Fort Hall Mine Landfill

1500 North Fort Hall Mine Road
Pocatello, Idaho

FINAL

2018 Cell 1, 2 and 4 Groundwater Monitoring and Remediation System Operation and Maintenance Report

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Table of Contents

Section 1 Introduction 1-1

1.1 Purpose of the Report 1-1
1.2 Report Organization 1-2
1.3 Background 1-3
1.3.1 Site Location and History 1-3
1.3.2 Site Geology 1-5
1.3.3 Site Hydrogeology and Groundwater Discharge 1-6
1.3.4 Nature and Extent of Contamination 1-7
1.3.4.1 Cell 1 Source and Off-site Plume 1-7
1.3.4.2 Cell 2 1-8
1.3.4.3 Cell 4 1-9
1.3.5 PCE and TCE Fate and Transport 1-10
1.3.6 Mobilization of Redox Sensitive Metals 1-10
1.3.7 Pump and Treat Remedial Action 1-11

Section 2 Field Groundwater Sampling Activities 2-1

2.1 Private Property Access 2-1
2.1.1 Private Property Results Notifications 2-1
2.2 Groundwater Sampling 2-1
2.2.1 Synoptic Water Level Measurement 2-1
2.2.2 Groundwater Sampling Procedures 2-2
2.2.2.1 Monitoring Wells 2-2
2.2.2.2 Residential Wells 2-2
2.2.2.3 Remediation System and Remediation System Wells 2-2
2.2.3 Sample Analysis 2-2
2.2.3.1 Cell 1 Source and Off-site Plume 2-2
2.2.3.2 Cell 2 2-4
2.2.3.3 Cell 4 2-4
2.3 Pump and Treat System Operations 2-5
2.4 Decontamination and Investigation Derived Waste 2-6
2.5 Deviations from the SAP 2-6
2.5.1 Cell 1 and Off-site Monitoring Wells 2-6
2.5.2 Remediation System Wells 2-6
2.5.3 Residential Property Wells 2-7
2.5.4 Cell 2 and Cell 4 Monitoring Wells 2-7

Section 3 Groundwater Monitoring Results 3-1

3.1 Data Usability Assessment 3-1
3.1.1 Precision 3-2
3.1.2 Accuracy 3-2
3.1.3 Comparability 3-2
3.1.4 Completeness 3-3
3.1.5 Sensitivity 3-3
3.2 Groundwater Elevations 3-3
3.2.1 Horizontal Gradient Evaluation 3-3
3.2.2 Vertical Gradient Evaluation 3-3
3.3 Groundwater Analytical Results 3-4

3.3.1 Volatile Organic Compounds 3-4
3.3.1.1 Cell 1 Source and Dissolved Phase Plume 3-4
3.3.1.2 Cell 2 and 4 3-5
3.3.2 Metals 3-5
3.3.2.1 Cell 1 Source and Dissolved Phase Plume 3-6
3.3.2.2 Cell 2 and 4 3-6
3.3.3 Geochemical Parameters 3-6
3.3.3.1 Specific Conductivity 3-7
3.3.3.2 Carbon 3-7
3.3.3.3 Redox Conditions 3-7
3.3.3.4 Alkalinity and pH 3-9
3.3.3.5 COC Degradation Parameters 3-9
3.3.4 Compound Specific Isotope Analysis 3-9
3.3.5 Appendix II Compounds 3-10
3.3.5.1 Cell 1 Source and Dissolved Phase Plume 3-10
3.3.5.2 Pump and Treat System Effluent 3-10
3.3.5.3 Cell 2 3-10
3.4 Updated Groundwater Plume Extent 3-10
3.5 Performance of Pump and Treat System 3-12
3.5.1 Pump and Treat System Capture and Discharge 3-12
3.5.2 Performance of Treatment System 3-14

Section 4 Groundwater Data Analysis 4-1
4.1 VOC Trend Analysis 4-1
4.1.1 Statistical Approach 4-2
4.1.2 Cell 1 Monitoring Wells 4-3
4.1.2.1 Cell 1 Boundary Wells 4-3
4.1.2.2 Cell 1 FHML Site Monitoring 4-5
4.1.2.3 Downgradient Cell 1 Monitoring Wells 4-6
4.1.3 Remediation System 4-7
4.1.4 Cell 2 and 4 Monitoring Wells 4-7
4.1.5 Offsite Monitoring Wells 4-8
4.2 Appendix I and II Parameter Monitoring 4-9
4.2.1 Cell 1 Monitoring Wells 4-9
4.2.2 Cell 2 and 4 Monitoring Wells 4-10
4.3 Inorganic Trends in Cell 1 Monitoring Wells 4-11

Section 5 Conclusions and Recommendations 5-1
5.1 Conclusions and Recommendations: Cell 1 Source Area 5-1
5.2 Recommended Spring 2019 Off-site (Residential and City Wells) Groundwater Sampling 5-3
5.3 Conclusions and Recommendations: Cell 2 and 4 and Recommended Groundwater Sampling for Spring 2019 Sampling 5-3
5.4 Recommended Fall 2019 Sampling for Cell 1, Cell2 and Cell 4 5-4
5.5 Recommended 2019 Operation of Pump and Treat System 5-4
5.6 Recommended Future Data Analysis 5-5

Section 6 References 6-1

List of Figures

Figure 1-1 Site Location Map
Figure 1-2 Fort Hall Mine Landfill
Figure 1-3a Fort Hall Mine Landfill and Offsite Groundwater Well Networks
Figure 1-3b Fort Hall Mine Landfill and Offsite Groundwater Well Networks
Figure 2-1 2018 Fall Well Sample Locations
Figure 2-2 Remediation System/Cell 1 Monitoring Area
Figure 3-1 Potentiometric Contour Map – Remediation System On
Figure 3-2 Potentiometric Contour Map – Remediation System Off
Figure 3-3 Tetrachloroethene (PCE) Concentration and CSIA Results
Figure 3-4 Trichloroethene (TCE) Concentration and CSIA Results
Figure 3-5a-b Current Extent of Tetrachloroethene Groundwater Plume
Figure 3-6a-b Current Extent of Trichloroethene Groundwater Plume
Figure 3-7 Fall 2018 Chlorinated Ethene Results for Cell 2, 4, and Offsite Monitoring Wells
Figure 3-8 Fall 2018 Chlorinated Ethene Results for Cell 1 Monitoring and Remediation System Wells
Figure 4-1 Summary of Tetrachloroethene Concentration Trends Analysis
Figure 4-2 Summary of Trichloroethene Concentration Trends Analysis
Figure 5-1 Recommendations for Spring 2019 Sampling of FHML Monitoring Wells
Figure 5-2a Recommendations for Spring 2019 Sampling of Offsite Wells (Residential and City) – Expanded View
Figure 5-2b Recommendations for Spring 2019 Sampling of Offsite Wells (Residential and City) – FHML Focused View
Figure 5-3 Recommendations for Fall 2019 Sampling of FHML Monitoring Wells

List of Tables

Table 2-1 Monitoring Well Water Levels, Screened Intervals, and Vertical Gradients
Table 3-1 VOC Results
Table 3-2 Metals Results
Table 3-3 Geochemical Results
Table 3-4 Compound Specific Isotope Analysis Results
Table 3-5 Treatment System Data and Groundwater Quality Standards
Table 4-1 Mann-Kendall Statistics Summary of Results
Table 4-2 Mann-Kendall Analysis of PCE and TCE – Cell 1 Monitoring Wells
Table 4-3 Mann-Kendall Trend Analysis– Remediation System Wells
Table 4-4 Mann-Kendall Analysis of PCE and TCE – Cell 2 and 4 Monitoring Wells
Table 4-5 Mann-Kendall Analysis of PCE and TCE – Offsite Monitoring Wells
Table 4-6 Statistical Analysis Summary t-test and ANOVA Cells 2 and 4 – October 2018 Sampling Event
Table 4-7 Mann-Kendall Statistical Analysis Summary Cells 2 and 4 – Select Analytes - October 2018 Sampling Event
Table 5-1 Recommendations for Spring 2019 Sampling of FHML Monitoring Wells
Table 5-2 Recommendations for Spring 2019 Sampling of Offsite Wells (Residential and City)
Table 5-3 Recommendations for Fall 2019 Sampling

Appendices

Appendix A Groundwater Sampling and Analysis Plan

Appendix B Field Books and Forms

Appendix C Analytical Results

Appendix D Data Usability Assessment Report

Appendix E Data Packages

Appendix F Model Interpolation Source Data

Appendix G Organics and Geochemistry Trend Charts

Appendix H Cell 2 and 4 ANOVA and Mann-Kendall Analysis – Select Analytes

Appendix I Inorganics Trend Charts for Cell 1 and Offsite Monitoring Wells

Acronyms and Abbreviations

amsl	above mean sea level
bgs	below ground surface
CAS	Compliance Agreement Schedule
cis-1,2-DCE	cis-1,2-dichloroethene
CO	Consent Order
COC	chemical of concern
CSIA	compound specific isotope analysis
CSM	conceptual site model
County, the	Bannock County
D	deep (well)
DO	dissolved oxygen
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
FHML	Fort Hall Mine Landfill
GCL	geocomposite clay liner
gpm	gallons per minute
HDPE	high-density polyethylene
IDAPA	Idaho Administrative Code
IDEQ	Idaho Department of Environmental Quality
IDHW	Idaho Department of Health and Welfare
IDW	investigation derived waste
IDWR	Idaho Department of Water Resources
LCS/LCSD	laboratory control sample/laboratory control sample duplicate
LDPE	low-density polyethylene
LFG	landfill gas
µg/L	micrograms per liter
mg/L	milligrams per liter
MCL	maximum contaminant level
MDL	method detection limit
MK	Mann-Kendall
MS/MSD	matrix spike/matrix spike duplicate
MSW	municipal solid waste
MW	monitoring well
NFG	National Functional Guidelines
ORP	oxidation-reduction potential
P&T	pump and treat
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
Q3	third quarter
Q4	fourth quarter
RCRA	Resource Conservation and Recovery Act
RL	reporting limit
LOQ	level of quantification

RPD	relative percent difference
RW	recovery well
S	shallow (well)
S/D	shallow/deep (well)
SAP	Groundwater Sampling and Analysis Plan, Fort Hall Mine Landfill, Third Quarter, 2018
SDG	sample delivery group
Site, the	Fort Hall Mine Landfill
SOP	standard operating procedure
SVOC	semi-volatile organic compound
2,3,7,8-TCDD	2,3,7,8-tetrachloro-p-dibenzodioxin
TCE	trichloroethene
TOC	total organic carbon
trans-1,2-DCE	trans-1,2-dichloroethene
trans-1,2-ethene	trans-1,2-dichloroethene
VC	vinyl chloride
VOC	volatile organic compound

Section 1
Introduction

Under Task Order No. 2 of the Bannock County Master Services Agreement contract executed July 24, 2018, CDM Smith was tasked with implementing groundwater sampling at select monitoring, remediation, and residential wells on and downgradient of the Fort Hall Mine Landfill (FHML) (the Site) during 2018 fall sampling event, and with generating a groundwater monitoring report to present the results. The sampling event was conducted to satisfy monitoring requirements associated with the following:

- Idaho Department of Environmental Quality (IDEQ) Consent Order (CO) pursuant to the Idaho Environmental Protection and Health Act, Idaho Code §39-101 et seq. and the Idaho Solid Waste Facilities Act, §39-7401 et seq. to address chemicals of concern (COCs) (e.g., trichloroethene [TCE] and tetrachloroethene [PCE]) known to originate in Cell 1, the historic landfill operated before land disposal regulations were promulgated, and
- IDEQ Compliance Agreement Schedule (CAS) pursuant to the Idaho Environmental Protection and Health Act, Idaho Code §39-101 et seq. and the Idaho Solid Waste Facilities Act, §39-7401 et seq. to bring the FHML into compliance with Idaho Code §39-7401 and the Subtitle D requirements in §40 CFR Part 258 et seq. for monitoring of municipal solid waste (MSW) landfills.

The work was completed under the *Final Fort Hall Mine Landfill, Third Quarter, 2018 Revised Groundwater Sampling and Analysis Plan (SAP)*, September 20, 2018 (CDM Smith 2018) and the AEEC *Quality Assurance Program Plan* (AEEC 2017).

1.1 Purpose of the Report

The 2018 fall sampling event was conducted in accordance with the current CO and CAS between Bannock County and IDEQ. Fifty-two monitoring wells were sampled in Cell 1, 2, 4, off-site, and the remediation system area to comply with the Resource Conservation and Recovery Act (RCRA) monitoring requirements for Cells 2 and 4 and conduct remedy performance monitoring for Cell 1.

The purpose of this report is to:

- Present the analytical and field data collected during the 2018 fall sampling event;
- Update PCE and TCE groundwater plume extents and groundwater elevation potentiometric contour maps for FHML Cell 1 source area and downgradient plume;
- Evaluate the current remediation system performance;
- Update the volatile organic compound (VOC) trend data and Mann-Kendall (MK) statistical analysis of PCE and TCE trends;
- Provide the status of RCRA compliance monitoring at Cell 2 and Cell 4 and statistical analysis of detected Appendix I and II parameters against background levels; and

- Provide recommendations for the 2019 Cell 1, 2, 4, and off-site monitoring programs and the operation of the groundwater treatment system.

1.2 Report Organization

This report is organized into the following sections:

1.0 Introduction: This section describes the purpose and organization of the report and provides a summary of site background information and conceptual site model (CSM), including the site location, the sources of contamination, the geologic and hydrogeologic framework, the nature and extent of contamination, and a description of the pump and treat (P&T) remedial action.

2.0 Field Groundwater Sampling Activities: This section presents a summary of the Fall 2018 sampling activities and analysis, including private property notifications, groundwater sampling and analysis, pump and treat system operations, decontamination and handling of investigation derived waste (IDW), and any deviations from the SAP (CDM Smith 2018).

3.0 Groundwater Monitoring Results: This section presents the results of the fall 2018 sampling activities and presents a summary of the data quality and usability, potentiometric surface, groundwater analytical results, current nature and extent of the Site's COC plume, and performance of the P&T system.

4.0 Groundwater Data Analysis: This section presents an updated evaluation of the COC trend and statistical analysis conducted for Cell 1, Cells 2 and 4, and off-site monitoring wells and summarizes the Subtitle D Appendix I and II compliance sampling.

5.0 Conclusions and Recommendations: This section presents the conclusions based on the results of the data analysis and provides recommendations per the decision criteria developed in the *Draft Groundwater Monitoring Program Plan Quality Assurance Project Plan (QAPP), Fort Hall Mine Landfill, Bannock County, Idaho* and the *Final Fort Hall Mine Landfill – Landfill Evaluation* (CDM Smith 2019a,b) for 2019 groundwater sampling activities at the Site.

6.0 References: This section presents references used to prepare this report.

- **Appendix A** – Groundwater Sampling and Analysis Plan
- **Appendix B** – Field Books and Forms
- **Appendix C** – Analytical Results
- **Appendix D** – Data Usability Assessment Report
- **Appendix E** – Data Packages
- **Appendix F** – Model Interpolation Source Data
- **Appendix G** – Organics and Geochemistry Trend Charts
- **Appendix H** – Cell 2 and 4 ANOVA and Mann-Kendall Analysis – Select Analytes
- **Appendix I** – Cell 1 Detected Inorganic Trend Charts

1.3 Background

The following sections briefly describe the site history and CSM, which are described further in the Draft QAPP (CDM Smith 2019a). These sections include brief descriptions of the site location and history, sources of contamination, the geologic and hydrogeologic framework, previous investigations, and ongoing P&T remedial actions.

1.3.1 Site Location and History

The Fort Hall Mine Landfill is located on North Fort Hall Mine Road in Bannock County, Idaho, approximately 7 miles southeast and hydrologically upgradient of the City of Pocatello, Idaho (**Figure 1-1**). The landfill is alternately known as the Fort Hall Canyon Landfill or Bannock County Landfill and currently consists of four cells, as shown in **Figure 1-2** (IDEQ 2016a). A summary of operations and status for each cell is as follows:

- Cell 1 is closed and unlined. It received residential and MSW, construction and demolition debris, and unknown commercial and industrial wastes during active operation from 1943 to 1993 (Brown and Caldwell 1992, Maxim 2000a, b). There is no leachate collection system for Cell 1, but a final cover was installed in 1993 (Maxim 2000b). In 2012, landfill gas (LFG) extraction wells were installed (Paragon 2015).
- Cell 2 is operational and lined. It began operations in 1993 and currently receives compost and MSW as a Subtitle D cell, complete with a leachate collection system that gravity drains to a collection pond (IDEQ 2016b). Under RCRA, assessment level monitoring is currently required at Cell 2. In 2012, LFG extraction wells were installed (Paragon 2015). Its closure is anticipated for 2020.
- Cell 3 is operational and unlined. It began operations around 1993 and receives construction and demolition wastes (IDEQ 2016a).
- Cell 4 is operational and lined. It opened in 2016 as an expansion cell and receives Subtitle D MSW (IDEQ 2016a). Leachate is gravity drained into a collection pond. Under RCRA, detection level monitoring is currently required at Cell 4.

In October 1991, VOC contamination was identified in monitoring wells installed immediately downgradient of Cell 1 (Brown and Caldwell 1992). By 1993, high concentrations of TCE were observed in downgradient domestic wells within the Portneuf Valley Aquifer, and two municipal supply wells #14 and #33 (shown in **Figure 1-3a**) were subsequently closed due to high TCE concentrations (Brown and Caldwell 1994).

In May 1993, Bannock County entered into a CO with the Idaho Department of Health and Welfare (IDHW) (now IDEQ) pursuant to the Idaho Environmental Protection and Health Act, Code 39-108 to assess and mitigate the impacts of TCE, PCE, and other VOCs originating from Cell 1 of the FHML (IDEQ 2016a). In 2002, Bannock County installed a groundwater P&T remediation system located downgradient of Cell 1, at the mouth of the Fort Hall Mine Canyon. The purpose of the remediation system has been to capture and treat groundwater impacted by unlined Cell 1 before the groundwater enters the Portneuf Valley Aquifer. The Portneuf Valley Aquifer is the sole source of drinking water for the Pocatello and Chubbuck communities, as well as surrounding unincorporated county land.

In March 2015, IDEQ reviewed the remediation system and found it to be ineffective at removing environmental contamination. Concentrations of COCs were reported to be trending

upwards in wells located both upgradient and downgradient of the remediation system. The CSM for the Site was determined to not accurately represent the nature and extent of groundwater contamination associated with the FHML (IDEQ 2016a).

Therefore, in November 2016, IDEQ and Bannock County terminated the 1993 CO and entered into a new CO for the systemic development of a revised remediation plan for Cell 1 (IDEQ 2016a). Separately in November 2016, IDEQ and the County entered into a CAS to address groundwater contamination and groundwater monitoring in compliance with RCRA at landfill Cells 2 and 4 (IDEQ 2016b).

Cell 2 was permitted and started operations in 1993. Cell 2 is a lined landfill and was designed and constructed under the Subtitle D regulations. As originally designed, Cell 2 was intended to operate through 2012; however, evaluation of the side slopes indicated that substantial permitted airspace was not being used. Recovery of the unused airspace extended the landfill life through 2017. Further slope stability and capacity analysis performed by Paragon Consulting, Inc. (Paragon) indicated that the final landfill elevation buildout could be increased, thereby extending the landfill life (Paragon 2017). According to the Paragon report, between 2012 and 2013 partial closure of Cell 2 was started but was postponed in 2014 to focus on the groundwater corrective action work.

A groundwater monitoring well (MW) network has been installed to monitor the Cell 1 impacts to groundwater as well as to monitor against the substantive requirements of the RCRA requirements for a Subtitle D municipal solid waste landfill per Idaho Solid Waste Rules (Idaho Code §39-74) and 40 CFR §258. The Cell 1 monitoring network consists of 28 wells, Cell 2 monitoring network consists of 4 wells, and Cell 4 monitoring well network currently consists of 4 wells (**Figure 1-3a, b**). The monitoring wells in Cells 2 and 4 and a subset of Cell 1 monitoring wells are sampled semi-annually for the Appendix I and appropriate Appendix II parameters as listed in 40 CFR §258.

The monitoring well network includes groups of wells categorized based on the data quality objectives (DQOs) of evaluating the Cell 1 landfill and off-site plume and meeting the solid waste monitoring and reporting requirements for Cells 2 and 4 (**Figure 1-3b**). A summary of the types of wells includes:

1. **Cell 1 Landfill and Off-site Groundwater Monitoring, Residential, and Municipal Supply Wells**

    a. **Monitoring Wells**. Twenty-eight groundwater monitoring wells comprise the Cell 1 network defined as monitoring wells downgradient of Cell 1 on the FHML property. MW-117S/D (shallow/deep) have been recently decommissioned and are no longer included in the Cell 1 monitoring network. There are eight additional off-site monitoring wells sampled to monitor COC concentrations leaving the FHML property. These wells are located outside the FHML property boundary. Because the owner of properties on wells MW-107S/D and MW-108S/D has not consented to property access, these wells are not included in the off-site monitoring program.

    b. **Residential Wells.** Fifty-seven residential, domestic water wells in the Portneuf Valley Aquifer have been monitored between 1992 and 2018 to assess the extent of off-site groundwater contamination and to monitor

COC concentrations within and surrounding impacted residential, domestic water wells.

c. **Pocatello City Monitoring Wells.** Sixteen groundwater monitoring wells installed by the City of Pocatello have been monitored to evaluate groundwater quality and track the COC plume migrating towards the municipal supply wells.

d. **Pocatello City Municipal Supply Wells.** Twenty-one municipal supply wells installed by the City of Pocatello have been monitored for compliance with drinking water standards. Municipal supply wells #33 and #14 are the closest to the FHML and have historically observed impacts of COCs.

2. **Remediation System Wells.** Nine groundwater extraction and two injection wells have been installed as part of the P&T remediation system for Cell 1.

3. **Cell 2 and Cell 4 Monitoring Well Network**. Five groundwater monitoring wells were installed to evaluate compliance of Cell 2 and four groundwater monitoring wells were installed to evaluate compliance of Cell 4 with the Subtitle D requirements. MW-4 was originally a part of the monitoring network for Cell 1, however, upon IDEQ request it was transferred to the Cell 4 monitoring network. MW-4 (Cell 4) and MW-7 (Cell 2) have been impacted by waste originating from Cell 1 (AEEC 2018b); therefore, they are not used to evaluate RCRA compliance for Cell 2 and Cell 4.

1.3.2 Site Geology

In the vicinity of the FHML, Quaternary valley-fill deposits of loess and silty gravels are found at the bottom of Fort Hall Canyon, which grade into alluvial fan deposits extending northward from the mouth of Fort Hall Canyon. The alluvial deposits consist of stream channel and alluvial fan deposits that are interbedded, discontinuous units of sand, gravel, silt, and clay. Coarse materials are generally subangular to subrounded fragments of red to green metaquartzite and argillite. Interstitial materials are slightly to moderately plastic, light to medium brown silt and clay. The alluvial fan deposits grade into the Lower Portneuf River Valley (LPRV) fill deposits that predate Upper Gravels from the Bonneville Flood event and form the benches along the southwestern edge of the valley. The nature of the lateral and vertical grading between the three sedimentary deposits is unclear at this time. These sedimentary deposits all overlie, and are derived from, the Tertiary Starlight Formation (AEEC 2018a).

The base of Fort Hall Canyon intersects the LPRV. Six lithologic groups have been defined in the southern portion of the LPRV (Welhan 1996):

- Bedrock, of variable composition but dominated by pink to white quartzite and varicolored shale or argillite, predominantly of Proterozoic age (Caddy Canyon Formation).
- Middle to Late Tertiary basin-filling sediments and volcaniclastics of the Starlight Formation.
- Quaternary valley fill and alluvial deposits composed of non-indurated silty gravels and cobbles with lenses of sand, silt, and intercalated clays

- The Portneuf Basalt deposited along the eastern edge of the LPRV.
- Coarse-grained clean gravel and cobbles in the center of the LPRV, known as the Upper Gravels (equivalent to the Michaud Gravels in the northern LPRV), deposited by the Bonneville Flood event and which compromise the most productive portion of the underlying Portneuf Valley Aquifer.
- A silt "mantle" of variable thickness (0–43 feet) overlies the Upper Gravels, originating from overbank flood material from periodic Portneuf River flooding.

Seismic refraction geophysical surveys were conducted by Brown and Caldwell as part of the initial site investigations at the mouth of the Fort Hall Mine Canyon in 1992 and 1993 (Brown and Caldwell 1992, 1994). The presence of a Basin and Range-type normal fault that strikes slightly west of north through the Fort Hall Mine Canyon was confirmed. This fault was originally identified as a thrust fault by Trimble (1976) and later revised to a normal fault by Rodgers et al. (2006). The fault is estimated to have a dip of 15 to 20 degrees southwest, and it has a surface exposure on the west-facing slope of the canyon. The fault was estimated to be located 100 to 200 feet below ground surface (bgs) at the mouth of the canyon and approximately 180 feet wide, with formation offset downward to the west approximately 3.5 miles (Trimble 1976).

1.3.3 Site Hydrogeology and Groundwater Discharge

The aquifer system beneath the FHML includes the alluvial sediments (i.e., alluvium) and underlying Starlight Formation at depths up to 150 feet bgs. Alluvial fan deposits are present at the mouth of the Fort Hall Canyon, where groundwater in Starlight Formation discharges into the Portneuf Valley Aquifer in the vicinity of MW-103S/D. The Portneuf Valley Aquifer is formed from gravel deposited in a single flooding event. The previous CSM for the Fort Hall Canyon (Maxim 2001), modeled the Starlight Formation and overlying alluvium as one hydrostratigraphic unit. Groundwater flow between the two units is connected, and chemicals are expected to migrate freely between them.

The top of the Starlight Formation beneath the FHML is weathered and fractured, and though the hydraulic properties of the weathered portion of the rock are not well defined, it is assumed that the weathered portion of the Starlight Formation is more permeable than the underlying portions. The thickness of the weathered portion is variable but estimated by Maxim (2000b) to range from 10 to 15 feet. The aquifer system, composed of these two formations, is unconfined, with the water table situated within the Starlight Formation in some areas and in the alluvium in other areas.

Inflows to the aquifer system underlying the landfill area are direct recharge from precipitation and seepage from Fort Hall Canyon Creek. Average rainfall to the area is approximately 13 inches per year over the past 20 years of records and Maxim (2000b) observed that nearly all of the surface water flows within the Fort Hall Canyon Creek seeped into the underlying aquifer. For the period measured, this amounted to approximately 17,000 gallons per day. Outflows from the aquifer system underlying the landfill are evapotranspiration, well pumping, surface water discharge through Fort Hall Canyon Creek, and groundwater flux. As noted above, surface water discharge has been observed to be rare.

Within the Fort Hall Canyon, previously reported data (Maxim 2001; CH2M Hill 1994; Brown and Caldwell 1992, 1994) documents that the hydraulic conductivity within the Starlight

Formation is 0.1 to 10 feet/day (feet/day), and 0.1 to 1.0 feet/day at the mouth of the Fort Hall Mine Canyon. Hydraulic conductivity within the alluvium was estimated to be 2 to 11 feet/day. Slug tests conducted in wells screened in the unfractured portion of the Starlight Formation yielded hydraulic conductivity values that ranged from 0.05 to 0.40 feet/day (Maxim 2000b). Maxim estimated groundwater flow through the mouth of the canyon at 74,000 gallons per day (Maxim 2000b). This estimate was based on an alluvium horizontal hydraulic conductivity of 9 feet/day, a Starlight Formation horizontal hydraulic conductivity of 0.2 feet/day, and a horizontal gradient of 0.1 feet per foot.

The Portneuf Valley Aquifer comprises northern, eastern, and southern sub-aquifers and is the sole source for drinking water for the communities of Pocatello and Chubbuck, Idaho. In the southern portion of the Portneuf Valley Aquifer, wells have high yields because they are completed in coarse, clean upper gravels at depths less than 100 to 150 feet bgs. The transmissivity of the upper gravels was estimated at approximately 10 square feet per second, with aquifer storage estimated at 0.005 based constant discharge pumping tests of municipal wells (CH2M HILL 1994).

1.3.4 Nature and Extent of Contamination

The nature and extent of groundwater contamination is monitored via several well networks, which include Cell 1 monitoring wells, Cell 2 and 4 compliance monitoring wells, off-site monitoring wells, and residential wells. **Figures 1-3a** and **1-3b** present all known well locations. Well locations and construction information are available in the Draft QAPP, FHML (CDM Smith 2019a).

1.3.4.1 Cell 1 Source and Off-site Plume

Cell 1 started operations in 1943 as an unpermitted valley-fill dump. No information is available regarding landfill base construction, but because of the nature of the dump, it is assumed that no base preparation was constructed. Based on LFG collection system record drawings for wells in the Old Landfill Well Field (Paragon 2015) and discussions in the geotechnical investigation for the landfill gas-to-energy project (American Geotechnics 2012), the thickness of waste in Cell 1 varies from minimal (less than 5 feet) at the fill area edges to greater than 85 feet. Based on observations from the LFG extraction well installations, the bottom of waste ranges from approximately 4,900 above mean sea level (amsl) in the southern and central portions of the cell to approximately 4,730 amsl in the northern and western portions. Cell 1 area encompasses approximately 60 acres (**Figure 1-2**).

Landfill operations in Cell 1 ceased in 1993. Based on closure plans provided in the *Preliminary Engineering Report* (Brown and Caldwell 1993), the landfill was proposed to be closed with a cover consisting of 12 inches of on-site loess material excavated from the Cell 2 area followed by an 18-inch barrier layer of compacted fill with a permeability of less than or equal to 10^{-5} centimeters per second. The barrier layer was to consist of 12 inches of soil plus another 6 inches of topsoil. The cover was designed to prevent, via evapotranspiration, approximately 90 percent of precipitation from infiltrating the cover during a normal precipitation and evaporation year (Brown and Caldwell 1993). No information was available regarding actual placement as-built of the Cell 1 cover.

The Cell 1 monitoring network is located at the north-northeastern edge of landfill Cell 1, which represents the area immediately downgradient and topographically lower than FHML at the mouth of the LPRV (**Figure 1-3a, b**). In general, PCE and TCE are detected at higher concentrations in Cell 1 monitoring wells than elsewhere within or downgradient of FHML.

TCE is commonly detected above 100 micrograms per liter (µg/L), but concentrations consistently exceeded 1,000 µg/L in MW-111D until 2016. Chlorinated ethene daughter products, such as cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-ethene), and vinyl chloride (VC) are also frequently detected above U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs) for drinking water in the Cell 1 monitoring area. Benzene is the only other VOC recently found to exceed its MCL (MW-111S, MW-113S) (AEEC 2018b). Metal COCs that exceeded MCLs within the last 4 years of sampling Cell 1 wells include arsenic, barium, beryllium, chromium, and mercury. Several others, including cobalt, lead, and nickel, have been detected, but background levels are not established.

The off-site monitoring well network consists of wells installed outside of the FHML property boundary for the purpose of monitoring FHML impacts to groundwater in the LPRV (**Figure 1-3a,b**). Only MW-103S has been consistently sampled since the original VOC detections downgradient of Cell 1. TCE has been frequently detected between 10 and 100 µg/L, with PCE concentrations generally less than 10 µg/L. Arsenic, barium, chromium, cobalt, copper, cyanide, lead, nickel, and zinc have all been recently detected in this well.

Figure 1-3b presents the off-site residential wells that have been sampled in the history of FHML monitoring, which began around 1993. Table 1 of the Draft QAPP, FHML (CDM Smith 2019) presents the complete list of residential wells known. Concentrations of PCE and TCE in these wells have frequently exceeded the EPA MCLs (5 µg/L). In the early 1990s, TCE was detected above 100 µg/L in RW-2076F, RW-2151H, RW-2203H, RW-2172H, and PCE was detected above 100 µg/L in RW-2076F. However, in the last two decades of limited residential well sampling, 11 residential wells have been found to harbor PCE and TCE concentrations above 5 µg/L. These wells include RW-2076F, RW-2140H, RW-2151H, RW-2172H, RW-2203H, RW-2237H, RW-7549P, RW-7677P, RW-7953P, RW-8000B, and RW-8030P. Detections of PCE have not exceeded 15 µg/L, and TCE detections are generally less than 80 µg/L. In 2017, PCE and/or TCE were detected in 22 of 34 residential wells sampled by AEEC, with maximum concentrations of 7.84 and 44.3 µg/L, respectively (AEEC 2018a). Metals were recently reported to exceed screening levels in residential wells, including the MCL for arsenic in RW-8105PS (12.1 µg/L) and the Lead and Copper Rule for lead in RW-7549P (19.8 µg/L) (AEEC 2018a).

There are municipal wells installed along the Portneuf Valley Aquifer downgradient and closer to the City of Pocatello (**Figure 1-3a**). The City has used some these wells, originally installed as supply wells, to monitor the extent of the plume and the presence of VOCs in city drinking water supply. Municipal supply wells #14 and #33 were historically sampled by the City of Pocatello and were recently sampled in 2018. PCE and TCE are typically non-detect or detected at or below the MCL, with the exception of well #33. In May 2018, TCE was detected just above the MCL at 5.16 µg/L in well #33. In September 2018, however, TCE was detected below the MCL. Municipal supply wells are discussed further in the Draft QAPP, FHML (CDM Smith 2019).

1.3.4.2 Cell 2

The Cell 2 area is approximately 24 acres (**Figure 1-2**). The first phase of Cell 2 (Phase 1A-P1) was constructed in 1993 and began receiving waste shortly thereafter. Cell 2 was constructed under the Subtitle D regulations. Per the Preliminary Engineering Report, the landfill base is constructed with a 60-millimeter high-density polyethylene (HDPE) membrane liner above 2 feet of compacted soil with a permeability less than or equal to 10^{-7} centimeters per second.

There is a 2-foot thick sand/gravel drainage layer above the liner that directs leachate to the leachate collection system. A heavy nonwoven geotextile is placed between the liner and the drainage layer (Maxim 2000a). This liner design was used for the first two phases (1A-P1 and 1A-P2) of the Cell 2 landfill (Maxim 2003).

Reportedly during construction of the 1A-P1 landfill, the liner was ripped during placement of the leachate drainage layer. The rip was repaired during construction of the 1A-P2 landfill by placing the 1A-P2 liner over the ripped area and welding to the 1A-P1 liner below the rip (Maxim 2000a).

An alternative liner demonstration was submitted in the year 2000 for the Phase 3 (1A-P3) construction (Maxim 2000a). The alternative liner demonstration recommended use of a 0.25-inch geocomposite clay liner (GCL) as replacement for the 2 feet of compacted soil below the HDPE liner. The GCL was reported to have a hydrated hydraulic conductivity of approximately 5×10^{-9} centimeters per second (Maxim 2000a). IDEQ approved the alternative liner prior to construction of the Phase 3 expansion (1A-P3) (elevation from 5,110 feet to 5,150 feet amsl). The alternative liner is reported to be constructed with 1 foot of compacted silt or native soil, GCL, 60 millimeters textured HDPE, a non-woven geotextile, and 1.5 to 2 feet of well graded sand (Maxim 2003). The Phase 4 expansion (1A-P4) was constructed with the same alternative liner as Phase 3 (1A-P3).

Leachate in the Cell 2 landfill is collected via a gravity drain system. The leachate collection system gravity drains from the cell sump to the Cell 2 lined leachate collection pond. Based on hydrologic evaluation of landfill performance (HELP) models completed by Brown and Caldwell during the Cell 2 design, leachate generation was anticipated to be minimal (between 0 and 100,000 gallons per year) (Brown and Caldwell 1993). Leachate that discharges to the Cell 2 leachate pond is managed by evaporation. According to county personnel, during higher than normal precipitation, excess generated leachate is pumped from the leachate pond and re-applied to the Cell 2 landfill working areas for promotion of LFG generation. Current monthly leachate generation estimates are unknown.

The Cell 2 monitoring network consists of wells surrounding landfill Cell 2 and includes background well MW-12 and downgradient compliance wells MW-8, MW-9, and MW-13 (**Figure 1-3b**). MW-7 is not part of the RCRA monitoring program, although it was originally intended as a monitoring well but was determined to be impacted by waste from Cell 1. PCE has been frequently detected below its MCL in Cell 2 wells MW-8 and MW-13. Metals that have exceeded MCLs include arsenic, barium, and cobalt. Several others without promulgated MCLs, including cadmium, cobalt, and zinc, have been reported to exceed previously established background levels (AEEC 2018b). Cyanide has been detected at least once in Cell 2 in the past 4 years, and sulfide levels have significantly exceeded background levels, particularly in MW-9 (AEEC 2018b).

1.3.4.3 Cell 4

Cell 4, opened in 2016, is a lined landfill that accepts MSW (**Figure 1-2**). It was constructed with an alternative base liner similar to the last two phases of the Cell 2 landfill. Leachate is collected by a gravity drain system. The leachate collection system gravity drains from the cell sump to the Cell 4 lined leachate collection pond, where leachate is managed by evaporation. Leachate generation quantities are not measured at the Site.

Currently, the Cell 4 landfill expansion is under construction and will provide airspace through 2025. Final design and buildout will reportedly provide landfill airspace through 2048. All stormwater is diverted to channels that ultimately discharge to a containment basin for evaporation.

The Cell 4 monitoring network consists of wells surrounding the FHML Cell 4 and includes background well MW-4A, downgradient compliance wells MW-3A, MW-5A, and MW-6A, and downgradient monitoring well MW-4 (**Figure 1-3b**). MW-4 is not part of the RCRA monitoring program due to its proximity to, and impacts from, Cell 1. Neither PCE nor TCE have been detected in Cell 4 wells, except for two samples from MW-5A and detections in MW-4 originating from Cell 1. In April 2013, concentrations of 33.4 µg/L (PCE) and 249 µg/L (TCE) were reported, in MW-5A and in January 2016, TCE was detected below the MCL. The 2013 results have never been repeated in subsequent sampling events lending significant doubt as to the validity of these results. There have been no metal MCL exceedances in the current Cell 4 network, but arsenic, barium, chromium, copper, lead, nickel, selenium, and zinc have been detected. No background levels for these COCs have been previously established, but there is historical data for MW-4A (background well).

1.3.5 PCE and TCE Fate and Transport

Natural biodegradation of chlorinated solvents is well established in peer-reviewed literature and shown to occur under both aerobic and anaerobic conditions. For chlorinated ethenes, particularly the higher chlorinated compounds such as PCE and TCE, the primary degradation pathway is anaerobic (i.e., without oxygen) transformation via reductive dechlorination where sequential transformation from PCE to TCE to cis-1,2-DCE (primary) or trans-1,2-dichloroethene (trans-1,2-DCE), VC, ethene, and/or ethane and chloride. The most common dechlorination pathway is conversion of TCE to cis-1,2-DCE to VC to ethene and ethane.

In addition to the anaerobic pathway, other degradation mechanisms for the lower chlorinated ethenes and ethanes, such as cis-1,2-DCE and VC, include anaerobic oxidation coupled to sulfate or iron reduction and aerobic oxidation (i.e., use as a food source for aerobic microorganisms) generating carbon dioxide and water. These alternate degradation mechanisms are important when there is significant sulfate or iron available anaerobically or in redox transitions zones where anaerobic groundwater comes into contact with aerobic groundwater in the downgradient/distal plumes or periodic infiltration of aerobic precipitation during rain events. This can occur either down- or cross-gradient from the anaerobic source zone or below the anaerobic treatment zone if there is a vertical gradient resulting in vertical mixing with aerobic groundwater. In addition to the chlorinated ethenes, reductive daughter products ethene and ethane can be oxidized (i.e. used as food sources) by aerobic and/or anaerobic sulfate- or iron-reducing microorganisms. Under conditions where reductive daughter products are being directly oxidized, a complete mass balance to cis-1,2-DCE, VC ethene and/or ethane is not observed.

1.3.6 Mobilization of Redox Sensitive Metals

Redox processes (oxidation and reduction) control the chemical speciation and subsequent mobility of many major and trace elements, including iron, manganese, sulfur, chromium, copper, arsenic, selenium, mercury, molybdenum, barium and vanadium. The mobility of other redox sensitive elements (e.g. sulfate) can be indirectly affected by redox transformations of organic matter and minerals (particularly iron and manganese oxyhydroxides, clays, and sulfur minerals). The oxidized form of iron (Fe(III)) is insoluble in

near-neutral pH environments, and trace elements strongly sorb to Fe(III) (i.e. ferrous iron) minerals. Under reducing conditions, Fe(III) can be reduced to Fe(II), thereby dissolving iron minerals and releasing trace elements. Barium, as the insoluble salt $BaSO_4$, can be mobilized under reducing conditions as sulfate is reduced to sulfide. Furthermore, many redox sensitive elements are more mobile in their reduced speciation state (i.e., arsenic -As(III) is more mobile than As(V).

In contaminated environments where redox conditions have become reducing and anaerobic reductive dechlorination is observed, an increase in the concentration of redox sensitive major and trace elements is expected. Conversely, where redox conditions become more oxidized, the redox sensitive major and trace element concentrations are reduced. For example, arsenic and ferrous iron are only typically observed in anaerobic groundwater environments (e.g. anaerobic areas impacted by landfill leachate) and concentrations are quickly reduced once oxidized (i.e. aerobic) conditions are re-established downgradient from the landfill leachate discharge area.

1.3.7 Pump and Treat Remedial Action

The purpose of the P&T system is to extract groundwater contaminated by leachate and/or chemicals that migrated from the old, unlined landfill area (Cell 1, as described above), to treat to remove VOCs, and then to reinject the treated groundwater into the aquifer. The system is required by the CO to remain in operation until otherwise directed by IDEQ. The system includes the following major components:

- A network of groundwater recovery wells (RW) consists of nine pumping wells (RW1, RW2, RW3, RW4, RW5, RW9, RW10, RW15, and RW17), each equipped with submersible pumps and pressure transducers set above the pumps to monitor the water level in the well. The first seven wells were located by Maxim with the intent of intercepting as much of the contaminated groundwater as possible before it flowed through the mouth of the Fort Hall Mine Creek Canyon and into the Portneuf Valley Aquifer. RW-15 and RW-17 were installed in 2012 to improve system performance.
- A monitoring well network exists within the groundwater remediation area and includes wells located both upgradient and downgradient to the area. The network allows for evaluation of the performance of the system.
- Individual conveyance piping from the RWs directs water back to the remediation shed.
- A climate-controlled remediation shed contains all the ex situ treatment equipment.
- The influent manifold with pressure gauges, flow meters, and sample ports allows for collecting process data and water samples from each of the RWs.
- A shallow tray air stripper volatilizes dissolved VOCs and discharges them to the atmosphere.
- A metering pump pulls anti-scalant from a drum and injects it into the water to reduce inorganic buildup in the air stripper and injection wells.
- The shed houses the system's power distribution, control panels, variable frequency drives for each RW pump, and other associated equipment.

- Two injection wells and an overflow evaporation pond are located downgradient of the remediation zone.

Periodic monitoring of the recovery wells and the air stripper influent is necessary to understand trends in VOC concentrations and the overall loading into the P&T system, respectively. Samples must be collected quarterly of the air stripper effluent to confirm that the air stripper is removing VOCs from the extracted groundwater, prior to injection, and that the injection remains compliant with the injection permit.

The Injection Well Permit No. 29W-006-002, expiration 2/13/2023, specifies the following:

- Violating the water quality standards stated in Idaho Administrative Procedures Act (IDAPA) 37.03.03.070.05, degrading the quality of the groundwater, or impacting a beneficial use of the groundwater resource through the use of this injection well is prohibited and is cause for cancellation of this permit.
- In the event that existing or future points of diversion for beneficial use are suspected by the Idaho Department of Water Resource (IDWR) of being contaminated by injection activities at this well, IDWR will require that injection activities at this well cease immediately. Burden of proof that injection activities at this well are not contaminating existing or future points of diversion is the responsibility of the injection well owner.

The IDAPA regulation specified in the permit, Class V Shallow Injection Well Requirements, include the following general requirements:

- All injected water shall meet all groundwater quality standards.
- The injected water shall not cause any impact relative to temperature, color, odor, turbidity, conductivity, pH, or other characteristics that may result in a reduction of suitability for beneficial uses.
- The injection flow rate, volume, and injection pressure shall be monitored.

Given these general requirements, it is necessary to sample air stripper effluent quarterly for all site COCs and other compounds that have been analyzed previously for comparison against groundwater quality standards, as outline in worksheet #20 of the *Draft Groundwater Monitoring Program Plan Quality Assurance Project Plan (QAPP), Fort Hall Mine Landfill, Bannock County, Idaho*. It is also necessary to continue to track injection flow volumes using the air stripper influent flowmeter, as there is no effluent flowmeter.

Section 2
Field Groundwater Sampling Activities

During the 2018 fall monitoring event groundwater samples were collected as follows: 26 wells in the Cell 1 monitoring well network, 4 wells in the Cell 2 monitoring well network, and 5 wells in the Cell 4 monitoring well network (including MW-4 which is not considered a Cell 4 compliance well) in the Cell 4 monitoring well network, 8 samples from the remediation system, 8 off-site monitoring wells, and 2 off-site residential wells. The 2018 fall sample locations are presented on **Figures 2-1** and **2-2**. The 2018 fall sampling activities were consistent with the FHML *Groundwater Sampling and Analysis Plan* (SAP) (CDM Smith 2018), provided in **Appendix A**, except as described in **Section 2.5**.

2.1 Private Property Access

Consent was requested from four property owners to access properties and collect samples from off-site groundwater monitoring wells and co-located domestic water wells listed in the FHML SAP (CDM Smith 2018).

2.1.1 Private Property Results Notifications

A contact letter was sent to each property owner, and further contact was made with each resident via phone and/or email. Updated contact information for each property owner was incorporated into the database.

Unrestricted access was granted to the following wells:

- MW-103S/D
- MW-115S/D

Access was granted to the following wells contingent upon approval from the current tenant:

- MW-106S/D and RW-7773P
- MW-116S/D and RW-2140H (access was granted for October 19, 2018)

The owner of properties on MW-107S/D, MW-108S/D, and residential wells did not consent to property access. Therefore, these wells are not included in the sampling program, and no data are available for the parcel of land immediately north-northwest of MW-118D.

2.2 Groundwater Sampling

Appendix B contains the field documentation of the 2018 fall groundwater monitoring event, including equipment calibration forms, groundwater purge forms, chain of custody forms, daily reports, and the field logbook.

2.2.1 Synoptic Water Level Measurement

Synoptic water levels were collected from 41 monitoring wells, following procedures outlined in Standard Operating Procedure (SOP) 1-6, "Groundwater Level Measurement" (**Appendix A**). Manual water level measurements were recorded at 41 wells at the landmark indicated on the casing (or, in the absence of a mark, the northern edge) using electronic water level

meters. Water levels from residential and remediation system wells were not collected due to well construction. Remediation system wells are closed and pumped into the treatment facility. Residential wells are closed, and water is only accessible by a spigot at the well head. Synoptic water levels were collected while the treatment system was in operation prior to collecting groundwater samples on October 3, 2018, as well as after all monitoring wells had been sampled and the treatment system had been inoperable for just over 2 days on October 9, 2018. All water levels collected during the monitoring event are presented in **Table 2-1**. An oil-water interface probe was deployed at each well during the synoptic water level event; no detections were observed.

2.2.2 Groundwater Sampling Procedures

2.2.2.1 Monitoring Wells

All monitoring wells were sampled according to the procedures outlined in SOP 1-12, "Low-Stress (Low-Flow) Groundwater Sampling" (**Appendix A**). The bladder pump was set within the screened interval, and flow rates of 50 to 500 milliliters per minute were used. Minimal drawdown and/or stabilized drawdown was used to ensure that the water to be sampled is representative of the formation surrounding the screened interval, and not the stagnant water column. Water quality parameters were continuously monitored using a flow-through cell, and when stabilization was achieved, a groundwater sample was collected.

2.2.2.2 Residential Wells

The residential wells (RW-7773P, RW-2140H) were sampled according to the procedures outlined in SOP 1-9, "Tap Water Sampling" (**Appendix A**). Using the known well diameter and depth, as well as the water table elevations at the nearby monitoring wells, the minimum volume of water required to be purged to remove one well volume was calculated. Approximately 150 and 350 gallons were purged from RW-7773P and RW-2140H, respectively. Purge water from the residential wells was not containerized, as both tenants requested to apply the water to their lawns.

