with no known areas of significant contamination and no known hazardous waste issues and where leaving IDW on-site will not endanger human health or the environment. Use more conservative method if the site history or regulatory status warrants. Field personnel should consult with the project manager before thin-spreading soil.

Attachment B
Management of Liquid Investigation Derived Waste



* Management method for IDW at sites with no known areas of significant contamination and no known hazardous waste issues and where leaving IDW on-site will not endanger human health or the environment. Use more conservative method if the site history or regulatory status warrants. Field personnel should consult with the project manager before pouring liquids on permeable ground surfaces.