2.2.2.3 Remediation System and Remediation System Wells

The remediation system extraction wells, combined air stripper influent and air stripper effluent (injection well INJ-1R), were sampled according to the procedures outlined in SOP 1-9, "Tap Water Sampling" (**Appendix A**). As extraction wells cycle on and off at varying intervals and the influent and effluent production are continuous, a set purge volume prior to sampling was not set. All remediation system extraction well grab samples were collected from taps within the treatment building. The air stripper influent sample was collected from a port located immediately above the air stripper inlet. The air stripper effluent sample was collected from a port located on the underside of the injection pipe within the treatment building.

2.2.3 Sample Analysis

Samples were analyzed according to parameter lists outlined in the FHML SAP (CDM Smith 2018). Wells were assigned to one of five lists, based on requirements set forth in the CO, CAS, and RCRA monitoring and additional rationale related to future CSM update.

2.2.3.1 Cell 1 Source and Off-site Plume

Samples collected from Cell 1, the remediation system extraction wells, and the off-site monitoring wells were analyzed for the following:

- VOCs by EPA Method 8260;
- Metals by EPA Method 6020A/6010C;
- Anions (sulfate, chloride) by EPA Method 9056A, and nitrate and nitrite (as total nitrogen) by EPA Method 353.2;
- Alkalinity by EPA Method 2320B;
- Dissolved gases (methane, ethane, ethene, acetylene, propane), by EPA Method RSK-175;
- Total Organic Carbon (TOC) by EPA Method 9060A;
- Cyanide by EPA Method SM4500-CN-E;
- Mercury by EPA Method 7470A;
- Ferrous iron by HACH Company (HACH) DR890 Colorimeter; and
- Compound specific isotope analysis (CSIA).

Offsite wells MW-106S/D, MW-115S/D, and MW-116S/D were not analyzed for TOC or dissolved gases.

The residential wells sampled were analyzed for:

- VOCs by EPA Method 8260;
- Metals by EPA Method 6020A/6010C;
- Cyanide by EPA Method SM4500-CN-E; and
- Mercury by EPA Method 7470A.

The P&T system groundwater system was evaluated by collected samples at the air stripper influent, which was compared to samples collected at the air stripper effluent (i.e., at INJ-R). The air stripper effluent (INJ-R) and influent samples was analyzed for:

- VOCs by EPA Method 8260;
- Metals by EPA Method 6020A/6010C;
- Anions (sulfate, chloride) by EPA Method 9056A, and nitrate and nitrite (as total nitrogen) by EPA Method 353.2;
- Alkalinity by EPA Method 2320B;
- TOC by EPA Method 9060A;
- Cyanide by EPA Method SM4500-CN-E;
- Mercury by EPA Method 7470A;
- Sulfide by EPA Method SM4500-S-2;

- Ferrous iron by HACH Company (HACH) DR890 Colorimeter;
- CSIA;
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270C;
- Organochlorine pesticides by EPA Method 8081A;
- Organophosphorous pesticides by EPA Method 8141A;
- Chlorinated herbicides by EPA Method 8151A;
- 2,3,7,8-tetrachloro-p-dibenzodioxin (2,3,7,8-TCDD) by EPA Method 8290; and
- Polychlorinated biphenyls (PCBs) by EPA Method 8082A.

2.2.3.2 Cell 2

Samples collected from Cell 2 were analyzed for the following:

- VOCs by EPA Method 8260;
- Metals by EPA Method 6020A/6010C;
- Anions (sulfate, chloride) by EPA Method 9056A, and nitrate and nitrite (as total nitrogen) by EPA Method 353.2;
- Alkalinity by EPA Method 2320B;
- Cyanide by EPA Method SM4500-CN-E;
- Mercury by EPA Method 7470A;
- Sulfide by EPA Method SM4500-S-2;
- Ferrous iron by HACH Company (HACH) DR890 Colorimeter;
- CSIA;
- SVOCs by EPA Method 8270C;
- Organochlorine pesticides by EPA Method 8081A;
- Organophosphorous pesticides by EPA Method 8141A;
- Chlorinated herbicides by EPA Method 8151A;
- 2,3,7,8-TCDD by EPA Method 8290; and
- PCBs by EPA Method 8082A.

2.2.3.3 Cell 4

Samples collected from Cell 4 were analyzed for the following:

- VOCs by EPA Method 8260;

- Metals by EPA Method 6020A/6010C;
- Anions (sulfate, chloride) by EPA Method 9056A, and nitrate and nitrite (as total nitrogen) by EPA Method 353.2;
- Alkalinity by EPA Method 2320B;
- Ferrous iron by HACH Company (HACH) DR890 Colorimeter and
- CSIA.

All groundwater analytical samples were submitted to TestAmerica (Denver) for analysis.

Samples for CSIA analysis were submitted to The University of Oklahoma, and results of the VOC analysis were used to determine which samples contained sufficient TCE, PCE, VC, cis-1,2-DCE, and ethene and/or ethane to run the analysis.

Water quality parameters were collected at each location prior to collecting groundwater samples using a Horiba U-52 multiparameter meter. Water quality parameters included the following:

- Dissolved oxygen (DO);
- Oxidation-reduction potential (ORP);
- pH;
- Turbidity;
- Temperature;
- Conductivity; and
- Ferrous iron was measured in the field for each groundwater sample collected (except the residential well samples) using a HACH DR890 colorimeter per HACH Method 8146. The ferrous iron measurement of the final sample was recorded on the field form.

Field QC samples, including trip blanks, rinsate blanks, field duplicates, and extra volume for matrix spike/matrix spike duplicate (MS/MSD) samples, were collected. Results of the quality control (QC) samples were evaluated as part of the data validation effort and are discussed data usability assessment in **Section 3.1**.

2.3 Pump and Treat System Operations

During the fall 2018 monitoring event the following P&T system monitoring activities were completed:

- During the sampling of the remediation system wells, the operation of the submersible pumps was confirmed by monitoring the pump control software for pump status, changes in pump motor speed, and in-well transducer water levels; influent manifold increases in vibration and pressure at the pressure gauge and sample port; and individual well flowmeters for changes in instantaneous flow rates and cumulative flow totals. The transducer readings were monitored for each pump to document successful drawdown within the well, and subsequent shutoff of the pump when the low-level set

point was reached. Transducer and pump set points and readings in the software were recorded. The transducer readings were recorded 2 days after system shutdown.

- The readings on the individual well and system influent flow meters were documented (and the batch total reset) three times during the fall 2018 sampling field event, and the incremental cumulative total and average flows were calculated.

2.4 Decontamination and Investigation Derived Waste

All non-dedicated sampling equipment (e.g., bladder pump equipment and water level meters) was decontaminated following the procedure outlined in SOP 4-5, "Field Equipment Decontamination at Nonradioactive Sites" (**Appendix A**). Decontamination procedures for groundwater sampling equipment used a triple wash system. The first wash contained potable water and a laboratory grade detergent. The second wash contained potable water, and the third wash contained distilled water for rinsing. Before use, re-use, and at the end of the sampling event, all bladder pump equipment was disassembled, scrubbed, and decontaminated using this triple wash system. Decontamination water and purge water from monitoring well sampling was containerized and disposed of on-site at the Cell 2 leachate pond. Personal protective equipment was decontaminated and disposed of on-site at the landfill.

2.5 Deviations from the SAP

Except where noted below, sampling did not deviate from the SAP (CDM Smith 2018a).

2.5.1 Cell 1 and Off-site Monitoring Wells

Groundwater samples could not be collected at MW-117R and MW-112S, as these wells were dry at the time of sampling. Sampling was unsuccessfully attempted with a bailer.

2.5.2 Remediation System Wells

Not all remediation system extraction wells could be sampled as proposed in the SAP. The following extraction wells were not sampled:

- RW-1; because there was no extraction pump installed.
- RW-16; it was not connected to the P&T system after installation because it never produced adequate quantities of water.
- RW-5; because the transducer was not communicating to the pump and did not respond to manual toggle for sample collection.
- RW-2; did not produce water although there were no obvious malfunctions.

The treatment system operated with each extraction well cycling on and off with varying durations and frequencies. The influent and effluent samples to the air stripper were collected, with the majority of flow contributed from the operation of wells RW-10, RW-15, and RW-17 based on field observations. The location of the air stripper influent sampling port inhibited the volume of water that could be collected; therefore, only VOCs were sampled and analyzed for the air stripper influent sample. The duration of extraction well cycling precluded the ability to fill the flow-through cell on the water quality meter; therefore, water quality parameters (pH, temperature, DO, ORP, conductivity, turbidity) were not collected during the air stripper influent sampling.

2.5.3 Residential Property Wells

There were no deviations from the SAP while sampling the residential wells.

2.5.4 Cell 2 and Cell 4 Monitoring Wells

Samples for alkalinity, chloride, and sulfate were not collected for Cell 4 monitoring well MW-5A due to field oversight. These parameters were collected to evaluate general water quality and were collected at the other Cell 4 wells to meet the DQO of evaluating water quality in the area. There were no other deviations from the SAP.

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Section 3
Groundwater Monitoring Results

This section presents the groundwater monitoring results of the 2018 Fall sampling event.

3.1 Data Usability Assessment

Data validation was performed in accordance with the analytical methods, National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (EPA 2017a), NFG for Inorganic Superfund Methods Data Review (EPA 2017b), and NFG for High Resolution Superfund Methods Data Review (EPA 2016), as applicable.

Holding times, sample preparation blanks (method, equipment, source, trip), duplicates (field), surrogate compound recovery, MS/MSDs, laboratory control sample/laboratory control sample duplicates (LCS/LCSDs), interferences, reporting limits, and compound identification and quantification were included in the review. Initial calibration and continuing calibration data were included in the review for the 2,3,7,8-TCDD data.

CDM Smith manually validated the laboratory analytical data for the VOCs, SVOCs, organochlorine pesticides (OC-Pests), PCBs, organophosphorus compounds (OP-Pests), chlorinated herbicides, dioxin/furans (2,3,7,8-TCDD), total metals, anions, dissolved gases, total alkalinity, total cyanide, total sulfide, and nitrate plus nitrite analyses. The validation narrative and data validation reports are provided in **Appendix D**, and the final laboratory data packages for each laboratory sample delivery group (SDG) are included in **Appendix E**. All data were received in final form, and validation was performed on the final data. All data are suitable for their intended use as stated in the QAPP. Some of the results should be used with caution as noted by the "J/J+/UJ" qualifiers applied during the data validation process.

Two sampling deviations that could affect data quality were noted. After sampling was completed, it was discovered that the tubing used for sampling was low-density polyethylene (LDPE) and HDPE. Teflon-lined tubing is recommended for sampling of organics. Studies have been performed to determine the effects of sampling tubing on organics data. It was noted that sorption of organics to sampling tubing materials can occur. The sorptive properties of chlorinated hydrocarbons were studied for five types of tubing: Teflon-lined, polypropylene, polyethylene, polyvinyl chloride, and silicon. PCE showed higher level of sorption to polyethylene, believed to possibly be due to the similarity of the PCE and the ethylene monomer unit that comprise polyethylene (Barcelona et al. 1985). No data results were qualified for the use of polyethylene tubing. However, it is possible that there may be some low bias in the volatiles trace-level data due to the use of this tubing.

Research to determine appropriate types of sampling equipment materials for surface water sampling for PCB congeners in 2016 found that very low levels of PCB congeners could be leached from polyethylene (Leidos 2016). PCBs were not detected in any samples.

The laboratory noted head-space bubbles (greater than 6 millimeters in diameter) in selected 40-milliliter vials. For most of these samples, there were enough vials without the head-space bubbles to successfully run the volatile analyses. Samples for which there was not a vial without 6 millimeters or larger head-space bubble for VOC analyses are listed below:

- MW-6A-20181009
- RW-7773P-20181008

No data results were qualified for the head-space bubble issue, but this is another possible source of loss of low levels of VOCs. The head-space issue was tracked to the types of 40-milliliter vials being used.

For future sampling, it is recommended that Teflon-lined tubing be used, and 40-milliliter vials for the VOC analyses will be obtained from a different manufacturer.

3.1.1 Precision

Precision was assessed by comparing the relative percent differences (RPDs) or absolute differences for laboratory duplicate samples, field duplicate samples, MS/MSD analyses, and LCS/LCSD analyses. Laboratory in-house limits were used for laboratory duplicate samples LCS/LCSD and MS/MSD duplicate analyses. An RPD field duplicate criteria of 30 percent was used for field duplicates. For field duplicates where results were greater than five times the level of quantification (LOQ), the RPD was calculated and compared with the 30 percent precision criteria. Where results were less than five times the reporting limit (RL), the absolute difference was calculated and compared with a precision criterion of less than or equal to the RL. **Table D-2** (**Appendix D**) presents comparisons of results for primary samples and associated field duplicates. All RPDs met the field duplicate criteria with the exceptions noted in **Appendix D**; data for the parent sample and its field duplicate were qualified as estimated (J) for these exceedances.

3.1.2 Accuracy

Accuracy was assessed with percent recoveries in MS/MSD, LCS/LCSD, surrogate recoveries, and calibration data (2,3,7,8-TCDD only). Laboratory in-house control limits and EPA method 8290A were used for evaluation of these parameters. All percent recoveries in LCS/LCSDs met the control limit criteria with the exceptions noted in **Appendix C**; these exceptions resulted in qualifying data as estimated (J or UJ). All percent recoveries in MS/MSDs met the control limit criteria, when applicable, with the exceptions noted in **Appendix C**; these exceptions resulted in qualifying data as estimated (J or UJ). All surrogate recoveries met the control limit criteria with the exceptions noted in **Appendix C**; no data required qualification for these exceedances. All 2,3,7,8-TCDD calibration data met the control limit. Two VOC compounds and one metal were qualified as not detected at the LOQ or the level of quantitation in selected samples due to blank contamination, as noted in **Appendix C**. Selected VOC, metals, and nitrate plus nitrite data were qualified as not detected at the RL due to blank contamination, as noted in **Appendix C**.

3.1.3 Comparability

Comparability from one sampling event to another is achieved by structuring the field sampling program and protocol for sample collection and analyses. CDM Smith technical SOPs are followed to ensure consistent sampling techniques. In addition, EPA-approved analytical methods and reporting limits are defined and used to ensure comparability of data.

All data included in this report have been validated and are considered acceptable for use; **Appendix D** provides the full validation narrative and results.

3.1.4 Completeness

An analytical completeness goal of 90 percent for each analytical group was used to determine completeness. Analytical completeness was evaluated for each analytical group through comparison of the number of non-rejected data to the number of requested analyses. All analyses for field samples that were submitted to the laboratory were successfully analyzed, yielding an analytical completeness value of 100 percent for all analyses.

3.1.5 Sensitivity

The reporting limits achieved for all samples were adequate to meet the DQOs.

3.2 Groundwater Elevations

Synoptic water levels were collected from 41 monitoring wells, following procedures outlined in SOP 1-6, "Groundwater Level Measurement" (**Appendix A**). Water levels are presented in **Table 2-1**. The potentiometric surface map representing water levels while the treatment system was in operation is shown in **Figure 3-1**, and the potentiometric surface map representing water levels after the treatment system was turned off is shown in **Figure 3-2**. Comparing the groundwater elevations on the two potentiometric surface maps, with the exception of MW-111S/D, the relative drawdown observed with the treatment system on was less than 1 foot in all monitoring wells compared to elevations observed with the treatment system off.

3.2.1 Horizontal Gradient Evaluation

Groundwater flows in a northeastern direction through the valley of Fort Hall Mine Canyon with a gradient of approximately 0.14 foot/foot. North of the canyon, from MW-103S to MW-106S, within the Portneuf Valley Aquifer, direction and gradient of groundwater flow was not determined.

3.2.2 Vertical Gradient Evaluation

Several sets of nested monitoring wells were included in the 2018 fall synoptic water level survey. A summary of the calculated vertical gradients is provided in **Table 2-1**. Review of the groundwater elevations while the treatment system was on reveals:

- There is a moderate downward gradient between shallow wells screened in alluvium and deep wells screened in the Starlight Formation. These wells include MW-104S/D, MW-110S/D, MW-112D/M, MW-119S/D.
- There is a moderate downward gradient between the shallow and deep wells MW-105S/D, which are both screened in alluvium.
- There is a steep downward gradient at MW-109S/D (shallow well is screened within the alluvium) and MW-111S/D (both wells are screened in the Starlight Formation).
- There are negligible gradients between nested monitoring wells MW-106S/D, MW-113S/D, MW-115S/D, and MW-120S/D.
- There is a moderate upward gradient between the nested wells MW-103S/D. The *Phase II Hydrogeologic Assessment Draft Report, Bannock County, Idaho* (Brown and Caldwell 1994) postulates that the screened interval for MW-103D intersects the Fort Hall Canyon Fault and demonstrates a unique geochemical signature compared to other

monitoring wells in the area. Historically, groundwater elevations in MW-103D vary with respect to elevations in MW-103S and can be higher, lower, or dry.

3.3 Groundwater Analytical Results

Analytical results from the 2018 fall groundwater monitoring event are presented below.

3.3.1 Volatile Organic Compounds

Detections of VOCs in all monitoring wells are presented in **Table 3-1**, screened against the EPA MCLs for drinking water.

3.3.1.1 Cell 1 Source and Dissolved Phase Plume

TCE and PCE were detected in all Cell 1 monitoring wells (except MW-111S and MW-102S) and exceeded the MCL in most monitoring wells (except MW-111S, MW-113D, MW-121, MW-4, and MW-7). Reductive daughter product, cis-1,2-DCE, was observed in most monitoring wells (except MW-102S, MW-109S/D, and MW-112M). Reductive daughter product, VC, exceeded the MCL in MW-104S/D, MW-105S, MW-110S, MW-113S/D, and MW-120S/D and was detected in MW-105D, MW-111D, and MW-118D.

Other organic detections from the Cell 1 monitoring network included:

- Low concentrations of 1,1,1-trichloroethane were detected in MW-112D (0.92 J µg/L) and the duplicate sample for MW-112M (0.67 J µg/L).
- Widespread detections of 1,1-dichloroethane were observed (MW-1, MW-104D, MW-105D, MW-110S, MW-111D/S, MW-112D, MW-113D/S, MW-118D, and MW-120S/D), with the highest detections at MW-113D (11 µg/L) and MW-113S (25 µg/L).
- 1,1-dichloroethene was detected at MW-112D (1.3 µg/L), MW-113D (0.64 J µg/L), MW-113S (1.3 J µg/L), and MW-118D (0.99 J µg/L).
- 1,2-dichlorobenzene was detected in MW-105S (0.34 J µg/L), MW-110S (0.72 J µg/L), MW-111D (16 µg/L), MW-111S (14 µg/L), MW-113S (8.3 µg/L), MW-120D (0.92 J µg/L), and MW-120S (0.89 J µg/L).
- 1,1-dichloroethane was detected at MW-105S (0.28 J µg/L), MW-113D (3.4 µg/L), and MW-113S (4.1 µg/L).
- Low levels of 1,2-dichloropropane were detected at MW-105S (0.38 J µg/L), MW-110S (0.67 J µg/L), MW-111D/S (1.7 and 2.2 µg/L, respectively), and MW-113D/S (2.3 and 4.4 µg/L, respectively).
- 1,3-dichlorobenzene was detected at MW-111D (0.24 J µg/L).
- 1,4-dichlorobenzene was detected at MW-111S/D (5.8 and 4.8 µg/L) and MW-113S (5 µg/L).
- Acetone was detected in MW-111D (12 J+ µg/L).
- Benzene exceeded the MCL at MW-111D/S (17 and 28 µg/L, respectively) and MW-113S (7.8 µg/L) and was detected at MW-113D (2.2 µg/L) and MW-110S (0.32 J µg/L).

- Chlorobenzene and chloroethane were detected at MW-111S (2 and 1.2 J µg/L, respectively) and MW-111D (1.1 and 1.2 J µg/L, respectively).
- Widespread J-flagged detections of chloroform were observed: MW-101S (0.16 J µg/L), MW-105D/S (1.5 J and 1.4 J µg/L, respectively), MW-109D/S (0.45 J and 0.8 J µg/L, respectively), MW-112D/M (0.28 J and 0.66 J µg/L, respectively), MW-113D/S (1.9 J and 3.3 J µg/L, respectively), and MW-118D (0.96 J µg/L).
- Low level detections of dichlorodifluoromethane were observed at MW-101S (0.33 J µg/L), MW-104D (1.6 J µg/L), MW-105D (3.3 J µg/L), MW-110D (1.1 J µg/L), MW-111S (0.66 J µg/L), MW-112D (2 µg/L), and MW-118D (3.9 J µg/L), and high concentrations were observed at MW-113S/D (35 and 25 µg/L).
- Ethylbenzene was detected at MW-111D/S (9 and 14 µg/L).
- Methylene chloride was detected at MW-113D/S (4.8 and 4.9 J+ µg/L). Low levels of toluene were detected at MW-110D (0.23 J µg/L) and MW-111D (0.25 J µg/L).
- Detections of trans-1,2-dichloroethene were observed at MW-1 (0.39 J µg/L), MW-110S (0.15 J µg/L), MW-111D (0.27 J µg/L), MW-111S (0.34 J µg/L), MW-113D (0.6 J µg/L), and MW-113S (1.8 J µg/L).
- Trichlorofluoromethane was detected at MW-112D (1 J µg/L) and MW-113D/S (3.1 and 4 J µg/L).
- Total xylenes were detected at MW-111D/S (1.1 J and 1.9 J µg/L, respectively) and MW-113S (1.4 J µg/L).

All the remediation system extraction wells had detections of PCE and TCE that exceeded the MCL. Concentrations of VC also exceeded the MCL in extraction wells RW-15 and RW-9. Detections of cis-1,2-DCE, chloroform and VC were observed in all extraction wells. Other low level detections in extraction wells include 1,1,1-trichloroethane, 1,1-dichlorethane, 1,2-dichlorobenzene, 1,2-dichloropropane, 1,4-dichlorobenzene, benzene, and dichlorodifluoromethane. The only VOC detections in the sample from the injection well (INJ-1R) were TCE (0.61 J µg/L) and acetone (2.3 J µg/L).

Detections of TCE exceeded the MCL in the off-site and residential wells MW-103S, MW-116S, and RW-2140H. Detections of PCE and cis-1,2 DCE were observed in these wells. Other detections in off-site and residential wells include toluene in MW-103D (0.34 J µg/L), TCE in MW-115S (0.35 J µg/L), and chloroform in MW-116S (0.21 J µg/L) and RW-2140H (0.22 J µg/L).

3.3.1.2 Cell 2 and 4

No detections of VOCs exceeded the MCL in any Cell 2 and Cell 4 monitoring well. The only other detections were cis-1,2-DCE (0.4 J µg/L), PCE (0.23 J µg/L), and dichlorodifluoromethane (0.39 J µg/L) at MW-13 and VC (0.53 J µg/L) at MW-9.

3.3.2 Metals

Detections of metals in all wells are presented in **Table 3-2**, screened against the EPA MCLs. In addition, metals were assessed spatially to determine areas where impacts from landfill leachate/waste may be indicated.

3.3.2.1 Cell 1 Source and Dissolved Phase Plume

The only detections that exceed the MCL are barium and arsenic in MW-110S/D and mercury in MW-113S/D. Arsenic was detected in all wells (except for MW-103D). Mercury was detected in MW-105D, MW-111S, MW-118D, MW-120S/D, and RW-4. Elevated levels of major and trace elements (iron, manganese, barium, arsenic, chromium, cobalt, and/or nickel) were observed in MW-105S, MW-110S, MW-111D/S, MW-121, RW-3, and RW-9R. These wells are all in close proximity to the northern edge of the historical extent of Cell 1, and all exhibited reducing conditions. The presence of mercury above the EPA MCL in MW-113S/D (the closest well to Cell 1) and reducing conditions in the vicinity of Cell 1 suggest an impact on the geochemistry of groundwater due to landfill leachate.

3.3.2.2 Cell 2 and 4

No detections of metals exceeded the MCL in Cell 2 or 4. Elevated levels of major and trace elements were observed in Cell 2 monitoring well MW-9, including calcium (310,000 µg/L compared to an average of 60,000 µg/L in other Cell 2 wells); chloride (880 mg/L compared to 55 mg/L); magnesium (220,000 µg/L compared to 25,000 µg/L); potassium (5,300 µg/L compared to 2,000 µg/L); sodium (470,000 µg/L compared to 45,000 µg/L); manganese (2,100 µg/L compared to 7 µg/L); and zinc (1,600 µg/L compared to 11 µg/L). Previous hypotheses for an explanation of the unique geochemical signature at MW-9 included the presence of a secondary aquifer, impacts from Cell 2 leachate (AEEC 2018b), or impacts from an area of "existing garbage" that was removed from the toe of Cell 2 (AEEC 2018b) and waste was deposited outside of the liner for a period of one year (which has since been removed) in the vicinity of MW-9. The high levels of magnesium, sodium, and chloride suggest a third hypothesis could be surface water penetration/infiltration with impacts from road maintenance (i.e. use of road salt) due a faulty well seal.

Additional information from the County verified the following:

- The FHML uses salt brine and a product called Ice Slider on the roads for winter maintenance. The salt brine is obtained from the city of Pocatello and is made up of 23.3% salt and 76.7% water. It is applied at a rate of 50 gallons per lane mile. This is applied to asphalt sections.
- Magnesium chloride is used for dust control on the gravel roads for stability and dust control. The FHML uses magnesium chloride and apply at 0.5 gallons per square yard.
- The magnesium chloride is applied to the gravel road adjacent to MW-9 that goes from the main entrance of Cell 2 to Cell 3. In the areas around MW-9, paved road is present from the main road to the top of Cell 2 and from the main road to the top of Cell 3 and these areas would have been treated with road salt during the winter months to address snow and ice.

3.3.3 Geochemical Parameters

Geochemical parameters, including general geochemistry (anions, alkalinity, TOC, ferrous iron), dissolved gases (methane, ethene, ethane, propane, acetylene), and field parameters (conductivity, pH, temperature, turbidity, DO, ORP) are presented in **Table 3-3**. As discussed in **Section 1.1.4**, geochemical parameters are used to assess conditions in groundwater affected by the landfill leachate/waste, including redox conditions, pH, alkalinity, and to evaluate conditions that facilitate COC degradation.

3.3.3.1 Specific Conductivity

Specific conductivity, which provides information regarding total dissolved solids, was measured at all monitoring wells (except for remediation system wells). Results are presented in **Table 3-3**.

Low specific conductivity (0.4-0.9 milliSiemens per centimeter [mS/cm]) was observed at the following wells:

- Cell 1 wells: MW-1 (0.431 mS/cm), MW-101S (0.629 mS/cm), MW-102S (0.496 mS/cm), MW-109D/S (0.824 and 0.746 mS/cm, respectively), MW-110D (0.748 mS/cm), MW-112D/M (0.691 and 0.756 mS/cm, respectively), MW-113D (0.912 mS/cm), and MW-119D/S (0.793 and 0.827 mS/cm, respectively),
- Off-site wells: MW-103D/S (0.541 and 0.631 mS/cm, respectively), MW-106D/S (0.586 and 0.569 mS/cm, respectively), MW-115D/S (0.639 and 0.677 mS/cm, respectively), MW-116D (0.358 mS/cm), and RW-7773P 0.550 mS/cm),
- Cell 2 wells: MW-7 (0.584 mS/cm), MW-8 (0.497 mS/cm), MW-12 (0.461 mS/cm), and MW-13 (0.543 mS/cm),
- Cell 4 wells: MW-3A (0.510 mS/cm), MW-4 (0.819 mS/cm), MW-4A (0.671 mS/cm), MW-5A (0.469 mS/cm), and MW-6A (0.584 mS/cm).

High specific conductivity (greater than 2 mS/cm) was observed at the following wells:

- Cell 1 wells: MW-105S (3.34 mS/cm), MW-111D/S (7.01 and 7.44 mS/cm, respectively), MW-113S (2.2 mS/cm), MW-118D (2.2 mS/cm), and MW-121(2.5 mS/cm),
- Cell 2 well MW-9 (4.94 mS/cm).

In the following Cell 1 and off-site wells specific conductivity was approximately 1 mS/cm:

- MW-104D/S (1.29 and 1.41 mS/cm, respectively), MW-105D (1.3 mS/cm), MW-110S (1.43 mS/cm), MW-120D/S (1.14 and 1.26 mS/cm, respectively), MW-116S (1.05 mS/cm), and RW-2140H (1.07 mS/cm).

3.3.3.2 Carbon

TOC is used as a general indicator for the amount of dissolved carbon within the system. TOC increases when there are inputs, such as leachate or waste originating from Cell 1. Spatial and temporal trends in TOC can be used to assess areas impacted by FHML leachate/waste. The presence of carbon corresponds to the development of more reducing redox conditions as microbial metabolism results in depletion of DO. When TOC concentrations increase from baseline and persist, this is an indicator that areas are impacted by these carbon inputs.

Relatively high TOC values (>100 milligrams per liter [mg/L]) were observed in MW-111S/111D (180 and 140 mg/L), and moderate (10 to 100 mg/L) TOC was observed in MW-121 (16 mg/L), MW113S (11 mg/L), and MW-105S (12 mg/L). All other locations had TOC ranging from approximately <1 to 6 mg/L (**Table 3-3**).

3.3.3.3 Redox Conditions

DO, ORP, sulfate, ferrous iron, and methane are redox parameters used to evaluate the degree to which reducing conditions are established at a location. Charts presenting redox

parameters in 2018 for each location are presented in **Appendix G**; historical parameters are not available. Reductive dechlorination of PCE and TCE to cis-1,2-DCE generally occurs under iron-reducing to sulfate-reducing conditions. Complete dechlorination to ethene and ethane typically occurs under sulfate-reducing to methanogenic conditions. Thus, understanding redox conditions provides key insight into the potential for anaerobic reductive dechlorination to occur at a site.

In addition, redox conditions often control the mobility and subsequent concentration in groundwater of redox sensitive metals, such as iron, manganese, and arsenic. Under reducing conditions, these metals are transformed from their oxidized (and immobile) states to their more soluble, reduced forms. In addition, many metals that are not redox sensitive are sorbed to iron and manganese oxyhydroxides, which may dissolve under reducing conditions, releasing sorbed metals. If site soil/sediments contain redox-sensitive metals, elevated concentrations in groundwater will be observed in areas with reducing conditions.

The concentrations of various electron acceptors are discussed below to assess the redox conditions within the FHML groundwater monitoring wells. Methanogenic conditions, typically ideal for complete reductive dechlorination of PCE and TCE to ethene or ethane, are indicated by the absence of oxygen, sulfate, and nitrate and the presence of methane and dissolved iron. In addition, methane production is used as a surrogate for ideal conditions for reductive dechlorination because methanogens and *Dehalococcoides* spp., one key group of bacteria that reductively dechlorinate TCE to ethene, generally require the same conditions (presence of hydrogen and carbon, reducing conditions and pH >5.5 to 6) for growth and activity. Therefore, production of methane often coincides with production of ethene/ethane from reductive dechlorination.

Cell 1 Source and Dissolved Groundwater Plume

Wells near and directly downgradient of Cell 1, including the remediation wells, were generally anaerobic. Monitoring wells with low DO (<1 mg/L), low/negative ORP, and high ferrous iron (>0.2 mg/L) include MW-1, MW-105S, MW-111S/D, MW-113D, MW-121, and MW-116D. High ferrous iron (>0.2mg/L) was observed in wells MW-120D, RW-3, RW-4, and RW-9.

Sulfate (**Table 3-3**) generally ranged from 20 to 120 mg/L in most wells. Low sulfate, indicative of sulfate-reducing conditions, was observed in MW-1 (0.52 mg/L) and MW-116D (0.59 mg/L).

High levels of methane (approximately 1,000 µg/L or greater) were detected in MW-1, MW-111S/D, and MW-113S/D (**Table 3-3**). Methane was detected at lower levels (approximately 1 to 150 µg/L) in MW-104S/D, MW-105S/D, MW-110S, MW-118D, MW-121, MW-7, RW-15, RW-17, RW-3, and RW-9. Propane was detected in MW-1 and MW-113S. Acetylene was not detected in any well.

Cell 2 and 4

MW-9 was the only location where anaerobic conditions were observed with low DO (<1 mg/L), low/negative ORP, and high ferrous iron (>0.2 mg/L) (**Table 3-3**). Interestingly, anomalously high sulfate was observed in MW-9 (1,200 mg/L). This coincides with anomalously high magnesium, manganese, sodium and zinc, which were 1 to 3 orders of magnitude higher than any other location. MW-9 was the only location where sulfide was detected (0.011 J mg/L).

In general, other well locations in Cells 2 and 4 were aerobic as indicated by DO >1 mg/L with positive ORP.

3.3.3.4 Alkalinity and pH

pH is a key factor influencing both potential and rates of biotic and abiotic COC degradation reactions but can also influence metals mobility. A pH below 6.0 will inhibit the bacteria capable of complete reductive dechlorination to ethene, primarily the *Dehalococcoides* spp., with complete inhibition at pH of 5.5 or less. Relatively high alkalinity is generally observed at locations with significant microbial metabolism due to generation of fermentation products, such as volatile fatty acids and generation of carbon dioxide.

Cell 1 Source and Dissolved Phase Plume

Alkalinity varied from 150 mg/L to 350 mg/L in most wells (**Table 3-3**). High alkalinity was observed in MW-104S/D (590 and 500 mg/L), MW-105S/D (910 and 540 mg/L), MW-110S (420 mg/L), MW-111S/D (1,700 and 1,300 mg/L), MW-113S (720 mg/L), MW-118D (560 mg/L), MW-120S/D (both 480 mg/L), MW-121 (650 mg/L), RW-4 (400 mg/L), RW-9 (530 mg/L), and MW-4 (580 mg/L).

pH ranged from 6.26 to 7.9 in the Cell 1 groundwater monitoring and remediation wells and in the residential wells (**Table 3-3**).

Cell 2 and 4

High alkalinity was observed at MW-9 (380 mg/L), all other wells ranged from 170 to 230 mg/L. pH ranged from 6.67 to 7.44 at all monitoring wells (**Table 3-3**).

3.3.3.5 COC Degradation Parameters

Chloride

In addition to being a naturally occurring chemical in groundwater systems, chloride is a by-product of reductive dechlorination of chlorinated compounds. If reductive dechlorination is occurring and background chloride concentration is relatively low, elevated chloride can be used as an indicator for these degradation reactions.

In the Cell 1 source area and plume, relatively high chloride was observed at MW-113S (400 mg/L), MW-118D (400 mg/L), MW-121 (460 mg/L), MW-105S (560 mg/L), and MW-111S/D (2,000 and 1,900 mg/L). Other locations had chloride concentration that ranged from approximately 18 to 230 mg/L (**Table 3-3**).

In the Cell 2 and 4 areas, high chloride was observed in samples collected from MW-9 (880 mg/L). The other sampling locations had chloride concentrations that ranged from 33 to 150 mg/L.

Ethene/Ethane

Ethene/ethane are the end products of complete reductive dechlorination of PCE, TCE, cis-1,2-DCE, and VC. Ethene was detected in MW-113S/D (**Table 3-3**). Ethane was detected in MW-1 and MW-111D.

3.3.4 Compound Specific Isotope Analysis

A subset of samples collected from the network of monitoring wells were submitted for CSIA analysis; results are presented in **Table 3-4**. The carbon isotopic composition ($\delta^{13}C$) of PCE varies from -20 per mil (‰) at MW-111D to −29‰ at MW-109S/D. The $\delta^{13}C$ of TCE varies

from approximately −20‰ at MW-111D, MW-104S and MW-105S to approximately −27‰ at MW-113S/D. The isotopic composition of cis-1,2-DCE is highly variable; approximately 1‰ at MW-111D, −11.8‰ at MW-104S, approximately −15‰ at RW-10 and MW-119S/D, −25 and −28‰ at MW-113S/D, with the remaining wells varying from −17‰ to −22‰. The $\delta^{13}C$ of VC ranged from −10 to −14‰ in most wells, with the following exceptions: MW-111D (−4.0‰); MW-104D (−17.2‰); MW-105D (−16.2‰); MW-105S (−24‰); and MW113S/D (−21.6 and −23.9‰).

The CSIA results and corresponding VOC concentrations are presented for PCE (**Figure 3-3**) and TCE (**Figure 3-4**). A complete analysis of the results will be presented under separate cover; however, the data suggest that VOC attenuation is occurring downgradient of Cell 1 in the vicinity of the P&T system along the approximate transect between MW-113S/D, MW-111S/D, MW-104S/D, and MW-1.

3.3.5 Appendix II Compounds

The Appendix II compound list includes mercury, cyanide, and sulfide and the organics—SVOCs, organochlorine pesticides, organophosphorus pesticides, chlorinated herbicides, PCBs, and 2,3,7,8-TCDD. Mercury results are presented in **Table 3-2**, cyanide and sulfide are presented in **Table 3-3**, and the Appendix II organics results are presented in **Appendix C**.

3.3.5.1 Cell 1 Source and Dissolved Phase Plume

Cyanide was detected at Cell 1 groundwater monitoring and remediation wells MW-105S/D, MW-111S/D, MW-119S/D, MW-120D, MW-7, RW-9, MW-103S/D, MW-115S, and MW-116S at levels below the MCL (0.2 mg/L). Mercury was detected at MW-104S, MW-105S/D, MW-111S MW-118D, MW-120S/D at levels below the MCL. At well MW-113S/D, mercury was present above the MCL (2.3 and 5.7 µg/L).

3.3.5.2 Pump and Treat System Effluent

No Appendix II parameters were detected in the air stripper effluent (INJ-1R) sample.

3.3.5.3 Cell 2

Mercury was not detected in any Cell 2 wells. Cyanide was detected in MW-12 below the MCL (0.0048 J mg/L). Sulfide was detected in MW-9 (0.011 J mg/L). Appendix II organic compounds (SVOCs, pesticides, herbicides, PCBs, 2,3,7,8-TCDD) were not detected in any Cell 2 monitoring well.

3.4 Updated Groundwater Plume Extent

Groundwater sampling results obtained from the 2018 fall monitoring event were used to update the current lateral extents of PCE and TCE groundwater plumes via data interpolation with modeling software Leapfrog Works, v.2.2.2. A description of the model development is provided in the Draft QAPP, FHML (CDM Smith 2019a). These updated isoconcentration contours are presented in **Figures 3-5a** and **3-5b** (PCE only, 5 µg/L) and **Figures 3-6a** and **3-6b** (TCE only, 5 and 100 µg/L).

The data used for interpolation is presented in **Appendix F** and includes fall 2018 sampling results for 52 wells; thus, there is a strong spatial representation of FHML and the area immediately downgradient (i.e., Cell 1 monitoring wells). For well locations that were not sampled during the 2018 fall event, interpolation data incorporate the most recent available sample result. In total, 111 data points were used to interpolate the TCE plume extent, and

105 data points were used to interpolate the PCE plume extent. The TCE plume contours were estimated by using a kriging algorithm to create a contour map of the most recent PCE and TCE plume available through 2018. A three-dimensional representation of TCE concentrations in groundwater is shown at the 5 µg/L and 100 µg/L isoconcentration levels. Non-detect results are entered as one-tenth of the reporting detection limit, with some non-detect results ignored due to high reporting limits. Analytical data were log-transformed as part of the interpolation process. The interpolations are accurate at each data point but are estimated between data points. Groundwater interpolations have a dynamic surface resolution of 50 feet and horizontal-to-vertical anisotropy is 10:1. Model settings have been revised according to site conditions, and contours have been further revised manually in reported data figures. For instance, there is not extensive bounding data in the distal portions of the plume (i.e., near northernmost City of Pocatello municipal supply wells); the original interpolations were revised to adjust for this.

As shown in **Figure 3-5a**, PCE above 5 µg/L is present predominantly in the groundwater near the remediation system area at the northeastern edge of Cell 1. The plume extends northwest into the Portneuf Valley Aquifer, reaching concentrations below the MCL around RW-7677P. There are poor bounding data available in the off-site area between the FHML property boundary and RW-2140H (**Figure 3-5b**) because of lack of access to the private properties located there and the north hillside with a steep slope north of Cell 1.

The southern extent of the PCE plume on the east side of Cell 1 was manually adjusted because there are no wells south of MW-109S/D that would bound the contour beyond what is shown. The contour is roughly centered over the maximum recent result of 86 µg/L PCE; however, other PCE detections throughout the plume do not exceed about 30 µg/L. The small pocket of PCE greater than 5 µg/L north of the remediation system is due to two recent PCE detections below 10 µg/L at MW-117R and MW-117D (**Figure 3-5b**).

As shown in **Figure 3-6a**, the TCE plume extends much farther to the north towards the City of Pocatello, with recent detections near RW-8030P in 2017. In addition, TCE was detected above the MCL at municipal supply well #33 in June of 2018. However, the most recent sampling in September 2018 was below the MCL, so the current plume shown on **Figure 3-6a** does not include this within the 5 µg/L contour. The 5 µg/L TCE isocontour extends continuously north of the remediation system until just north of MW-103S. The plume is roughly centered around a 100 µg/L hotspot at the northeast corner of Cell 1 and remediation system area, where recent results exceeded this concentration in MW-104S/D, MW-112M/D, MW-118D, and MW-120S/D (**Figure 3-6b**). There is a small hotspot around MW-109S/D, in which TCE was recently detected at 110 and 60 µg/L. The southern extent of the plume on the east side of Cell 1 was manually adjusted because there are no wells south of MW-109S/D that would bound the contour beyond what is shown.

As with the PCE plume, there is little bounding data available in the off-site area between the remediation system and RW-2140H (**Figure 3-6b**). Based on the current interpretation of the TCE concentrations in monitoring and domestic wells downgradient of the FHML, the TCE plume appears to extend northward from Cell 1 and Fort Hall Canyon, and then, due to the northwesterly groundwater flow in the Portneuf Valley Aquifer, turns northwest, flows along the longitudinal axis of the LPRV, and extends toward the City of Pocatello. The nature of the complex sedimentary deposits within the Portneuf Valley Aquifer alluvium is poorly understood at this time, which makes accurate predictions of plume transport difficult. It appears that the current TCE plume continues to extend downgradient from the northeastern

edge of Cell 1 to the property of the Church of Jesus Christ of Latter-day Saints on West Portneuf Road. The exact distance that the plume travels northward within the Portneuf Valley Aquifer is uncertain due to limited sampling locations in the distal plume northwest of the mouth of Fort Hall Canyon. However, a 2018 exceedance of the TCE drinking water standard (5 µg/L) was reported at city municipal supply well #33 (**Figure 1-3a**) in April 2018, although samples collected in June and September 2018 were just below the MCL (data provided by the City of Pocatello). This is likely near the current distal edge of the plume.

3.5 Performance of Pump and Treat System

This section describes the performance of the Pump and Treat System, as it relates both the main performance objectives of the Pump and Treat System (Maxim 2001):

- Prevent further downgradient migration of contaminated groundwater through hydraulic containment and extraction of impacted groundwater; and
- Treat extracted groundwater prior to reinjection in compliance with the injection permit (IDWR 2018).

This section also provides additional information regarding the overall operation and functionality of the treatment system, as it relates to these performance objectives.

3.5.1 Pump and Treat System Capture and Discharge

Groundwater elevations were collected during system operation and after it had been shut down for just over 2 days. These two datasets were compared to characterize the extent of potential hydraulic capture asserted by the P&T system. **Figures 3-1** and **3-2** show the water levels during operation and after 2 days of downtime, respectively. The water level data are presented in **Table 2-1**.

As contoured in **Figure 3-1**, the potentiometric data collected during operation do not show a significant degree of hydraulic capture within the immediate vicinity of the treatment system. Although there are no available monitoring wells within the interior of the extraction well network to allow quantification of localized drawdown, the water levels measured at monitoring wells immediately upgradient of the system well network (MW-104S and MW-105S) do not show a significant difference in elevations relative to cross gradient wells MW-1 and MW-101S.

A comparison against data collected after 2 days of downtime indicates some minor impact of system operation. Most of the wells in the immediate vicinity of the system showed approximately 1 to 1.5 foot of recovery following 2 days of downtime (MW-104D, MW-112M/D, MW-119S/D, MW-120S/D). Some other wells only showed very slight recovery (MW-1, MW-101S, MW-104S, MW-105S/D, MW-121). One well actually exhibited a lower water level after shutdown (MW-112S), but as noted above, it was often dry and the water level may not be representative.

In addition, as noted in **Section 3.2.3**, downward vertical gradients exist throughout the Site, and operation of the system did not affect gradients at the shallow/deep well pairs closest to the system in a way that would suggest significant hydraulic influence. Of the five well pairs closest to the system, only one showed a greater vertical gradient with the system offline, and it is located significantly downgradient from the extraction wells:

- No impact to vertical gradients with the system offline: MW-105 (remained downward) and MW-120 (remained negligible).
- Downward vertical gradients were reduced with the system offline: MW-104 and MW-112.
- Downward vertical gradients were greater with the system offline: MW-119.

As noted above, during sampling of the extraction wells, the operation of extraction wells was evaluated. Three extraction wells that have historically not produced significant flow rates were determined to be inoperable. The loss in production from these three wells may have had a limited impact on the hydraulic capture but are not thought to be significant enough to explain the limited hydraulic capture described above. The three inoperable wells identified are as follows:

- The pump for RW-1 was removed. Based on historical field notes from previous consultants, it is understood that this occurred on May 17, 2018.
- The pump for RW-2 appeared to be non-responsive. It was replaced February 22, 2017, and historical field notes confirmed it to be operational as late as March 9, 2018. The pump may require replacement, but additional troubleshooting is required to confirm.
- The pump for RW-5 is not operating because the transducer in that well is not functioning. According to previous field notes, a new transducer was installed on March 13, 2017, and the well was operational as late as April 16, 2018. The transducer likely requires replacement, but additional troubleshooting would be required to confirm.

Optimized operation of the pumps relies on reasonably accurate transducer data to control the cycling of the pump. During the site visit, the water level measured by the transducer by RW-2 was compared to a manual water level reading and determined to be accurate. No other transducer data were confirmed, and therefore it was not determined whether the pumps could be optimized to extract more groundwater. The desiccant in the transducers in RW-2, RW-9R, RW-15, and RW-17 was visually checked and all appeared to be bright blue, and therefore did not require replacement.

In addition to these issues, it was determined that at least some of the individual extraction well flow meters are inaccurate and are underestimating flow rates, as other indications of flow (increased influent manifold pressure and vibration, indicated pump operation) occurred without corresponding changes in flow totals or instantaneous flow rates at the flow meters. In addition, very small changes in cumulative flow totals were observed at wells that were not operating (RW-1, RW-2, RW-5). During all measurements made, the total of all contributions from the individual extraction well flow meters was less than the air stripper influent flow meter. From observations made during this event, RW-15 pumped the most frequently for the longest duration; however, the flow meter data suggest RW-10 has the highest average flow.

However, the instantaneous flow measured by the air stripper influent flow meter was very responsive to the starting and stopping of the individual pumps. When all pumping ceased, the air stripper influent flow meter registered zero flow. In addition, when only one well was actively pumping, the instantaneous flow at that well's flow meter was substantially less than the instantaneous flow at the air stripper influent. Given the issues identified with the individual flow meters, the air stripper influent flow meter is expected to be more reliable and

may be providing an accurate measurement of overall system flow. Based on flow data collected in September and October, the system is extracting approximately 10 to 18 gallons per minute (gpm).

The concentrations measured in the combined influent stream sample were compared to those from in the samples from individual extraction wells, and it was determined that for many COCs, the concentrations in the combined influent sample were significantly lower. For example, TCE concentrations ranged from 49 to 210 µg/L in the extraction wells, but the combined influent concentration was only 10 µg/L. It is expected that the location and configuration of the sample port results in data that are biased low. The sample port tee and valve are located on a pipe immediately above the air stripper, which drains into the stripper by gravity. Because of this, it is expected that the pipe is not always full of water and that VOCs may partition into the head-space above the water. Recommendations to address this and other system issues presented are included in **Section 5.4**.

3.5.2 Performance of Treatment System

As noted above, the main purpose of the treatment system is to remove contamination in extracted groundwater prior to injection. The injection permit requires the following (IDWR 2018):

- "Violating the water quality standards stated in Idaho Administrative Code [IDAPA] 37.03.03.070.05, degrading the quality of the groundwater, or impacting a beneficial use of the groundwater resource through the use of this injection well is prohibited and is cause for cancellation of this permit."
- "In the event that existing or future points of diversion for beneficial use are suspected by IDWR of being contaminated by injection activities at this well, IDWR will require that injection activities at this well cease immediately. Burden of proof that injection activities at this well are not contaminating existing or future points of diversion is the responsibility of the injection well owner."

The IDAPA regulation specified in the permit, Class V Shallow Injection Well Requirements, include the following general requirements:

- "All injected water shall meet all groundwater quality standards." (Defined as the higher of those specified in IDAPA 58.01.11 and federal drinking water quality standards, i.e., MCLs.)
- "The injected water shall not cause any impact relative to temperature, color, odor, turbidity, conductivity, pH, or other characteristics that may result in a reduction of suitability for beneficial uses."
- "The injection flow rate, volume, and injection pressure shall be monitored."

The AS-INF (system influent, pre-treatment) has only been sampled four times, beginning in April 2017. All VOC results exceed the MCL, with concentrations of 87 µg/L TCE and 15 µg/L PCE detected in the most recent sampling (April 2018).

As described above, the air stripper effluent was sampled and analyzed. Concentrations in the air stripper effluent were compared to results from the individual extraction well samples and the combined influent concentrations. Results indicate that the air stripper effectively removed VOCs from the influent water and met the permit criteria with the only

detections of acetone and TCE at 2.3 and 0.61 µg/L, respectively. Air stripper effluent concentrations were compared to groundwater quality standards, as shown in **Table 3-5**. All results indicated analyzed compounds were below their respective groundwater quality standards, including acetone and TCE, with the following exceptions:

- Manganese was detected at 120 mg/L, which is above its secondary groundwater quality standard of 50 mg/L.
- 1,2-Dibromo-3-chloropropane and 1,2-dibromoethane were both not detected, but their detection limits were above their respective primary groundwater quality standard.
- Benzo[a]pyrene and pentachlorophenol were not detected, but their detection limits were above their respective primary groundwater quality standard.

Measurement of injection flow is tracked using the system influent flowmeter. As noted above, although the individual extraction well flowmeters do not appear to be collecting accurate data, the air stripper influent flow meter is more likely to be accurate. Readings collected on October 9, 2018, indicated that the system has removed a total of 24,114,000 gallons since these flowmeters were installed. Based on flow data collected in September and October, the system is injecting approximately 10 to 18 gpm.

The system does not include an injection pressure gauge, as the discharge of the air stripper is by gravity and flows down the hill toward the injection wells (INJ-1 and INJ-1R). However, the piping to the injection wells prevents the wells from being over-pressurized, as any water that is not able to infiltrate via the wells overflows to the County's evaporation ponds located immediately to the south of the wells.

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Section 4
Groundwater Data Analysis

Analytical data from the 2018 fall sampling event and all available historical records were compiled and updated in the EQuIS database. This section presents results from two separate reviews of the data. First, PCE and TCE data were statistically analyzed at individual wells to evaluate VOC concentration trends at FHML, the remediation system area, and off-site. Trends and individual wells were considered in relation to nearby wells to refine the spatial behavior of trends (**Section 4.1**). Second, all available Appendix II parameter sample results from Cell 1, 2, and 4 from 2015 to October 2018 were reviewed to determine compliance, comprehensiveness, and status of RCRA monitoring based on each cell's respective RCRA monitoring requirements to guide further recommendations for this intensive monitoring (**Section 4.2**).

4.1 VOC Trend Analysis

Analyte trend charts (**Appendix G**) were generated for Cells 1, 2, and 4, off-site monitoring wells, and remediation system wells to present historical and recent concentrations of the following chlorinated ethenes and daughter products:

- PCE;
- TCE;
- cis-1,2-DCE;
- trans-1,2-DCE;
- 1,1-Dichloroethene;
- VC;
- Ethene;
- Ethane;
- Acetylene; and
- Chloride.

As shown in **Appendix G**, two charts present the same data for each well; however, one chart has a logarithmic axis to enhance the visibility of daughter product concentrations. All available historical sampling results are included. It should be noted that some chemicals have not been analyzed for certain wells and are thus not visible on the charts (e.g., ethene in Cell 2 and 4 wells). Non-detect results are plotted as the method detection limit (MDL), if known, or the reported value (if not provided). The MCL for both PCE and TCE is 5 µg/L and is presented on charts as a dotted horizontal line.

Other detected organics not listed above are also provided (**Appendix G – Other Detected Organics Trend Charts**). Non-detect results are not shown on these graphs.

4.1.1 Statistical Approach

To evaluate the VOC concentration trends, the MK test was performed on the historical PCE and TCE data for individual monitoring wells and remediation system wells. The MK test is a non-parametric statistical analysis used to determine temporal trends at a discrete location and can be used for datasets with missing data (EPA 2009, IDEQ 2014).

Interpretation of the trend result is based on the values of the MK test statistic, S. S is computed by adding the scores from the comparison of all possible pairs of data results in the analyzed dataset, and larger absolute values of S represent stronger evidence for a real trend of the data (EPA 2009). The probability (p-value, p) for a test over n results is determined by S. Comparison of p to alpha levels (i.e., confidence levels) allows for the determination of a statistically significant trend for the chosen confidence level. If p is less than alpha (typically 0.05, which corresponds to a 95 percent confidence level), then there is a statistically significant trend and the null hypothesis is rejected (IDEQ 2014). The direction of the trend is determined by the sign of S, where negative values correspond to a decreasing trend and positive values correspond to an increasing trend. If p is greater than alpha, the MK result is no trend.

It is important to note that this MK analysis does not correct for seasonality in the data. Additionally, the MK test does not evaluate trend stability and cannot be used to estimate cleanup times for decreasing trends because S does not provide the user with a magnitude or slope of a trend line. Other statistical tests, such as Theil-Sen regression, may be employed for this purpose (EPA 2009). Finally, MK analysis is used for discrete locations, although results for multiple locations can be considered together conceptually.

In MK analysis, it is standard practice to use a common value lower than any of the detected measurements for events with non-detect results (EPA 2009). For this analysis, reported non-detect results were divided by 2 to create an adjusted result, which were used in the MK analysis, consistent with state recommendation (IDEQ 2014). It should be noted that where known, the MDL was reported as the non-detect result for trend data. However, the origin of non-detect results from historical data was not always provided by previous consultants. MDLs for some laboratories were not specified. It is therefore possible that some non-detect results represent MDLs while others represent RLs.

This may provide a slight bias to the analysis for wells in which low and non-detect TCE and PCE concentrations have been reported because concentrations used in the analysis may be adjusted from RLs or MDLs. However, because most wells presented with VOC concentrations appreciably higher than the MDL, RL, and MCL, this is unlikely to bear significant impact on the analysis. Wells that did present with non-detect results generally do not have a statistical trend (e.g., several Cell 2 and 4 monitoring wells), and the difference in analyzing the MDL/2 versus the RL/2 is not significant enough to impact the resulting trend in these cases.

CDM Smith developed a program to perform this analysis in Excel's Visual Basic for Applications (CDMStats). The output of CDMStats includes S and p for a selected n, which allow for the interpretation of the trend result. An alpha of 0.05, corresponding to a 95 percent confidence level, was used for this analysis. A minimum value of n = 4 was chosen for the analysis; therefore, datasets with less than 4 results were not analyzed. Additionally, datasets with fewer than 4 detected results of PCE or TCE were not evaluated for MK trends.

Appendix G provides the trend charts for the FHML groundwater monitoring and remediation wells. **Table 4-1** presents a summary of the trend results from the MK statistical analysis for all wells analyzed. Specific MK test parameters (S, n) are provided for each well group in subsequent **Tables 4-2** through **4-7**. The general conclusions of the MK analysis are as follows:

- Increasing trends occurred most frequently in wells at the Cell 1 boundary and just downgradient of the remediation system. No wells located beyond the FHML property (i.e., offsite) presented with increasing trends.
- Decreasing trends were scattered throughout the monitoring networks (**Figures 4-1** and **4-2**).
- Remediation system wells generally had no significant trend (see **Section 4.1.2.2**).

As shown in **Figure 4-1**, wells with increasing PCE trends are generally located at or downgradient from the Cell 1 boundary, such as MW-109S/D and MW-113S, or just downgradient of the remediation system, as in the case of MW-118D and MW-119D. Within the remediation system wells, PCE concentration trends were not significant, except in RW-3 and RW-9R (both decreasing). PCE was detected in MW-117S/D above 5 µg/in 2017 (**Figure 4-1**), but PCE trends in both of these wells was found to be decreasing. There were no off-site wells with statistically increasing PCE concentrations (**Table 4-1**).

As shown in **Figure 4-2**, most of the wells with increasing PCE trends also had increasing TCE trends. Examples include MW-104S, MW-109S/D, and MW-118D. In monitoring wells either at the Cell 1 boundary or just downgradient of the remediation system, TCE trends were either increasing or not significant. All wells with increasing TCE trends had increasing PCE trends (**Table 4-1**). Similar to PCE trends, most remediation system wells presented with no significant trend, and there were no off-site wells with statistically increasing TCE concentrations.

4.1.2 Cell 1 Monitoring Wells

The Cell 1 group is the largest monitoring well group in the FHML groundwater monitoring program. Cell 1 monitoring wells are located within and adjacent to the north, west and east sides of the Cell 1 boundary, throughout the remediation system area, and downgradient of the remediation system within the FHML property boundary (**Figure 2-2**).

As shown in **Table 4-2**, concentration trends of PCE and TCE vary within this group. Wells located within the remediation system area generally had no significant trends while those at the Cell 1 boundary and immediately downgradient of the remediation system presented with increasing trends.

4.1.2.1 Cell 1 Boundary Wells

Results from monitoring wells closest to the Cell 1 boundary and upgradient of the remediation system demonstrated varying trends in PCE and TCE concentrations.

MW-109S/D, located on the southeast boundary of Cell 1, showed increasing trends for both PCE and TCE. Concentrations above the MCL were consistently detected for both VOCs in these locations. Prior to 2018 fall sampling, there was little or no data since 2002 for MW-109S/D. Between 2002 and 2018, TCE increased to 60 and 110 µg/L in MW-109D and MW-109S, respectively.

MW-110S, located on the eastern boundary of Cell 1, had significantly increasing PCE and TCE trends. Concentrations above the MCL were consistently detected for TCE. MW-110D trends were significantly increasing for PCE and not significant for TCE. There was a gap in sampling from approximately 2002 to 2014, and then this location was sampled again in Fall 2018. MW-110S was anoxic with DO less than 1 mg/L and positive ORP with elevated TOC (greater 3.8 mg/L), and MW-110D was aerobic. Reductive daughter product cis-1,2-DCE is observed at both locations (although it represents a very small fraction at MW-110D), and VC is observed consistently only at MW-110S (**Appendix G – Cell 1 Monitoring Wells**).

MW-104S is off the northeast corner of the Cell 1 boundary (**Figure 4-1** and **4-2**), and its increasing concentration trends for both PCE and TCE are consistent with other wells along the Cell 1 boundary. This well was not sampled between 2002 and October 2018, and there is little fluctuation in the results between 1999 and 2002. However, since then, PCE increased from 24 to 86 µg/L and TCE increased from 123 to 750 µg/L in 2018 Fall sampling event (**Appendix G – Cell 1 Monitoring Wells**). Analysis of data from MW-104D, which has a similar sampling history, did not yield significant increasing nor decreasing MK trends. Anoxic redox conditions at MW-104S/D are apparent, as indicated by the depleted DO and sulfate concentrations and elevated methane concentrations (**Table 3-3**). However, dissolved iron was not observed and ORP was positive indicating that conditions are only mildly reducing (i.e. anoxic) and/or the area is receiving "mixed" anaerobic and anoxic water.

MW-105S showed no trend between 1999 and 2018; however, since 2005, both PCE and TCE have trended downward from 330 µg/L (TCE) and 70 µg/L (PCE), which corresponds to increased cis-1,2-DCE and increased chloride (**Table 4-2, Appendix G – Cell 1 Monitoring Wells**). In addition, anaerobic redox conditions are prevalent at this location, which would support natural anaerobic reductive dechlorination. Analysis of MW-105D yielded a decreasing trend for TCE (150-300 µg/L) and an increasing trend for PCE (30-60 µg/L). The decreasing trend in TCE corresponded to increasing concentrations of cis-DCE and VC. High TOC and anaerobic redox conditions at MW-105S/D also indicate increased natural anaerobic degradation at and/or upgradient of this location (and that it is receiving landfill leachate).

MW-111S/D has either no trend or decreasing trends (**Table 4-2**). Data for MW-111S, with a limited sampling history, demonstrated decreasing trends for PCE and TCE, both most recently detected below 1 µg/L (**Appendix G – Cell 1 Monitoring Wells**). Its deeper counterpart, MW-111D, has an extensive sampling history since 1999, with greater VOC concentrations than any other well in the FHML monitoring network. TCE has frequently exceeded 1000 µg/L (maximum of 3060 µg/L), and PCE was commonly detected around 80 µg/L. MK analysis yielded no trend for either PCE or TCE since 1999. However, as shown on the trend chart for MW-111D (**Appendix G – Cell 1 Monitoring Wells**), historical dips in PCE and TCE concentrations have occurred briefly in 2002, 2006, and 2011, each followed by a rebound in concentration within a short time thereafter. Between 2016 and October 2018, both analytes dramatically decreased in concentration, with PCE declining from 89 to 1.1 µg/L and TCE declining from 1730 to 12 µg/L. It is not clear if a fourth concentration rebound can be expected in the short term. However, the recent declines have persistently declined over 5 sampling events conducted over approximately 20 months, unlike historical dip/rebound events. Very high TOC and anaerobic conditions are also observed at this location (**Table 3-3**) and suggest that significant natural attenuation of the PCE and TCE (supported by high concentrations of cis-1,2-DCE and VC and detection of ethene/ethane) may be supported and that this location is relatively close to the landfill waste leachate/discharge point.

MW-113S has an extensive sampling history with significant increasing trends of PCE and TCE observed over the monitoring period with concentrations ranging approximately 15-60 µg/L and 5-30 µg/L, respectively (**Appendix G – Cell 1 Monitoring Wells**). The PCE trend, however, has decreased since 2009 (**Table 4-2**). Additionally, MW-113S had increasing trends for cis-1,2-DCE and VC over the entire monitoring period since 1999 (MK not performed). Its deeper counterpart, MW-113D, has a limited sampling history with only four sampling events and no significant MK trends. High TOC and anaerobic conditions observed at MW-113S/D suggest that this location supports significant natural attenuation of the PCE and TCE, which is consistent with observations of high concentrations of reductive dechlorination daughter products, cis-1,2-DCE and VC and detections of ethene/ethane (**Appendix G – Cell 1 Monitoring Wells**) and the fact that this location is relatively close to the landfill waste leachate/discharge point.

MW-4 is upgradient of Cell 1, between Cell 1 southwestern boundary and Cell 4 (**Figure 2-1**) and has increasing PCE and TCE concentration trends over the full date range evaluated (since 1991) (**Appendix G – Cell 1 Monitoring Wells**). PCE has frequently exceeded the MCL over the monitoring period and increased from 0.3 µg/L in 1991 to 26.5 µg/L in 2010. However, since 2010, PCE has been detected near or below the MCL. TCE has always been below the MCL when detected. Between 2010 and 2015, TCE also decreased, suggesting a change in conditions within that timeframe. MK analysis was performed for both analytes between 2010 and 2018, yielding no statistically significant trend for either analyte during that time (**Table 4-2**). One explanation of these results is the installation of the Cell 1 landfill gas extraction system in 2012 and operation in 2014, which has resulted in pneumatic extraction of soil vapors that may have been the source of contamination at MW-4, which is screened near the groundwater water table.

MW-7, like MW-4, is upgradient of Cell 1, but is located just south of the Cell 2 leachate pond (**Figure 2-1**). There have been large gaps between sampling dates at this location, but both PCE and TCE have been detected below the MCL (**Appendix G – Cell 1 Monitoring Wells**). Prior to October 2018, MW-7 had not been sampled since 2010. MK analysis was only performed on PCE data, because TCE has only been detected 3 times in MW-7. The PCE trend was significantly decreasing, with no detections above the MCL since 1993.

The trend results for Cell 1 boundary wells are consistent with the fact that Cell 1 was not constructed with a cell liner and indicate that contamination originating from Cell 1 continues to leach and impact groundwater downgradient of its boundary. Consistent concentrations (i.e. no trends) and/or increasing trends also indicate that the Cell 1 remedy has had little to no influence on reducing this source of contamination as far south as MW-110S/D and MW-109S/D and as far west as MW-113S/D.

4.1.2.2 Cell 1 FHML Site Monitoring

Wells nearest to the remediation system also presented a variety of trends.

MW-112M had not been sampled since 2002 before the 2018 Fall sampling event. No trend is evident for PCE or TCE, but both have been consistently detected above the MCL (approximately 10 µg/L PCE and 100 µg/L TCE) (**Appendix G – Cell 1 Monitoring Wells**). Its deeper counterpart, MW-112D, has an extensive sampling history and has an increasing PCE trend with concentrations maintained at about 10 µg/L, where TCE has no significant trend, likely due to significant concentration fluctuations in the range of 100-300 µg/L (**Appendix G – Cell 1 Monitoring Wells**). In addition, conditions at MW-112M, MW-112D are generally

aerobic and so do not support anaerobic degradation reactions. MW-112S was not analyzed for trends because of insufficient available data.

MW-1 demonstrates a very clear decreasing trend for both PCE and TCE, although TCE is still above the MCL at 13 µg/L (2018 fall sampling event). Anaerobic redox conditions at this location also indicate increased natural anaerobic degradation at and/or upgradient of this location (**Table 3-3**).

No significant statistical trend for PCE or TCE was observed at MW-101S, where TCE is consistently detected above the MCL. Conditions at MW-101S are generally aerobic (**Table 3-3**) and so do not support anaerobic degradation reactions.

Neither MW-112S nor MW-121 were statistically analyzed because they have only been sampled twice and once, respectively.

4.1.2.3 Downgradient Cell 1 Monitoring Wells

MK analysis of monitoring wells downgradient of the remediation system and north-northeast of Cell 1 generally yielded increasing PCE and TCE concentration trends across the span of all available historical data (**Table 4-2**). However, concentrations in several of these wells are significantly decreasing when evaluating only data from more recent date ranges.

MW-118D is located near the perimeter of the PHML property boundary directly north of the remediation system. Over the entire date range (2000 to 2018), both PCE and TCE demonstrated increasing trends. Maximum concentrations of 40 µg/L (PCE) and 315 µg/L (TCE) occurred in 2013 and have trended downward since, however, TCE remains at high concentrations (170 µg/L), and PCE is persisting above the MCL (**Appendix G – Cell 1 Monitoring Wells**). Low DO, presence of sulfate, and high TOC suggest that redox conditions conducive to anaerobic degradation are present at this location; however, highly positive ORP indicates that conditions are only mildly reducing and/or the area is receiving "mixed" anaerobic and anoxic water (**Table 3-3**).

MW-119S/D, located just downgradient of the 100 µg/L contour (**Figure 4-1** and **4-2**) showed no trend for TCE data (2002-2018 date range). PCE was significantly increasing in MW-119D but not significant in MW-119S. Both analytes in both wells were shown to be significantly decreasing in an additional analysis of historical data since 2016 (**Table 4-2**); however, the stability of this trend is not clear. In October 2018, PCE and TCE were still above MCLs but detected as historical lows in both wells (**Table 3-1, Appendix G**). However, low TOC and highly positive ORP at these wells indicate conditions are not supportive of extensive anaerobic degradation (**Table 3-3**).

There were no significant trends for PCE or TCE in MW-120S between 2002 and 2018; however, both compounds peaked in 2009, and have decreased in concentration since then. In MW-120D, trends for both compounds were increasing over the same time range. However, trends over more recent time frames shift to decreasing (**Table 4-2**). The presence of sulfate and low DO in MW-120S/D suggests that natural attenuation by anaerobic degradation is occurring, which is consistent with the recent downward trend (**Table 3-3**).

Farther downgradient, MW-117S showed decreasing trends for PCE and TCE from 2000 to 2017. PCE was found to be decreasing in MW-117D, while TCE had no trend. MW-117R was not analyzed for trends due to insufficient data.

Finally, MW-102S had no trend for PCE and a decreasing trend for TCE. This well is aerobic with low TOC and highly positive ORP (**Table 3-3**), which does not support natural attenuation by anaerobic degradation.

4.1.3 Remediation System

Remediation system wells are located north-northeast of the FHML Cell 1 boundary and south of the Bannock County office and shop (**Figure 2-2**). As shown in **Table 4-3**, the statistical analysis of PCE and TCE concentration trends in remediation system extraction wells yielded either decreasing trends or no trend in all wells, consistent with the results of the Cell 1 analysis, presented above.

RW-1, RW-2, RW-3, RW-4, RW-5, and RW-9 have extensive sampling histories between 2004 and 2018. RW-10 has been sampled frequently since 2010. Data from these wells demonstrate consistent groundwater concentrations, in the approximate ranges of 20-40 µg/L PCE and 150-300 µg/L TCE. No concentration trends were identified for RW-1, RW-2, and RW-4 for either PCE or TCE for the entire date range of sample results. Similarly, no trends were identified from the complete date range of results for RW-9. Only data from RW-3 (for PCE), RW-5, and RW-10 (for TCE) yielded decreasing concentration trends. However, PCE and TCE trends are decreasing in RW-1 and RW-4 over shortened timeframe (November 2015 to 2018), suggesting a recent change in the trend that is not reflected in the analysis of the entire dataset.

RW-9R is the replacement well for RW-9. It has been sampled 7 times since December 2016. MK results indicate that there is no TCE concentration trend but that PCE is decreasing. Both VOCs are currently above the MCL, with the last reported TCE concentration at 210 µg/L.

RW-15 and RW-17 are the most recently installed remediation system wells, with the earliest sampling data from 2012. PCE concentrations exhibited no trend in either well and ranged between approximately 10 and 40 µg/L. TCE in both RW-15 and RW-17 was similar to other RWs, ranging between approximately 50 and 240 µg/L. Although the TCE concentration plots are visually very similar between the two (**Appendix G – Remediation System**) in RW-15, the TCE trend was statistically decreasing. However, the p-value for this test was about 0.04, which is much closer to the alpha level (0.05) than most other statistically significant results. Therefore, the interpretation that TCE trends in both wells are different is questionable.

Overall, the trend analysis of PCE and TCE concentrations in remediation system extraction wells demonstrates that since 2004, the source of contamination has been sustained over the operational period and, overall, contaminant discharge coming into the system is not being adequately contained by it. Two remediation system wells had decreasing PCE concentrations, while 3 different wells had decreasing TCE concentrations. All other trends in remediation system wells were not significant, often at concentrations above the MCL. Variability in concentrations is likely due to seasonal and operational effects, which are not yet understood. Considering that Cell 1 monitoring locations both upgradient and downgradient demonstrate increasing trends (**Section 4.1.2**), contamination is not hydraulically contained by the P&T system.

4.1.4 Cell 2 and 4 Monitoring Wells

Cell 2 and 4 monitoring wells are located within the FHML (**Figure 2-1**) and are regulated under RCRA, according to assessment (Cell 2) and detection monitoring requirements (see **Section 4.2**). Cell 2 monitoring wells include MW-8, MW-9, MW-12 (background), and MW-

13. MW-7 is no longer sampled as a part of the monitoring program. Cell 4 monitoring wells include MW-3A, MW-4, MW-4A (background), MW-5A, and MW-6A. MW-4 is not a compliance well, but is a part of the monitoring network for Cell 4 and is also used for the evaluation of the Cell 1 performance monitoring program.

MK analysis was performed only for wells with at least four historical detections of PCE, TCE, or both. Most Cell 2 and 4 wells had insufficient historical data or too few historical detections to be included for MK analysis. **Table 4-4** shows the results for the decreasing PCE trends in both MW-8 and MW-13. PCE has not been detected in MW-8 since 2016, and it has not exceeded the MCL in either well since sampling began (2009 and 2011 for MW-8 and MW-13, respectively).

4.1.5 Offsite Monitoring Wells

MW-103S/D, MW-106S/D, MW-107S/D, MW-108S/D, MW-115S/D, and MW-116S/D are offsite monitoring wells used to evaluate the FHML Cell 1 offsite plume (**Figure 2-1**). Offsite monitoring wells are located beyond the FHML property boundary but are not used for residential or municipal purposes. Most were installed specifically to monitor groundwater downgradient of FHML.

As shown in **Table 4-5**, statistical analysis of PCE and TCE trends was limited to MW-103S/D, MW-115S, and MW-116S. This was due to limited historical data (i.e., less than 4 sample results or detections) or very outdated historical data availability (e.g., MW-107S was last sampled in 2002 with no recent data) for other offsite monitoring wells. MW-107S/D and MW-108S/D are permanently unavailable for sampling, due to refusal to access the wells by the property owner.

Of the wells that were analyzed, both MW-103D and MW-115S had a limited (n = 7) dataset for TCE which yielded no statistically significant trend. PCE and TCE concentration results were all below 10 µg/L, with non-detect results observed for 2017 and 2018 samples. There were only 3 sample results for PCE, so it could not be analyzed. MW-115S was sampled frequently around 2000 but has only been sampled twice since 2005. In addition, this location is aerobic and so conditions are not conducive to facilitate anaerobic chlorinated ethene degradation reactions (**Table 3-3**).

MW-103S has an extensive sampling history showing significant fluctuations in TCE since 1994, ranging from 130 µg/L (in 1994) to below the MCL on occasion (**Appendix G – Offsite Monitoring Wells**). PCE has fluctuated between 1 and 13 µg/L. For the entire date range, there was a significant decreasing trend for both chemicals. However, due to the significant variance in the data and extremely high variance of S, the interpretation of this statistical result is that there is no significant trend for either PCE or TCE in MW-103S. The variance in concentrations observed at this location may indicate some seasonal effects and, generally, PCE and TCE results within the upper end of the range were observed in Spring/Summer and results within the lower end of the range were observed in Fall/Winter. Additional analysis will be needed to establish the seasonal trend. In addition, this location is aerobic and so conditions are not conducive to facilitate anaerobic chlorinated ethene degradation reactions (**Table 3-3**).

MW-116S was extensively sampled around 2000, and TCE has consistently been detected above the MCL. PCE has rarely exceeded the MCL. While the TCE trend is significantly decreasing, recent results are still greater than the MCL. There is no significant trend for PCE.

4.2 Appendix I and II Parameter Monitoring

Monitoring requirements for landfills are set forth by 40 CFR Part 258 Subpart E (Cell 2 and 4 are currently managed under these requirements). There are three tiers of monitoring for RCRA compliance, briefly described below:

- **Detection Monitoring**: Background threshold values are developed for Appendix I parameters and periodically re-evaluated or updated with ongoing data collection, if appropriate. Detectable background concentrations metals are expected, whereas background concentrations of anthropogenic organic compounds are typically non-detect. Semi-annual monitoring is required unless a statistically significant increase in concentration of an Appendix I parameter is identified. If it cannot be attributed to sampling or analytical error, natural variation, or a source outside of the landfill cell, then assessment monitoring must be initiated within 90 days. Cell 4 is currently managed under Detection Monitoring requirements.

- **Assessment Monitoring**: Under assessment monitoring, the analytical list is expanded to include the Appendix II parameters. Again, background threshold values are developed for any detected Appendix II parameters (this requires a minimum of four independent samples). Groundwater protection standards are also established for any detected parameters (Appendix I and Appendix II); these are typically federal MCLs or are state-specific standards. The monitoring is conducted semi-annually, with all parameters analyzed during one of the semi-annual events, and with only the detected parameters analyzed during the other semi-annual event. If concentrations of all Appendix II parameters are at or below background for two consecutive sampling events, then the groundwater monitoring program can revert back to semi-annual detection monitoring. However, if concentrations of any of the Appendix II parameters are significantly greater than background, but less than the groundwater protection standard, then assessment monitoring continues. If any parameter exceeds a groundwater protection standard, and it cannot be explained other than a release from the landfill, corrective measures must be initiated. Cell 2 is currently managed under Assessment Monitoring requirements.

- **Corrective Action**: Cleanup measures must be undertaken at that site. Rather than creating a rigid regulatory framework the RCRA corrective action cleanup process focuses on results rather than specific steps, and is flexible, depending on site-specific conditions. A typical cleanup may include steps such as: initial site assessment, site characterization, interim actions, evaluation of remedial alternatives, and implementation of the selected remedy.

To evaluate the sampling approach for 2019 Spring sampling event, historical results for Appendix I and II parameters from 2015 through 2018 were screened for detections and MCL exceedances.

4.2.1 Cell 1 Monitoring Wells

The FHML Cell 1 is not regulated under the Subtitle D in 40 CFR Part 258 requirements. However, to evaluate whether it meets the substantive requirements, a subset of monitoring wells has been historically monitored for the Appendix I and II parameters to establish if other contaminant impacts are observed downgradient from Cell 1. Monitoring will continue in these wells to evaluate other contaminant impacts using similar decision criteria

established for Cells 2 and 4 under the Subtitle D requirements in 40 CFR Part 258 requirements as detailed in the Draft QAPP, FHML (CDM Smith, 2019a).

Historical and recent data from 2015 through 2018 for Cell 1 was reviewed for Appendix I and II parameter results. Cell 1 is currently in correction action. In the past two sampling events, there have been VOC exceedances in all but 2 wells (wells MW-102S and MW-121). Other historical and current exceedances include arsenic, barium, and benzene in wells MW-111D and MW111S, arsenic in MW-105S, benzene and mercury in MW-113S, as well as mercury in MW-113D. These five wells are located downgradient of Cell 1 boundary and upgradient of the remediation system. There are no exceedances of these Appendix II analytes, except for PCE, TCE, and VC in any monitoring wells downgradient of the remediation system. Appendix II sampling and analysis within Cell 1 has been sporadic and incomplete, however there have been detections of at least one analyte in wells located across the entirety of the Cell 1 sampling area.

Sampling recommendations for 2019 sampling in Cell 1 are provided in **Section 5.2**.

4.2.2 Cell 2 and 4 Monitoring Wells

For Cells 2 and 4, the data will be used to fulfill the Subtitle D requirements for detection and assessment monitoring of municipal solid waste landfills. The requirements were promulgated to provide early detection of potential impacts from landfills to groundwater. All available historical data for Cell 2 and Cell 4 wells were reviewed for detects and exceedances. Cell 4 is currently in detection monitoring; MW-4A is the background well and wells MW-3A, MW-5A, and MW-6A are the downgradient compliance wells. Cell 2 is currently in assessment monitoring; MW-12 is the background well and wells MW-8, MW-9, and MW-13 are the downgradient compliance wells.

Statistical analysis was performed for all detected chemicals in the groundwater samples collected during the 2018 fall sampling event for wells associated with Cell 2 and Cell 4. Data from the downgradient compliance wells were statistically compared to data from the appropriate background well using a t-test and an analysis of variance (ANOVA). While using the t-test and ANOVA comparisons, in instances where results were below detection limits the MDL was substituted. The statistical analyses performed for Cells 2 and 4 are provided in **Appendix H**. A summary of the statistical analyses performed for Cell 2 and Cell 4 is provided in **Table 4-6**.

Based on the t-test and ANOVA comparisons, the following were found to be statistically significant over background in the Cell 2 and Cell 4 downgradient monitoring wells:

Cell 2

- Arsenic in MW-8, MW-9, MW-13;
- Barium in MW-13;
- Nickel in MW-9;
- PCE in MW-13;
- Vanadium in MW-8, MW-13; and
- Zinc in MW-9.

Cell 4

- Barium in MW-6A.
- Lead in MW-3A.
- Zinc in MW-3A.

Trend charts for the above chemicals found to be statistically significant over background are presented in **Appendix H**. Non-detect results are presented in these charts. Mann-Kendall analysis was performed on the range of historical results for the COCs determined to be above background concentrations (**Appendix H**). **Table 4-7** summarizes the trend results. Using a confidence level of 0.05, only concentrations of arsenic and barium in MW-13 were found to be statistically increasing. However, the relative range of increased concentrations for these parameters is small over the time, and concentrations have remained relatively low. The relatively small S statistic suggests weaker evidence for this trend and reflects these minimal concentration changes over time.

Sampling recommendations for 2019 sampling in Cell 2 and Cell 4 are provided in **Section 5.1**.

4.3 Inorganic Trends in Cell 1 Monitoring Wells

Trend charts for detected inorganic chemicals in Cell 1 monitoring wells is presented in Appendix I. Trend charts do not include non-detect results for dissolved inorganics. Currently, background has not been established for Cell 1, because there are no background wells associated with Cell 1. Additional assessment of significance of results and trend statistics will be provided in future reports.

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Section 5
Conclusions and Recommendations

During the 2018 fall sampling event, groundwater samples were collected in October to evaluate conditions to achieve the following objectives:

- Evaluate groundwater gradients and flow within and downgradient from the FHML Cell 1 source area and offsite plume, and within Cell 2 and 4 areas,
- Evaluate the Cell 1 remedy and determine the current nature and extent of the PCE and TCE plume discharging from Cell 1, the impact of the pump and treat system, and impacts within the Portneuf Valley Aquifer,
- Provide the status of RCRA compliance monitoring at Cell 2 and Cell 4 and statistical analysis of detected Appendix I and II parameters against background levels,
- Evaluate the spatial and time trends for COCs identified for Cell 1 source area and offsite plume, and for Cell 2 and 4 above background, and determine if they are significantly increasing or decreasing,
- Evaluate geochemical data to provide evidence for natural attenuation processes throughout the Cell 1 PCE and TCE plume,
- Evaluate the capture zone of the pump and treat system,
- Determine if the air stripper treatment system is meeting the discharge permit requirements,
- Provide recommendations for the 2019 Cell 1, 2, 4, and offsite monitoring programs and the operation of the groundwater treatment system.

CDM Smith's strategy moving forward is to incorporate recent and historical data into a revised CSM which will be used to refine the remedial and monitoring approach for FHML and the impacted offsite areas. This approach will be presented in a future site characterization plan, anticipated to be submitted to IDEQ in 2019.

5.1 Conclusions and Recommendations: Cell 1 Source Area

Within the Cell 1 source and remediation area, increasing concentrations of PCE and TCE have generally been observed in monitoring wells adjacent to the FHML Cell 1 and down the Fort Hall Canyon valley. A portion of the chemical mass discharging from Cell 1 is captured by the pump and treat system, but increasing PCE and TCE trends in wells downgradient of the treatment system suggest effective capture has not been achieved. Consistent with this observation, an offsite PCE and TCE plume extends through the mouth of the Fort Hall Mine Canyon into the Portneuf Valley Aquifer and migrates northwest towards the City of Pocatello approximately 1.1 miles. In addition, an MCL exceedance for TCE in a groundwater sample collected by the City of Pocatello in municipal supply well #33 in June 2018 suggests that the distal plume extends as far as approximately 2.5 miles from the FHML, at least periodically, as subsequent samples collected at well #33 were below the MCL.

Other COCs, including metals, consistent with the RCRA Appendix I suite, were also analyzed in the Cell 1 source area and offsite monitoring wells in the 2018 fall sampling event. Analytical results indicate monitoring wells within the Cell 1 source area are also impacted by cyanide, although all detected levels are below the MCL. Mercury was also detected in Cell 1 monitoring wells and was above the MCL at MW-113S/D. Arsenic and barium were detected in all Cell 1 and offsite wells, with concentrations above the MCL at MW-111S/D. Low level detections of cobalt, chromium, tin, vanadium, and lead were observed in most wells.

Parameters were collected to evaluate the geochemistry and assess potential for natural attenuation of PCE and TCE. Overall, monitoring wells closest to the Cell 1 boundary, particularly downgradient from the northeast corner of Cell 1, observed elevated TOC (10-100 mg/L), and reduced conditions indicating areas directly impacted by the landfill leachate/waste. The elevated carbon levels in this area are likely driving the reducing conditions, stimulating the release of redox- sensitive metals and reductive dechlorination of the chlorinated ethenes. Locations with reducing conditions, especially those exhibiting methanogenesis, also had indicators for anaerobic biodegradation of PCE and TCE including observation of by-products cis-1,2-DCE, VC, ethene, ethane and/or chloride.

The recommended monitoring well sampling plan for the 2019 spring sampling event is presented in **Table 5-1** and are shown in **Figure 5-1**. The following wells are not recommended for sampling in 2019:

- MW-102S and MW-121 due to decreasing trends or low detections of VOCs,
- MW-7 due to its completion in buried trash,
- MW-112S due to the depth of the screened interval and consistently dry status,
- RW-1, RW-2, and RW-5 due to poor extraction yield and malfunctions within the treatment system.

In order to evaluate detections and trends for COCs, other than chlorinated ethenes, which may result from discharge from the unlined Cell 1, the following monitoring wells located downgradient of the Cell 1 remediation system and near the boundaries of the FHML property boundary are recommended for performance monitoring: MW-118D, MW-119S/D, MW-120S/D. These wells will be sampled for VOCs, Appendix II parameters (total metals, SVOCs, pesticides, herbicides, PCBs, 2,3,7,8-TCDD, cyanide, and mercury) and Geochemical parameters (sulfide, anions, alkalinity, dissolved gases, and TOC). In addition, FW-1, a new well installed by Bannock County as a supply well, will be sampled for Appendix I parameters.

The following monitoring wells are located near the Cell 1 source, and will be monitored to evaluate COC discharge to the groundwater plume: MW-109S/D, MW-110S/D, MW-111S/D, MW-112M/D, and MW-113S/D. These wells will be sampled for VOCs and Geochemical Parameters (sulfide, anions, alkalinity, dissolved gases, and TOC). In addition, MW-111S/D and MW-113S/D will be sampled for Appendix II parameters (total metals, SVOCs, pesticides, herbicides, PCBs, 2,3,7,8-TCDD, cyanide, and mercury). MW-4 is located upgradient of Cell 1 and will be sampled for VOCs.

The following monitoring wells are located upgradient of the remediation system, and will be monitored for input tracking to the pump and treat system: MW-1, MW-101S, MW-104S/D,

and MW-105S/D. These wells will be sampled for VOCs and Geochemical Parameters (sulfide, anions, alkalinity, dissolved gases, and TOC).

The air stripper effluent (injection well INJ-1R) will be sampled for VOCs and Appendix II compounds (total metals, SVOCs, pesticides, herbicides, PCBs, 2,3,7,8-TCDD, cyanide, and mercury). All extraction wells that are operating at the time of sampling will be sampled for VOCs. In addition, RW-10, RW-15 and RW-3 will be sampled for Geochemical parameters (sulfide, anions, alkalinity, dissolved gases, and TOC).

Offsite monitoring wells (MW-103S/D, MW-106S/D, MW-115S/D, and MW-116S/D) will be monitored for performance monitoring in the distal plume. These wells will be sampled for VOCs. In addition, MW-116S/D will be sampled for Geochemical Parameters (sulfide, anions, alkalinity, dissolved gases, and TOC).

5.2 Recommended Spring 2019 Off-site (Residential and City Wells) Groundwater Sampling

The recommended offsite (residential and city wells) sampling plan for the 2019 spring event is presented in **Table 5-2** and **Figures 5-2a** (Expanded View) and **5-2b (**FHML Focused View). Recommended wells to be sampled include the following residential wells: RW-2076F, RW-2140H, RW-2151H, RW-2172F, RW-2172H, RW-2203H, RW-2213F, RW-2237H, RW-2879M, RW-3259B, RW-7077P, RW-7244P, RW-7288P, RW-7310P, RW-7350P, RW-7492P, RW-7498P, RW-7505P, RW-7549P, RW-7586P, RW-7588P, RW-7677P, RW-7688P, RW-7773P, RW-7776P, RW-8000B, RW-8012P, RW-8030P, RW-8035P, RW-8209P, RW-8249P, RW-5898B1, RW-5898B2, RW-7070B, RW-7091R, RW-7953P, RW-8048P, RW-8105PM, RW-8105PS, and the following city wells: MW-38, PA-1, PA-2, PA-3,PA-4, PA-5, PA-6, PA-7, PA-8, PA-9, PA-10, Muni-Well-14, and Muni-Well-33. Prior to the groundwater sampling event, attempts to locate wells, identify property owners, and receive access agreements for all other wells listed in **Table 5-2** will be made.

Residential wells will be sampled utilizing the well volume purge method, therefore, prior to sampling, every attempt will be made to determine well depth and diameter. City wells will be sampled utilizing low-flow sampling methods. Municipal supply wells (Muni-Well-14 and Muni-Well-33) will be sampled utilizing high flow tap sampling methods. All offsite wells will be sampled for VOCs only.

5.3 Conclusions and Recommendations: Cell 2 and 4 and Recommended Groundwater Sampling for Spring 2019 Sampling

Recommendations for Spring 2019 sampling for Cells 2 and 4 is presented in **Table 5-1**. Based on the statistical evaluation of data collected, Cell 4 (MW-3A, MW-4A, MW-5A, and MW-6A) will continue in detection monitoring and will be sampled for Appendix I VOCs and total metals. Cell 2 (MW-12, MW-13, MW-8, and MW-9) is in assessment monitoring and four Appendix II sampling events have been conducted. Based on a review of the data for the Cell 2 wells, sulfide, total metals, and detected Appendix II VOCs (including dichlorodifluoromethane) are planned for sampling during the Spring 2019 event.

5.4 Recommended Fall 2019 Sampling for Cell 1, Cell2 and Cell 4

The monitoring well sampling proposed for the fall 2019 sampling event is presented in **Table 5-3** and **Figure 5-3**. This is to continue the semi-annual sampling of Cell 1, Cell 2 and Cell 4. Monitoring wells in Cell 2 will be sampled for all Appendix II analytes (VOCs, total metals, SVOCs, pesticides, herbicides, PCBs, 2,3,7,8-TCDD, cyanide, and mercury) during the Fall 2019 event. This list may be adjusted based on the Spring 2019 sampling event. The final SAP tables will be provided for review and approval prior to the fall sampling.

5.5 Recommended 2019 Operation of Pump and Treat System

As discussed with IDEQ, operation of the Pump and Treat System will continue. However, given the uncertain value of that further operation, it is not recommended that the system be optimized until the conceptual site model is further refined as described above, and until the value of optimization is better understood by all parties. As such, some of the potential maintenance and optimization activities that have been discussed previously or identified as a result of this recent work are recommended to be deferred. This section is therefore intended to list potential future maintenance and optimization activities that may be considered in 2019, for the purposes of complete documentation. The following activities are recommended now:

- Operation and maintenance of the system should continue, and operators should continue to confirm the system is generally operating as intended. Operators should confirm continued operation of the air stripper and blower, continued cycling of extraction pumps, and continued operation of the anti-scalant metering pump. Operators should collect weekly extraction well data, including flow totals and instantaneous flow rates.

- The combined system influent sample port should no longer be used to collect samples of the influent. A new port should be installed in a section of piping that is always full of water. The new port should be installed in the U-shaped section of pipe immediately below and upstream of the combined influent flow meter. Combined influent samples should not be collected from the existing dead-end valve located here, but rather a new valve located above the invert elevation of the U-shaped piping, in an area where settling would not occur and collected samples should be representative. The location of two unions here would facilitate the piping modification.

If and when appropriate, the following maintenance and optimization activities may be considered based on their expected value to improve the CSM:

- Extraction well flow meters should be replaced for wells where improved data quality is required. This may include wells where future pump tests are determined to be appropriate for refining the site conceptual model, wells where additional information is needed to assist with conceptual site model development and/or groundwater modeling, and/or wells where future groundwater extraction is deemed appropriate long-term.

- The transducer in RW-5 appears to be nonfunctional, and probably needs to be replaced. Similarly, validation of all groundwater well transducer data and replacement of some in-well transducers is likely to be necessary (beyond RW-5) to achieve optimized groundwater extraction, based on records of when transducers were last replaced, and typical transducer lifespans. Once transducers are replaced, pump operational setpoints could be further evaluated and optimized to increase flowrates.
- The pump in RW-2 should be troubleshot and replaced if needed, if it is determined that additional flow from this well would be beneficial.

This is not a comprehensive list of all potential value-added system upgrades and optimizations; other system optimization opportunities will be identified and evaluated as appropriate at a later date.

5.6 Recommended Future Data Analysis

The routine data analysis presented in this report may require additional interpretation and review in future efforts, as summarized below:

- As discussed in **Section 4.1.1**, the MK analysis used to evaluate PCE and TCE trends in available groundwater data does not include elements for spatial, seasonal, or stability evaluations. Future data analysis will include additional statistical approaches, such as the Theil-Sen trend line analysis (EPA 2009) and the Seasonal Kendall Test (IDEQ 2014) to better evaluate the dramatic fluctuations in MW-111D and MW-103S.
- Additionally, further investigation is needed to clarify whether a relationship exists between the VOC data and the operation of the P&T system. The operation of the P&T system could affect the results of a trend analysis if operation changes are made over the time frame of the analysis.
- Aquifer geochemistry influences the potential for natural attenuation to support the degradation of VOCs. Therefore, a review of historical geochemical data will be incorporated into the site characterization efforts to further refine the CSM.
- A comprehensive assessment of background concentrations of inorganic chemicals is ongoing for the site utilizing methods and approaches described in "*Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*" (EPA 2009). The determination of background levels in Cell 2 and Cell 4 is completed by utilizing a single background well, one of which is known to be compromised (MW-12), and the assessment has not been completed in Cell 1.

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Section 6
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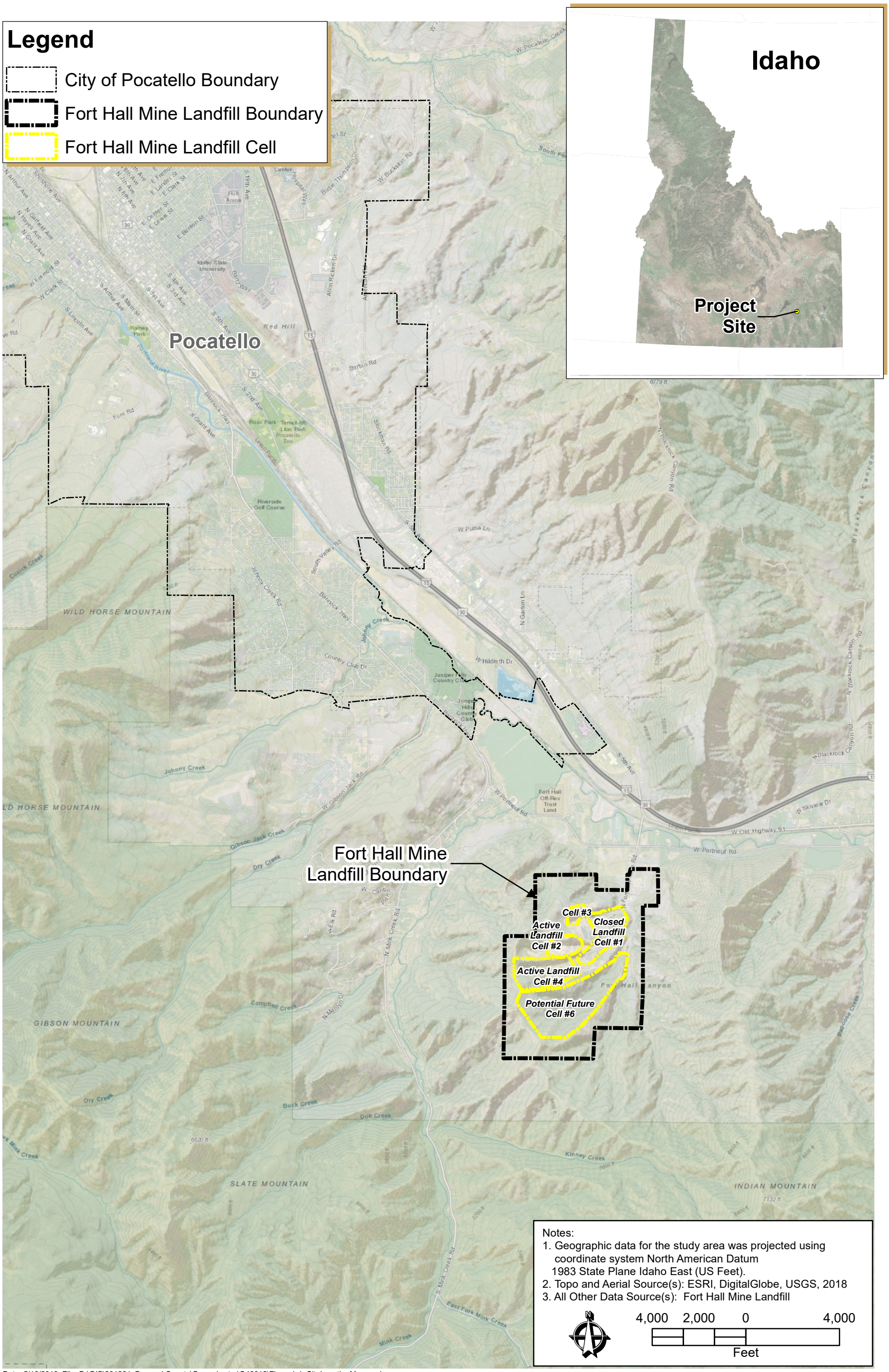
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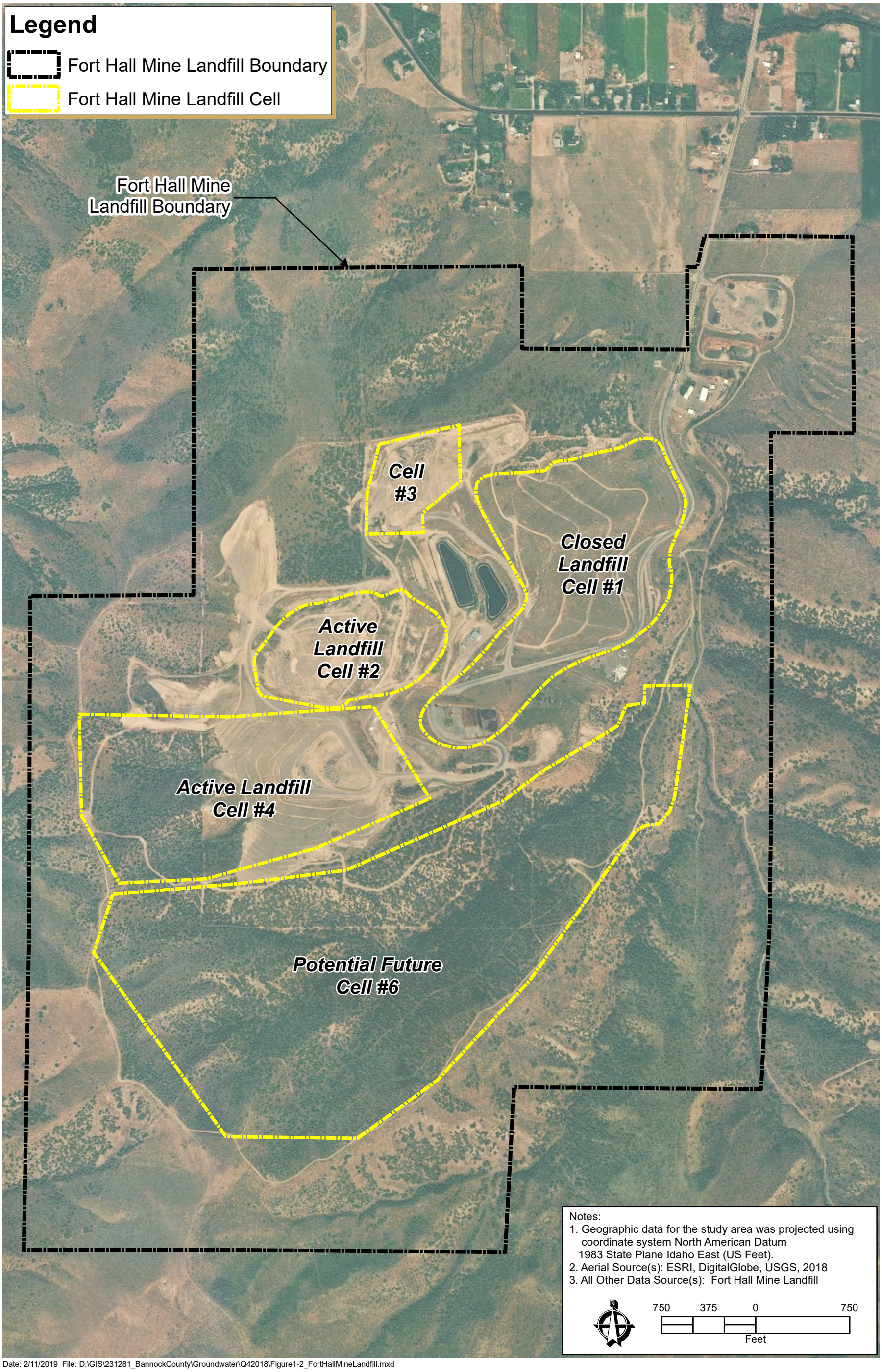
Figures



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2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 1-1
Site Location Map

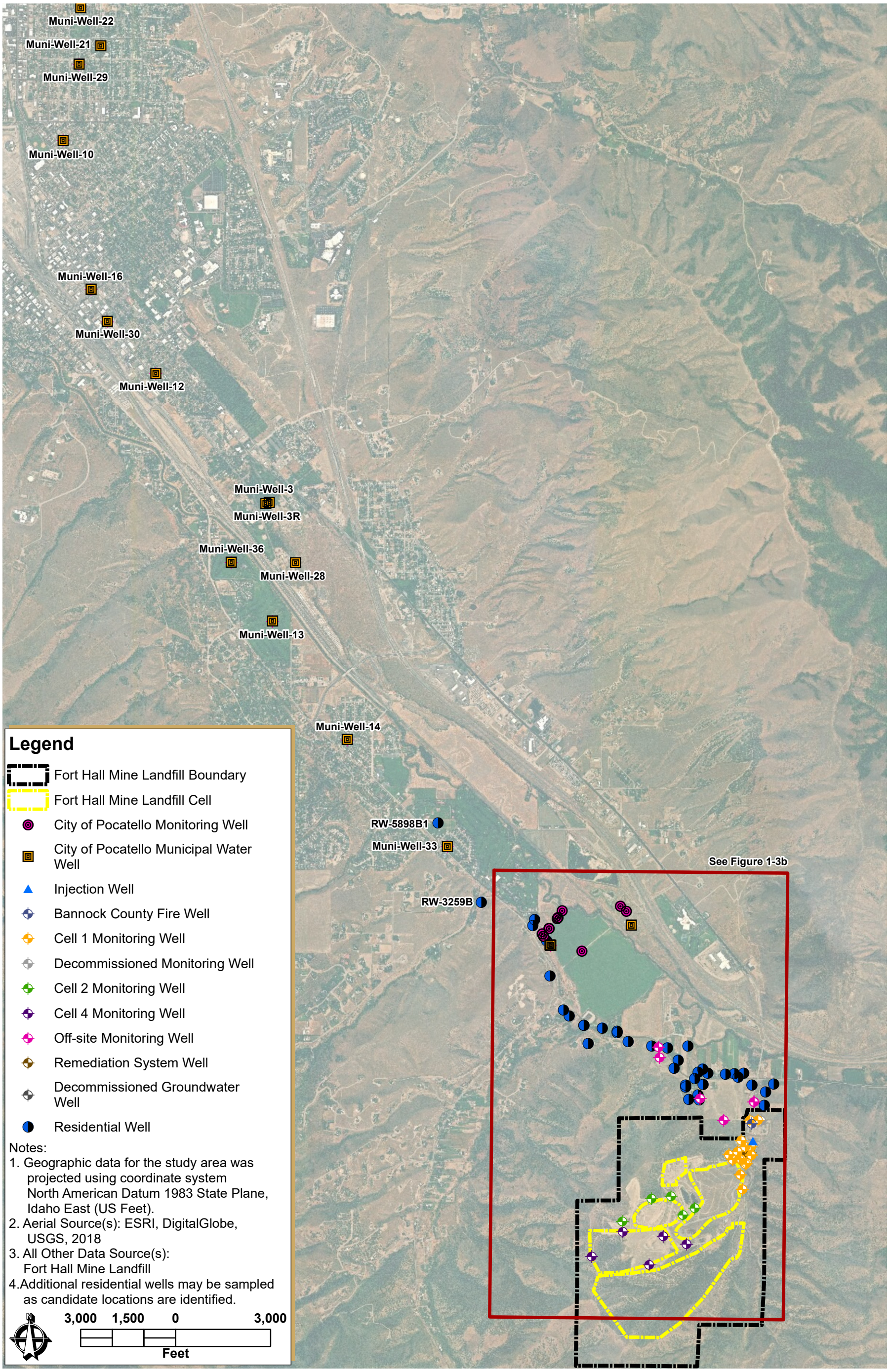


Date: 2/11/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure1-2_FortHallMineLandfill.mxd

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2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 1-2
Fort Hall Mine Landfill

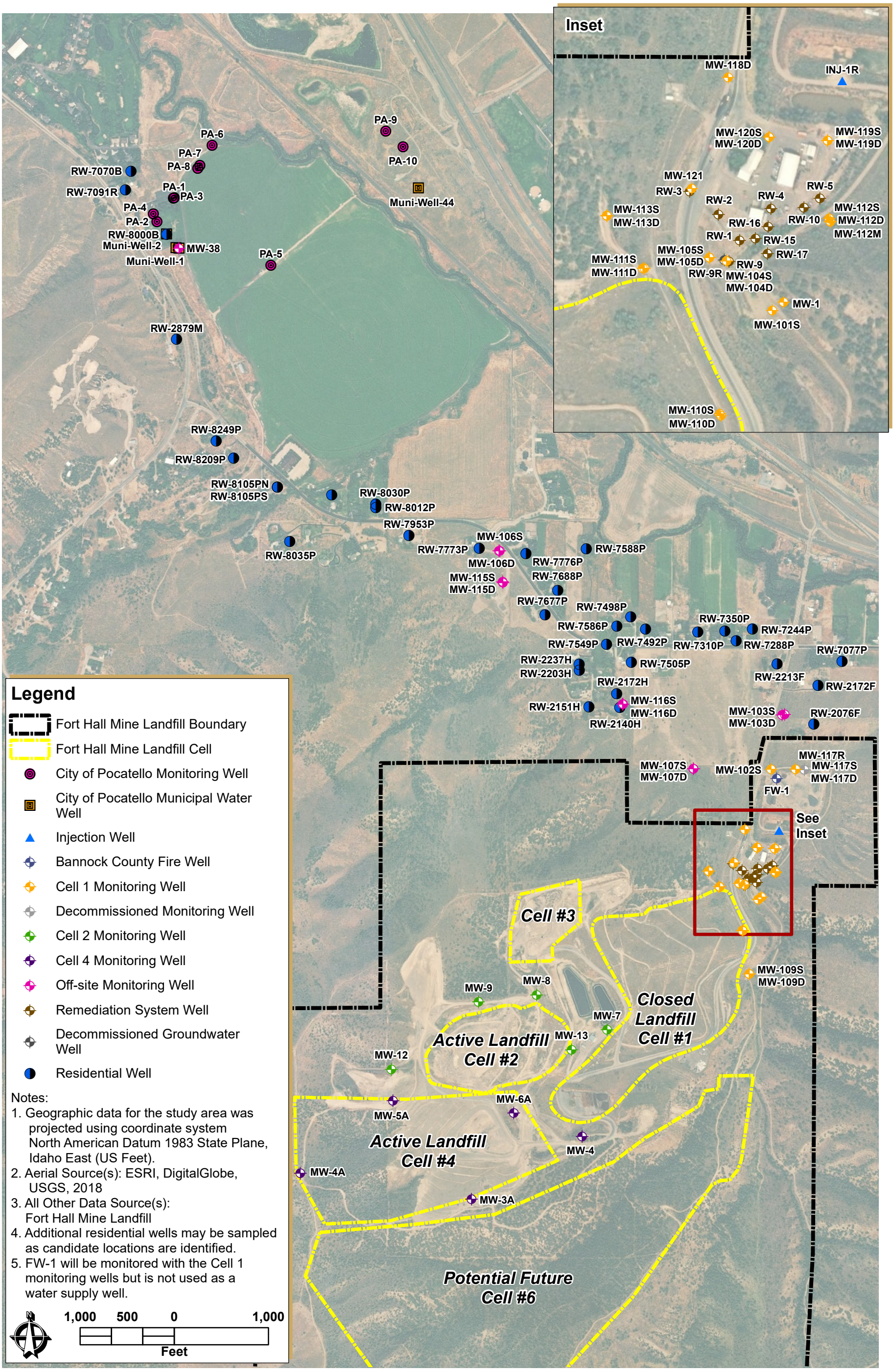


Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure1-3a_FortHallMineLandfillandOffsiteGroundwaterWellNetworks.mxd

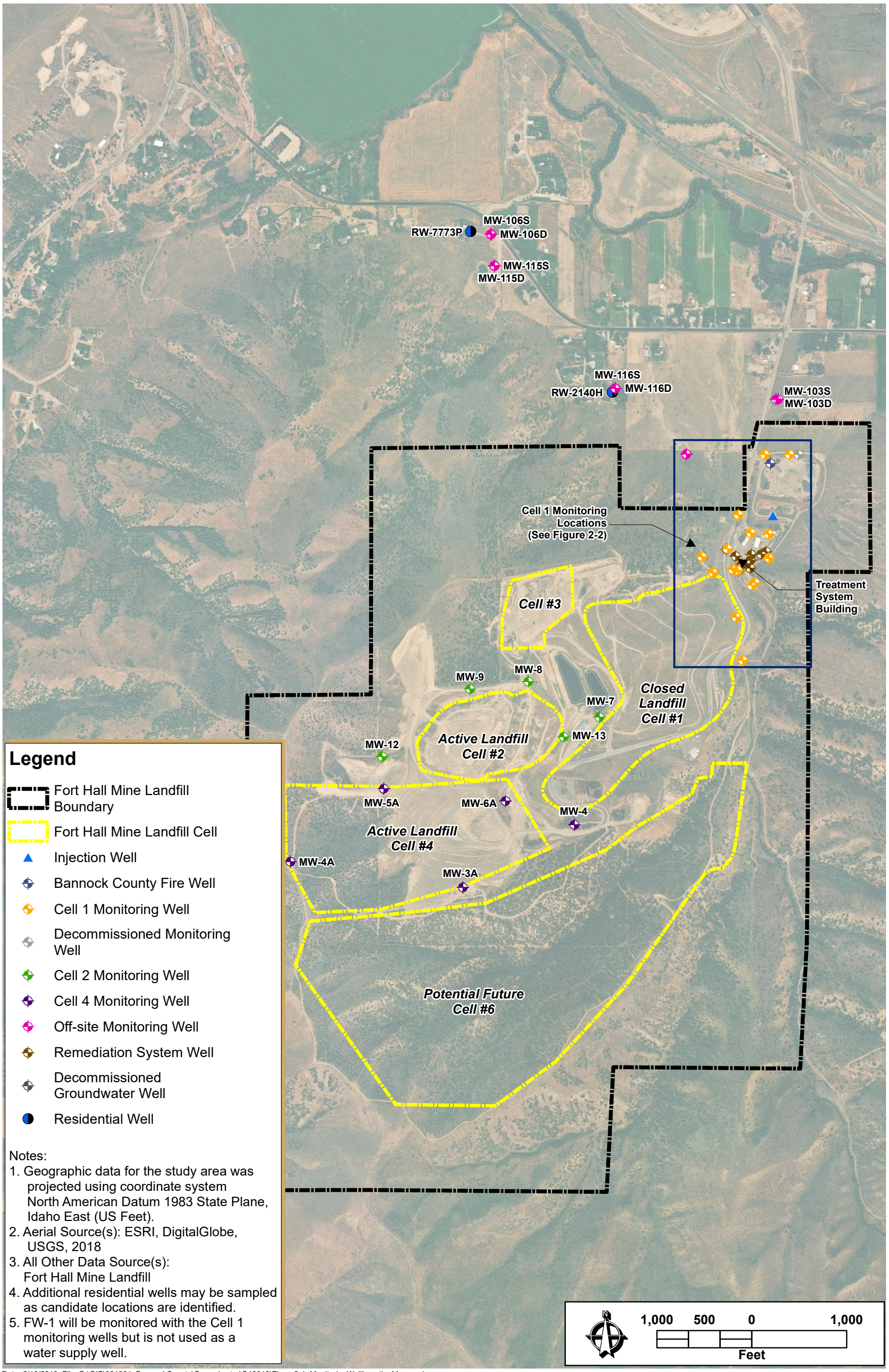
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2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 1-3a
Fort Hall Mine Landfill and Offsite Groundwater Well Networks



Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure1-3b_FortHallMineLandfillandOffsiteGroundwaterWellNetworks.mxd



Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure2-1_MonitoringWellLocationMap.mxd

Legend

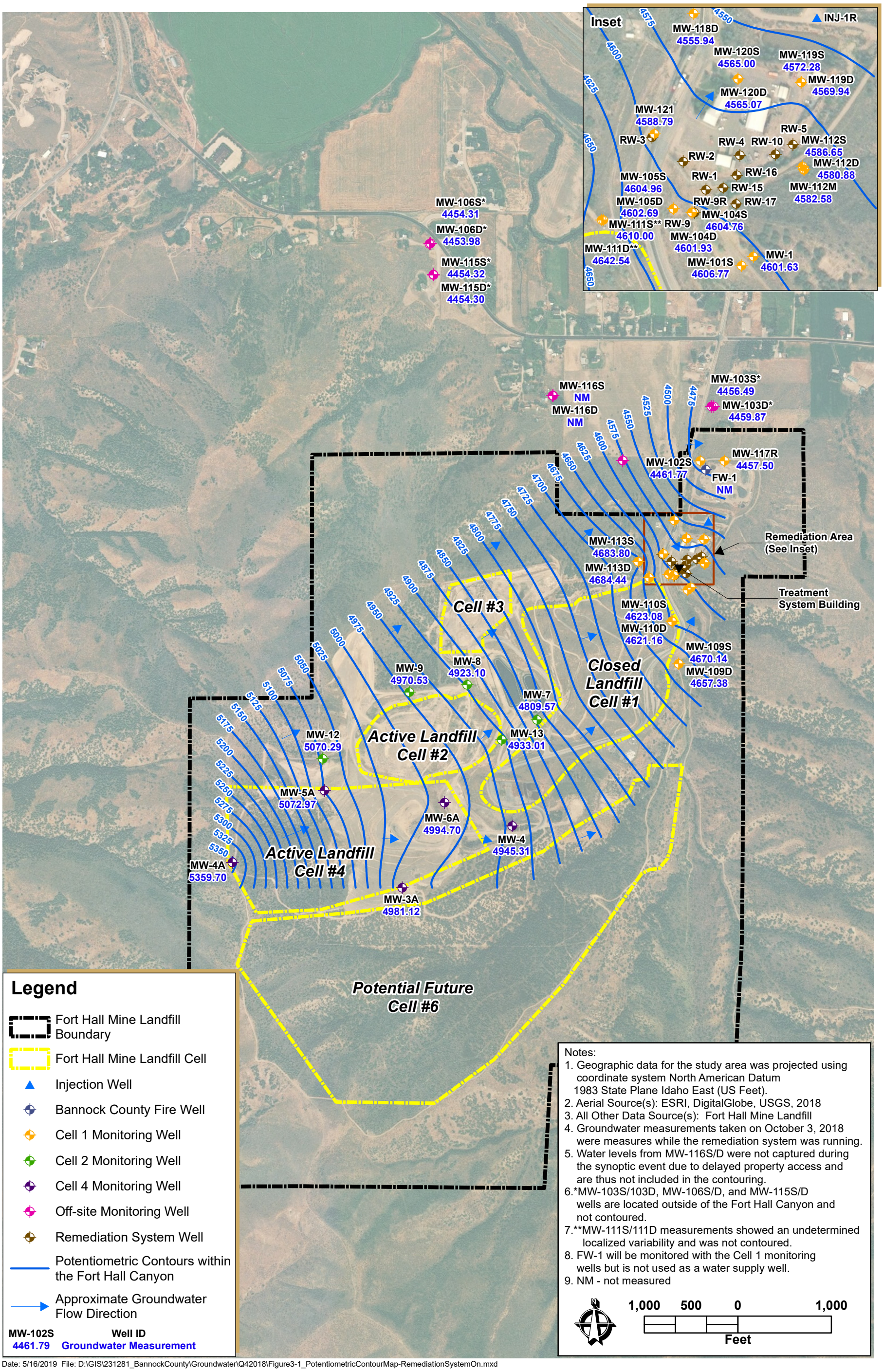
- Fort Hall Mine Landfill Boundary
- Fort Hall Mine Landfill Cell
- Injection Well
- Bannock County Fire Well
- Cell 1 Monitoring Well
- Decommissioned Monitoring Well
- Remediation System Well
- Decommissioned Groundwater Well

Notes:
1. Geographic data for the study area was projected using coordinate system North American Datum 1983 State Plane, Idaho East (US Feet).
2. Aerial Source(s): ESRI, DigitalGlobe, USGS, 2018
3. All Other Data Source(s): Fort Hall Mine Landfill
4. Note that FW-1, MW-117S/D, and RW-16 were not sampled during the Fall 2018 sampling event.
5. FW-1 will be monitored with the Cell 1 monitoring wells but is not used as a water supply well.

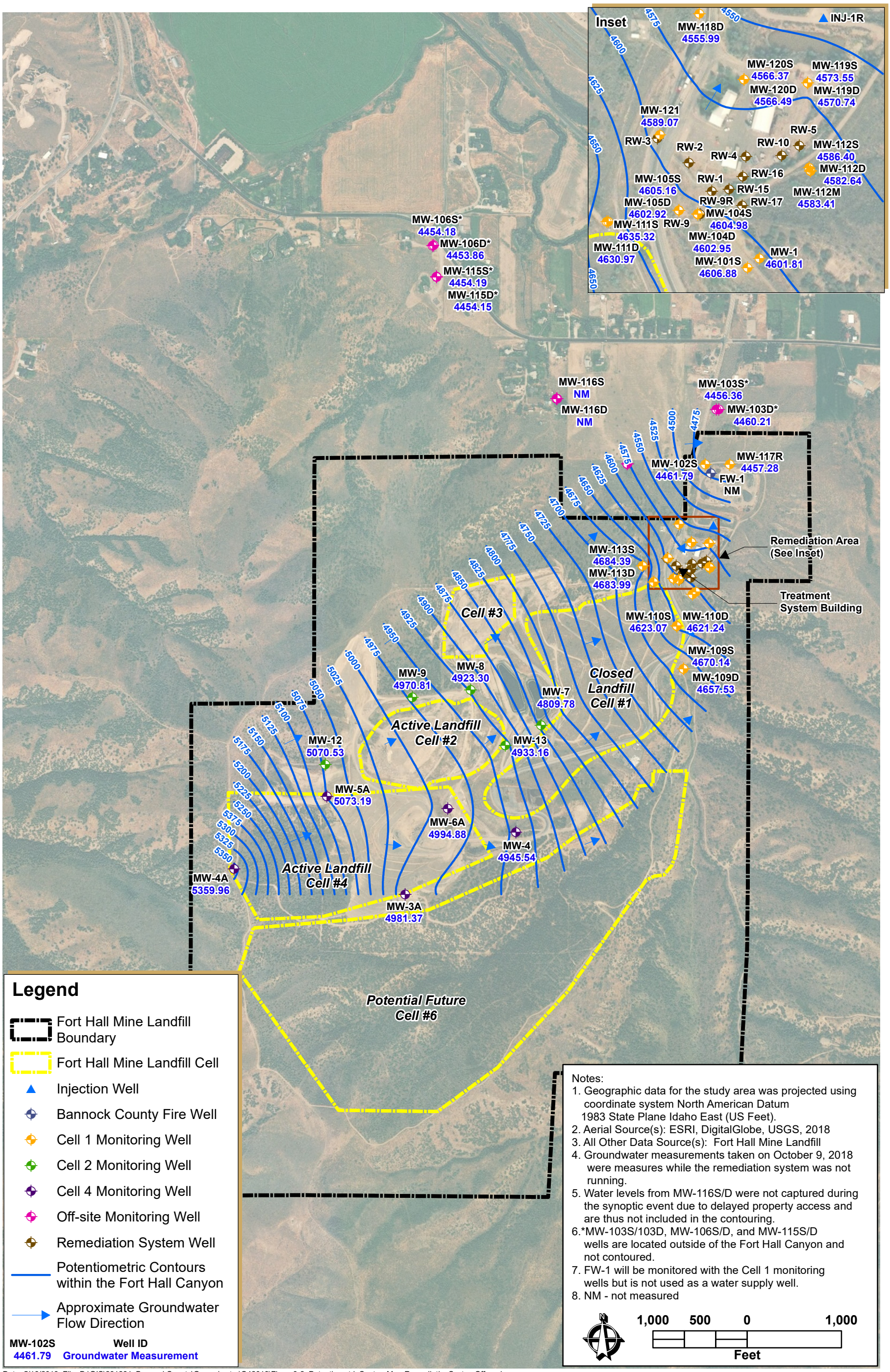
MW-102S
MW-117R
MW-117S
MW-117D
FW-1
MW-118D
INJ-1R
MW-120S
MW-120D
MW-119S
MW-119D
Treatment System Building
MW-121
RW-3
RW-5
MW-113S
MW-113D
RW-2
RW-4
RW-10
MW-112S
MW-112D
MW-112M
RW-16
RW-1
RW-15
MW-105S
RW-9
RW-17
RW-9R
MW-111S
MW-111D
MW-105D
MW-104S
MW-104D
MW-1
MW-101S
MW-110S
MW-110D
Closed Landfill Cell #1
MW-109S
MW-109D

200 100 0 200
Feet

Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure2-2_RemediationSystemCell1MonitoringArea.mxd



Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure3-1_PotentiometricContourMap-RemediationSystemOn.mxd

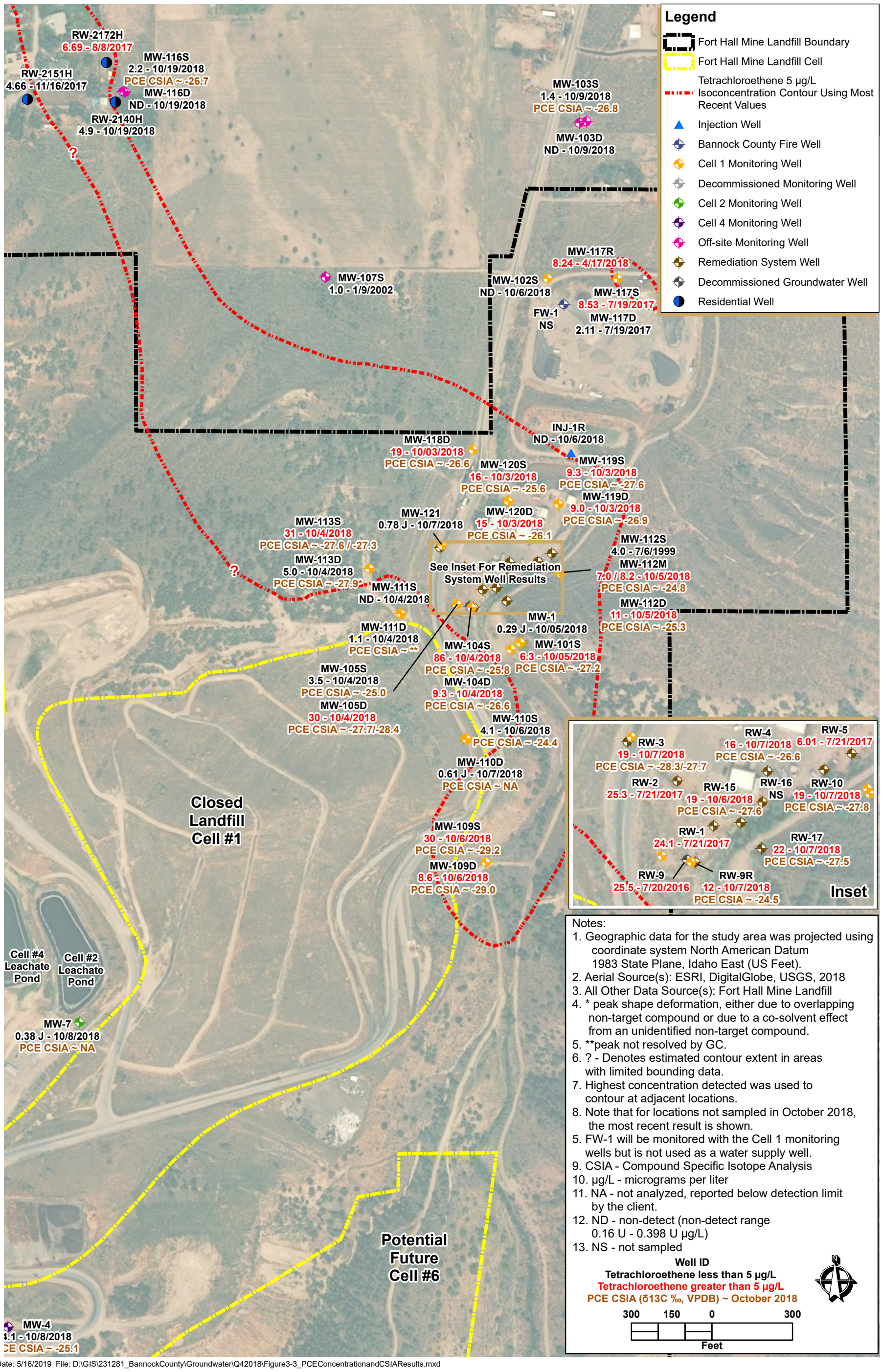


Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure3-2_PotentiometricContourMap-RemediationSystemOff.mxd

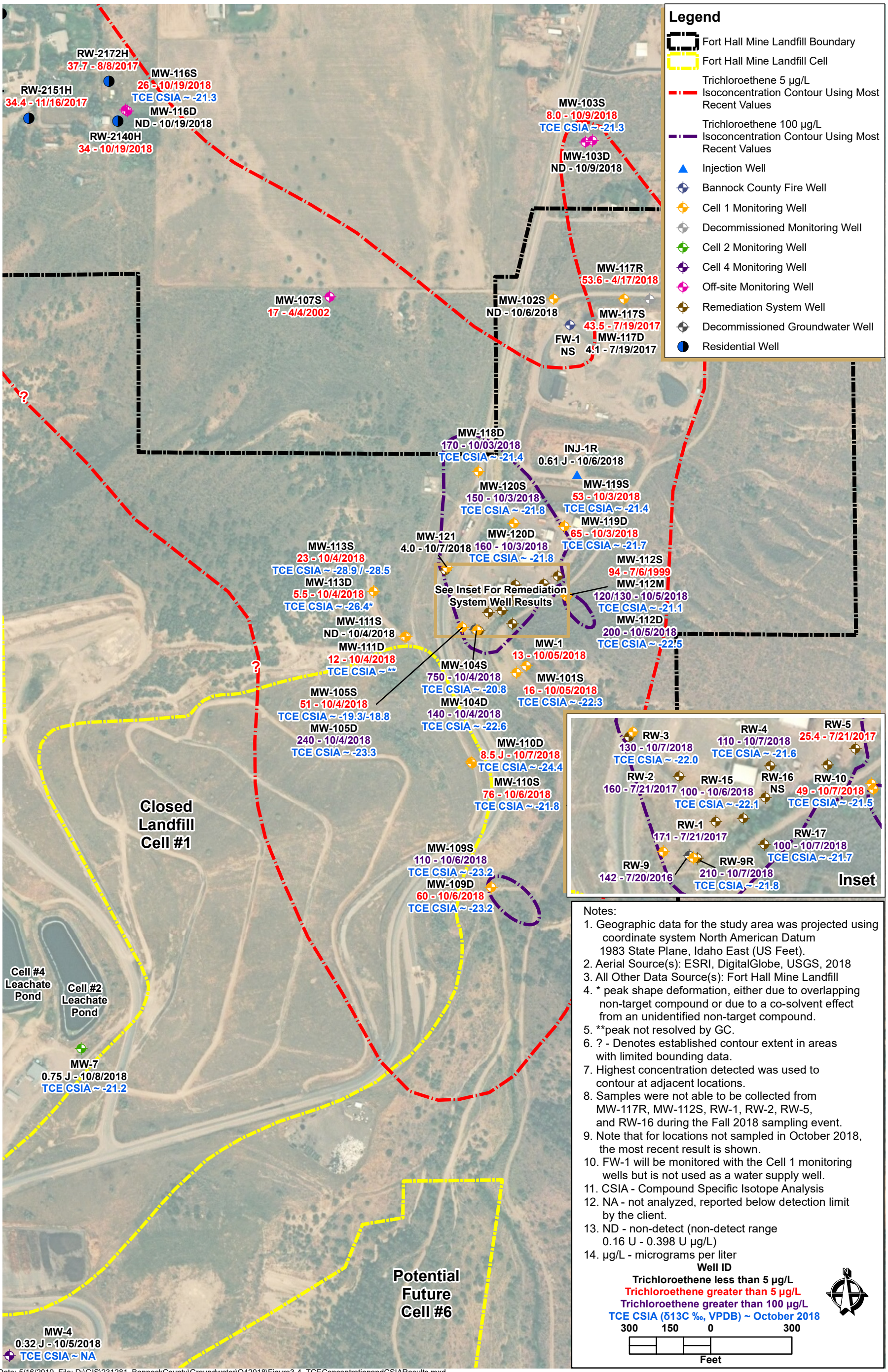
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2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 3-2
Potentiometric Contour Map - Remediation System Off



Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure3-3_PCEConcentrationandCSIAResults.mxd

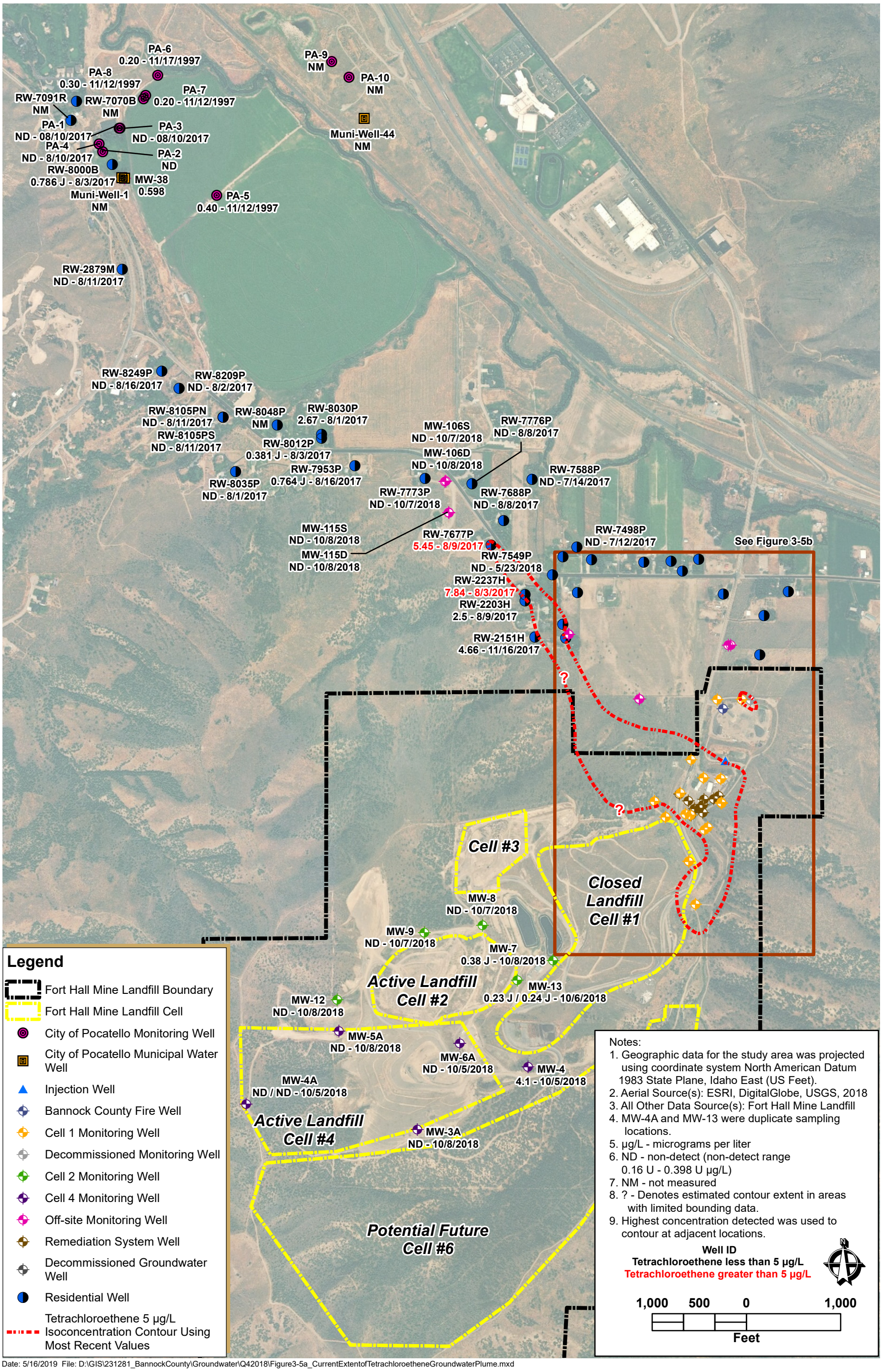


Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure3-4_TCEConcentrationandCSIAResults.mxd

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Fort Hall Mine Landfill
Bannock County, Idaho

Figure 3-4
Trichloroethene (TCE) Concentration and CSIA Results

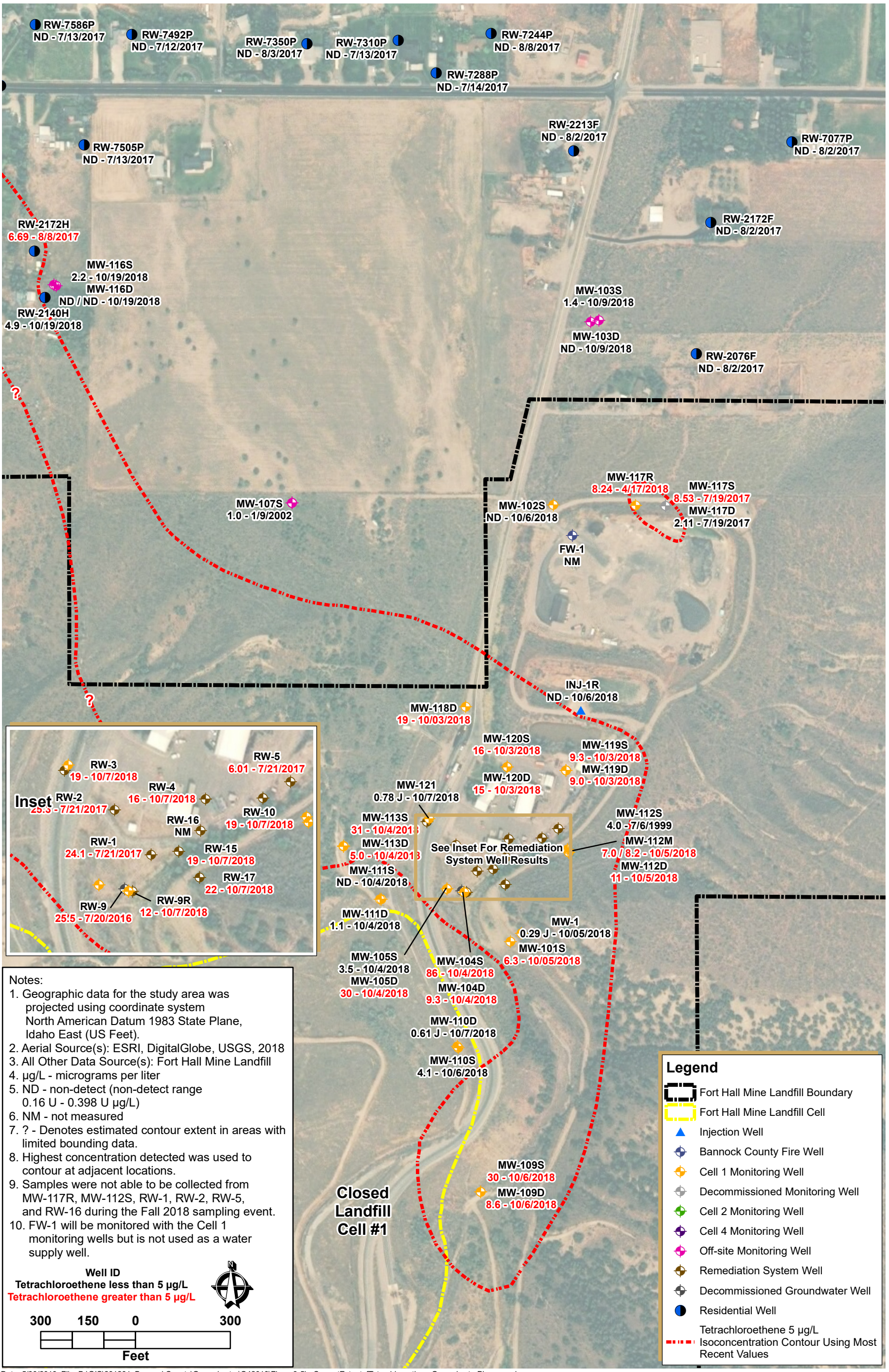


Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure3-5a_CurrentExtentofTetrachloroetheneGroundwaterPlume.mxd

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2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 3-5a
Current Extent of
Tetrachloroethene Groundwater Plume



Notes:
1. Geographic data for the study area was projected using coordinate system North American Datum 1983 State Plane, Idaho East (US Feet).
2. Aerial Source(s): ESRI, DigitalGlobe, USGS, 2018
3. All Other Data Source(s): Fort Hall Mine Landfill
4. µg/L - micrograms per liter
5. ND - non-detect (non-detect range 0.16 U - 0.398 U µg/L)
6. NM - not measured
7. ? - Denotes estimated contour extent in areas with limited bounding data.
8. Highest concentration detected was used to contour at adjacent locations.
9. Samples were not able to be collected from MW-117R, MW-112S, RW-1, RW-2, RW-5, and RW-16 during the Fall 2018 sampling event.
10. FW-1 will be monitored with the Cell 1 monitoring wells but is not used as a water supply well.

Well ID
Tetrachloroethene less than 5 µg/L
Tetrachloroethene greater than 5 µg/L

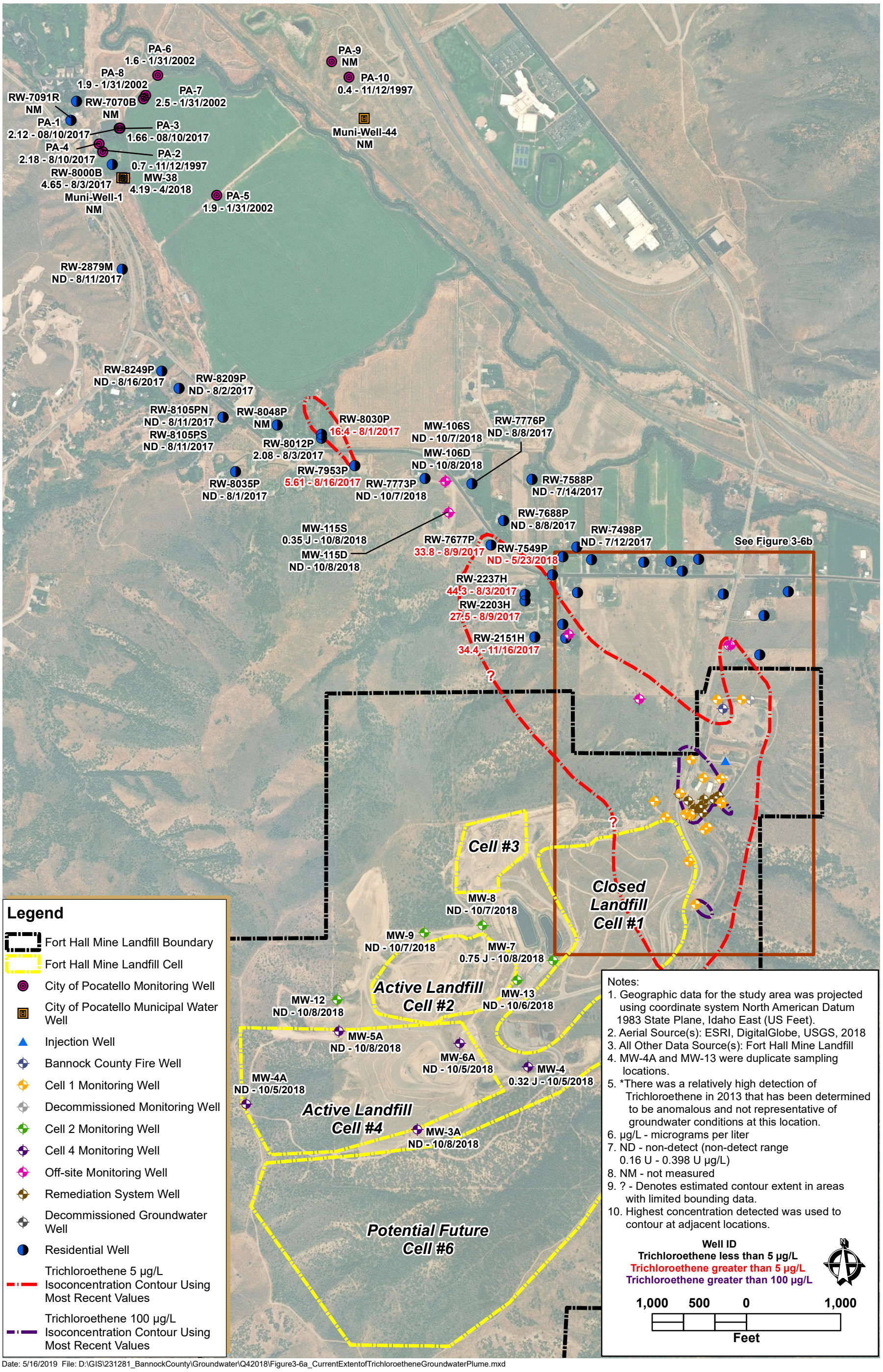
300 150 0 300
Feet

Date: 5/30/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure3-5b_CurrentExtentofTetrachloroetheneGroundwaterPlume.mxd

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2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 3-5b
Current Extent of Tetrachloroethene Groundwater Plume

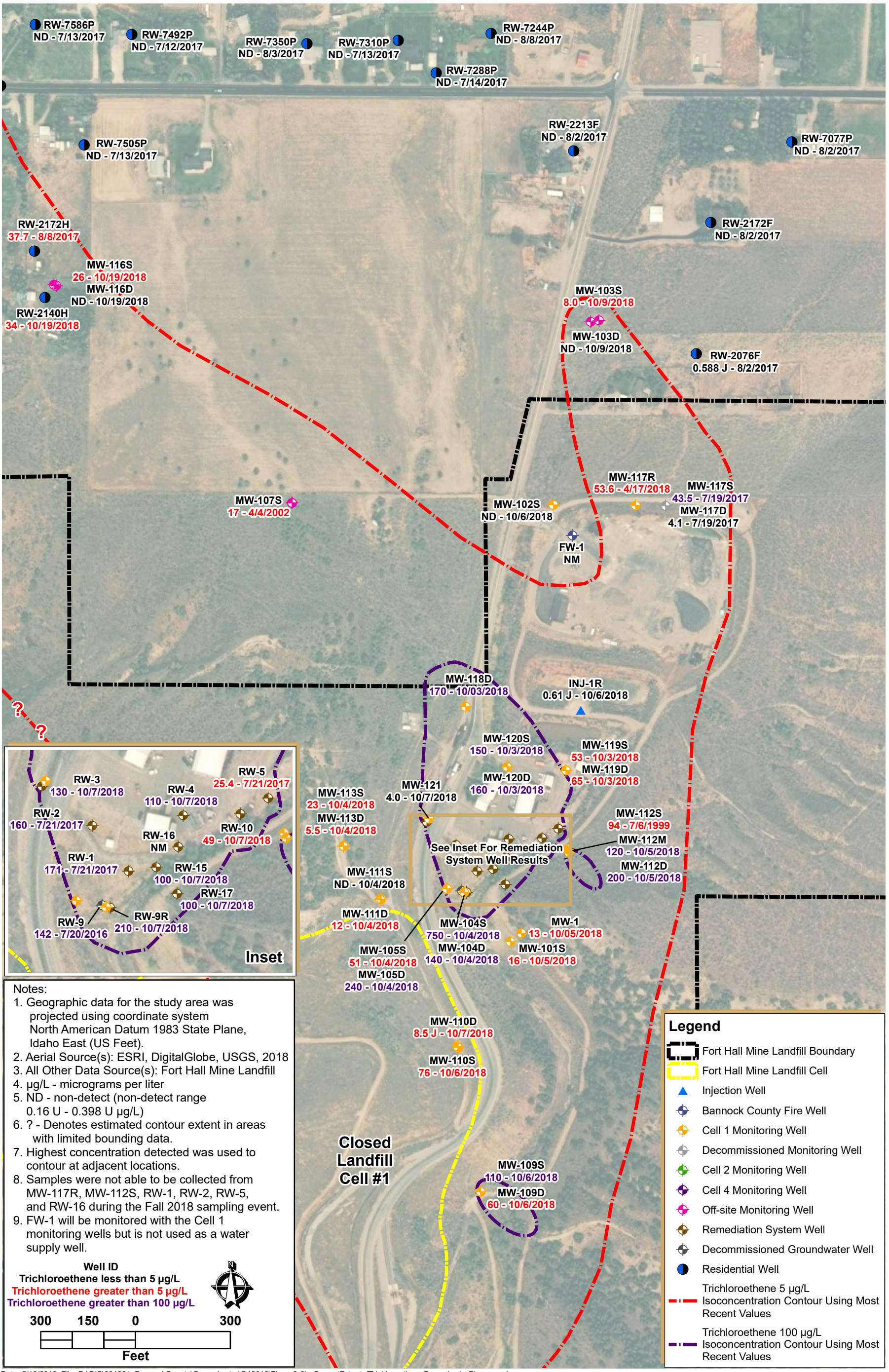


Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure3-6a_CurrentExtentofTrichloroetheneGroundwaterPlume.mxd

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2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 3-6a
Current Extent of
Trichloroethene Groundwater Plume

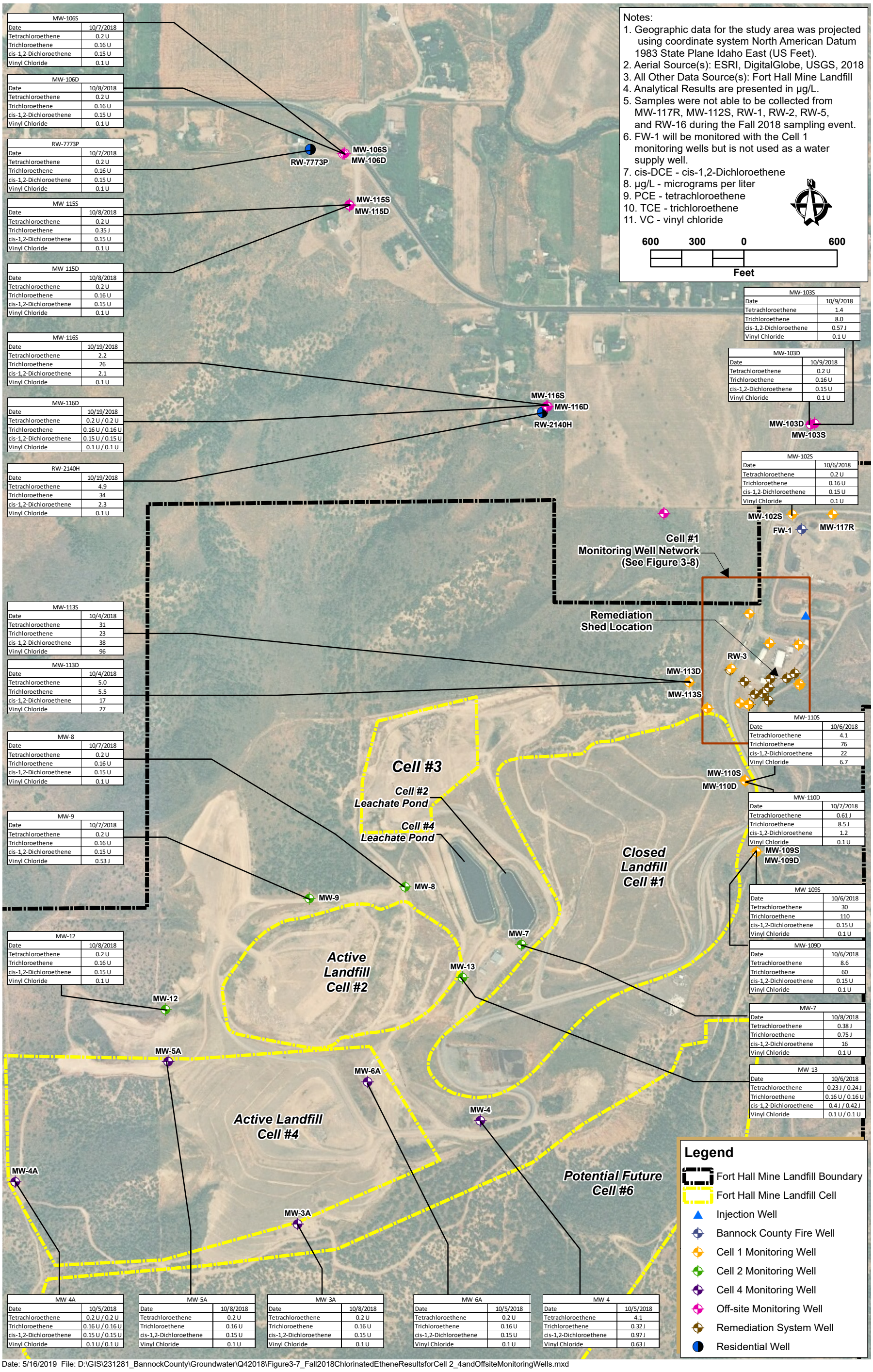


Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure3-6b_CurrentExtentofTrichloroetheneGroundwaterPlume.mxd

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2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 3-6b
Current Extent of
Trichloroethene Groundwater Plume

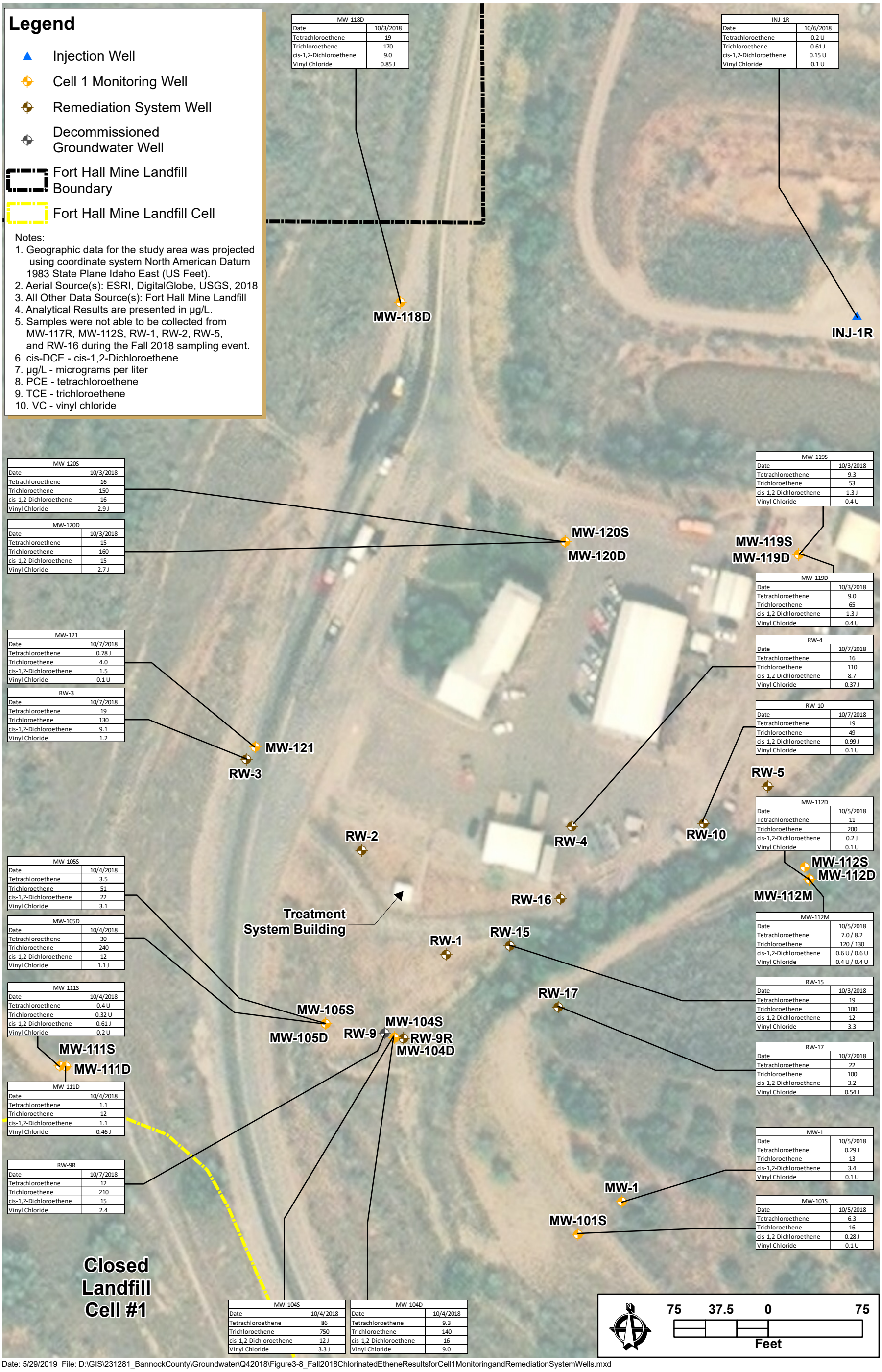


Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure3-7_Fall2018ChlorinatedEtheneResultsforCell 2_4andOffsiteMonitoringWells.mxd

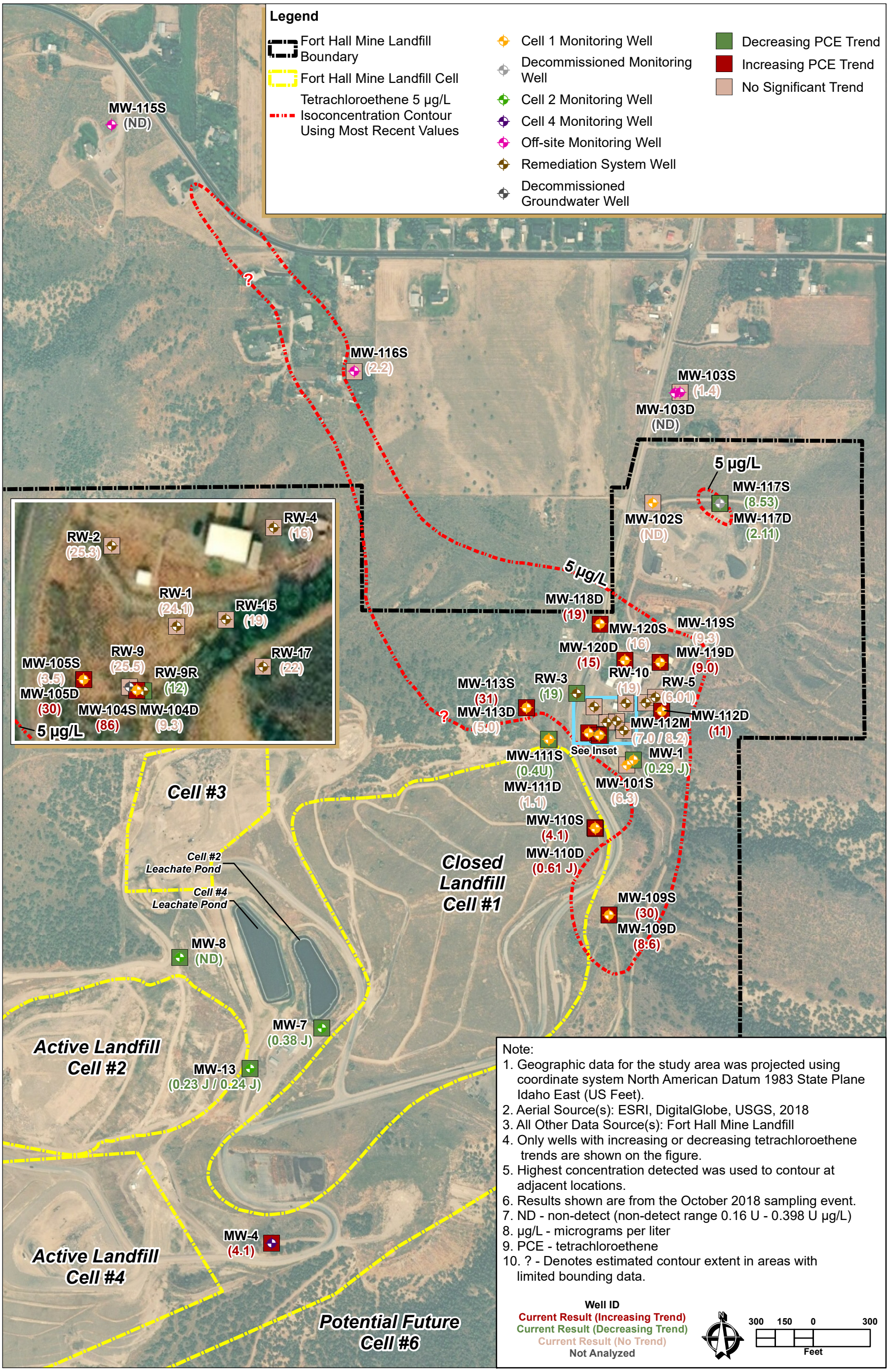
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2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 3-7
Fall 2018 Chlorinated Ethene Results for Cell 2, 4, and Offsite Monitoring Wells



Date: 5/29/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure3-8_Fall2018ChlorinatedEtheneResultsforCell1MonitoringandRemediationSystemWells.mxd

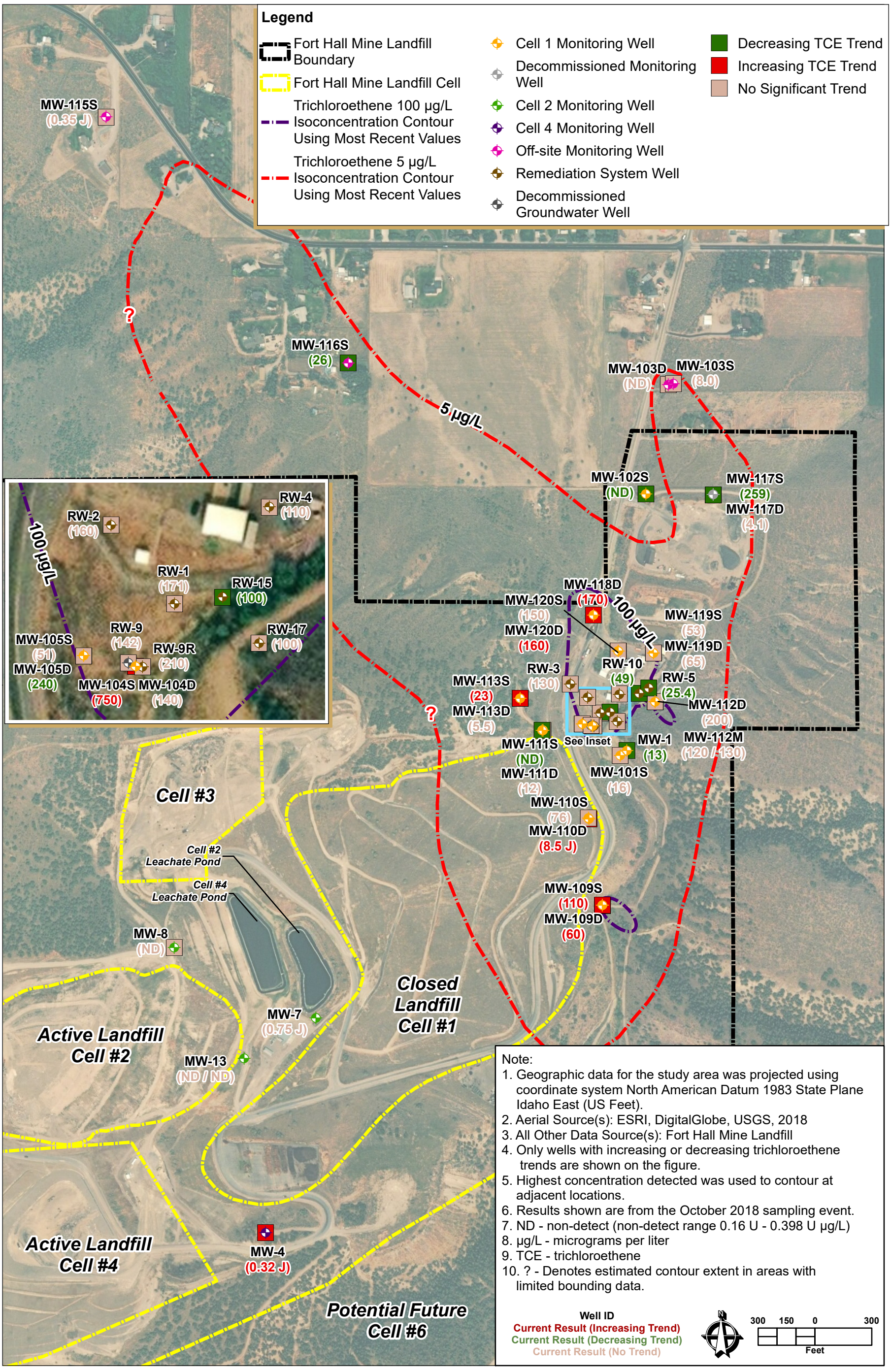


Date: 5/29/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure4-1_SummaryofPCEConcentrationTrendsAnalysis.mxd

CDM Smith

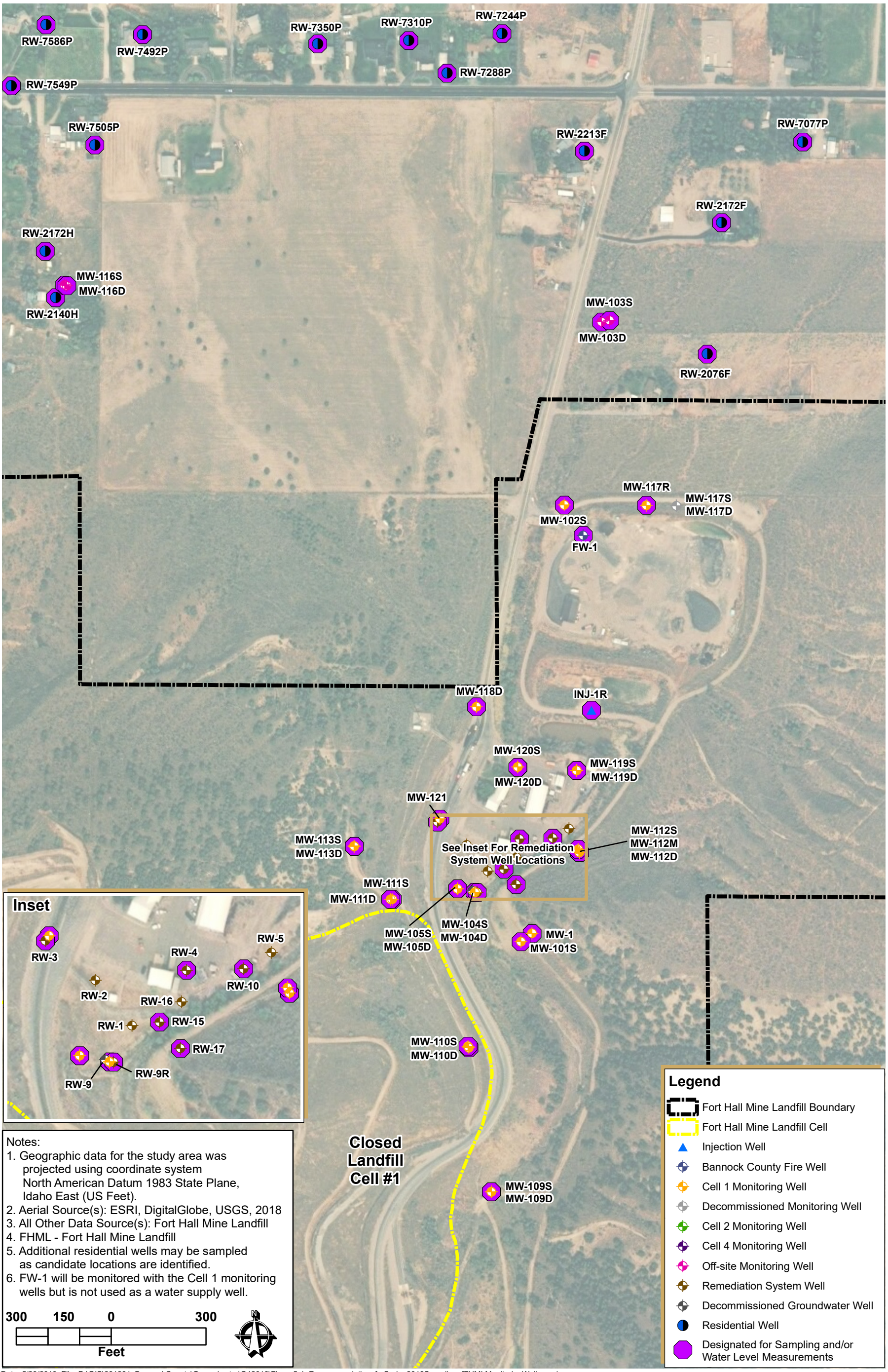
2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 4-1
Summary of Tetrachloroethene Concentration Trends Analysis



2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 4-2
Summary of Trichloroethene Concentration Trends Analysis



Date: 5/29/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure5-1_RecommendationsforSpring2019SamplingofFHMLMonitoringWells.mxd

Notes:
1. Geographic data for the study area was projected using coordinate system North American Datum 1983 State Plane, Idaho East (US Feet).
2. Aerial Source(s): ESRI, DigitalGlobe, USGS, 2018
3. All Other Data Source(s): Fort Hall Mine Landfill
4. Additional residential wells may be sampled as candidate locations are identified.
5. FW-1 will be monitored with the Cell 1 monitoring wells but is not used as a water supply well.

3,000 1,500 0 3,000
Feet

Muni-Well-21
Muni-Well-29
Muni-Well-10
Muni-Well-16
Muni-Well-30
Muni-Well-12
Muni-Well-3R
Muni-Well-3
Muni-Well-36
Muni-Well-28
Muni-Well-13
Muni-Well-14
RW-5898B1
Muni-Well-33
RW-3259B

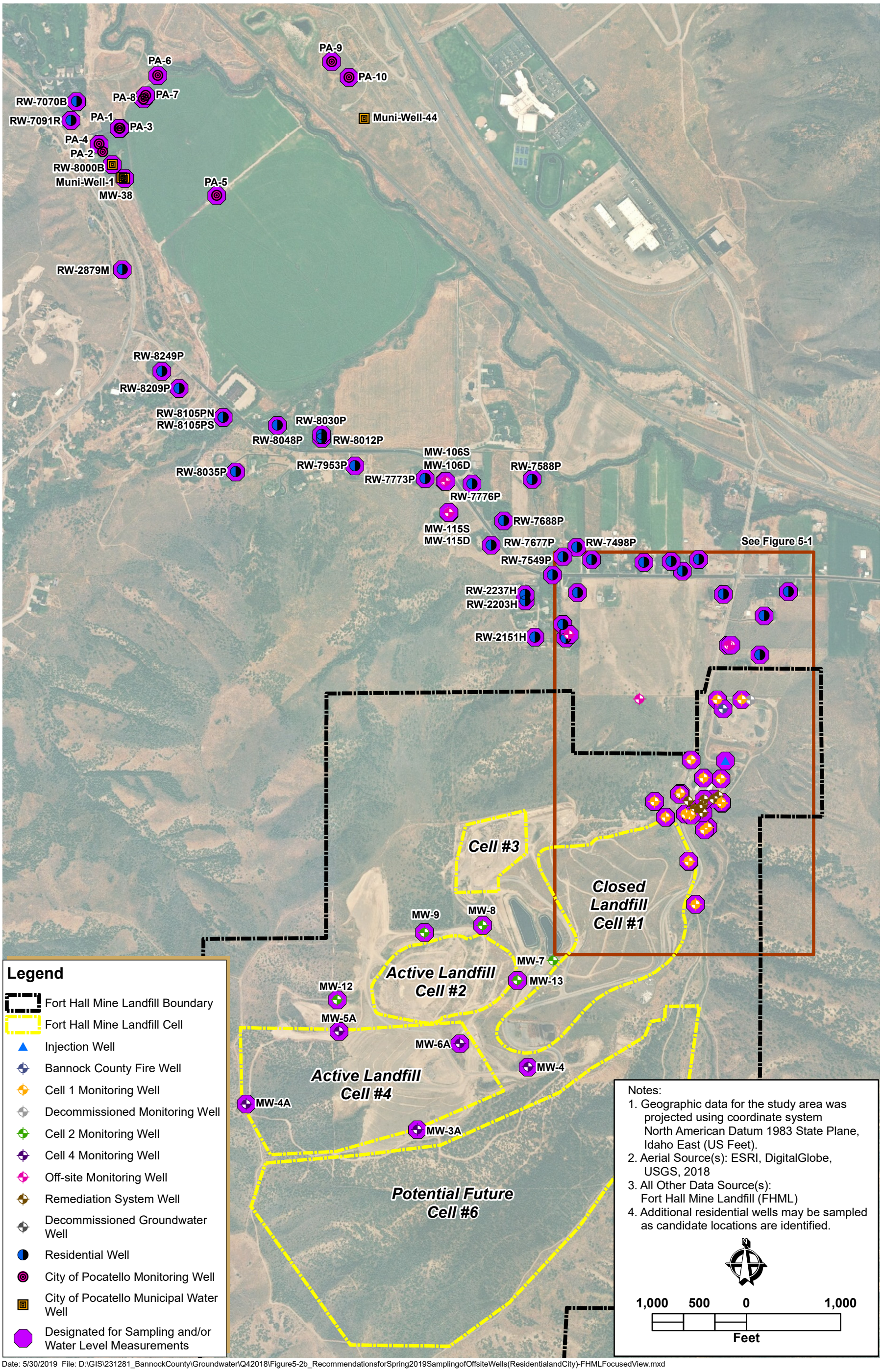
See Figure 5-2b

See Figure 5-1

Legend
- Fort Hall Mine Landfill Boundary
- Fort Hall Mine Landfill Cell
- Injection Well
- Bannock County Fire Well
- Cell 1 Monitoring Well
- Decommissioned Monitoring Well
- Cell 2 Monitoring Well
- Cell 4 Monitoring Well
- Off-site Monitoring Well
- Remediation System Well
- Decommissioned Groundwater Well
- Residential Well
- City of Pocatello Monitoring Well
- City of Pocatello Municipal Water Well
- Designated for Sampling and/or Water Level Measurements

Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure5-2a_RecommendationsforSpring2019SamplingofOffsiteWells(ResidentialandCity)-ExpandedView.mxd

Figure 5-2a
Recommendations for Spring 2019 Sampling of Offsite Wells (Residential and City) - Expanded View

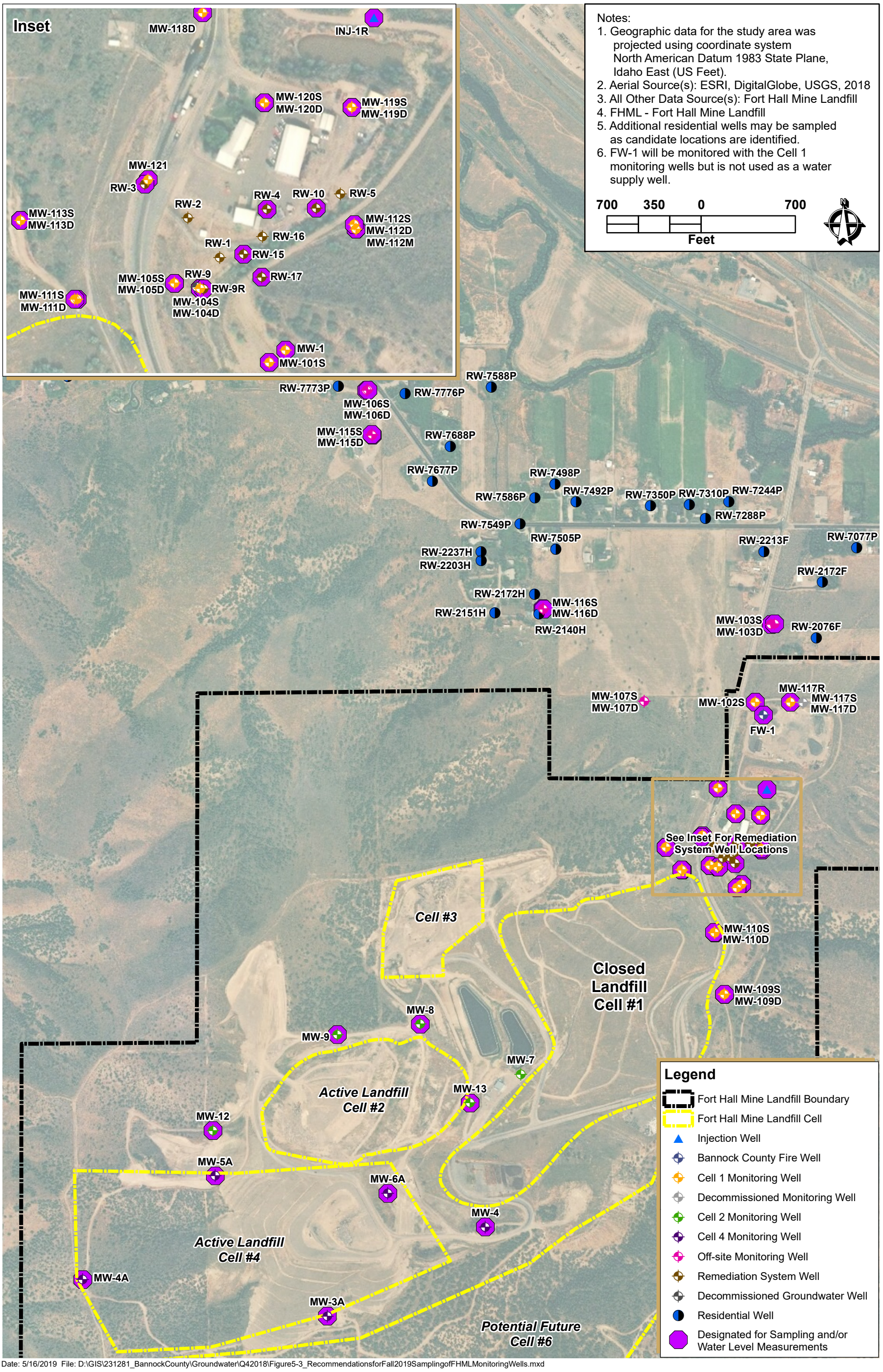


Date: 5/30/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure5-2b_RecommendationsforSpring2019SamplingofOffsiteWells(ResidentialandCity)-FHMLFocusedView.mxd

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2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 5-2b
Recommendations for Spring 2019 Sampling of Offsite Wells (Residential and City) - FHML Focused View



Date: 5/16/2019 File: D:\GIS\231281_BannockCounty\Groundwater\Q42018\Figure5-3_RecommendationsforFall2019SamplingofFHMLMonitoringWells.mxd

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2018 Cell 1, 2, and 4 Groundwater Monitoring and Remediation System O&M Report
Fort Hall Mine Landfill
Bannock County, Idaho

Figure 5-3
Recommendations for Fall 2019 Sampling of FHML Monitoring Wells

Tables

Table 2-1

Monitoring Well Water Levels, Screened Intervals, and Vertical Gradients

Well ID	Screened Interval (ft bgs)	Screened Interval (ft mls)	Treatment System On		Treatment System Off		Type of Well	Direction of Gradient^	Gradient^ (ft/ft)
			Water Level Depth (ft btoc)	Water Level Elevation (ft msl)	Water Level Depth (ft btoc)	Water Level Elevation (ft msl)			
MW-1	70-100	4565-4595	63.4	4601.6	63.2	4601.8	submerged	NA	NA
MW-101S	55-75	4591-4611	59.2	4606.8	59.1	4606.9	water-table	NA	NA
MW-102S	125-145	4449-4469	132.2	4461.8	132.2	4461.8	water-table	NA	NA
MW-103D	173.5-183.5	4376-4386	99.8	4459.9	99.5	4460.2	submerged	up	-0.06
MW-103S	90-110	4450-4470	103.6	4456.5	103.7	4456.4	water-table		
MW-104D	79-89	4571-4581	57.6	4601.9	56.6	4603.0	submerged	down	0.12
MW-104S	47-67	4593-4613	55.0	4604.8	54.7	4605.0	water-table		
MW-105D	72-82	4580-4590	59.8	4602.7	59.5	4602.9	submerged	down	0.15
MW-105S	45-65	4597-4617	57.4	4605.0	57.2	4605.2	water-table		
MW-106D	89-99	4417-4427	61.6	4454.0	61.7	4453.9	submerged	down	0.01
MW-106S	55-75	4442-4462	62.4	4454.3	62.5	4454.2	water-table		
MW-109D	75-95	4625-4645	62.6	4657.4	62.4	4657.5	submerged	down	0.43
MW-109S	42-62	4658-4678	49.6	4670.1	49.6	4670.1	water-table		
MW-110D	154-159	4589-4594	126.4	4621.2	126.3	4621.2	submerged	down	0.16
MW-110S	107.5-127.5	4616-4636	120.9	4623.1	120.9	4623.1	water-table		
MW-111D	104-124	4575-4595	89.2	4610.0	68.2	4631.0	submerged	down	0.66
MW-111S	54-74	4625-4645	56.3	4642.5	63.5	4635.3	water-table		
MW-112D	93-103	4545-4555	66.9	4580.9	65.1	4582.6	submerged	down	0.06
MW-112M	66-76	4572-4582	65.1	4582.6	64.3	4583.4	submerged		
MW-112S	41-61	4588-4608	62.1	4586.7	62.3	4586.4	water-table	NA	NA
MW-113D	115-135	4577-4597	27.2	4684.4	27.6	4684.0	submerged	up	-0.02
MW-113S	74-94	4618-4638	27.7	4683.8	27.1	4684.4	submerged		
MW-115D	100-120	4418-4438	84.2	4454.3	84.3	4454.2	submerged	down	0.00
MW-115S	80-90	4448-4458	84.1	4454.3	84.2	4454.2	water-table		
MW-117R	113-123	4460-4470	125.4	4457.5	125.7	4457.3	water-table	NA	NA
MW-118D	82-102	4540-4560	85.7	4555.9	85.6	4556.0	water-table	NA	NA
MW-119D	90-100	4541-4551	71.2	4569.9	70.4	4570.7	submerged	down	0.12
MW-119S	70-80	4561-4571	68.9	4572.3	67.7	4573.5	submerged		
MW-12	168.5-208.5	5019-5059	157.2	5070.3	157.0	5070.5	submerged	NA	NA
MW-120D	90-100	4544-4554	78.5	4565.1	77.0	4566.5	submerged	up	0.00
MW-120S	70-80	4564-4574	78.6	4565.0	77.2	4566.4	water-table		
MW-121	67-87	4564-4584	62.7	4588.8	62.4	4589.1	submerged	NA	NA
MW-13	157-177	4834-4854	78.1	4933.0	78.0	4933.2	submerged	NA	NA
MW-3A	379-399	4869-4889	286.5	4981.1	286.3	4981.4	submerged	NA	NA
MW-4	141-181	4895-4935	130.9	4945.3	130.6	4945.5	submerged	NA	NA
MW-4A	179-199	5306-5326	145.5	5359.7	145.2	5360.0	submerged	NA	NA
MW-5A	276-296	5054-5074	277.3	5073.0	277.1	5073.2	submerged	NA	NA
MW-6A	145.4-165.4	4923-4943	93.3	4994.7	93.1	4994.9	submerged	NA	NA
MW-7	169.5-189.5	4765-4785	144.5	4809.6	144.3	4809.8	submerged	NA	NA
MW-8	189.5-229.5	4894-4934	199.9	4923.1	199.7	4923.3	water-table	NA	NA
MW-9	229.5-269.5	4924-4964	222.8	4970.5	222.5	4970.8	submerged	NA	NA

Notes

ft btoc = feet below top of casing

ft msl = feet meters sea level

ft bgs = feet below ground surface

NA = not applicable

^Direction and magnitude of gradient is calculated between shallow and deep paired wells

Table 3-1
VOC Results

Analyte	USEPA MCL (ug/L)	Area	Cell 1																	
		Well ID	MW-1		MW-101S		MW-102S		MW-104D		MW-104S		MW-105D		MW-105S		MW-109D		MW-109S	
		Sample Name	MW-1-20181005		MW-101S-20181005		MW-102S-20181006		MW-104D-20181004		MW-104S-20181004		MW-105D-20181004		MW-105S-20181004		MW-109D-20181006		MW-109S-20181006	
		Sample Date	10/5/2018		10/5/2018		10/6/2018		10/4/2018		10/4/2018		10/4/2018		10/4/2018		10/6/2018		10/6/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	200	ug/L	0.16	U	0.16	U	0.16	U	0.64	U	3.2	U	0.8	U	0.32	U	0.16	U	0.16	U
1,1-Dichloroethane	--	ug/L	**0.23**	**J**	0.22	U	0.22	U	**1.8**	**J**	4.4	U	**3.3**	**J**	0.75	J	0.22	U	0.22	U
1,1-Dichloroethene	7	ug/L	0.23	U	0.23	U	0.23	U	0.92	U	4.6	U	1.2	U	0.46	U	0.23	U	0.23	U
1,2-Dichlorobenzene	600	ug/L	0.15	U	0.15	U	0.15	U	0.6	U	3	U	0.75	U	**0.34**	**J**	0.15	U	0.15	U
1,2-Dichloroethane	5	ug/L	0.13	U	0.13	U	0.13	U	0.52	U	2.6	U	0.65	U	**0.28**	**J**	0.13	U	0.13	U
1,2-Dichloropropane	5	ug/L	0.18	U	0.18	U	0.18	U	0.72	U	3.6	U	0.9	U	**0.38**	**J**	0.18	U	0.18	U
1,3-Dichlorobenzene	--	ug/L	0.13	U	0.13	U	0.13	U	0.52	U	2.6	U	0.65	U	0.26	U	0.13	U	0.13	U
1,4-Dichlorobenzene	75	ug/L	0.16	U	0.16	U	0.16	U	0.64	U	3.2	U	0.8	U	0.32	U	0.16	U	0.16	U
Acetone	--	ug/L	1.9	U	1.9	U	1.9	U	7.6	U	38	U	9.5	U	3.8	U	1.9	U	1.9	U
Benzene	5	ug/L	0.16	U	0.16	U	0.16	U	0.64	U	3.2	U	0.8	U	0.32	U	0.16	U	0.16	U
Chlorobenzene	100	ug/L	0.17	U	0.17	U	0.17	U	0.68	U	3.4	U	0.85	U	0.34	U	0.17	U	0.17	U
Chloroethane	--	ug/L	0.41	U	0.41	U	0.41	U	1.6	U	8.2	U	2.1	U	0.82	U	0.41	U	0.41	U
Chloroform	80	ug/L	0.16	U	**0.16**	**J**	0.16	U	0.64	U	3.2	U	**1.5**	**J**	**1.4**	**J**	**0.45**	**J**	**0.8**	**J**
cis-1,2-Dichloroethene	70	ug/L	**3.4**		**0.28**	**J**	0.15	U	**16**		**12**	**J**	**12**		**22**		0.15	U	0.15	U
Dichlorodifluoromethane	--	ug/L	0.31	U	**0.33**	**J**	0.31	U	**1.6**	**J**	6.2	U	**3.3**	**J**	0.62	U	0.31	U	0.31	U
Ethylbenzene	700	ug/L	0.16	U	0.16	U	0.16	U	0.64	U	3.2	U	0.8	U	0.32	U	0.16	U	0.16	U
Methylene Chloride	5	ug/L	0.32	U	0.32	U	0.32	U	8	U	40	U	10	U	4	U	0.32	U	0.32	U
Styrene	100	ug/L	0.17	U	0.17	U	0.17	U	0.68	U	3.4	U	0.85	U	0.34	U	0.17	U	0.17	U
Tetrachloroethene	5	ug/L	**0.29**	**J**	**6.3**		0.2	U	**9.3**		**86**		**30**		**3.5**		**8.6**		**30**	
Toluene	1000	ug/L	0.17	U	0.17	U	0.17	U	0.68	U	3.4	U	0.85	U	0.34	U	0.17	U	0.17	U
trans-1,2-Dichloroethene	100	ug/L	**0.39**	**J**	0.15	U	0.15	U	0.6	U	3	U	0.75	U	0.3	U	0.15	U	0.15	U
Trichloroethene	5	ug/L	**13**		**16**		0.16	U	**140**		**750**		**240**		**51**		**60**		**110**	
Trichlorofluoromethane	--	ug/L	0.29	U	0.29	U	0.29	U	1.2	U	5.8	U	1.5	U	0.58	U	0.29	U	0.29	U
Vinyl chloride	2	ug/L	0.1	U	0.1	U	0.1	U	**9**		**3.3**	**J**	**1.1**	**J**	**3.1**		0.1	U	0.1	U
Xylenes, total	--	ug/L	0.19	U	0.19	U	0.19	U	0.76	U	3.8	U	0.95	U	0.38	U	0.19	U	0.19	U

Notes:

Highlight indicates values great than the MCL

USEPA = United States Environmental Protection Agency

MCL = maximum contaminant level

ug/L = microgram per liter

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

UJ =The non-detection at the associated value is an estimate

J+ = Result is estimated and biased high

CDM Smith

Table 3-1
VOC Results

Analyte	USEPA MCL (ug/L)	Area	Cell 1																	
		Well ID	MW-110D		MW-110S		MW-111D		MW-111S		MW-112D		MW-112M		MW-112M		MW-113D		MW-113S	
		Sample Name	MW-110D-20181007		MW-110S-20181006		MW-111D-20181004		MW-111S-20181004		MW-112D-20181005		MW-112M-20181005		MW-112MQ-20181005		MW-113D-20181004		MW-113S-20181004	
		Sample Date	10/7/2018		10/6/2018		10/4/2018		10/4/2018		10/5/2018		10/5/2018		10/5/2018		10/4/2018		10/4/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	200	ug/L	0.16	U	0.16	U	0.16	U	0.32	U	**0.92**	**J**	0.64	U	**0.67**	**J**	0.32	U	0.64	U
1,1-Dichloroethane	--	ug/L	0.22	U	**0.99**	**J**	**1.7**		**1.2**	**J**	**0.43**	**J**	0.88	U	0.88	U	**11**		**25**	
1,1-Dichloroethene	7	ug/L	0.23	U	0.23	U	0.23	U	0.46	U	**1.3**		0.92	U	0.92	U	**0.64**	**J**	**1.3**	**J**
1,2-Dichlorobenzene	600	ug/L	0.15	U	**0.72**	**J**	**16**		**14**		0.15	U	0.6	U	0.6	U	0.3	U	**8.3**	
1,2-Dichloroethane	5	ug/L	0.13	U	0.13	U	0.13	U	0.26	U	0.13	U	0.52	U	0.52	U	**3.4**		**4.1**	
1,2-Dichloropropane	5	ug/L	0.18	U	**0.67**	**J**	**1.7**		**2.2**		0.18	U	0.72	U	0.72	U	**2.3**		**4.4**	
1,3-Dichlorobenzene	--	ug/L	0.13	U	0.13	U	**0.24**	**J**	0.26	U	0.13	U	0.52	U	0.52	U	0.26	U	0.52	U
1,4-Dichlorobenzene	75	ug/L	0.16	U	**0.36**	**J**	**5.8**		**4.8**		0.16	U	0.64	U	0.64	U	0.32	U	**5**	
Acetone	--	ug/L	1.9	U	1.9	U	**12**	**J+**	20	U	1.9	U	7.6	U	7.6	U	3.8	U	7.6	U
Benzene	5	ug/L	0.16	U	**0.32**	**J**	**17**		**28**		0.16	U	0.64	U	0.64	U	**2.2**		**7.8**	
Chlorobenzene	100	ug/L	0.17	U	0.17	U	**1.1**		**2**		0.17	U	0.68	U	0.68	U	0.34	U	0.68	U
Chloroethane	--	ug/L	0.41	U	0.41	U	**1.2**	**J**	**1.2**	**J**	0.41	U	1.6	U	1.6	U	0.82	U	1.6	U
Chloroform	80	ug/L	0.16	U	0.16	U	0.16	U	0.32	U	**0.28**	**J**	**0.66**	**J**	**0.72**	**J**	**1.9**	**J**	**3.3**	**J**
cis-1,2-Dichloroethene	70	ug/L	**1.2**		**22**		**1.1**		**0.61**	**J**	**0.2**	**J**	0.6	U	0.6	U	**17**		**38**	
Dichlorodifluoromethane	--	ug/L	**1.1**	**J**	0.31	U	0.31	U	**0.66**	**J**	**2**		1.2	U	1.2	U	**25**		**35**	
Ethylbenzene	700	ug/L	0.16	U	0.16	U	**9**		**14**		0.16	U	0.64	U	0.64	U	0.32	U	0.64	U
Methylene Chloride	5	ug/L	0.32	U	0.32	U	2	U	0.64	U	0.32	U	1.3	U	1.3	U	**4.8**	**J+**	**4.9**	**J+**
Styrene	100	ug/L	0.17	U	**0.44**	**J**	0.17	U	0.34	U	0.17	U	0.68	U	0.68	U	0.34	U	0.68	U
Tetrachloroethene	5	ug/L	**0.61**	**J**	**4.1**		**1.1**		0.4	U	**11**		**7**		8.2		**5**		**31**	
Toluene	1000	ug/L	**0.23**	**J**	0.17	U	**0.25**	**J**	0.34	U	0.17	U	0.68	U	0.68	U	0.34	U	0.68	U
trans-1,2-Dichloroethene	100	ug/L	0.15	U	**0.15**	**J**	**0.27**	**J**	**0.34**	**J**	0.15	U	0.6	U	0.6	U	**0.6**	**J**	**1.8**	**J**
Trichloroethene	5	ug/L	**8.5**	**J**	**76**		**12**		0.32	U	**200**		**120**		**130**		**5.5**		**23**	
Trichlorofluoromethane	--	ug/L	0.29	U	0.29	U	0.29	U	0.58	U	**1**	**J**	1.2	U	1.2	U	**3.1**	**J**	**4**	**J**
Vinyl chloride	2	ug/L	0.1	U	6.7		**0.46**	**J**	0.2	U	0.1	U	0.4	U	0.4	U	**27**		**96**	
Xylenes, total	--	ug/L	0.19	U	0.19	U	**1.1**	**J**	**1.9**	**J**	0.19	U	0.76	U	0.76	U	0.38	U	**1.4**	**J**

Notes:

Highlight indicates values great than the MCL

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UJ =The non-detection at the associated value is an estimate

J+ = Result is estimated and biased high

CDM Smith

Table 3-1
VOC Results

Analyte	USEPA MCL (ug/L)	Area	Cell 1												Remediation System					
		Well ID	MW-118D		MW-119D		MW-119S		MW-120D		MW-120S		MW-121		INF-COM		INJ-1R		RW-10	
		Sample Name	MW-118D-20181003		MW-119D-20181003		MW-119S-20181003		MW-120D-20181003		MW-120S-20181003		MW-121-20181007		INF-COM-20181007		INJ-1R-20181006		RW-10-20181007	
		Sample Date	10/3/2018		10/3/2018		10/3/2018		10/3/2018		10/3/2018		10/7/2018		10/7/2018		10/6/2018		10/7/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	200	ug/L	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	0.16	U	0.16	U	0.16	U	0.16	U
1,1-Dichloroethane	--	ug/L	**6.2**		0.88	U	0.88	U	**1.1**	**J**	**1.1**	**J**	**0.58**	**J**	0.22	U	0.22	U	0.22	U
1,1-Dichloroethene	7	ug/L	**0.99**	**J**	0.92	U	0.92	U	0.92	U	0.92	U	0.23	U	0.23	U	0.23	U	0.23	U
1,2-Dichlorobenzene	600	ug/L	0.6	U	0.6	U	0.6	U	**0.92**	**J**	**0.89**	**J**	**0.45**	**J**	0.15	U	0.15	U	0.15	U
1,2-Dichloroethane	5	ug/L	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.13	U	0.13	U	0.13	U	0.13	U
1,2-Dichloropropane	5	ug/L	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.18	U	0.18	U	0.18	U	0.18	U
1,3-Dichlorobenzene	--	ug/L	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.13	U	0.13	U	0.13	U	0.13	U
1,4-Dichlorobenzene	75	ug/L	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	**0.21**	**J**	0.16	U	0.16	U	0.16	U
Acetone	--	ug/L	7.6	U	7.6	U	7.6	U	7.6	U	7.6	U	10	U	**4.1**	**J**	**2.3**	**J**	1.9	U
Benzene	5	ug/L	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	**0.61**	**J**	**0.33**	**J**	0.16	U	0.16	U
Chlorobenzene	100	ug/L	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.17	U	0.17	U	0.17	U	0.17	U
Chloroethane	--	ug/L	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.41	U	0.41	U	0.41	U	0.41	U
Chloroform	80	ug/L	**0.96**	**J**	0.64	U	0.64	U	0.64	U	0.64	U	0.16	U	**0.29**	**J**	0.16	U	**0.63**	**J**
cis-1,2-Dichloroethene	70	ug/L	**9**		**1.3**	**J**	**1.3**	**J**	**15**		**16**		**1.5**		**0.84**	**J**	0.15	U	**0.99**	**J**
Dichlorodifluoromethane	--	ug/L	**3.9**	**J**	1.2	U	1.2	U	1.2	U	1.2	U	**0.64**	**J**	0.31	U	0.31	U	0.31	U
Ethylbenzene	700	ug/L	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	0.16	U	0.16	U	0.16	U	0.16	U
Methylene Chloride	5	ug/L	8	U	1.3	U	8	U	8	U	8	U	0.32	U	2	U	0.32	U	0.32	U
Styrene	100	ug/L	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.17	U	0.17	U	0.17	U	0.17	U
Tetrachloroethene	5	ug/L	**19**		**9**		**9.3**		**15**		**16**		**0.78**	**J**	**1.5**		0.2	U	**19**	
Toluene	1000	ug/L	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.17	U	**0.3**	**J**	0.17	U	0.17	U
trans-1,2-Dichloroethene	100	ug/L	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.15	U	0.15	U	0.15	U	0.15	U
Trichloroethene	5	ug/L	**170**		**65**		**53**		**160**		**150**		**4**		**10**		**0.61**	**J**	**49**	
Trichlorofluoromethane	--	ug/L	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.29	U	0.29	U	0.29	U	0.29	U
Vinyl chloride	2	ug/L	**0.85**	**J**	0.4	U	0.4	U	**2.7**	**J**	**2.9**	**J**	0.1	U	**0.15**	**J**	0.1	U	0.1	U
Xylenes, total	--	ug/L	0.76	U	0.76	U	0.76	U	0.76	U	0.76	U	0.19	U	0.19	U	0.19	U	0.19	U

Notes:

Highlight indicates values great than the MCL

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J+ = Result is estimated and biased high

CDM Smith

Table 3-1
VOC Results

Analyte	USEPA MCL (ug/L)	Area	Remediation System										Offsite Wells							
		Well ID	RW-15		RW-17		RW-3		RW-4		RW-9		MW-103D		MW-103S		MW-106D		MW-106S	
		Sample Name	RW-15-20181006		RW-17-20181007		RW-3-20181007		RW-4-20181007		RW-9-20181007		MW-103D-20181009		MW-103S-20181009		MW-106D-20181008		MW-106S-20181007	
		Sample Date	10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/9/2018		10/9/2018		10/8/2018		10/7/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	200	ug/L	0.16	U	0.16	U	0.16	U	**0.17**	**J**	**0.33**	**J**	0.16	U	0.16	U	0.16	U	0.16	U
1,1-Dichloroethane	--	ug/L	**0.64**	**J**	**0.32**	**J**	**1**		**0.65**	**J**	**1.8**		0.22	U	0.22	U	0.22	U	0.22	U
1,1-Dichloroethene	7	ug/L	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U
1,2-Dichlorobenzene	600	ug/L	**0.5**	**J**	0.15	U	**0.41**	**J**	**0.23**	**J**	**0.58**	**J**	0.15	U	0.15	U	0.15	U	0.15	U
1,2-Dichloroethane	5	ug/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,2-Dichloropropane	5	ug/L	0.18	U	0.18	U	**0.24**	**J**	**0.21**	**J**	**0.38**	**J**	0.18	U	0.18	U	0.18	U	0.18	U
1,3-Dichlorobenzene	--	ug/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,4-Dichlorobenzene	75	ug/L	**0.24**	**J**	0.16	U	**0.4**	**J**	0.16	U	**0.33**	**J**	0.16	U	0.16	U	0.16	U	0.16	U
Acetone	--	ug/L	10	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	10	U
Benzene	5	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	**0.23**	**J**	0.16	U	0.16	U	0.16	U	0.16	U
Chlorobenzene	100	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Chloroethane	--	ug/L	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Chloroform	80	ug/L	**0.6**	**J**	**0.67**	**J**	**0.63**	**J**	**0.55**	**J**	**0.28**	**J**	0.16	U	0.16	U	0.16	U	0.16	U
cis-1,2-Dichloroethene	70	ug/L	**12**		**3.2**		**9.1**		**8.7**		**15**		0.15	U	**0.57**	**J**	0.15	U	0.15	U
Dichlorodifluoromethane	--	ug/L	**0.41**	**J**	**0.34**	**J**	**0.72**	**J**	0.31	U	**0.49**	**J**	0.31	U	0.31	U	0.31	U	0.31	U
Ethylbenzene	700	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Methylene Chloride	5	ug/L	0.32	U	0.32	U	0.32	U	0.32	U	2	U	2	U	2	U	0.32	U	2	U
Styrene	100	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Tetrachloroethene	5	ug/L	**19**		**22**		**19**		**16**		**12**		0.2	U	**1.4**		0.2	U	0.2	U
Toluene	1000	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	**0.34**	**J**	0.17	U	0.17	U	0.17	U
trans-1,2-Dichloroethene	100	ug/L	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
Trichloroethene	5	ug/L	**100**		**100**		**130**		**110**		**210**		0.16	U	**8**		0.16	U	0.16	U
Trichlorofluoromethane	--	ug/L	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U
Vinyl chloride	2	ug/L	**3.3**		**0.54**	**J**	**1.2**		**0.37**	**J**	**2.4**		0.1	U	0.1	U	0.1	U	0.1	U
Xylenes, total	--	ug/L	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U

Notes:

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J+ = Result is estimated and biased high

CDM Smith

Table 3-1
VOC Results

Analyte	USEPA MCL (ug/L)		Offsite Wells								Residential Wells				Cell 2					
		Well ID	MW-115D		MW-115S		MW-116D		MW-116S		RW-2140H		RW-7773P		MW-12		MW-13		MW-8	
		Sample Name	MW-115D-20181008		MW-115S-20181008		MW-116D-20181019		MW-116S-20181019		RW-2140H-20181019		RW-7773P-20181007		MW-12-20181008		MW-13-20181006		MW-8-20181007	
		Sample Date	10/8/2018		10/8/2018		10/19/2018		10/19/2018		10/19/2018		10/7/2018		10/8/2018		10/6/2018		10/7/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	200	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,1-Dichloroethane	--	ug/L	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1-Dichloroethene	7	ug/L	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U
1,2-Dichlorobenzene	600	ug/L	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
1,2-Dichloroethane	5	ug/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,2-Dichloropropane	5	ug/L	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,3-Dichlorobenzene	--	ug/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,4-Dichlorobenzene	75	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Acetone	--	ug/L	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Benzene	5	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Chlorobenzene	100	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Chloroethane	--	ug/L	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Chloroform	80	ug/L	0.16	U	0.16	U	0.16	U	**0.21**	**J**	**0.22**	**J**	0.16	U	0.16	U	0.16	U	0.16	U
cis-1,2-Dichloroethene	70	ug/L	0.15	U	0.15	U	0.15	U	**2.1**		**2.3**		0.15	U	0.15	U	**0.4**	**J**	0.15	U
Dichlorodifluoromethane	--	ug/L	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	**0.39**	**J**	0.31	U
Ethylbenzene	700	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Methylene Chloride	5	ug/L	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Styrene	100	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Tetrachloroethene	5	ug/L	0.2	U	0.2	U	0.2	U	**2.2**		**4.9**		0.2	U	0.2	U	**0.23**	**J**	0.2	U
Toluene	1000	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
trans-1,2-Dichloroethene	100	ug/L	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
Trichloroethene	5	ug/L	0.16	U	**0.35**	**J**	0.16	U	**26**		**34**		0.16	U	0.16	U	0.16	U	0.16	U
Trichlorofluoromethane	--	ug/L	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U
Vinyl chloride	2	ug/L	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Xylenes, total	--	ug/L	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U

Notes:

Highlight indicates values great than the MCL

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CDM Smith

Table 3-1
VOC Results

Analyte	USEPA MCL (ug/L)		Cell 2				Cell 4									
		Well ID	MW-9		MW-7		MW-3A		MW-4		MW-4A		MW-5A		MW-6A	
		Sample Name	MW-9-20181007		MW-7-20181008		MW-3A-20181008		MW-4-20181005		MW-4A-20181005		MW-5A-20181008		MW-6A-20181005	
		Sample Date	10/7/2018		10/8/2018		10/8/2018		10/5/2018		10/5/2018		10/8/2018		10/5/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	200	ug/L	0.16	U	0.16	U	0.16	U	**0.22**	**J**	0.16	U	0.16	U	0.16	U
1,1-Dichloroethane	--	ug/L	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1-Dichloroethene	7	ug/L	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U
1,2-Dichlorobenzene	600	ug/L	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
1,2-Dichloroethane	5	ug/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,2-Dichloropropane	5	ug/L	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,3-Dichlorobenzene	--	ug/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,4-Dichlorobenzene	75	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Acetone	--	ug/L	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Benzene	5	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Chlorobenzene	100	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Chloroethane	--	ug/L	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Chloroform	80	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
cis-1,2-Dichloroethene	70	ug/L	0.15	U	**16**		0.15	U	**0.97**	**J**	0.15	U	0.15	U	0.15	U
Dichlorodifluoromethane	--	ug/L	0.31	U	0.31	U	0.31	U	**0.72**	**J**	0.31	U	0.31	U	0.31	U
Ethylbenzene	700	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Methylene Chloride	5	ug/L	0.32	U	0.32	U	2	U	0.32	U	0.32	U	0.32	U	0.32	U
Styrene	100	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Tetrachloroethene	5	ug/L	0.2	U	**0.38**	**J**	0.2	U	**4.1**		0.2	U	0.2	U	0.2	U
Toluene	1000	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
trans-1,2-Dichloroethene	100	ug/L	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
Trichloroethene	5	ug/L	0.16	U	**0.75**	**J**	0.16	U	**0.32**	**J**	0.16	U	0.16	U	0.16	U
Trichlorofluoromethane	--	ug/L	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U
Vinyl chloride	2	ug/L	**0.53**	**J**	0.1	U	0.1	U	**0.63**	**J**	0.1	U	0.1	U	0.1	U
Xylenes, total	--	ug/L	0.19	U	0.19	U	0.19	U	**0.51**	**J**	0.19	U	0.19	U	0.19	U

Notes:

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CDM Smith

Table 3-2
Metals Results

Analyte	USEPA MCL (ug/L)	Area	Cell 1																			
		Well ID	MW-1		MW-101S		MW-102S		MW-104D		MW-104S		MW-105D		MW-105S		MW-109D		MW-109S		MW-110D	
		Sample Name	MW-1-20181005		MW-101S-20181005		MW-102S-20181006		MW-104D-20181004		MW-104S-20181004		MW-105D-20181004		MW-105S-20181004		MW-109D-20181006		MW-109S-20181006		MW-110D-20181007	
		Sample Date	10/5/2018		10/5/2018		10/6/2018		10/4/2018		10/4/2018		10/4/2018		10/4/2018		10/6/2018		10/6/2018		10/7/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Antimony	6	ug/L	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	**0.61**	**J**	0.4	U
Arsenic	10	ug/L	**0.9**	**J**	**2.3**	**J**	**1.3**	**J**	**0.75**	**J**	**0.77**	**J**	**0.97**	**J**	**8.6**		**0.62**	**J**	**0.68**	**J**	**1.3**	**J**
Barium	2000	ug/L	**58**		**120**		**35**		**310**		**270**		**270**		**690**		**140**		**140**		**180**	
Beryllium	4	ug/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U
Cadmium	5	ug/L	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Calcium		ug/L	**27000**		**80000**		**51000**		**180000**		**190000**		**200000**		**270000**		**110000**		**88000**		**98000**	
Chromium, Total	100	ug/L	0.5	U	**1.1**	**J**	**0.89**	**J**	**0.84**	**J**	0.5	U	**0.73**	**J**	**2.6**		**0.7**	**J**	**0.64**	**J**	**0.65**	**J**
Cobalt		ug/L	0.054	U	**0.31**	**J**	0.054	U	**2.1**		**0.16**	**J**	**0.082**	**J**	**0.95**	**J**	0.054	U	0.054	U	**0.099**	**J**
Copper	1300	ug/L	0.56	U	**0.57**	**J**	0.56	U	**0.9**	**J**	**0.58**	**J**	0.56	U	0.56	U	0.56	U	**0.57**	**J**	0.56	U
Iron		ug/L	**2700**		**330**		**150**	**J+**	**170**	**J+**	22	U	22	U	**7400**		**40**	**J**	100	U	100	U
Lead	15	ug/L	**0.69**	**J**	**0.25**	**J**	0.18	U	**0.27**	**J**	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Magnesium		ug/L	**18000**		**29000**		**25000**		**62000**		**60000**		**64000**		**110000**		**44000**		**40000**		**31000**	
Manganese		ug/L	**230**		**71**		**1.7**	**J+**	**180**		**52**		**4.7**		**9100**		**0.4**	**J**	**0.35**	**J**	**25**	
Mercury	2	ug/L	0.027	U	0.027	U	0.027	U	0.027	U	**0.027**	**J**	**0.085**	**J**	**0.075**	**J**	0.027	U	0.027	U	0.027	U
Nickel		ug/L	0.3	U	**1.3**	**J**	0.3	U	**3.5**		**2.9**		**1.7**	**J**	**11**		0.3	U	0.3	U	**0.87**	**J**
Potassium		ug/L	**2700**	**J**	**5000**		**5000**		**4900**		**5800**		**4100**		**5400**		**3300**		**4000**		**6100**	
Selenium	50	ug/L	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Silver		ug/L	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U
Sodium		ug/L	**40000**		**33000**		**33000**		**69000**		**99000**		**62000**		**320000**		**59000**		**59000**		**36000**	
Thallium	2	ug/L	0.05	U	0.05	U	0.05	U	**0.098**	**J**	**0.085**	**J**	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Tin		ug/L	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
Vanadium		ug/L	0.5	U	**1.1**	**J**	0.5	U	**0.82**	**J**	**1.1**	**J**	**2.3**	**J**	**0.78**	**J**	0.5	U	**0.74**	**J**	**1.8**	**J**
Zinc	5000	ug/L	10	U	10	U	10	U	**10**	**J+**	10	U	10	U	10	U	10	U	10	U	10	U

Notes:

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CDM Smith

Table 3-2
Metals Results

Analyte	USEPA MCL (ug/L)	Area	Cell 1																					
		Well ID	MW-110S		MW-111D		MW-111S		MW-112D		MW-112M		MW-112M		MW-113D		MW-113S		MW-118D		MW-119D		MW-119S	
		Sample Name	MW-110S-20181006		MW-111D-20181004		MW-111S-20181004		MW-112D-20181005		MW-112M-20181005		MW-112MQ-20181005		MW-113D-20181004		MW-113S-20181004		MW-118D-20181003		MW-119D-20181003		MW-119S-20181003	
		Sample Date	10/6/2018		10/4/2018		10/4/2018		10/5/2018		10/5/2018		10/5/2018		10/4/2018		10/4/2018		10/3/2018		10/3/2018		10/3/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Antimony	6	ug/L	0.4	U	**0.77**	J	**1.1**	J	0.4	U	**0.57**	J	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Arsenic	10	ug/L	**0.75**	J	**91**		**120**		**0.93**	J	**0.53**	J	**0.46**	J	**1.2**	J	**1.7**	J	**1.2**	J	**0.51**	J	**0.55**	J
Barium	2000	ug/L	**260**		**3400**		**3600**		**110**		**120**		**110**		**340**		**880**		**440**		**160**		**160**	
Beryllium	4	ug/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U
Cadmium	5	ug/L	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Calcium		ug/L	**150000**		**360000**		**270000**		**87000**		**93000**		**92000**		**120000**		**280000**		**200000**		**100000**		**98000**	
Chromium, Total	100	ug/L	**0.65**	J	**4.4**		**22**		**1**	J	**1.8**	J	**1.7**	J	**1.9**	J	**0.5**	J	**1.3**	J	**0.71**	J	**0.55**	J
Cobalt		ug/L	**0.95**	J	**8.6**		**11**		0.054	U	**0.17**	J	**0.073**	J	**2.7**		**0.33**	J	**1.9**		0.054	U	0.054	U
Copper	1300	ug/L	**0.94**	J	**0.97**	J	**20**		**0.69**	J	**0.94**	J	0.56	U	**1.5**	J	**1.6**	J	**2.2**		0.56	U	**0.8**	J
Iron		ug/L	22	U	**33000**		**28000**		**150**		**480**		**170**		**730**		100	U	22	U	22	U	22	U
Lead	15	ug/L	0.18	U	**0.32**	J	**3**		**0.22**	J	**0.5**	J	**0.21**	J	**2.3**		**0.32**	J	**1.6**		0.18	U	0.18	U
Magnesium		ug/L	**54000**		**270000**		**330000**		**32000**		**38000**		**38000**		**56000**		**100000**		**77000**		**44000**		**43000**	
Manganese		ug/L	**1500**		**2200**		**2100**		**3.6**		**13**		**4.6**		**19**		**8.2**		**170**		**0.43**	J	0.31	U
Mercury	2	ug/L	0.027	U	0.027	U	**0.032**	J	0.027	U	0.027	U	0.027	U	**2.3**		**5.7**		**0.9**		0.027	U	0.027	U
Nickel		ug/L	**6**		**280**		**240**		0.3	U	**0.56**	J	**0.33**	J	**2.1**		**3.3**		**27**		0.3	U	0.3	U
Potassium		ug/L	**4000**		**17000**		**27000**		**2400**	J	**2500**	J	**2400**	J	**3900**		**5600**		**5200**		**3300**		**3600**	
Selenium	50	ug/L	0.7	U	**0.71**	J	**0.76**	J	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	**1.9**	J	0.7	U	0.7	U
Silver		ug/L	0.033	U	0.033	U	0.033	U	0.033	U	**0.095**	J	**0.055**	J	0.033	U	**0.21**	J	0.033	U	0.033	U	0.033	U
Sodium		ug/L	**90000**		**930000**		**1100000**		**41000**		**57000**		**57000**		**44000**		**140000**		**150000**		**65000**		**68000**	
Thallium	2	ug/L	**0.17**	J	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	**0.054**	J
Tin		ug/L	0.77	U	**2.2**	J	**2.7**	J	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
Vanadium		ug/L	0.5	U	**5.6**		**14**		**0.6**	J	**0.73**	J	0.5	U	**0.84**	J	**5.8**		**2.6**	J	**0.74**	J	**0.72**	J
Zinc	5000	ug/L	10	U	10	U	**18**	J+	10	U	10	U	10	U	10	U	10	U	2	U	2	U	10	U

Notes:

Highlight indicates values great than the MCL

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MCL = maximum contaminant level

ug/L = microgram per liter

Q = qualifier

J = Result is estimated

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UJ =The non-detection at the associated value is an estimate

J+ = Result is estimated and biased high

CDM Smith

Table 3-2
Metals Results

		Area	Cell 1						Remediation System													
		Well ID	MW-120D		MW-120S		MW-121		INJ-1R		RW-10		RW-15		RW-17		RW-3		RW-4		RW-9	
		Sample Name	MW-120D-20181003		MW-120S-20181003		MW-121-20181007		INJ-1R-20181006		RW-10-20181007		RW-15-20181006		RW-17-20181007		RW-3-20181007		RW-4-20181007		RW-9-20181007	
	USEPA MCL	Sample Date	10/3/2018		10/3/2018		10/7/2018		10/6/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018	
Analyte	(ug/L)	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Antimony	6	ug/L	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Arsenic	10	ug/L	**0.82**	**J**	**0.79**	**J**	**9**		**0.59**	**J**	**1.1**	**J**	**0.66**	**J**	**0.57**	**J**	**0.57**	**J**	**0.65**	**J**	**0.94**	**J**
Barium	2000	ug/L	**280**		**270**		**1500**		**180**		**170**		**210**		**190**		**240**		**250**		**51**	
Beryllium	4	ug/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U
Cadmium	5	ug/L	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	**1.2**	
Calcium		ug/L	**170000**		**160000**		**230000**		**100000**		**89000**		**120000**		**100000**		**120000**		**150000**		**170000**	
Chromium, Total	100	ug/L	**0.77**	**J**	**0.71**	**J**	**2.3**		0.5	U	**1.2**	**J**	0.5	U	**1.2**	**J**	**0.52**	**J**	**2.5**		0.5	U
Cobalt		ug/L	**0.22**	**J**	**0.18**	**J**	**18**		**0.082**	**J**	**0.8**	**J**	**0.1**	**J**	**0.16**	**J**	**2.7**		**0.13**	**J**	**4.8**	
Copper	1300	ug/L	**1**	**J**	**0.94**	**J**	**2.5**		**8.9**		**30**		**15**		**14**		**3.8**		**13**		**54**	
Iron		ug/L	**250**		**120**	**J+**	**2600**		22	U	**1800**		22	U	**180**	**J+**	**75**	**J**	**380**		**920**	
Lead	15	ug/L	**0.26**	**J**	0.18	U	**2.1**		**1.1**		**7.8**		**1.8**		**1.8**		**0.5**	**J**	**2.3**		**6.6**	
Magnesium		ug/L	**60000**		**60000**		**74000**		**41000**		**38000**		**46000**		**41000**		**47000**		**53000**		**54000**	
Manganese		ug/L	**37**		**5.4**		**2200**		**120**		**26**		**200**		**2.6**	**J+**	**1300**		**4.8**		**9400**	
Mercury	2	ug/L	**0.05**	**J**	**0.35**		0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.032	J	0.027	U
Nickel		ug/L	**3.1**		**2.4**		**60**		**3.1**		**4.3**		**5.9**		**2.4**		**15**		**3.7**		**25**	
Potassium		ug/L	**4600**		**4300**		**6500**		**5000**		**3700**		**3900**		**3700**		**4000**		**4600**		**5100**	
Selenium	50	ug/L	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Silver		ug/L	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U
Sodium		ug/L	**95000**		**94000**		**190000**		**64000**		**63000**		**74000**		**63000**		**74000**		**70000**		**90000**	
Thallium	2	ug/L	**0.076**	**J**	**0.052**	**J**	0.05	U	**0.05**	**J**	0.05	U	**0.074**	**J**	0.05	U	0.05	U	0.05	U	**0.42**	**J**
Tin		ug/L	0.77	U	0.77	U	0.77	U	0.77	U	**1.2**	**J**	0.77	U	0.77	U	0.77	U	0.77	U	1	J
Vanadium		ug/L	**0.95**	**J**	**1.3**	**J**	**2.7**	**J**	**0.6**	**J**	**1.8**	**J**	**0.77**	**J**	**0.79**	**J**	0.5	U	**0.61**	**J**	**2.3**	**J**
Zinc	5000	ug/L	**24**		10	U	**11**	**J+**	**54**		**270**		**58**		**27**	**J+**	**94**		**120**		**210**	

Notes:

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CDM Smith

Table 3-2
Metals Results

		Area	Offsite																Residential Wells			
		Well ID	MW-103D		MW-103S		MW-106D		MW-106S		MW-115D		MW-115S		MW-116D		MW-116S		RW-2140H		RW-7773P	
		Sample Name	MW-103D-20181009		MW-103S-20181009		MW-106D-20181008		MW-106S-20181007		MW-115D-20181008		MW-115S-20181008		MW-116D-20181019		MW-116S-20181019		RW-2140H-20181019		RW-7773P-20181007	
	USEPA MCL	Sample Date	10/9/2018		10/9/2018		10/8/2018		10/7/2018		10/8/2018		10/8/2018		10/19/2018		10/19/2018		10/19/2018		10/7/2018	
Analyte	(ug/L)	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Antimony	6	ug/L	0.4	U	0.4	U	0.4	U	**0.45**	J	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Arsenic	10	ug/L	0.33	U	**1.6**	J	**1.6**	J	**1.6**	J	**1.9**	J	**2**	J	**9.9**		**1.5**	J	**1**	J	**1.5**	J
Barium	2000	ug/L	**78**		**120**		**110**		**110**		**120**		**140**		**89**		**180**		**170**		**110**	
Beryllium	4	ug/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	**0.083**	J	0.08	U	0.08	U	0.08	U
Cadmium	5	ug/L	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Calcium		ug/L	**39000**		**82000**		**74000**		**76000**		**76000**		**73000**		**41000**		**130000**		**130000**		**72000**	
Chromium, Total	100	ug/L	**3.1**		**0.75**	J	**0.83**	J	**0.92**	J	**0.8**	J	**1**	J	**3.4**		**1.4**	J	**0.65**	J	**0.7**	J
Cobalt		ug/L	**3.4**		0.054	U	0.054	U	0.054	U	0.054	U	0.054	U	**0.65**	J	**0.31**	J	**0.055**	J	0.054	U
Copper	1300	ug/L	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	**19**		**1.3**	J	**1.4**	J	**1.9**	J
Iron		ug/L	**200**		22	U	22	U	22	U	22	U	22	U	**2700**		**450**		22	U	**77**	J
Lead	15	ug/L	**0.63**	J	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	**2.1**		**0.39**	J	**0.37**	J	**0.87**	J
Magnesium		ug/L	**35000**		**30000**		**26000**		**26000**		**28000**		**29000**		**14000**		**45000**		**44000**		**25000**	
Manganese		ug/L	**18**		0.31	U	0.31	U	1	U	**0.75**	J	0.31	U	**380**		**12**		1	U	**2.6**	
Mercury	2	ug/L	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U
Nickel		ug/L	**22**		**0.32**	J	0.3	U	0.3	U	0.3	U	0.3	U	**2.8**		**1.6**	J	**0.93**	J	0.3	U
Potassium		ug/L	**5100**		**6300**		**6100**		**6300**		**7600**		**7800**		**9200**		**7600**		**7500**		**6100**	
Selenium	50	ug/L	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Silver		ug/L	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U
Sodium		ug/L	**59000**		**41000**		**34000**		**35000**		**46000**		**54000**		**13000**		**55000**		**54000**		**33000**	
Thallium	2	ug/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Tin		ug/L	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	**1.2**	J	0.77	U
Vanadium		ug/L	0.5	U	**0.86**	J	**1.1**	J	**1.2**	J	**1.1**	J	**1.5**	J	**1.4**	J	**0.57**	J	0.5	U	**0.81**	J
Zinc	5000	ug/L	10	U	10	U	10	U	10	U	10	U	10	U	**44**		**4.7**	J	**26**		**210**	

Notes:

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CDM Smith

Table 3-2
Metals Results

Analyte	USEPA MCL (ug/L)	Area	Cell 2										Cell 4									
		Well ID	MW-12		MW-13		MW-8		MW-9		MW-7		MW-3A		MW-4		MW-4A		MW-5A		MW-6A	
		Sample Name	MW-12-20181008		MW-13-20181006		MW-8-20181007		MW-9-20181007		MW-7-20181008		MW-3A-20181008		MW-4-20181005		MW-4A-20181005		MW-5A-20181008		MW-6A-20181005	
		Sample Date	10/8/2018		10/6/2018		10/7/2018		10/7/2018		10/8/2018		10/8/2018		10/5/2018		10/5/2018		10/8/2018		10/5/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Antimony	6	ug/L	0.4	U	**0.58**	**J**	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	**1.1**	**J**	0.4	U
Arsenic	10	ug/L	**0.49**	**J**	**4.1**	**J**	**3.3**	**J**	**1.3**	**J**	**0.57**	**J**	0.33	U	**2.4**	**J**	**1.4**	**J**	**1.4**	**J**	**0.48**	**J**
Barium	2000	ug/L	**54**		**120**		**34**		**28**		**360**		**160**		**150**		**190**		**54**		**210**	
Beryllium	4	ug/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.17	J	0.08	U
Cadmium	5	ug/L	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Calcium		ug/L	**59000**		**44000**		**57000**		**310000**		**73000**		**55000**		**130000**		**87000**		**59000**		**74000**	
Chromium, Total	100	ug/L	**0.93**	**J**	**1.4**	**J**	**0.76**	**J**	0.5	U	**0.8**	**J**	**0.53**	**J**	**2.5**		**0.91**	**J**	**1.9**	**J**	**1.1**	**J**
Cobalt		ug/L	**3.3**		**1.2**	**J**	**0.14**	**J**	**3.7**		0.054	U	0.054	U	**2.8**		**0.18**	**J**	**0.18**	**J**	**0.15**	**J**
Copper	1300	ug/L	0.56	U	**0.83**	**J**	**0.58**	**J**	**0.95**	**J**	**0.8**	**J**	**0.66**	**J**	0.56	U	0.56	U	**0.75**	**J**	**0.68**	**J**
Iron		ug/L	22	U	**290**	**J**	**110**	**J+**	**430**	**J+**	**22**	**J**	**63**	**J**	**560**		**210**		**360**	**J+**	**310**	
Lead	15	ug/L	0.18	U	**0.6**	**J**	0.18	U	0.18	U	0.18	U	**0.37**	**J**	**0.2**	**J**	**0.24**	**J**	0.18	U	**0.29**	**J**
Magnesium		ug/L	**15000**		**38000**		**19000**		**220000**		**23000**		**28000**		**51000**		**19000**		**16000**		**42000**	
Manganese		ug/L	1	U	**22**	**J**	**4**	**J+**	**2100**		**1.7**		**2.1**		**280**		**6.2**		**6**		**8.7**	
Mercury	2	ug/L	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U										
Nickel		ug/L	0.3	U	**0.62**	**J**	0.3	U	**33**		**0.49**	**J**	0.3	U	**13**		**0.37**	**J**	**0.54**	**J**	**0.62**	**J**
Potassium		ug/L	**1000**	**J**	**2900**	**J**	**620**	**J**	**5300**		**2500**	**J**	**2600**	**J**	**3200**		**3700**		**1300**	**J**	**2200**	**J**
Selenium	50	ug/L	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.87	J	0.7	U	0.7	U
Silver		ug/L	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U
Sodium		ug/L	**32000**		**37000**		**46000**		**470000**		**32000**		**41000**		**50000**		**63000**		**42000**		**51000**	
Thallium	2	ug/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Tin		ug/L	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
Vanadium		ug/L	0.5	U	**0.91**	**J**	**0.54**	**J**	0.5	U	**0.51**	**J**	0.5	U	**1.2**	**J**	**1**	**J**	**0.65**	**J**	0.5	U
Zinc	5000	ug/L	10	U	**6.2**	**J**	10	U	**1600**		10	U	**20**	**J+**	10	U	10	U	10	U	10	U

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CDM Smith

Table 3-3
Geochemical Results

Analyte	Area	Cell 1																			
	Well ID	MW-1		MW-101S		MW-102S		MW-104D		MW-104S		MW-105D		MW-105S		MW-109D		MW-109S		MW-110D	
	Sample Name	MW-1-20181005		MW-101S-20181005		MW-102S-20181006		MW-104D-20181004		MW-104S-20181004		MW-105D-20181004		MW-105S-20181004		MW-109D-20181006		MW-109S-20181006		MW-110D-20181007	
	Sample Date	10/5/2018		10/5/2018		10/6/2018		10/4/2018		10/4/2018		10/4/2018		10/4/2018		10/6/2018		10/6/2018		10/7/2018	
	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Geochemistry																					
Alkalinity, Total (As $CaCO_3$)	mg/L	**53**		**230**		**190**		**500**		**590**		**540**		**910**		**310**		**280**		**240**	
Total Organic Carbon	mg/L	**1.3**		**1**	**J+**	**0.4**	**J**	**2.8**		**3.1**		**2.1**		**12**		**1.1**		**1.1**		**0.85**	**J**
Chloride (As Cl)	mg/L	**130**		**67**		**46**		**190**		**180**		**210**		**560**		**110**		**91**		**110**	
Cyanide	mg/L	0.002	U	0.002	U	0.002	U	0.002	U	**0.0021**	**J**	**0.01**		**0.0041**	**J**	0.002	U	0.002	U	0.002	U
Nitrogen, Nitrate-Nitrite	mg/L	0.019	U	**0.45**		**0.29**		0.019	U	**0.059**	**J**	**0.44**		**0.21**		**1.3**		**0.73**		**0.23**	
Sulfate (As SO_4)	mg/L	**0.52**	**J**	**72**		**73**		**74**		**90**		**60**		**120**		**110**		**110**		**71**	
Sulfide	mg/L																				
Ferrous Iron	mg/L	**0.06**		0		**0.07**		0		0		**0.01**		**3.3**		0		**0.05**		0	
Dissolved Gases																					
Methane	ug/L	**1400**		0.64	U	0.64	U	**140**		**97**		**1.5**	**J**	**27**		0.64	U	0.64	U	0.64	U
Ethane	ug/L	**1.2**	**J**	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U
Ethene	ug/L	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Propane	ug/L	**1.3**	**J**	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U
Field Parameters																					
Specific Conductance	mS/cm	**0.431**		**0.629**		**0.496**		**1.29**		**1.41**		**1.3**		**3.34**		**0.824**		**0.746**		**0.748**	
pH	su	**7.9**		**7.04**		**7.17**		**6.58**		**6.26**		**6.88**		**6.88**		**6.6**		**6.47**		**7.42**	
Temperature	°C	**12.57**		**11.8**		**11.83**		**13.99**		**13.37**		**13.3**		**13.12**		**12.19**		**11.69**		**14.14**	
Turbidity	NTU	**14**		**5.3**		**2.1**		**13.1**		**1**		**0.2**		**11**		**1.8**		**0**		**1.4**	
Dissolved Oxygen	mg/L	**0.51**		**6.38**		**6.06**		**0.39**		**0**		**1.08**		**0.21**		**5.05**		**0.56**		**2.87**	
Oxidation-Reduction Potential	mV	**-15**		**154**		**187**		**98**		**173**		**168**		**-65**		**187**		**161**		**88**	

Notes:

mg/L = milligram per liter
ug/L = microgram per liter
mS/cm = milliSiemers per centimeter
mV = millivolt
NTU = Nephelometric turbidity unit
°C = degrees Celcius
su = standard units

Q = qualifier
J = Result is estimated
U = Analyte was not detected at the associated value
UJ =The non-detection at the associated value is an estimate
J+ = Result is estimated and biased high

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Table 3-3
Geochemical Results

	Area	Cell 1																			
	Well ID	MW-110S		MW-111D		MW-111S		MW-112D		MW-112M		MW-113D		MW-113S		MW-118D		MW-119D		MW-119S	
	Sample Name	MW-110S-20181006		MW-111D-20181004		MW-111S-20181004		MW-112D-20181005		MW-112M-20181005		MW-113D-20181004		MW-113S-20181004		MW-118D-20181003		MW-119D-20181003		MW-119S-20181003	
	Sample Date	10/6/2018		10/4/2018		10/4/2018		10/5/2018		10/5/2018		10/4/2018		10/4/2018		10/3/2018		10/3/2018		10/3/2018	
Analyte	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Geochemistry																					
Alkalinity, Total (As $CaCO_3$)	mg/L	**420**		**1300**		**1700**		**260**		**340**		**350**		**720**		**560**		**310**		**300**	
Total Organic Carbon	mg/L	**3.8**		**140**		**180**		**1.2**		**0.74**	**J**	**3.7**	**J+**	**11**		**6.1**		**1.2**		**1.6**	
Chloride (As Cl)	mg/L	**230**		**1900**		**2000**		**82**		**78**		**190**		**400**		**400**		**110**		**110**	
Cyanide	mg/L	0.002	U	**0.0094**	**J**	**0.011**	**J**	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	**0.0048**	**J**	**0.0053**	**J**
Nitrogen, Nitrate-Nitrite	mg/L	0.019	U	0.019	U	0.019	U	**1.1**		**0.77**		**0.41**		**0.19**		**12**		**1.2**		**4.2**	
Sulfate (As SO_4)	mg/L	**96**		**51**		**44**		**81**		**67**		**36**		**66**		**86**		**100**		**110**	
Sulfide	mg/L																				
Ferrous Iron	mg/L	**0.03**		**3.3**		**2.16**		0		**0.02**		**0.19**		**0.05**		0		**0.02**		**0.02**	
Dissolved Gases																					
Methane	ug/L	**85**		**3500**		**3500**		0.64	U	0.64	U	**930**		**3700**		**2.9**	**J**	0.64	U	0.64	U
Ethane	ug/L	0.57	U	**3.4**	**J**	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U
Ethene	ug/L	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	**0.76**	**J**	**6.2**		0.4	U	0.4	U	0.4	U
Propane	ug/L	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	**2**	**J**	0.56	U	0.56	U	0.56	U
Field Parameters																					
Specific Conductance	mS/cm	**1.43**		**7.01**		**7.44**		**0.691**		**0.756**		**0.912**		**2.2**		**2.2**		**0.793**		**0.827**	
pH	su	**6.5**		**6.78**		**6.96**		**7.42**		**6.98**		**6.84**		**6.43**		**6.85**		**6.79**		**6.71**	
Temperature	°C	**13.05**		**15.38**		**14.82**		**12.49**		**13.69**		**13.81**		**13.78**		**13.54**		**16.51**		**13.36**	
Turbidity	NTU	**0**		**1**		**2.55**		**13.3**		**35.7**		**41.1**		**3.1**		**0**		**0**		**0**	
Dissolved Oxygen	mg/L	**0.25**		**0.88**		**2.04**		**6.16**		**5.82**		**0.67**		**0**		**1.16**		**3.86**		**2.72**	
Oxidation-Reduction Potential	mV	**156**		**-65**		**-80**		**134**		**136**		**95**		**64**		**165**		**152**		**143**	

Notes:

mg/L = milligram per liter
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mS/cm = milliSiemers per centimeter
mV = millivolt
NTU = Nephelometric turbidity unit
°C = degrees Celcius
su = standard units

Q = qualifier
J = Result is estimated
U = Analyte was not detected at the associated value
UJ =The non-detection at the associated value is an estimate
J+ = Result is estimated and biased high

Table 3-3
Geochemical Results

	Area	Cell 1						Remediation System													
	Well ID	MW-120D		MW-120S		MW-121		INJ-1R		RW-10		RW-15		RW-17		RW-3		RW-4		RW-9	
	Sample Name	MW-120D-20181003		MW-120S-20181003		MW-121-20181007		INJ-1R-20181006		RW-10-20181007		RW-15-20181006		RW-17-20181007		RW-3-20181007		RW-4-20181007		RW-9-20181007	
	Sample Date	10/3/2018		10/3/2018		10/7/2018		10/6/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018	
Analyte	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Geochemistry																					
Alkalinity, Total (As $CaCO_3$)	mg/L	**480**		**480**		**650**		**300**		**290**		**320**		**300**		**360**		**400**		**530**	
Total Organic Carbon	mg/L	**3.1**		**3.1**		**16**		**2.3**		**1.3**		**1.9**		**1.3**		**2.3**		**1.8**		**3**	
Chloride (As Cl)	mg/L	**210**		**220**		**460**		**130**		**100**		**150**		**120**		**170**		**160**		**200**	
Cyanide	mg/L	**0.0021**	**J**	0.002	U	0.004	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	**0.0022**	**J**
Nitrogen, Nitrate-Nitrite	mg/L	**0.76**		**0.78**		**1.4**		**0.65**		**0.93**		**0.39**		**0.73**		**0.43**		**0.6**		0.019	U
Sulfate (As SO_4)	mg/L	**92**		**94**		**55**		**110**		**110**		**110**		**110**		**110**		**100**		**95**	
Sulfide	mg/L							0.007	U												
Ferrous Iron	mg/L	**0.15**		0		**1.15**				0		**0.03**		0		**2.21**		**0.68**		**0.26**	
Dissolved Gases																					
Methane	ug/L	0.64	U	0.64	U	**56**				0.64	U	**43**		**3.9**	**J**	**1.9**	**J**	0.64	U	**3.1**	**J**
Ethane	ug/L	0.57	U	0.57	U	0.57	U			0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U
Ethene	ug/L	0.4	U	0.4	U	0.4	U			0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Propane	ug/L	0.56	U	0.56	U	0.56	U			0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U
Field Parameters																					
Specific Conductance	mS/cm	**1.14**		**1.26**		**2.5**															
pH	su	**6.45**		**6.45**		**6.81**															
Temperature	°C	**16.49**		**18.33**		**13.45**															
Turbidity	NTU	**2.3**		**34.3**		**33.4**															
Dissolved Oxygen	mg/L	**1.27**		**0.51**		**0.78**															
Oxidation-Reduction Potential	mV	**117**		**115**		**7**															

Notes:
mg/L = milligram per liter
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mS/cm = milliSiemers per centimeter
mV = millivolt
NTU = Nephelometric turbidity unit
°C = degrees Celcius
su = standard units

Q = qualifier
J = Result is estimated
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UJ =The non-detection at the associated value is an estimate
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Table 3-3
Geochemical Results

Analyte	Area	Offsite Wells																Residential Wells			
	Well ID	MW-103D		MW-103S		MW-106D		MW-106S		MW-115D		MW-115S		MW-116D		MW-116S		RW-2140H		RW-7773P	
	Sample Name	MW-103D-20181009		MW-103S-20181009		MW-106D-20181008		MW-106S-20181007		MW-115D-20181008		MW-115S-20181008		MW-116D-20181019		MW-116S-20181019		RW-2140H-20181019		RW-7773P-20181007	
	Sample Date	10/9/2018		10/9/2018		10/8/2018		10/7/2018		10/8/2018		10/8/2018		10/19/2018		10/19/2018		10/19/2018		10/7/2018	
	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Geochemistry																					
Alkalinity, Total (As $CaCO_3$)	mg/L	**250**		**280**		**270**		**260**		**300**		**300**		**150**		**330**					
Total Organic Carbon	mg/L	**0.45**	**J**	**1.1**																	
Chloride (As Cl)	mg/L	**59**		**63**		**45**		**45**		**48**		**53**		**18**		**130**	**J+**				
Cyanide	mg/L	**0.086**		**0.006**	**J**	0.002	U	0.002	U	0.002	U	**0.0055**	**J**	0.002	U	**0.0034**	**J**	0.002	U	0.002	U
Nitrogen, Nitrate-Nitrite	mg/L	**0.1**		**1.8**		**1.8**		**1.7**		**2.1**		**2.6**		0.1	U	**1.9**					
Sulfate (As SO_4)	mg/L	**32**		**51**		**42**		**41**		**43**		**44**		**0.59**	**J**	**86**	**J+**				
Sulfide	mg/L																				
Ferrous Iron	mg/L	**0.15**		**0.01**		**0.04**		**0.02**		0		**0.04**		**1.19**		**0.09**					
Dissolved Gases																					
Methane	ug/L	0.64	U	0.64	U																
Ethane	ug/L	0.57	U	0.57	U																
Ethene	ug/L	0.4	U	0.4	U																
Propane	ug/L	0.56	U	0.56	U																
Field Parameters																					
Specific Conductance	mS/cm	**0.541**		**0.631**		**0.586**		**0.569**		**0.639**		**0.677**		**0.358**		**1.05**		**1.07**		**0.55**	
pH	su	**7.36**		**6.74**		**7.37**		**7.38**		**7.41**		**7.35**		**7.21**		**7.13**		**6.82**		**7.16**	
Temperature	°C	**9.84**		**10.5**		**12.73**		**12.91**		**14.94**		**14.21**		**10.27**		**12.52**		**12.22**		**12.69**	
Turbidity	NTU	**29.5**		**0**		**0**		**0**		**0**		**0**		**39.4**		**49.3**		**0.4**		**0**	
Dissolved Oxygen	mg/L	**1.58**		**6.46**		**6.52**		**6.41**		**7.22**		**7.4**		**0.45**		**5.48**		**5.75**		**4.99**	
Oxidation-Reduction Potential	mV	**129**		**168**		**182**		**144**		**157**		**175**		**-110**		**120**		**129**		**84**	

Notes:

mg/L = milligram per liter
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mV = millivolt
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Table 3-3
Geochemical Results

	Area	Cell 2										Cell 4									
	Well ID	MW-12		MW-13		MW-8		MW-9		MW-7		MW-3A		MW-4		MW-4A		MW-5A		MW-6A	
	Sample Name	MW-12-20181008		MW-13-20181006		MW-8-20181007		MW-9-20181007		MW-7-20181008		MW-3A-20181008		MW-4-20181005		MW-4A-20181005		MW-5A-20181008		MW-6A-20181005	
	Sample Date	10/8/2018		10/6/2018		10/7/2018		10/7/2018		10/8/2018		10/8/2018		10/5/2018		10/5/2018		10/8/2018		10/5/2018	
Analyte	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Geochemistry																					
Alkalinity, Total (As $CaCO_3$)	mg/L	**180**		**210**		**230**		**380**		**210**		**230**		**580**		**170**				**190**	
Total Organic Carbon	mg/L									**0.76**	**J**										
Chloride (As Cl)	mg/L	**55**		**83**		**33**		**880**		**81**		**57**		**42**		**140**				**150**	
Cyanide	mg/L	**0.0048**	**J**	0.002	U	0.002	U	0.004	U	**0.0021**	**J**										
Nitrogen, Nitrate-Nitrite	mg/L	**1.3**		**0.6**		**2.8**		**0.021**		**2.3**		**1**		0.019	U	**2.4**		**0.87**		**4.9**	
Sulfate (As SO_4)	mg/L	**14**		**21**		**31**		**1200**		**20**		**30**		**18**		**51**				**46**	
Sulfide	mg/L	0.007	U	0.007	U	0.007	U	**0.011**	**J**												
Ferrous Iron	mg/L	0		**0.32**		**0.05**		**0.45**		0		0		**0.6**		0		**0.02**			
Dissolved Gases																					
Methane	ug/L									**6.6**											
Ethane	ug/L									0.57	U										
Ethene	ug/L									0.4	U										
Propane	ug/L									0.56	U										
Field Parameters																					
Specific Conductance	mS/cm	**0.461**		**0.543**		**0.497**		**4.94**		**0.584**		**0.51**		**0.819**		**0.671**		**0.469**		**0.584**	
pH	su	**6.88**		**7.44**		**7.1**		**6.67**		**6.86**		**7.2**		**6.77**		**6.9**		**7.15**		**6.86**	
Temperature	°C	**12.2**		**13.34**		**13.03**		**13.61**		**14.96**		**12.97**		**13.1**		**12.12**		**13.21**		**14.96**	
Turbidity	NTU	**0**		**29.6**		**4.5**		**3.1**		**0**		**3.5**		**5.8**		**9.3**		**20.5**		**0**	
Dissolved Oxygen	mg/L	**9.57**		**9.72**		**7.18**		**0.06**		**4.93**		**7.8**		**0.31**		**8.53**		**9.58**		**4.93**	
Oxidation-Reduction Potential	mV	**178**		**159**		**177**		**-17**		**171**		**139**		**-30**		**141**		**135**		**171**	

Notes:

mg/L = milligram per liter
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mV = millivolt
NTU = Nephelometric turbidity unit
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su = standard units

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Table 3-4
Compound Specific Isotope Analysis Results

Area	Well ID	Sample Date	Sample ID	Tetrachloroethene δ13C ‰, VPDB		Trichloroethene δ13C ‰, VPDB		cis-1,2-Dichloroethene δ13C ‰, VPDB		Vinyl Chloride δ13C ‰, VPDB	
				Result	Note	Result	Note	Result	Note	Result	Note
Cell 1	MW-101S	10/5/2018	MW-101S-20181005	-27.2		-22.3		--	d	--	d
	MW-103S	10/9/2018	MW-103S-20181009	-26.8		-21.3		--	d	--	d
	MW-104D	10/4/2018	MW-104D-20181004	-26.6		-22.6		-22.4		-17.2	
	MW-104S	10/4/2018	MW-104S-20181004	-25.8		-20.8		-11.8		-9.3	
										-9.9	
	MW-105D	10/4/2018	MW-105D-20181004	-27.7		-23.3		-21.8		-16.2	
				-28.4							
	MW-105S	10/5/2018	MW-105S-20181005	-25.0		-19.3		-17.2		-24.0	
						-18.8		-17.3		-24.2	
	MW-109D	10/6/2018	MW-109D-20181006	-29.0		-23.2		--	d	--	d
	MW-109S	10/6/2018	MW-109S-20181006	-29.2		-23.2		--	d	--	d
	MW-110D	10/7/2018	MW-110D-20181007	--	d	-24.4		-22.8		--	d
	MW-110S	10/6/2018	MW-110S-20181006	-24.4		-21.8		-21.0		-13.9	
	MW-111D	10/4/2018	MW-111D-20181004	-20.9		-19.9		0.0	c	-4.0	c
						-20.1		1.2	c		
	MW-112D	10/5/2018	MW-112D-20181005	-25.3		-22.5		--	d	--	d
	MW-112M	10/5/2018	MW-112M-20181005	-24.8		-21.1		--	d	--	d
	MW-113D	10/4/2018	MW-113D-20181004	-27.9	a	-26.4	a	-28.4		-23.9	
								-28.8			
	MW-113S	10/4/2018	MW-113S-20181004	-27.6		-28.9		-25.6		-21.6	
	MW-113S	10/4/2018	MW-113S-20181004	-27.3		-28.5		-25.8			
	MW-116S	10/19/2018	MW-116S-20181019	-26.7		-21.3		-16.0		--	d
	MW-118D	10/3/2018	MW-118D-20181003	-26.6		-21.4		-18.7		-9.7	
	MW-119D	10/3/2018	MW-119D-20181003	-26.9		-21.7		-15.6		--	d
	MW-119S	10/3/2018	MW-119S-20181003	-27.6		-21.4		-14.7		--	d
	MW-120D	10/3/2018	MW-120D-20181003	-26.1		-21.8		-20.7		-11.6	
	MW-120S	10/3/2018	MW-120S-20181003	-25.6		-21.8		-19.0		-11.7	
	MW-7	10/8/2018	MW-7-20181008	--	d	-21.2		-18.3		--	d
	MW-4	10/5/2018	MW-4-20181005	-25.1		--	d	-21.0		-13.5	c
Cell 1 Remediation System	RW-10	10/7/2018	RW-10-20181007	-27.8		-21.5		-14.4		--	d
	RW-15	10/6/2018	RW-15-20181006	-27.6		-22.1		-19.7		-13.8	
								-19.6			
	RW-17	10/7/2018	RW-17-20181007	-27.5		-21.7		-18.2		-13.3	c
	RW-3	10/7/2018	RW-3-20181007	-28.3		-22.0		-19.6		-11.2	
				-27.7							
	RW-4	10/7/2018	RW-4-20181007	-26.6		-21.6		-18.5		-9.9	c
	RW-9R	10/7/2018	RW-9R-20181007	-24.5		-21.8		-18.0		-10.3	

Notes:

a: peak shape deformation, either due to overlapping non-target compound or due to a co-solvent effect from an unidentified non-target compound

b: peak not resolved by gas chromatograph

c: peak amplitude below the lower limit of calibration, possible increased uncertainty

d: below detection, analysis not requested

Table 3-5
Treatment System Data and Groundwater Quality Standards

Analyte	Area	Remediation System																USEPA		Idaho Groundwater Quality Standard	
	Well ID	RW-10		RW-15		RW-17		RW-3		RW-4		RW-9R		INF-COM		INJ-1R					
	Sample Name	RW-10-20181007		RW-15-20181006		RW-17-20181007		RW-3-20181007		RW-4-20181007		RW-9-20181007		INF-COM-20181007		INJ-1R-20181006					
	Sample Date	10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/6/2018		Primary MCL	Secondary MCL	Primary Standard	Secondary Standard
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q				
Volatile Organic Compounds (VOCs)																					
1,1,1,2-Tetrachloroethane	ug/l	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	None	None	None	None
1,1,1-Trichloroethane	ug/l	0.16	U	0.16	U	0.16	U	0.16	U	**0.17**	J	**0.33**	J	0.16	U	0.16	U	200	None	200	None
1,1,2,2-Tetrachloroethane	ug/l	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	None	None	None	None
1,1,2-Trichloroethane	ug/l	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	5	None	5	None
1,1-Dichloroethane	ug/l	0.22	U	**0.64**	J	**0.32**	J	**1**		**0.65**	J	**1.8**		0.22	U	0.22	U	None	None	None	None
1,1-Dichloroethene	ug/l	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	7	None	7	None
1,1-Dichloropropene	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	None	None	None	None
1,2,3-Trichloropropane	ug/l	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	None	None	None	None
1,2,4-Trichlorobenzene	ug/l	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	70	None	70	None
1,2-Dibromo-3-chloropropane	ug/l	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.2	None	0.2	None
1,2-Dibromoethane (ethylene dibromide)	ug/l	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.05	None	0.05	None
1,2-Dichlorobenzene	ug/l	0.15	U	**0.5**	J	0.15	U	**0.41**	J	**0.23**	J	**0.58**	J	0.15	U	0.15	U	600	None	600	None
1,2-Dichloroethane	ug/l	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	5	None	5	None
1,2-Dichloropropane	ug/l	0.18	U	0.18	U	0.18	U	**0.24**	J	**0.21**	J	**0.38**	J	0.18	U	0.18	U	5	None	5	None
1,3-Dichlorobenzene	ug/l	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	600	None	None	None
1,3-Dichloropropane	ug/l	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	None	None	None	None
1,4-Dichlorobenzene	ug/l	0.16	U	**0.24**	J	0.16	U	**0.4**	J	0.16	U	**0.33**	J	0.16	U	0.16	U	75	None	75	None
2,2-Dichloropropane	ug/l	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	None	None	None	None
2-Chloro-1,3-butadiene	ug/l	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	None	None	None	None
2-Hexanone	ug/l	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	None	None	None	None
Acetone	ug/l	1.9	U	10	U	1.9	U	1.9	U	1.9	U	1.9	U	**4.1**	J	**2.3**	J	None	None	None	None
Acetonitrile	ug/l	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	None	None	None	None
Acrolein	ug/l	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	None	None	None	None
Acrylonitrile	ug/l	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	None	None	None	None
Allyl chloride (3-Chloropropene)	ug/l	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	None	None	None	None
Benzene	ug/l	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	**0.23**	J	**0.33**	J	0.16	U	5	None	5	None
Bromochloromethane	ug/l	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	None	None	None	None
Bromodichloromethane	ug/l	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	100	None	None	None
Bromoform	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	100	None	None	None
Bromomethane	ug/l	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	None	None	None	None
Carbon disulfide	ug/l	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	None	None	None	None
Carbon tetrachloride	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	5	None	5	None
Chlorobenzene	ug/l	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	100	None	100	None
Chloroethane	ug/l	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	None	None	None	None
Chloroform	ug/l	**0.63**	J	**0.6**	J	**0.67**	J	**0.63**	J	**0.55**	J	**0.28**	J	**0.29**	J	0.16	U	2	None	None	None
Chloromethane	ug/l	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	None	None	None	None
Cis-1,2-dichloroethylene	ug/l	**0.99**	J	**12**		**3.2**		**9.1**		**8.7**		**15**		**0.84**	J	0.15	U	70	None	70	None
Cis-1,3-dichloropropene	ug/l	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	None	None	None	None
Dibromochloromethane	ug/l	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	100	None	None	None
Dibromomethane	ug/l	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	None	None	None	None
Dichlorodifluoromethane	ug/l	0.31	U	**0.41**	J	**0.34**	J	**0.72**	J	0.31	U	**0.49**	J	0.31	U	0.31	U	None	None	None	None
Ethyl methacrylate	ug/l	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	None	None	None	None
Ethylbenzene	ug/l	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	700	None	700	None
Iodomethane (Methyl iodide)	ug/l	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	None	None	None	None
Isobutanol	ug/l	37	U	37	U	37	U	37	U	37	U	37	U	37	U	37	U	None	None	None	None
Methyl ethyl ketone (2-Butanone)	ug/l	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	None	None	None	None
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/l	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	**2.4**	J	0.98	U	None	None	None	None
Methyl methacrylate	ug/l	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	None	None	None	None
Methylacrylonitrile	ug/l	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	None	None	None	None
Methylene chloride	ug/l	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	2	U	2	U	0.32	U	5	None	5	None

Table 3-5
Treatment System Data and Groundwater Quality Standards

Analyte	Area	Remediation System																USEPA		Idaho Groundwater Quality Standard	
	Well ID	RW-10		RW-15		RW-17		RW-3		RW-4		RW-9R		INF-COM		INJ-1R					
	Sample Name	RW-10-20181007		RW-15-20181006		RW-17-20181007		RW-3-20181007		RW-4-20181007		RW-9-20181007		INF-COM-20181007		INJ-1R-20181006					
	Sample Date	10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/6/2018		Primary	Secondary	Primary	Secondary
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	MCL	MCL	Standard	Standard
Propane nitrile (Propionitrile)	ug/l	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	None	None	None	None
Styrene	ug/l	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	100	None	100	None
Tetrachloroethylene (PCE)	ug/l	**19**		**19**		**22**		**19**		**16**		**12**		**1.5**		0.2	U	5	None	5	None
Toluene	ug/l	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	**0.3**	J	0.17	U	1000	None	1000	None
Trans-1,2-dichloroethene	ug/l	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	100	None	100	None
Trans-1,3-dichloropropene	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	None	None	None	None
Trans-1,4-dichloro-2-butene	ug/l	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U	None	None	None	None
Trichloroethylene (TCE)	ug/l	**49**		**100**		**100**		**130**		**110**		**210**		**10**		**0.61**	J	5	None	5	None
Trichlorofluoromethane	ug/l	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	None	None	None	None
Vinyl acetate	ug/l	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	0.94	U	None	None	None	None
Vinyl chloride	ug/l	0.1	U	**3.3**		**0.54**	J	**1.2**		**0.37**	J	**2.4**		**0.15**	J	0.1	U	2	None	2	None
Xylenes	ug/l	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	10000	None	10000	None
Total Metals																					
Antimony	ug/l	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	NS		0.4	U	6	None	6	None
Arsenic	ug/l	**1.1**	J	**0.66**	J	**0.57**	J	**0.57**	J	**0.65**	J	**0.94**	J	NS		**0.59**	J	50	None	10	None
Barium	ug/l	**170**		**210**		**190**		**240**		**250**		**51**		NS		**180**		2000	None	2000	None
Beryllium	ug/l	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	NS		0.08	U	4	None	4	None
Cadmium	ug/l	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	**1.2**		NS		0.27	U	5	None	5	None
Chromium, total	ug/l	**1.2**	J	0.5	U	**1.2**	J	**0.52**	J	**2.5**		0.5	U	NS		0.5	U	100	None	100	None
Cobalt	ug/l	**0.8**	J	**0.1**	J	**0.16**	J	**2.7**		**0.13**	J	**4.8**		NS		**0.082**	J	None	None	None	None
Copper	ug/l	**30**		**15**		**14**		**3.8**		**13**		**54**		NS		**8.9**		1300	None	None	1000
Lead	ug/l	**7.8**		**1.8**		**1.8**		**0.5**	J	**2.3**		**6.6**		NS		**1.1**		15	None	None	None
Manganese	ug/l	**26**		**200**		**2.6**	J+	**1300**		**4.8**		**9400**		NS		**120**		None	50	None	50
Mercury	ug/l	0.027	U	0.027	U	0.027	U	0.027	U	**0.032**	J	0.027	U	NS		0.027	U	2	None	2	None
Nickel	ug/l	**4.3**		**5.9**		**2.4**		**15**		**3.7**		**25**		NS		**3.1**		None	None	None	None
Selenium	ug/l	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	NS		0.7	U	50	None	50	None
Silver	ug/l	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	NS		0.033	U	None	100	None	100
Thallium	ug/l	0.05	U	**0.074**	J	0.05	U	0.05	U	0.05	U	**0.42**	J	NS		**0.05**	J	2	None	2	None
Tin	ug/l	**1.2**	J	0.77	U	0.77	U	0.77	U	0.77	U	**1**	J	NS		0.77	U	None	None	None	None
Vanadium	ug/l	**1.8**	J	**0.77**	J	**0.79**	J	0.5	U	**0.61**	J	**2.3**	J	NS		**0.6**	J	None	None	None	None
Zinc	ug/l	**270**		**58**		**27**	J+	**94**		**120**		**210**		NS		**54**		None	5000	None	5000
Miscellaneous Parameters																					
Alkalinity, total (as CACO3)	mg/l	**290**		**320**		**300**		**360**		**400**		**530**		NS		**300**		None	None	None	None
Cyanide	mg/l	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	**0.0022**	J	NS		0.002	U	0.2	None	0.2	None
Nitrogen, Nitrate-Nitrite	mg/l	**0.93**		**0.39**		**0.73**		**0.43**		**0.6**		0.019	U	NS		**0.65**		10	None	None	None
Sulfide	mg/l	NS		NS		NS		NS		NS		NS		NS		0.007	U	None	None	None	None
Total Organic Carbon	mg/l	**1.3**		**1.9**		**1.3**		**2.3**		**1.8**		**3**		NS		**2.3**		None	None	None	None
Chloride (as Cl)	mg/l	**100**		**150**		**120**		**170**		**160**		**200**		NS		**130**		None	250	None	250
Sulfate (as SO4)	mg/l	**110**		**110**		**110**		**110**		**100**		**95**		NS		**110**		None	250	None	500
Calcium	ug/l	**89,000**		**120,000**		**100,000**		**120,000**		**150,000**		**170,000**		NS		**100,000**		None	None	None	None
Iron	ug/l	**1,800**		22	U	**180**	J+	**75**	J	**380**		**920**		NS		22	U	None	300	None	300
Magnesium	ug/l	**38,000**		**46,000**		**41,000**		**47,000**		**53,000**		**54,000**		NS		**41,000**		None	None	None	None
Potassium	ug/l	**3,700**		**3,900**		**3,700**		**4,000**		**4,600**		**5,100**		NS		**5,000**		None	None	None	None
Sodium	ug/l	**63,000**		**74,000**		**63,000**		**74,000**		**70,000**		**90,000**		NS		**64,000**		None	None	None	None
Dissolved Gases																					
Acetylene	ug/l	0.73	U	0.73	U	0.73	U	0.73	U	0.73	U	0.73	U	NS		NS		None	None	None	None
Ethane	ug/l	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	NS		NS		None	None	None	None
Ethene	ug/l	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	NS		NS		None	None	None	None
Methane	ug/l	0.64	U	**43**		**3.9**	J	**1.9**	J	0.64	U	**3.1**	J	NS		NS		None	None	None	None
Propane	ug/l	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	NS		NS		None	None	None	None
Semi-volatile Organic Compounds (SVOCs)																					

CDM Smith

Table 3-5
Treatment System Data and Groundwater Quality Standards

Analyte	Area	Remediation System														USEPA		Idaho Groundwater Quality Standard	
	Well ID	RW-10		RW-15		RW-17		RW-3		RW-4		RW-9R		INF-COM		INJ-1R					
	Sample Name	RW-10-20181007		RW-15-20181006		RW-17-20181007		RW-3-20181007		RW-4-20181007		RW-9-20181007		INF-COM-20181007		INJ-1R-20181006					
	Sample Date	10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/6/2018					
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Primary MCL	Secondary MCL	Primary Standard	Secondary Standard
1,2,4,5-Tetrachlorobenzene	ug/l	NS		NS		NS		NS		NS		NS		NS		1.7	U	None	None	None	None
1,3,5-Trinitrobenzene	ug/l	NS		NS		NS		NS		NS		NS		NS		4	U	None	None	None	None
1,3-Dinitrobenzene	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
1,4-Naphthoquinone	ug/l	NS		NS		NS		NS		NS		NS		NS		14	U	None	None	None	None
1-Naphthylamine	ug/l	NS		NS		NS		NS		NS		NS		NS		3.1	U	None	None	None	None
2,3,4,6-Tetrachlorophenol	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
2,4,5-Trichlorophenol	ug/l	NS		NS		NS		NS		NS		NS		NS		0.45	U	None	None	None	None
2,4,6-Trichlorophenol	ug/l	NS		NS		NS		NS		NS		NS		NS		0.29	U	None	None	None	None
2,4-Dichlorophenol	ug/l	NS		NS		NS		NS		NS		NS		NS		0.64	U	None	None	None	None
2,4-Dimethylphenol	ug/l	NS		NS		NS		NS		NS		NS		NS		0.58	U	None	None	None	None
2,4-Dinitrophenol	ug/l	NS		NS		NS		NS		NS		NS		NS		10	U	None	None	None	None
2,4-Dinitrotoluene	ug/l	NS		NS		NS		NS		NS		NS		NS		1.7	U	None	None	None	None
2,6-Dichlorophenol	ug/l	NS		NS		NS		NS		NS		NS		NS		1.4	U	None	None	None	None
2,6-Dinitrotoluene	ug/l	NS		NS		NS		NS		NS		NS		NS		1.9	U	None	None	None	None
2-Acetylaminofluorene	ug/l	NS		NS		NS		NS		NS		NS		NS		7	U	None	None	None	None
2-Aminonaphthalene (Beta Naphthylamine)	ug/l	NS		NS		NS		NS		NS		NS		NS		3.1	U	None	None	None	None
2-Chloronaphthalene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.26	U	None	None	None	None
2-Chlorophenol	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
2-Methylnaphthalene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.29	U	None	None	None	None
2-Methylphenol (O-Cresol)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.99	U	None	None	None	None
2-Nitroaniline	ug/l	NS		NS		NS		NS		NS		NS		NS		1.7	U	None	None	None	None
2-Nitrophenol	ug/l	NS		NS		NS		NS		NS		NS		NS		0.39	U	None	None	None	None
3- and 4- Methylphenol (total)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.25	U	None	None	None	None
3,3'-Dichlorobenzidine	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
3,3'-Dimethylbenzidine	ug/l	NS		NS		NS		NS		NS		NS		NS		4	U	None	None	None	None
3-Methylcholanthrene	ug/l	NS		NS		NS		NS		NS		NS		NS		1.7	U	None	None	None	None
3-Nitroaniline	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
4,6-Dinitro-2-methylphenol	ug/l	NS		NS		NS		NS		NS		NS		NS		4	U	None	None	None	None
4-Aminobiphenyl (4-Biphenylamine)	ug/l	NS		NS		NS		NS		NS		NS		NS		4.5	U	None	None	None	None
4-Bromophenyl phenyl ether	ug/l	NS		NS		NS		NS		NS		NS		NS		0.43	U	None	None	None	None
4-Chloro-3-methylphenol	ug/l	NS		NS		NS		NS		NS		NS		NS		2.4	U	None	None	None	None
4-Chloroaniline	ug/l	NS		NS		NS		NS		NS		NS		NS		2.2	U	None	None	None	None
4-Chlorophenyl phenyl ether	ug/l	NS		NS		NS		NS		NS		NS		NS		1.7	U	None	None	None	None
4-Nitroaniline	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
4-Nitrophenol	ug/l	NS		NS		NS		NS		NS		NS		NS		1.2	U	None	None	None	None
5-Nitro-o-toluidine	ug/l	NS		NS		NS		NS		NS		NS		NS		1.4	U	None	None	None	None
7,12-Dimethylbenz(a)anthracene	ug/l	NS		NS		NS		NS		NS		NS		NS		1.6	U	None	None	None	None
Acenaphthene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.28	U	None	None	None	None
Acenaphthylene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.49	U	None	None	None	None
Acetophenone	ug/l	NS		NS		NS		NS		NS		NS		NS		0.24	U	None	None	None	None
Alpha, alpha dimethylphenethylamine	ug/l	NS		NS		NS		NS		NS		NS		NS		20	U	None	None	None	None
Anthracene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.42	U	None	None	None	None
Benzo(a)anthracene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.35	U	None	None	None	None
Benzo(a)pyrene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.31	U	0.2	None	0.2	None
Benzo(b)fluoranthene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.53	U	None	None	None	None
Benzo(g,h,i)perylene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.5	U	None	None	None	None
Benzo(k)fluoranthene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.46	U	None	None	None	None
Benzyl alcohol	ug/l	NS		NS		NS		NS		NS		NS		NS		0.23	U	None	None	None	None
Benzyl butyl phthalate	ug/l	NS		NS		NS		NS		NS		NS		NS		1	U	None	None	None	None
Bis(2-chloroethoxy) methane	ug/l	NS		NS		NS		NS		NS		NS		NS		0.98	U	None	None	None	None
Bis(2-chloroethyl) ether (2-Chloroethyl ether)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.41	U	None	None	None	None

CDM Smith

Table 3-5
Treatment System Data and Groundwater Quality Standards

Analyte	Area	Remediation System														USEPA		Idaho Groundwater Quality Standard	
	Well ID	RW-10		RW-15		RW-17		RW-3		RW-4		RW-9R		INF-COM		INJ-1R					
	Sample Name	RW-10-20181007		RW-15-20181006		RW-17-20181007		RW-3-20181007		RW-4-20181007		RW-9-20181007		INF-COM-20181007		INJ-1R-20181006					
	Sample Date	10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/6/2018					
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Primary MCL	Secondary MCL	Primary Standard	Secondary Standard
Bis(2-chloroisopropyl) ether	ug/l	NS		NS		NS		NS		NS		NS		NS		0.28	U	None	None	None	None
Bis(2-ethylhexyl) phthalate	ug/l	NS		NS		NS		NS		NS		NS		NS		0.56	U	6	None	6	None
Chlorobenzilate	ug/l	NS		NS		NS		NS		NS		NS		NS		0.66	U	None	None	None	None
Chrysene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.54	U	None	None	None	None
Diallate (total of cis and trans isomers)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.56	U	None	None	None	None
Dibenz(a,h)anthracene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.51	U	None	None	None	None
Dibenzofuran	ug/l	NS		NS		NS		NS		NS		NS		NS		0.29	U	None	None	None	None
Diethyl phthalate	ug/l	NS		NS		NS		NS		NS		NS		NS		0.38	U	None	None	None	None
Dimethyl phthalate	ug/l	NS		NS		NS		NS		NS		NS		NS		0.21	U	None	None	None	None
Di-n-butyl phthalate	ug/l	NS		NS		NS		NS		NS		NS		NS		1.2	U	None	None	None	None
Di-n-octylphthalate	ug/l	NS		NS		NS		NS		NS		NS		NS		0.35	U	None	None	None	None
Diphenylamine	ug/l	NS		NS		NS		NS		NS		NS		NS		1.1	U	None	None	None	None
Ethyl methanesulfonate	ug/l	NS		NS		NS		NS		NS		NS		NS		0.95	U	None	None	None	None
Fluoranthene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.2	U	None	None	None	None
Fluorene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.31	U	None	None	None	None
Hexachlorobenzene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.66	U	1	None	1	None
Hexachlorobutadiene	ug/l	NS		NS		NS		NS		NS		NS		NS		3.3	U	None	None	None	None
Hexachlorocyclopentadiene	ug/l	NS		NS		NS		NS		NS		NS		NS		10	U	50	None	50	None
Hexachloroethane	ug/l	NS		NS		NS		NS		NS		NS		NS		2.1	U	None	None	None	None
Hexachloropropene	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
Indeno(1,2,3-c,d)pyrene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.65	U	None	None	None	None
Isophorone	ug/l	NS		NS		NS		NS		NS		NS		NS		0.21	U	None	None	None	None
Isosafrole	ug/l	NS		NS		NS		NS		NS		NS		NS		1	U	None	None	None	None
Methapyrilene	ug/l	NS		NS		NS		NS		NS		NS		NS		20	U	None	None	None	None
Methyl methanesulfonate	ug/l	NS		NS		NS		NS		NS		NS		NS		1	U	None	None	None	None
Naphthalene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.29	U	None	None	None	None
Nitrobenzene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.81	U	None	None	None	None
Nitrosomethylethylamine	ug/l	NS		NS		NS		NS		NS		NS		NS		1.8	U	None	None	None	None
N-nitrosodiethylamine	ug/l	NS		NS		NS		NS		NS		NS		NS		1.7	U	None	None	None	None
N-nitrosodimethylamine	ug/l	NS		NS		NS		NS		NS		NS		NS		0.29	U	None	None	None	None
N-nitroso-di-n-butylamine	ug/l	NS		NS		NS		NS		NS		NS		NS		1.2	U	None	None	None	None
N-nitrosodi-n-propylamine	ug/l	NS		NS		NS		NS		NS		NS		NS		0.35	U	None	None	None	None
N-nitrosodiphenylamine	ug/l	NS		NS		NS		NS		NS		NS		NS		0.44	U	None	None	None	None
N-nitrosopiperidine	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
N-nitrosopyrrolidine	ug/l	NS		NS		NS		NS		NS		NS		NS		0.81	U	None	None	None	None
O,o,o-Triethyl phosphorothioate	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
O-toluidine	ug/l	NS		NS		NS		NS		NS		NS		NS		1.4	U	None	None	None	None
P-dimethylaminoazobenzene	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
Pentachlorobenzene	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
Pentachloronitrobenzene	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
Pentachlorophenol	ug/l	NS		NS		NS		NS		NS		NS		NS		20	U	1	None	1	None
Phenacetin	ug/l	NS		NS		NS		NS		NS		NS		NS		1.1	U	None	None	None	None
Phenanthrene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.26	U	None	None	None	None
Phenol	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
P-phenylenediamine	ug/l	NS		NS		NS		NS		NS		NS		NS		5	U	None	None	None	None
Pronamide	ug/l	NS		NS		NS		NS		NS		NS		NS		2	U	None	None	None	None
Pyrene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.37	U	None	None	None	None
Safrole	ug/l	NS		NS		NS		NS		NS		NS		NS		1.1	U	None	None	None	None
Zinophos	ug/l	NS		NS		NS		NS		NS		NS		NS		0.87	U	None	None	None	None
Organochlorine Pesticides																					
Aldrin	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0056	U	None	None	None	None

CDM Smith

Table 3-5
Treatment System Data and Groundwater Quality Standards

Analyte	Area	Remediation System														USEPA		Idaho Groundwater Quality Standard	
	Well ID	RW-10		RW-15		RW-17		RW-3		RW-4		RW-9R		INF-COM		INJ-1R					
	Sample Name	RW-10-20181007		RW-15-20181006		RW-17-20181007		RW-3-20181007		RW-4-20181007		RW-9-20181007		INF-COM-20181007		INJ-1R-20181006					
	Sample Date	10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/6/2018		Primary MCL	Secondary MCL	Primary Standard	Secondary Standard
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q				
Alpha BHC (Alpha Hexachlorocyclohexane)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.005	U	None	None	None	None
Alpha Endosulfan	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0055	U	None	None	None	None
Beta BHC (Beta Hexachlorocyclohexane)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0083	U	None	None	None	None
Beta Endosulfan	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0067	U	None	None	None	None
Chlordane	ug/l	NS		NS		NS		NS		NS		NS		NS		0.13	U	2	None	2	None
Delta BHC (Delta Hexachlorocyclohexane)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0055	U	None	None	None	None
Dieldrin	ug/l	NS		NS		NS		NS		NS		NS		NS		0.006	U	None	None	None	None
Endosulfan sulfate	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0054	U	None	None	None	None
Endrin	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0075	U	2	None	2	None
Endrin aldehyde	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0084	U	None	None	None	None
Gamma BHC (Lindane)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0066	U	0.2	None	0.2	None
Heptachlor	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0073	U	0.4	None	0.4	None
Heptachlor epoxide	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0071	U	0.2	None	0.2	None
Isodrin	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0037	U	None	None	None	None
Kepone	ug/l	NS		NS		NS		NS		NS		NS		NS		0.33	U	None	None	None	None
Methoxychlor	ug/l	NS		NS		NS		NS		NS		NS		NS		0.012	U	40	None	40	None
P,p'-DDD	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0073	U	None	None	None	None
P,p'-DDE	ug/l	NS		NS		NS		NS		NS		NS		NS		0.0071	U	None	None	None	None
P,p'-DDT	ug/l	NS		NS		NS		NS		NS		NS		NS		0.014	U	None	None	None	None
Toxaphene	ug/l	NS		NS		NS		NS		NS		NS		NS		0.35	U	3	None	3	None
Organophosphorous Pesticides																					
Dimethoate	ug/l	NS		NS		NS		NS		NS		NS		NS		0.44	U	None	None	None	None
Disulfoton	ug/l	NS		NS		NS		NS		NS		NS		NS		0.31	U	None	None	None	None
Famphur	ug/l	NS		NS		NS		NS		NS		NS		NS		0.17	U	None	None	None	None
Parathion, ethyl	ug/l	NS		NS		NS		NS		NS		NS		NS		0.14	U	None	None	None	None
Parathion, methyl	ug/l	NS		NS		NS		NS		NS		NS		NS		0.14	U	None	None	None	None
Phorate	ug/l	NS		NS		NS		NS		NS		NS		NS		0.15	U	None	None	None	None
Chlorinated Herbicides																					
2,4-D (Dichlorophenoxyacetic acid)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.2	U	70	None	70	None
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.18	U	None	None	None	None
Dinoseb	ug/l	NS		NS		NS		NS		NS		NS		NS		0.43	U	7	None	7	None
Silvex (2,4,5-TP)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.16	U	50	None	50	None
Dioxins/Furans																					
2,3,7,8-Tetrachlorodibenzo-p-dioxin	pg/l	NS		NS		NS		NS		NS		NS		NS		0.29	U	30	None	30	None
Polychlorinated Biphenyls (PBCs)																					
Pcb-1016 (Aroclor 1016)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.12	U	None	None	None	None
Pcb-1221 (Aroclor 1221)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.2	U	None	None	None	None
Pcb-1232 (Aroclor 1232)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.16	U	None	None	None	None
Pcb-1242 (Aroclor 1242)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.099	U	None	None	None	None
Pcb-1248 (Aroclor 1248)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.087	U	None	None	None	None
Pcb-1254 (Aroclor 1254)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.11	U	None	None	None	None
Pcb-1260 (Aroclor 1260)	ug/l	NS		NS		NS		NS		NS		NS		NS		0.15	U	None	None	None	None
Total PBCs	ug/l	NS		NS		NS		NS		NS		NS		NS		0.08	U	0.5	None	0.5	None

Notes:

Highlighting indicates values greater than the Groundwater Quality Standard or MCL

Bold values are detections

USEPA = United States Environmental Protection Agency

MCL = maximum contaminant level

NS = Not sampled

ug/L = microgram per liter

mg/L = milligram per liter

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

J+ = Result is estimated and biased high

CDM Smith

Table 4-1
Mann-Kendall Statistics
Summary of Results

		Date Range			Date Range	
Well ID	**PCE Trend**	**From**	**To**	**TCE Trend**	**From**	**To**
Cell 1 Monitoring Wells						
MW-1	Decreasing	Oct 1991	Oct 2018	Decreasing	Oct 1991	Oct 2018
MW-4	Increasing	Oct 1991	Oct 2018	Increasing	Oct 1991	Oct 2018
MW-7	Decreasing	Jun 1993	Oct 2018	NA	Jun 1993	Oct 2018
MW-101S	No Trend	Jun 1999	Oct 2018	No Trend	Mar 1994	Oct 2018
MW-102S	No Trend	Mar 1994	Oct 2018	Decreasing	Mar 1994	Oct 2018
MW-104D	No Trend	Jun 1999	Oct 2018	No Trend	Jun 1999	Oct 2018
MW-104S	Increasing	Jun 1999	Oct 2018	Increasing	Jun 1999	Oct 2018
MW-105D	Increasing	May 1999	Oct 2018	Decreasing	May 1999	Oct 2018
MW-105S	No Trend	May 1999	Oct 2018	No Trend	May 1999	Oct 2018
MW-109D	Increasing	May 1999	Oct 2018	Increasing	May 1999	Oct 2018
MW-109S	Increasing	May 1999	Oct 2018	Increasing	May 1999	Oct 2018
MW-110D	Increasing	May 1999	Oct 2018	Increasing	May 1999	Oct 2018
MW-110S	Increasing	May 1999	Oct 2018	No Trend	May 1999	Oct 2018
MW-111D	No Trend	May 1999	Oct 2018	No Trend	May 1999	Oct 2018
MW-111S	Decreasing	May 1999	Oct 2018	Decreasing	May 1999	Oct 2018
MW-112D	Increasing	Oct 2000	Oct 2018	No Trend	Oct 2000	Oct 2018
MW-112M	No Trend	Oct 2000	Oct 2018	No Trend	Oct 2000	Oct 2018
MW-113D	No Trend	Apr 2013	Oct 2018	No Trend	Apr 2013	Oct 2018
MW-113S	Increasing	Oct 1999	Oct 2018	Increasing	Oct 1999	Oct 2018
MW-117D	Decreasing	Jan 2001	Jul 2017	No Trend	Oct 2000	Jul 2017
MW-117S	Decreasing	Oct 2000	Jul 2017	Decreasing	Oct 2000	Jul 2017
MW-118D	Increasing	Oct 2000	Oct 2018	Increasing	Oct 2000	Oct 2018
MW-119D	Increasing	Oct 2002	Oct 2018	No Trend	Oct 2002	Oct 2018
MW-119S	No Trend	Oct 2002	Oct 2018	No Trend	Oct 2002	Oct 2018
MW-120D	Increasing	Oct 2002	Oct 2018	Increasing	Oct 2002	Oct 2018
MW-120S	No Trend	Oct 2002	Oct 2018	No Trend	Oct 2002	Oct 2018
Cell 2 Monitoring Wells						
MW-8	Decreasing	Mar 2009	Oct 2018	No Trend	Mar 2009	Oct 2018
MW-13	Decreasing	Apr 2011	Oct 2018	NA	Apr 2011	Oct 2018
Offsite Monitoring Wells						
MW-103S	Decreasing	Mar 1994	Oct 2018	Decreasing	Mar 1994	Oct 2018
MW-103D	NA	NA	NA	No Trend	Mar 1994	Oct 2018
MW-115S	NA	NA	NA	No Trend	Oct 1999	Oct 2018
MW-116S	No Trend	Jan 2000	Oct 2018	Decreasing	Jan 2000	Oct 2018
Remediation System Wells						
RW-1	No Trend	Oct 2004	May 2018	No Trend	Oct 2004	May 2018
RW-2	No Trend	Oct 2004	Apr 2018	No Trend	Oct 2004	Apr 2018
RW-3	Decreasing	Oct 2004	Oct 2018	No Trend	Oct 2004	Oct 2018
RW-4	No Trend	Oct 2004	Oct 2018	No Trend	Oct 2004	Oct 2020
RW-5	No Trend	Oct 2004	Apr 2018	Decreasing	Oct 2004	Apr 2018
RW-9	No Trend	Oct 2004	Jul 2016	No Trend	Oct 2004	Jul 2016
RW-9R	Decreasing	Dec 2016	Oct 2018	No Trend	Dec 2016	Oct 2018
RW-10	No Trend	Jun 2010	Oct 2018	Decreasing	Jun 2010	Oct 2018
RW-15	No Trend	Oct 2012	Oct 2018	Decreasing	Oct 2012	Oct 2018
RW-17	No Trend	Apr 2012	Oct 2018	No Trend	Apr 2012	Oct 2018

Table 4-2
Mann-Kendall Analysis of PCE and TCE
Cell 1 Monitoring Wells

			Date Range			Mann-Kendall Test Statistic		
Well	Analyte	Trend Result	From	To	n	S	Var(S)	p-value
MW-1	PCE	Decreasing	Oct 1991	Oct 2018	67	-1762	34060.00	0.00000
	TCE	Decreasing	Oct 1991	Oct 2018	67	-1552	34133.33	0.00000
MW-4	PCE	Increasing	Oct 1991	Oct 2018	32	110	3794.00	0.03840
	PCE	No Trend	Oct 2010	Oct 2018	9	-15	91.00	0.07111
	TCE	Increasing	Oct 1991	Oct 2018	20	64	943.33	0.02012
	TCE	No Trend	Oct 2010	Oct 2018	9	8	87.33	0.22691
MW-7	PCE	Decreasing	Jun 1993	Oct 2018	8	-16	65.33	0.03174
MW-101S	PCE	No Trend	Jun 1999	Oct 2018	16	15	447.67	0.25409
	TCE	No Trend	Mar 1994	Oct 2018	18	36	694.00	0.09199
MW-102S	PCE	No Trend	Mar 1994	Oct 2018	48	-66	12643.33	0.28161
	TCE	Decreasing	Mar 1994	Oct 2018	63	-429	28365.00	0.00552
MW-104D	PCE	No Trend	Jun 1999	Oct 2018	13	23	326.33	0.11164
	TCE	No Trend	Jun 1999	Oct 2018	14	-9	403.67	0.34525
MW-104S	PCE	Increasing	Jun 1999	Oct 2018	15	73	404.33	0.00017
	TCE	Increasing	Jun 1999	Oct 2018	15	45	406.33	0.01453
MW-105D	PCE	Increasing	May 1999	Oct 2018	59	571	23366.33	0.00010
	TCE	Decreasing	May 1999	Oct 2018	59	-378	23362.67	0.00682
MW-105S	PCE	No Trend	May 1999	Oct 2018	59	107	23377.67	0.24407
	PCE	Decreasing	Apr 2006	Oct 2018	34	-399	4550.33	0.00000
	TCE	No Trend	May 1999	Oct 2018	59	239	23375.00	0.05977
	TCE	Decreasing	Apr 2006	Oct 2018	34	-336	4549.33	0.00000
MW-109D	PCE	Increasing	May 1999	Oct 2018	16	79	490.33	0.00021
	TCE	Increasing	May 1999	Oct 2018	16	53	483.00	0.00899
MW-109S	PCE	Increasing	May 1999	Oct 2018	16	66	491.33	0.00168
MW-109S	TCE	Increasing	May 1999	Oct 2018	16	75	489.67	0.00041
MW-110D	PCE	Increasing	May 1999	Oct 2018	17	59	564.33	0.00731
	TCE	Increasing	May 1999	Oct 2018	18	111	681.67	0.00001
MW-110S	PCE	Increasing	May 1999	Oct 2018	15	35	397.67	0.04410
MW-110S	TCE	No Trend	May 1999	Oct 2018	15	18	407.33	0.19981
MW-111D[1]	PCE	No Trend	May 1999	Oct 2018	59	-79	23375.00	0.30496
	PCE	Decreasing	Jul 2016	Oct 2018	8	-22	65.33	0.00469
	TCE	No Trend	May 1999	Oct 2018	61	85	25807.00	0.30053
	TCE	Decreasing	Jul 2016	Oct 2018	8	-26	65.33	0.00099
MW-111S	PCE	Decreasing	May 1999	Oct 2018	5	-9	15.67	0.02163
MW-111S	TCE	Decreasing	May 1999	Oct 2018	5	-10	16.67	0.01374
MW-112D	PCE	Increasing	Oct 2000	Oct 2018	54	540	17902.00	0.00003
MW-112D	TCE	No Trend	Oct 2000	Oct 2018	54	57	17956.33	0.33801
MW-112M	PCE	No Trend	Oct 2000	Oct 2018	10	2	124.00	0.46422
MW-112M	TCE	No Trend	Oct 2000	Oct 2018	10	5	125.00	0.36026
MW-112S[2]	PCE	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-112S	TCE	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-113D	PCE	No Trend	Apr 2013	Oct 2018	4	0	8.67	0.50000
MW-113D	TCE	No Trend	Apr 2013	Oct 2018	4	0	8.67	0.50000
MW-113S	PCE	Increasing	Oct 1999	Oct 2018	57	615	21074.33	0.00001
MW-113S	TCE	Increasing	Oct 1999	Oct 2018	57	1222	21047.33	0.00000
MW-117D[1,3]	PCE	Decreasing	Jan 2001	Jul 2017	40	-259	7350.33	0.00131
	PCE	Decreasing	Mar 2009	Jul 2017	37	-209	5829.67	0.00322
	TCE	No Trend	Oct 2000	Jul 2017	46	-166	11147.33	0.05905
	TCE	Decreasing	Mar 2009	Jul 2017	37	-253	5840.33	0.00049
MW-117R[2]	PCE	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-117R	TCE	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-117S[1,3]	PCE	Decreasing	Oct 2000	Jul 2017	57	-497	21060.33	0.00032
	TCE	Decreasing	Oct 2000	Jul 2017	57	-304	21092.00	0.01847

Table 4-2
Mann-Kendall Analysis of PCE and TCE
Cell 1 Monitoring Wells

			Date Range			Mann-Kendall Test Statistic		
Well	Analyte	Trend Result	From	To	n	S	Var(S)	p-value
MW-118D	PCE	Increasing	Oct 2000	Oct 2018	55	418	18966.00	0.00123
	PCE	Decreasing	Jul 2013	Oct 2018	21	-71	1095.67	0.01723
	TCE	Increasing	Oct 2000	Oct 2018	56	796	19998.00	0.00000
	TCE	Decreasing	Jul 2013	Oct 2018	21	-85	1093.67	0.00554
MW-119D	PCE	Increasing	Oct 2002	Oct 2018	45	193	10440.33	0.03012
	PCE	Decreasing	Jan 2016	Oct 2018	10	-37	125.00	0.00064
	TCE	No Trend	Oct 2002	Oct 2018	45	115	10437.00	0.13224
	TCE	Decreasing	Jan 2016	Oct 2018	10	-37	125	0.00064
MW-119S	PCE	No Trend	Oct 2002	Oct 2018	45	-66	10441.33	0.26235
	PCE	Decreasing	Jan 2016	Oct 2018	10	-27	125.00	0.01002
	TCE	No Trend	Oct 2002	Oct 2018	45	-54	10444.00	0.30202
	TCE	Decreasing	Jan 2016	Oct 2018	10	-31	125	0.00365
MW-120D	PCE	Increasing	Oct 2002	Oct 2018	46	721	11121.67	0.00000
	PCE	Decreasing	Jan 2016	Oct 2018	10	-23	125	0.02455
	TCE	Increasing	Oct 2002	Oct 2018	46	612	11145.33	0.00000
	TCE	Decreasing	Jan 2016	Oct 2018	10	-26	124.00	0.01238
MW-120S	PCE	No Trend	Oct 2002	Oct 2018	29	-62	2840.00	0.12618
	PCE	Decreasing	Oct 2009	Oct 2018	20	-120	950.00	0.00006
	TCE	No Trend	Oct 2002	Oct 2018	29	15	2834.33	0.39629
	TCE	Decreasing	Oct 2009	Oct 2018	20	-137	944.333	4.80E-05
MW-121[2]	PCE	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TCE	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Acronyms/Abbreviations

MK	Mann-Kendall
NA	not applicable
n	number of data points in the range for analysis
PCE	tetrachloroethene
p-value	probability that S is equal to or greater than the calcuated value of S for n events when no trend is present
S	The Mann Kendall statistic
Var(S)	variance of S

Notes

1. Multiple date ranges were incorporated into the trend analysis for some wells because of recent apparent trend changes that are not apparent over the entire dataset.
2. Wells with less than 4 historical data points were omitted from statistical analysis.
3. MW-117S/D were decommissioned prior to Q4 2018 sampling.

Table 4-3
Mann-Kendall Trend Analysis
Remediation System Wells

			Date Range			Mann-Kendall Test Statistic		
Well	Analyte	Trend Result	From	To	n	S	Var(S)	p-value
RW-1	PCE	No Trend	Oct 2004	May 2018	34	46	4547.33	0.25228
	PCE	Decreasing	Nov 2015	May 2018	10	-21	125.00	0.03682
	TCE	No Trend	Oct 2004	May 2018	34	-6	4546.67	0.47044
	TCE	Decreasing	Nov 2015	May 2018	10	-31	125	0.00365
RW-2	PCE	No Trend	Oct 2004	Apr 2018	32	99	3799.67	0.05594
	TCE	No Trend	Oct 2004	Apr 2018	32	12	3802.67	0.42921
RW-3	PCE	Decreasing	Oct 2004	Oct 2018	27	-98	2300.00	0.02156
	TCE	No Trend	Oct 2004	Oct 2018	27	-60	2300	0.10930455
RW-4	PCE	No Trend	Oct 2004	Oct 2018	37	20	5842.00	0.40184
	PCE	Decreasing	Nov 2015	Oct 2018	11	-34	164.00	0.00499
	TCE	No Trend	Oct 2004	Oct 2018	37	33	5843.00	0.33774
	TCE	Decreasing	Nov 2015	Oct 2018	11	-43	165.00	0.00054
RW-5	PCE	No Trend	Oct 2004	Apr 2018	37	-110	5844.00	0.07696
	TCE	Decreasing	Oct 2004	Apr 2018	37	-233	5840.33	0.00120
RW-9	PCE	No Trend	Oct 2004	Jul 2016	26	22	2054.7	0.321579907
	TCE	No Trend	Oct 2004	Jul 2016	26	28	2057.33	0.27583
RW-9R	PCE	Decreasing	Dec 2016	Oct 2018	7	-15	44.33	0.01775
	TCE	No Trend	Dec 2016	Oct 2018	7	-7	44.33	0.18376
RW-10	PCE	No Trend	Jun 2010	Oct 2018	30	-89	3139.67	0.05815
	TCE	Decreasing	Jun 2010	Oct 2018	30	-155	3137.00	0.00298
RW-15	PCE	No Trend	Oct 2012	Oct 2018	21	6	1096.67	0.43999
	TCE	Decreasing	Oct 2012	Oct 2018	21	-33	333.67	0.03990
RW-17	PCE	No Trend	Apr 2012	Oct 2018	23	-11	1433.67	0.39585
	TCE	No Trend	Apr 2012	Oct 2018	23	-40	1432.67	0.15142

Acronyms/Abbreviations

MK	Mann-Kendall
NA	not applicable
n	number of data points in the range for analysis
PCE	tetrachloroethene
p-value	probability that S is equal to or greater than the calcuated value of S for n events when no trend is present
S	The Mann Kendall statistic
TCE	trichloroethene

Table 4-4
Mann-Kendall Analysis of PCE and TCE
Cell 2 and 4 Monitoring Wells

			Date Range			Mann-Kendall Test Statistic		
Well	Analyte	Trend Result	From	To	n	S	Var(S)	p-value
MW-5A	PCE	No Trend	Apr 2013	Oct 2018	11	15	157.67	0.13243
	TCE	No Trend	Apr 2013	Oct 2018	11	9	160.33	0.26376
MW-8	PCE	Decreasing	Mar 2009	Oct 2018	19	-79	812.33	0.00310
	TCE	No Trend	Mar 2009	Oct 2018	19	-3	801.67	0.47184
MW-12	PCE	No Trend	Jun 1993	Oct 2018	19	-18	804.00	0.27441
	TCE	No Trend	Jun 1993	Oct 2018	20	-31	939.67	0.16387
MW-13	PCE	No Trend	Apr 2011	Oct 2018	17	-35	492.33	0.06272
	TCE	Increasing	Apr 2011	Oct 2018	17	41	581.67	0.04861

Acronyms/Abbreviations

MK	Mann-Kendall
n	number of data points in the range for analysis
PCE	tetrachloroethene
p-value	probability that S is equal to or greater than the calcuated value of S for n events when no trend is present
S	The Mann Kendall statistic
Var(S)	variance of S

Notes

1. MW-3A, MW-4A, MW-6A, MW-9 are not included in this analysis because neither PCE nor TCE have been detected in these wells. Any reported nondetect values were divided by 2 prior to using in the MK analysis. Additionally, PCE and/or TCE results from MW-5A, MW-8, MW-12, and MW-13 were not included in this analysis if less than 4 results were detected values.

Table 4-5
Mann-Kendall Analysis of PCE and TCE
Offsite Monitoring Wells

			Date Range			Mann-Kendall Test Statistic		
Well	Analyte	Trend Result	From	To	n	S	Var(S)	p-value
MW-103D[1]	TCE	No Trend	Mar 1994	Oct 2018	7	-4	43.33	0.32429
MW-103S[2]	PCE	No Trend	Mar 1994	Oct 2018	69	-591	37197.00	0.00111
	TCE	No Trend	Mar 1994	Oct 2018	72	-499	42300.33	0.00773
MW-115S[1]	TCE	No Trend	Oct 1999	Oct 2018	7	-8	40.67	0.13617
MW-116S	PCE	No Trend	Jan 2000	Oct 2018	15	-13	360.33	0.26364
	TCE	Decreasing	Jan 2000	Oct 2018	20	-75	947.00	0.00809

Acronyms/Abbreviations

MK	Mann-Kendall
NA	not applicable
n	number of data points in the range for analysis
PCE	tetrachloroethene
p-value	probability that S is equal to or greater than the calcuated value of S for n events when no trend is present
S	The Mann Kendall statistic
TCE	trichloroethene

Notes

1. PCE was not statistically analyzed because there are only 3 historical results available.
2. Due to the Var(S), the statistical result for this test was rejected, and the trend result adjusted accordingly.

Table 4-6
Statistical Analysis Summary
t-test and ANOVA
Cells 2 and 4
October 2018 Sampling Event

Monitoring Well	October 2018 Detected Constituents	October 2018 Statistically Significant Constituents
Cell 2		
MW-8	Arsenic, Barium, Chromium, Cobalt, Copper, Vanadium	Arsenic, Vanadium
MW-9	Arsenic, Barium, Cobalt, Copper, Nickel, Sulfide, Zinc	Arenic, Nickel, Zinc
MW-13	Antimony, Arsenic, Barium, Chromium, Cobalt, cis-1,2-Dichloroethene, Copper, Dichlorodifluoromethane, Lead, Nickel, Tetrachloroethene, Vanadium, Zinc	Arsenic, Barium, Tetrachloroethene, Vanadium
Cell 4		
MW-3A	Barium, Chromium, Copper, Lead, Zinc	Lead, Zinc
MW-5A	Antimony, Arsenic, Barium, Beryllium, Chromium, Cobalt, Copper, Nickel, Vanadium	None
MW-6A	Arsenic, Barium, Chromium, Cobalt, Copper, Lead, Nickel	Barium

Table 4-7
Mann-Kendall Statistical Analysis Summary
Cells 2 and 4 - Select Analytes
October 2018 Sampling Event

Monitoring Well	Constituents Statistically Above Background Concentrations	Mann-Kendall Trend Result
Cell 2		
MW-8	Arsenic	p = 0.115; NO TREND
	Vanadium	p = 0.230; NO TREND
MW-9	Arsenic	p = 0.380; NO TREND
	Nickel	p = 0.013; DECREASING
	Zinc	p = 0.248; NO TREND
MW-13	Arsenic	p = 0.00219; INCREASING
	Barium	p = 0.00973; INCREASING
	Tetrachloroethene	p = 0.063; NO TREND
	Vanadium	p = 0.0562; NO TREND
Cell 4		
MW-3A	Lead	p = 0.00457; DECREASING
	Zinc	p = 0.00210; DECREASING
MW-6A	Barium	p = 0.265; NO TREND

Table 5-1
Recommendations for Spring 2019 Sampling of FHML Monitoring Wells

Well ID	Well Location/Rationale for Sampling	Water Levels	Field parameters[1]	Appendix I			Appendix II										Geochemical							Total Well Depth (ft bgs)	Screen Start (ft bgs)	Screen End (ft bgs)	Historical Depth to Groundwater (ft bgs)	Pump Depth (ft bgs)	Well Diameter (inches)	Allowable Drawdown (ft)	Volume of Water in Tubing [6] (gallons)	Minimum Purge Volume[7] (gallons)	Expected Flow Rate (mL/min)
				VOCs		Total metals	SVOCs[2]			O/C Pest[3]	O/P Pest	Herb	PCBs[3]	Dioxins/ Furans	Mercury	Cyanide	Total Sulfide	Anions (Cl, SO_4) and Alkalinity[4]		NO_3+NO_2 as N[5]	Dissolved Gases	TOC[5]	Ferrous Iron										
				8260B	8011	6020/ 6010C	8270C/ 8141A/ 8081A	8270C SIM	8270 LL	8081A	8141A	8151A	8082A	8290	7470A	SM4500-CN-E	SM 4500S-2	9056A	2320B	353.2	RSK-175	9060A	HACH 8146										
Cell 1 (Low-flow sampling method)																																	
MW-1	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	97	77	97	63	Dedicated	4	2	0.5	2.8	50-100
MW-101S†	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	80	55	75	59	65	4	0.1	0.4	1.2	200-250
MW-102S†	Low VOCs, location of well inappropriate	1																						147	125	145	132	136	4	0.1	0.8	2.4	100-150
MW-104D	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	90	79	89	58	79	2	2	0.5	1.7	100-150
MW-104S†	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	69	47	67	55	58.5	2	0.1	0.3	1.0	300-400
MW-105D	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	85	72	82	60	Dedicated	2	2	0.4	1.7	50-100
MW-105S†	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	67	45	65	57	Dedicated	2	0.1	0.3	1.0	150-200
MW-109D	Cell 1 Source, Input Tracking	1	1	1													1	1	1	1	1	1	1	96	75	95	63	85	2	2	0.5	1.8	50-100
MW-109S†	Cell 1 Source, Input Tracking	1	1	1													1	1	1	1	1	1	1	63	42	62	50	54	2	0.1	0.3	0.9	150-200
MW-110D	Cell 1 Source, Input Tracking	1	1	1													1	1	1	1	1	1	1	161	154	159	126	155.5	2	2	0.9	3.0	50-100
MW-110S†	Cell 1 Source, Input Tracking	1	1	1													1	1	1	1	1	1	1	127	107.5	127.5	121	125	2	0.1	0.7	2.2	200-250
MW-111D	Cell 1 Source, Input Tracking	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	124	104	124	89	Dedicated	2	2	0.7	2.3	50-100
MW-111S†	Cell 1 Source, Input Tracking	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	74	54	74	56	67	2	0.1	0.4	1.2	50-100
MW-112D	Cell 1 Source, Input Tracking	1	1	1																				100	93	103	67	95	2	2	0.6	2.0	50-100
MW-112M	Cell 1 Source, Input Tracking	1	1	1																				76	66	76	65	71	2	1	0.4	1.4	100-150
MW-112S	Cell 1 Source, Input Tracking	1																						61	41	61	dry	--	2	--	--	--	--
MW-113D	Cell 1 Source, Input Tracking	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	136	115	135	27	125	2	1	0.7	2.3	50-100
MW-113S	Cell 1 Source, Input Tracking	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	96	74	94	28	Dedicated	2	0.1	0.5	1.5	150-200
MW-117R	Downgradient of RS, Performance Monitoring	1	1	1		1											1	1	1	1	1	1	1	126	113	123	dry	Dedicated	2	--	--	--	--
MW-118D†	Downgradient of RS, Performance Monitoring	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	103	82	102	86	Dedicated	2	0.1	0.5	1.6	300-400
MW-119D	Downgradient of RS, Performance Monitoring	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	101	90	100	71	Dedicated	2	1.0	0.5	1.8	150-200
MW-119S	Downgradient of RS, Performance Monitoring	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	80	70	80	69	Dedicated	2	0.1	0.4	1.3	300-400
MW-120D	Downgradient of RS, Performance Monitoring	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	99	90	100	78	Dedicated	2	0.1	0.5	1.7	200-250
MW-120S†	Downgradient of RS, Performance Monitoring	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	80	70	80	79	Dedicated	2	0.1	0.4	1.3	100-150
FW-1§	Downgradient of RS, Performance Monitoring	1	1	1		1												1	1	1	1	1	1	430	200	430	--	--	2	--	--	--	--
MW-121	Low VOCs, location of well inappropriate	1																						86	67	87	63	75	2	2	0.4	1.6	50-100
Remediation System (Grab Sampling)																																	
INJ-1R (effluent)	Injection well, Compliance		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							--	--	--	--	--	--	--	--	--	--
RW-1	Extraction well, System Function																							100	60	100	--	--	--	--	--	--	--
RW-10	Extraction well, System Function		1	1													1	1	1	1	1	1	1	85	50	85	--	--	--	--	--	--	--
RW-15	Extraction well, System Function		1	1													1	1	1	1	1	1	1	105	45	105	--	--	--	--	--	--	--
RW-17	Extraction well, System Function		1	1																				104	43.5	103.5	--	--	--	--	--	--	--
RW-2	Extraction well, System Function																							90	70	90	--	--	--	--	--	--	--
RW-3	Extraction well, System Function		1	1													1	1	1	1	1	1	1	90	50	90	--	--	--	--	--	--	--
RW-4	Extraction well, System Function		1	1																				100	50	100	--	--	--	--	--	--	--
RW-5	Extraction well, System Function																							100	60	100	--	--	--	--	--	--	--
RW-9R	Extraction well, System Function		1	1																				76	51	76	--	--	--	--	--	--	--
Cell 2 (Low-flow sampling method)																																	
MW-12	Background, Compliance Monitoring	1	1	1	1	1											1							193	168.5	208.5	157	Dedicated	4	1.0	1.1	3.9	200-250
MW-13	Downgradient, Compliance Monitoring	1	1	1	1	1											1							179	157	177	78	Dedicated	4	1.0	1.0	3.5	100-150
MW-7	Completed in trash, data compromised	1																						--	--	--	--	--	--	--	--	--	--
MW-8†	Downgradient, Compliance Monitoring	1	1	1	1	1											1							232	189.5	229.5	200	Dedicated	4	0.1	1.2	3.7	100-150
MW-9	Downgradient, Compliance Monitoring	1	1	1	1	1											1							270	229.5	269.5	223	Dedicated	4	1.0	1.4	4.9	150-200
Cell 4 (Low-flow sampling method)																																	
MW-3A	Downgradient, Compliance Monitoring	1	1	1	1	1																		399	379	399	287	Dedicated	4	3.0	2.2	8.7	100-150
MW-4A	Background, Compliance Monitoring	1	1	1	1	1																		199	179	199	145	Dedicated	4	1.0	1.1	3.9	250-300
MW-4	Downgradient, Impact Monitoring	1	1	1	1	1																		178	141	181	131	Dedicated	4	1.0	0.9	3.4	150-200
MW-5A	Downgradient, Compliance Monitoring	1	1	1	1	1																		298	278	298	277	Dedicated	4	1.5	1.7	5.9	100-150
MW-6A	Downgradient, Compliance Monitoring	1	1	1	1	1																		166	145.4	165.4	93	Dedicated	4	2.0	0.9	4.0	100-150
Offsite (Low-flow sampling method)																																	
MW-103D	Distal Plume, Performance Monitoring	1	1	1																				181	173.5	183.5	100	175	2	2	1.0	3.3	50-100
MW-103S†	Distal Plume, Performance Monitoring	1	1	1																				114	90	110	104	Dedicated	2	0.1	0.6	1.7	50-100
MW-106D[8]	Distal Plume, Performance Monitoring	1	1	1																				99	89	99	62	91.5	2	0.1	0.5	1.6	200-250
MW-106S†[8]	Distal Plume, Performance Monitoring	1	1	1																				78	55	75	62	70	2	0.1	0.4	1.2	150-200
MW-115D	Distal Plume, Performance Monitoring	1	1	1																				121	100	120	84	110	2	2	0.6	2.2	100-150
MW-115S†	Distal Plume, Performance Monitoring	1	1	1																				92	80	90	84	87	2	0.1	0.5	1.5	100-150
MW-116D[8]	Distal Plume, Performance Monitoring	1	1	1		1									1	1	1	1	1	1	1	1	1	143	122	142	80	130	2	2	0.8	2.6	50-100
MW-116S†[8]	Distal Plume, Performance Monitoring	1	1	1		1									1	1	1	1	1	1	1	1	1	93	78	93	80	85	2	0.1	0.5	1.5	50-100

Notes:

†No allowable drawdown as water level is within screened interval

§Previous water level and expected flow rate is unknown. Sampling depth will be determined by vertical profiling

1 Field parameters include pH, oxidation reduction potential, turbidity, dissolved oxygen, specific conductivity, and temperature

2 SVOCs requiring 8270C SIM and/or 8270 LL are collected in separate bottle sets

3 O/C Pest and PCBs collected in the same bottle set

4 Alkalinity and Anions (Cl and SO_4) collected in the same bottle set

5 Nitrate + nitrite and TOC collected in the same bottle set

6 Volume of water in the tubing is the minimum volume that must be purged prior to the collection of purge parameters

7 Minimum purge volume for low-flow sampling is 3x volume in sampling tubing and volume of allowable drawdown

8 These wells will be sampled during the annual residential well sampling (See Table 5-2)

ft bgs = feet below ground surface

mL/min = milliliter per minute

RS= remediation system

VOCs = volatile organic compounds

PCBs = polychlorinated biphenyls

O/C Pest = organochlorine pesticides

O/P Pest = organophosphorus pesticides

SVOCs = semivolatile organic compounds

Herb = Chlorinated herbicides

TOC = total organic carbon

NO_3 = nitrate

NO_2 = nitrite

Cl = chloride

SO_4 = sulfate

Table 5-2
Recommendations for 2019 Spring Sampling of Offsite Wells (Residential and City)

Well ID	Water Levels	Field parameters*	VOCs	Total metals	Total Sulfide	Anions Cl, SO_4	Alkalinity	NO_3+NO_2 as N	Dissolved Gases	TOC	Ferrous Iron	CSIA‡	Easting	Northing	Elevation (ft msl)	Total Depth (ft bgs)	Screen Interval (ft bgs)	Calculated Purge Volume (gallons)^	Volume Purged in 2017 by AEEC (gallons)
			8260B	6020A/ 6010C	SM 4500S-2	9056A	2320B	353.2	RSK-175	9060A	HACH 8146								
Residential Wells Sampled in 2017 (Well Volume Tap Sampling Method)																			
RW-2076F		1	1										603437.23	410006.10	4568				300
RW-2140H		1	1	1	1	1	1	1	1	1	1	1	601376.86	410184.78	4557				200
RW-2151H		1	1										601048.98	410194.52	4571				500
RW-2172F		1	1										603482.95	410422.16	4545				200
RW-2172H		1	1										601343.83	410331.91	4552				200
RW-2203H		1	1										600946.89	410582.10	4542				5
RW-2213F		1	1	1	1	1	1	1	1	1	1	1	603049.07	410649.06	4533	140	133-138	200	200
RW-2237H		1	1										600946.28	410646.63	4532				200
RW-2879M		1	1	1	1	1	1	1	1	1	1	1	596669.00	414104.78	4604	205	110-205	200	200
RW-3259B		1	1	1	1	1	1	1	1	1	1	1	594495.17	416438.22	4558	80	73.5-80	100	100
RW-7077P		1	1										603739.27	410677.90	4527				200
RW-7244P		1	1										602788.42	411021.11	4513				200
RW-7288P		1	1										602614.56	410895.91	4528				200
RW-7310P		1	1										602494.11	410999.42	4526				200
RW-7350P		1	1										602205.90	410989.24	4527				300
RW-7492P		1	1										601651.64	411018.44	4519				200
RW-7498P		1	1										601494.97	411151.63	4507				115
RW-7505P		1	1										601500.56	410668.29	4536				200
RW-7549P		1	1										601236.33	410856.03	4524				100
RW-7586P		1	1	1	1	1	1	1	1	1	1	1	601346.41	411049.39	4516	120	90-110	100	200
RW-7588P		1	1										601021.80	411873.88	4495				200
RW-7677P		1	1										600583.75	411172.79	4523				200
RW-7688P		1	1										600717.61	411431.95	4515	81		100	200
RW-7773P		1	1										599883.88	411880.17	4528				200
RW-7776P		1	1										600381.28	411824.67	4519				200
RW-8000B		1	1										596563.26	415221.06	4516				300
RW-8012P		1	1										598785.56	412310.47	4521				200
RW-8030P		1	1	1	1	1	1	1	1	1	1	1	598785.81	412350.16	4521				300
RW-8035P		1	1	1	1	1	1	1	1	1	1	1	597872.24	411952.19	4569				200
RW-8209P		1	1										597273.64	412840.54	4562	355	140-150, 185-195	400	200
RW-8249P		1	1	1	1	1	1	1	1	1	1	1	597088.93	413022.07	4575	267	247-267	300	4
Residential Wells - Located																			
RW-5898B1		1	1										593134.42	418944.16	4486.836				
RW-5898B2		1	1										593220.21	418879.82	4490.342				
RW-7070B		1	1										596184.00	415892.25	4522.536	100	40-100	100	
RW-7091R		1	1										596126.82	415692.12	4540.656				
RW-7953P		1	1										599137.44	412016.83	4522				
RW-8048P		1	1										598316.55	412447.03	4522.802	150	130-150	200	
RW-8105PN		1	1										597739.48	412531.91	4539				
RW-8105PS		1	1										597739.48	412531.91	4539		80-96	100	
Residential Wells - Not Located†																			
RW-2334F																			
RW-2335F																			
RW-2613M																			
RW-6998P																			
RW-7412P																			
RW-7775P																			
RW-8167P																			
RW-8170P																			
RW-8284P																			
City of Pocatello Wells (Low-flow Sampling Method)																			
MW-38	1	1	1	1	1	1	1	1	1	1	1	1	596694.57	415075.59	4500.890	140	121-130		1.1
PA-1	1	1	1	1	1	1	1	1	1	1	1	1	596644.63	415607.75	4502.960	166	128.5-148.5		3
PA-2													596460.75	415356.95	4519.615	NA	NA		
PA-3	1	1	1	1	1	1	1	1	1	1	1	1	596636.44	415606.15	4503.230	69	47.5-67.5		2.5
PA-4	1	1	1										596422.76	415438.08	4518.650	158	64.6-74.6		
	1	1	1														99.6-109.6		
	1	1	1	1	1	1	1	1	1	1	1	1					134.6-144.6		5
PA-5	1	1	1										597670.68	414891.60	4498.173	87.5	36-86		
PA-6	1	1	1										597046.46	416168.62	4482.722	77.5	31-41		
	1	1	1														66-76		
PA-7	1	1	1										596917.81	415954.19	4488.110	177	171.3-176.3		
PA-8	1	1	1										596893.98	415920.84	4489.866	128.5	36.8-46.8		
	1	1	1														76.8-86.8		
	1	1	1														116.8-126.8		
PA-9	1	1	1										598890.52	416316.33	4482.468	149	57.4-67.4		
	1	1	1														87.4-97.4		
PA-10	1	1	1										599076.35	416149.56	4485.370	69	22-62		
Municipal Supply Wells (Tap Sampling)																			
Muni-Well-14	1	1	1									1	590260.65	421582.03	4470.059	NA	NA		
Muni-Well-33	1	1	1									1	593421.38	418192.42	4510.261	NA	NA		

Notes:

Specific wells to be sampled will be determined based on agreements for access.

†These wells have been identified but specific location is currently under investigation by CDM Smith and Bannock County. The inclusion of these wells in the sampling program will be made once this information is obtained.

*Field parameters include pH, oxidation reduction potential, turbidity, dissolved oxygen, specific conductivity, and temperature

^Purge volume calculated assuming well diameter of 6 inches, wells will not be sampled until well depth and diameter is confirmed for purge volume calculation

‡Samples will be collected for CSIA at all wells, samples sent for analysis will be determined after the receipt of VOC results.

VOCs = volatile organic compounds

ft msl = feet mean sea level

ft bgs = feet below ground surface

Table 5-3
Recommendations for Fall 2019 Sampling

Well ID	Well Location/Rationale for Sampling	Water Levels	Field parameters[1]	Appendix I			Appendix II										Geochemical							Total Well Depth (ft bgs)	Screen Start (ft bgs)	Screen End (ft bgs)	Historical Depth to Groundwater (ft bgs)	Pump Depth (ft bgs)	Well Diameter (inches)	Allowable Drawdown (ft)	Volume of Water in Tubing [5] (gallons)	Minimum Purge Volume[5] (gallons)	Expected Flow Rate (mL/min)
				VOCs		Total metals	SVOCs[2]			O/C Pest[3]	O/P Pest	Herb	PCBs[3]	Dioxins/ Furans	Mercury	Cyanide	Total Sulfide	Anions (Cl, SO_4) and Alkalinity[4]		NO_3+NO_2 as N	Dissolved Gases	TOC	Ferrous Iron										
				8260B	8011	6020/ 6010C	8270C/ 8141A/ 8081A	8270C SIM	827 0 LL	8081A	8141A	8151A	8082A	8290	7470A	SM4500-CN-E	SM 4500S-2	9056A	2320B	353.2	RSK-175	9060A	HACH 8146										
Cell 1 (Low-flow sampling method)																																
MW-1	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	97	77	97	63	Dedicated	4	2	0.5	2.8	50-100
MW-101S†	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	80	55	75	59	65	4	0.1	0.4	1.2	200-250
MW-102S†	Low VOCs, location of well inappropriate	1																						147	125	145	132	136	4	0.1	0.8	2.4	100-150
MW-104D	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	90	79	89	58	79	2	2	0.5	1.7	100-150
MW-104S†	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	69	47	67	55	58.5	2	0.1	0.3	1.0	300-400
MW-105D	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	85	72	82	60	Dedicated	2	2	0.4	1.7	50-100
MW-105S†	Upgradient of RS, Input Tracking	1	1	1													1	1	1	1	1	1	1	67	45	65	57	Dedicated	2	0.1	0.3	1.0	150-200
MW-109D	Cell 1 Source, Input Tracking	1	1	1													1	1	1	1	1	1	1	96	75	95	63	85	2	2	0.5	1.8	50-100
MW-109S†	Cell 1 Source, Input Tracking	1	1	1													1	1	1	1	1	1	1	63	42	62	50	54	2	0.1	0.3	0.9	150-200
MW-110D	Cell 1 Source, Input Tracking	1	1	1													1	1	1	1	1	1	1	161	154	159	126	155.5	2	2	0.9	3.0	50-100
MW-110S†	Cell 1 Source, Input Tracking	1	1	1													1	1	1	1	1	1	1	127	107.5	127.5	121	125	2	0.1	0.7	2.2	200-250
MW-111D	Cell 1 Source, Input Tracking	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	124	104	124	89	Dedicated	2	2	0.7	2.3	50-100
MW-111S†	Cell 1 Source, Input Tracking	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	74	54	74	56	67	2	0.1	0.4	1.2	50-100
MW-112D	Cell 1 Source, Input Tracking	1	1	1																				100	93	103	67	95	2	2	0.6	2.0	50-100
MW-112M	Cell 1 Source, Input Tracking	1	1	1																				76	66	76	65	71	2	1	0.4	1.4	100-150
MW-112S	Cell 1 Source, Input Tracking	1																						61	41	61	dry	--	2	--	--	--	--
MW-113D	Cell 1 Source, Input Tracking	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	136	115	135	27	125	2	1	0.7	2.3	50-100
MW-113S	Cell 1 Source, Input Tracking	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	96	74	94	28	Dedicated	2	0.1	0.5	1.5	150-200
MW-117R	Downgradient of RS, Performance Monitoring	1	1	1		1											1	1	1	1	1	1	1	126	113	123	dry	Dedicated	2	--	--	--	--
MW-118D†	Downgradient of RS, Performance Monitoring	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	103	82	102	86	Dedicated	2	0.1	0.5	1.6	300-400
MW-119D	Downgradient of RS, Performance Monitoring	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	101	90	100	71	Dedicated	2	1.0	0.5	1.8	150-200
MW-119S	Downgradient of RS, Performance Monitoring	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	80	70	80	69	Dedicated	2	0.1	0.4	1.3	300-400
MW-120D	Downgradient of RS, Performance Monitoring	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	99	90	100	78	Dedicated	2	0.1	0.5	1.7	200-250
MW-120S†	Downgradient of RS, Performance Monitoring	1	1	1		1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	80	70	80	79	Dedicated	2	0.1	0.4	1.3	100-150
FW-1§	Downgradient of RS, Performance Monitoring	1	1	1		1												1	1	1	1	1	1	430	200	430	--	--	2	--	--	--	--
MW-121	Low VOCs, location of well inappropriate	1																						86	67	87	63	75	2	2	0.4	1.6	50-100
Remediation System (Grab Sampling)																																
INJ-1R (effluent)	Injection well, Compliance		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							--	--	--	--	--	--	--	--	--	--
RW-1	Extraction well, System Function																							100	60	100	--	--	--	--	--	--	--
RW-10	Extraction well, System Function		1	1																				85	50	85	--	--	--	--	--	--	--
RW-15	Extraction well, System Function		1	1																				105	45	105	--	--	--	--	--	--	--
RW-17	Extraction well, System Function		1	1																				104	43.5	103.5	--	--	--	--	--	--	--
RW-2	Extraction well, System Function																							90	70	90	--	--	--	--	--	--	--
RW-3	Extraction well, System Function		1	1																				90	50	90	--	--	--	--	--	--	--
RW-4	Extraction well, System Function		1	1																				100	50	100	--	--	--	--	--	--	--
RW-5	Extraction well, System Function																							100	60	100	--	--	--	--	--	--	--
RW-9R	Extraction well, System Function		1	1																				76	51	76	--	--	--	--	--	--	--
Cell 2 (Low-flow sampling method)																																
MW-12	Background, Compliance Monitoring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							193	168.5	208.5	157	Dedicated	4	1.0	1.1	3.9	200-250
MW-13	Downgradient, Compliance Monitoring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							179	157	177	78	Dedicated	2	2.0	1.0	3.2	100-150
MW-7	Completed in trash, data compromised	1																										--	--	--	--	--	--
MW-8†	Downgradient, Compliance Monitoring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							232	189.5	229.5	200	Dedicated	4	0.1	1.2	3.7	100-150
MW-9	Downgradient, Compliance Monitoring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							270	229.5	269.5	223	Dedicated	4	1.0	1.4	4.9	150-200
Cell 4 (Low-flow sampling method)																																
MW-3A	Downgradient, Compliance Monitoring	1	1	1	1	1																		399	379	399	287	Dedicated	4	3.0	2.2	8.7	100-150
MW-4A	Background, Compliance Monitoring	1	1	1	1	1																		199	179	199	145	Dedicated	4	1.0	1.1	3.9	250-300
MW-4	Upgradient of Cell 1, Impact Monitoring	1	1	1	1	1																		178	141	181	131	Dedicated	4	1.0	0.9	3.4	150-200
MW-5A	Downgradient, Compliance Monitoring	1	1	1	1	1																		298	278	298	277	Dedicated	4	1.5	1.7	5.9	100-150
MW-6A	Downgradient, Compliance Monitoring	1	1	1	1	1																		166	145.4	165.4	93	Dedicated	4	2.0	0.9	4.0	100-150
Offsite (Low-flow sampling method)																																
MW-103D	Distal Plume, Performance Monitoring	1	1	1																				181	173.5	183.5	100	175	2	2	1.0	3.3	50-100
MW-103S†	Distal Plume, Performance Monitoring	1	1	1																				114	90	110	104	Dedicated	2	0.1	0.6	1.7	50-100
MW-106D	Distal Plume, Performance Monitoring	1	1	1																				99	89	99	62	91.5	2	0.1	0.5	1.6	200-250
MW-106S†	Distal Plume, Performance Monitoring	1	1	1																				78	55	75	62	70	2	0.1	0.4	1.2	150-200
MW-115D	Distal Plume, Performance Monitoring	1	1	1																				121	100	120	84	110	2	2	0.6	2.2	100-150
MW-115S†	Distal Plume, Performance Monitoring	1	1	1																				92	80	90	84	87	2	0.1	0.5	1.5	100-150
MW-116D	Distal Plume, Performance Monitoring	1	1	1		1									1	1	1	1	1	1	1	1	1	143	122	142	80	130	2	2	0.8	2.6	50-100
MW-116S†	Distal Plume, Performance Monitoring	1	1	1		1									1	1	1	1	1	1	1	1	1	93	78	93	80	85	2	0.1	0.5	1.5	50-100

Notes:

†No allowable drawdown as water level is within screened interval

§Previous water level and expected flow rate is unknown. Sampling depth will be determined by vertical profiling

1 Field parameters include pH, oxidation reduction potential, turbidity, dissolved oxygen, specific conductivity, and temperature

2 SVOCs collected with two separate bottle sets for methods 8270C and 8270C SIM

3 O/C Pest and PCBs collected in the same bottle set

4 Alkalinity and Anions (Cl and SO_4) collected in the same bottle set

5 Volume of water in the tubing is the minimum volume that must be purged prior to the collection of purge parameters

6 Minimum purge volume for low-flow sampling is 3x volume in sampling tubing and volume of allowable drawdown

ft bgs = feet below ground surface

mL/min = milliliter per minute

RS= remediation system

VOCs = volatile organic compounds

SVOCs = semivolatile organic compounds

O/C Pest = organochlorine pesticides

O/P Pest = organophosphorus pesticides

Herb = Chlorinated herbicides

PCBs = polychlorinated biphenyls

TOC = total organic carbon

Cl = chloride

SO_4 = sulfate

NO_3 = nitrate

NO_2 = nitrite

CDM Smith

Appendix A

Groundwater Sampling and Analysis Plan

50 West 14th Street, Suite 200
Helena, MT 59601
tel: 406-441-1400

September 20, 2018

Bruce Olenick, Regional Administrator
David Goings, Hydrogeologist Project Manager
Idaho Department of Environmental Quality
444 Hospital Way #300
Pocatello, ID 83201

Subject: Fort Hall Mine Landfill, Third Quarter, 2018 Revised Groundwater Sampling and Analysis Plan

Dear Mr. Olenick and Mr. Goings:

The Groundwater Sampling and Analysis Plan (SAP) for the third quarter of 2018 at the Fort Hall Mine Landfill (FHML), submitted to IDEQ on September 14, 2018, has been revised to address the comments from IDEQ received by CDM Smith, on behalf of Bannock County, on September 17, 2018. The following table lists the comments and CDM Smith's responses. Attached please find the revised SAP.

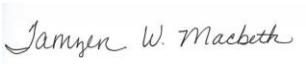
IDEQ Comment	CDM Smith Response
Table 1 – Cyanide and mercury should be added to the analytes in Parameter Lists 1 and 3 for those sites on Table 2, with the exception of the 5 wells associated with Cell 4, specifically, MW-3a, MW-4, MW-4a, MW-5a, and MW-6a.	Mercury and cyanide have been added to Parameter Lists 1, 3, and 5 in Tables 2 and 3. Parameter List 4 was created, which excludes mercury and cyanide, for the Cell 4 wells. Parameter list 5 was created for the two residential wells. Tables 1, 2, and 3 updated to show Parameter Lists 4 and 5
Table 2 – The properties on which offsite monitoring wells MW-106S/D and MW-116S/D are located also have private wells. Those private wells, RW-7773P and RW-2140H, respectively, should be included in the proposed sampling locations.	Private wells RW-7773P and RW-2140H have been added to the list of wells on Table 2 and a comment added that they are on the same property as wells MW-106S/D and MW-116S/D, respectively. Wells RW-7773P and RW-2140H have been assigned to Parameter List 5 and the sampling method updated to be "tap" sampling. A footnote was updated that "tap" sampling will follow CDM Smith SOP 1-9 for tap water sampling. This brings the sample location count to 57. Text describing sample locations was updated. SOP descriptions were also updated to reflect tap water sampling at these two residences.
Table 2 – MW-102S and MW-117R are onsite wells.	Table 2 has been changed to indicate that MW-102S and MW-117R are Cell 1 wells instead of offsite wells.
MW-117R is not a replacement for MW-117S/D.	The comment that MW-117R was a replacement well has been deleted and descriptive text changed accordingly.

If you have any questions or need additional information, please do not hesitate to contact us.

Sincerely,



Mark Hills, PG
Project Manager
CDM Smith



Tamzen W. Macbeth, PhD, PE, BCEE
Vice President
CDM Smith

cc: Brett Grayson, Bannock County
Jeremy Welch, Bannock County
Kiel Burmester, Bannock County
Caryn Havlovick, Bannock County
CDM Smith Project Team

Groundwater Sampling and Analysis Plan
Fort Hall Mine Landfill, Third Quarter, 2018

Introduction

This sampling and analysis plan (SAP) outlines the groundwater monitoring for the Fort Hall Mine Landfill (FHML) near Pocatello Idaho for third quarter 2018. This SAP is designed to achieve the following data quality objectives:

1. Comply with the conditions set forth in the IDEQ Compliance Agreement Schedule (CAS) and Consent Order (CO).
2. Comply with routine Resource Conservation and Recovery Act monitoring requirements.
3. Evaluate performance of remediation system by collecting groundwater samples from monitoring and remediation wells (i.e., extraction wells).
4. Evaluate nature and extent of volatile organic compound (VOC) contamination in groundwater at the site.
5. Evaluate geochemical conditions in groundwater at and down-gradient of the landfill.
6. Evaluate performance of the pump and treat remediation system by sampling combined extraction influent and effluent discharge to the injection well.
7. Develop a potentiometric surface map by collecting a synoptic round of water level measurements.
8. Carry out Cell 2 Assessment Report (AEEC 2018[1]) recommendations to continue sampling for the Appendix 2 parameter list to provide sufficient data to complete analysis of conditions at these wells.

In preparing this SAP, CDM Smith reviewed the Cell 2 Assessment Report (AEEC 2018), the Quality Assurance Program Plan (QAPP) (AEEC 2017a[2]), the CAS between Bannock County and the IDEQ (2016a[3]), and the CO between Bannock County and the IDEQ (2016b[4]). CDM Smith has started compiling existing water quality data into an EQuIS database and, so far, this database includes

[1] AEEC. 2018. Cell 2 Assessment Report. Fort Hall Mine Landfill. AEEC. Salt Lake City, UT. April 18, 2018.
[2] AEEC. 2017a. Quality Assurance Program Plan, Volume 1. Fort Hall Mine Landfill. AEEC. Salt Lake City, UT. July 2017.
[3] IDEQ. 2016a. Compliance Agreement Schedule between Bannock County and the Idaho Department of Environmental Quality. November 28, 2016.
[4] IDEQ. 2016b. Consent Order in the Matter of Contamination of Groundwater Near the Fort Hall Municipal Solid Waste Landfill. November 2016.

samples collected between 1990 and 2017. These data were reviewed to determine when samples were collected and what parameters were analyzed.

Health and Safety

CDM Smith will prepare a health and safety plan for the sampling field work. In preparing the plan, CDM Smith will coordinate with Bannock County to ensure that field staff understand health and safety procedures related to landfill operations.

Sampling Locations

A total of 57 locations are designated for sampling, including landfill monitoring wells, off-site monitoring wells, residential wells, remediation wells, and the remediation system influent and effluent sampling ports. The rationale for each parameter list is defined in Table 1. Table 2 lists these sampling locations and assigns them to a monitoring group and a parameter list (see Table 3). Figure 1 shows the location of the landfill monitoring wells, two off-site monitoring wells close to Cell 1 (well pair MW-103S and MW-103D), remediation wells, and the remediation system. Figure 2 shows the location of the other six off-site monitoring wells: MW-106S, MW-106D, MW-115S, MW-115D, MW-116S, and MW-116D. Two private residential wells will also be sampled: well RW-7773P, located on the same property as wells MW-106S and MW-106D, and well RW-2140H which is located on the same property as wells MW-116S and MW-116D.

Parameter List and Rationale

For this sampling event, CDM Smith will use the list of analytes and quantitation limits listed in Table 15-1 (see Attachment 1), Project Quantitation Limits for Groundwater Analytes, in the QAPP prepared by AEEC and issued in July 2017 (AEEC 2017a). Table 3 defines the parameter list assigned to each well.

The results of this sampling event and the existing data will be used by CDM Smith to develop and propose a parameter list to meet ongoing monitoring and site characterization needs. This parameter list will be presented in the Revised Groundwater Monitoring Plan/Quality Assurance Project Plan in 2019 (2019 GWMP/QAPP). Note that during the third quarter 2018 sampling event, CDM Smith will use United States Environmental Protection Agency (EPA) Method 8260B for analysis of VOCs and EPA Method 8270C for analysis of SVOCs. This is consistent with the fall 2017 sampling event detailed in the AEEC QAPP (AEEC 2017a). In its QAPP, AEEC specified alternate laboratory methods for three compounds in Table 15-1 (Attachment 1) to meet project quantitation limit goals less than the respective maximum contaminant levels (MCLs). These compounds are 1,2-dibromo-3-chloropropane and 1,2-dibromoethane (EPA Method 8011) and benzo[a]pyrene (EPA Method 8270C SIM). CDM Smith will assess the existing data for these compounds and, if appropriate, designate analysis of specific samples using these methods in the 2019 SAP. Likewise,

Groundwater Sampling and Analysis Plan
Fort Hall Mine Landfill, Third Quarter, 2018

CDM Smith will review the existing data for dissolved metals and designate specific samples for dissolved metals analysis, if appropriate, in the 2019 SAP.

Quality Assurance/Quality Control Samples

The following samples will be collected for quality assurance/quality control (QA/QC) purposes:

1. Blind field duplicates: 5% (1 per 20 samples).
2. Trip blanks: 1 per shipping container with VOC samples per day.
3. Rinsate or equipment blanks: 1 per type of non-dedicated equipment decontaminated per day when equipment is decontaminated. For example, if we are using two pumps on a given day, we will collect one rinsate blank from one pump.
4. Matrix spike and matrix spike duplicates: 1 per 20 samples (CDM Smith will specify the sample and collect sufficient volume).
5. Temperature blanks: 1 per shipping container.
6. Water (source) blank: 1 per source of water used for decontamination, one-time sample.

Equipment Calibration

All field instruments will be calibrated in accordance with the manufacturer's instructions. Calibration will be documented in the field log book and on a field data collection form. The calibration records will be included in the report of the results of the sampling event.

Data Validation

One hundred percent of the samples will be verified/validated in accordance with *Guidance for Labeling Externally Validate Laboratory Analytical Data for Superfund Use* (EPA 2009[5]) as listed below:

1. Samples analyzed for Appendix I and geochemical parameters will be validated to Stage 2a.
2. Samples analyzed for Appendix II will also be validated to Stage 2a except for dioxins/furans analyzed by EPA method 8290, which will be validated to Stage 2b.

[5] EPA. 2009. Guidance for Labeling Externally Validate Laboratory Analytical Data for Superfund Use. OSWER No. 9200.1-85. EPA 540-R08-005. Office of Solid Waste and Emergency Response, USEPA, Washington, DC. January 13, 2009.

3. Field parameters will be reviewed for completeness and daily initial instrument calibrations will be reviewed.

Below is a summary of the analytical QC parameters that will be reviewed under the Stage 2a and Stage 2b verification/validation protocols. A complete description of review elements is listed in the Appendix A of the cited guidance (EPA 2009):

1. Stage 2a
    a. General review of data package for compliance with subcontract.
    b. Review sample receipt, holding time compliance, general reporting (e.g., summary of results, comparison of results to project criteria such as reporting limits and compound lists).
    c. Confirm that requested methods for sample handling, preparation, cleanup and analyses were performed.
    d. Review sample/batch QC frequency and results (e.g., method blanks, surrogate recoveries, deuterated monitoring compounds recoveries, laboratory control sample recoveries, duplicate analyses, matrix spike and matrix spike duplicate recoveries, serial dilutions, post digestion spikes, and standard reference materials).
2. Stage 2b verification/validation includes all reviews performed under Stage 2a plus:
    a. Evaluation of initial instrument calibration (e.g., initial calibration standards, initial calibration verification standards, initial calibration blanks) are provided for all requested analytes, certified reference material and instrument performance standard checks
    b. Evaluation of continuing calibration data (e.g., continuing calibration verification [CCV] standards and continuing calibration blanks) are provided for all requested analytes. For the CCV standard(s), the percent recovery is compared to recovery limits (e.g. 80-120%) or percent difference limits (e.g. +/- 20%), as appropriate.

Sample data results will be reviewed and qualified as appropriate following EPA Contract Laboratory Program National Functional Guidance documents for organic or inorganic analyses and/or QC limit requirements prescribed in the individual methods as appropriate.

Groundwater Sampling and Analysis Plan
Fort Hall Mine Landfill, Third Quarter, 2018

Waste Management

Investigation-derived waste (IDW) will be managed according to the *Environmental Program Waste Management Plan* (AEEC 2017b[6]) and Technical SOP 2-2 Guide to Handling IDW. All field staff will be required to read and understand the procedures in this existing plan. Contaminated IDW will be generated during the sampling event and is expected to include groundwater purge water and water from equipment decontamination. Other refuse (e.g., packing materials, gloves, personal protective equipment, used non-dedicated sampling equipment) will be disposed of as appropriate at the landfill operating cells or recycled. Unused sample bottles will be disposed of at the landfill operating cells, recycled, or returned to the lab. No other types of solid or liquid wastes are anticipated during this sampling event.

According to the *Environmental Program Waste Management Plan,* Section 2.1, contaminated IDW will be containerized and labeled at the point of origin. Containers will be labeled and tracked according to the plan. Liquid IDW wastewater (e.g., groundwater from well purging and water from equipment decontamination) will be containerized in a wastewater tank or other suitable container and transported for disposal at either FHML leachate ponds (Cell 2 or Cell 4). Handling of the IDW wastewater will be documented in the field log book and will include point of origin, date generated, gallons of water disposed, and method of disposal.

Standard Operating Procedures

The following CDM Smith Technical Standard Operating Procedures (SOPs) will be used to guide the sampling program (Attachment 2):

1. Technical SOP 1-2 Sample Custody
2. Technical SOP 1-6 Groundwater Level Measurement
3. Technical SOP 1-9 Tap Water Sampling (Used to sample tap water from residential wells. This SOP will be adapted as needed for grab sample collection. See Table 2 for the list of tap water and grab sampling locations.)
4. Technical SOP 1-12 Low-Stress (Low-Flow) GW Sampling (See Table 2 for the list of low-flow sampling locations.)
5. Technical SOP 2-1 Packaging and Shipping Environmental Samples
6. Technical SOP 2-2 Guide to Handling IDW

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[6] AEEC. 2017b. Environmental Program Waste Management Plan. Fort Hall Mine Landfill. AEEC. Salt Lake City, UT. July 2017.

7. Technical SOP 4-1 Field Log Book Content and Control
8. Technical SOP 4-5 Field Equipment Decontamination at Nonradioactive Sites

CDM Smith

Groundwater Sampling and Analysis Plan
Fort Hall Mine Landfill, Third Quarter, 2018

Table 1. Parameter Lists and Rationale

List	Parameters and Rationale
1	Appendix I: VOCs and total metals, mercury, cyanide - Routine monitoring list, provides data to meet objectives Geochemical parameters (alkalinity, chloride (Cl), sulfate (SO_4), nitrate and nitrite as nitrogen, dissolved gasses [methane, ethane, ethene, acetylene], ferrous iron [field test kit]) - Natural degradation process monitoring Total Organic Carbon - Natural degradation process monitoring Compound specific isotopic analysis (CSIA) on selected samples (for tetrachloroethene [PCE], trichloroethene [TCE], cis-1,2dichloroethene [DCE], vinyl chloride, ethene, and ethane) - Natural degradation process monitoring - Identify sources
2	Appendix II: VOCs, total metals, semi-volatile organic compound (SVOCs), pesticides, herbicides, polychlorinated biphenyl (PCBs), dioxin/furan, mercury, cyanide, sulfide - Per recommendations in Cell 2 monitoring report - Monitor treatment system influent and effluent Geochemical parameters (alkalinity, Cl, SO_4, nitrate and nitrite as nitrogen, ferrous iron [field test kit]) - Natural degradation process monitoring CSIA on selected samples (for PCE, TCE, cis-1,2DCE, vinyl chloride, ethene, and ethane) - Natural degradation process monitoring - Identify sources
3	Appendix I: VOCs and total metals, mercury, cyanide - Routine monitoring list, provides data to meet objectives Geochemical parameters (alkalinity, Cl, SO_4, nitrate and nitrite as nitrogen, ferrous iron [field test kit]) - Natural degradation process monitoring CSIA on selected samples (for PCE, TCE, cis-1,2DCE, vinyl chloride, ethene, and ethane) - Natural degradation process monitoring - Identify sources
4	Appendix I: VOCs and total metals - Routine monitoring list, provides data to meet objectives Geochemical parameters (alkalinity, Cl, SO_4, nitrate and nitrite as nitrogen, ferrous iron [field test kit]) - Natural degradation process monitoring CSIA on selected samples (for PCE, TCE, cis-1,2DCE, vinyl chloride, ethene, and ethane) - Natural degradation process monitoring - Identify sources
5	Appendix I: VOCs and total metals, mercury, cyanide - Routine monitoring list, provides data to meet objectives

All lists include field water quality parameters

Table 2. List of Wells and Sampling Locations, Third Quarter 2018

Count	Location	Group	Area	Parameter List	Sample Type	Comment
1	Combined Influent Sample	Cell 1	Remediation System	2 + TOC	Grab	
2	INJ-1R (effluent sample)	Cell 1	Remediation System	2 + TOC	Grab	Treatment system effluent sample
3	MW-1	Cell 1	Upgradient	1	Low Flow	
4	MW-101S	Cell 1	Upgradient	1	Low Flow	
5	MW-102S	Cell 1	Downgradient	1	Low Flow	
6	MW-104D	Cell 1	Upgradient	1	Low Flow	
7	MW-104S	Cell 1	Upgradient	1	Low Flow	
8	MW-105D	Cell 1	Upgradient	1	Low Flow	
9	MW-105S	Cell 1	Upgradient	1	Low Flow	
10	MW-109D	Cell 1	Upgradient	1	Low Flow	
11	MW-109S	Cell 1	Upgradient	1	Low Flow	
12	MW-110D	Cell 1	Upgradient	1	Low Flow	
13	MW-110S	Cell 1	Upgradient	1	Low Flow	
14	MW-111D	Cell 1	Upgradient	1	Low Flow	
15	MW-111S	Cell 1	Upgradient	1	Low Flow	
16	MW-112D	Cell 1	Upgradient	1	Low Flow	
17	MW-112M	Cell 1	Upgradient	1	Low Flow	
18	MW-112S	Cell 1	Upgradient	1	Low Flow	
19	MW-113D	Cell 1	Upgradient	1	Low Flow	
20	MW-113S	Cell 1	Upgradient	1	Low Flow	
21	MW-117R	Cell 1	Downgradient	1	Low Flow	
22	MW-118D	Cell 1	Downgradient	1	Low Flow	
23	MW-119D	Cell 1	Downgradient	1	Low Flow	
24	MW-119S	Cell 1	Downgradient	1	Low Flow	
25	MW-120D	Cell 1	Downgradient	1	Low Flow	
26	MW-120S	Cell 1	Downgradient	1	Low Flow	
27	MW-121	Cell 1	Downgradient	1	Low Flow	
28	MW-7	Cell 1	Downgradient	1	Low Flow	
29	RW-1	Cell 1	Remediation System	1	Grab	
30	RW-10	Cell 1	Remediation System	1	Grab	
31	RW-15	Cell 1	Remediation System	1	Grab	
32	RW-16	Cell 1	Remediation System	1	Grab	
33	RW-17	Cell 1	Remediation System	1	Grab	
34	RW-2	Cell 1	Remediation System	1	Grab	
35	RW-3	Cell 1	Remediation System	1	Grab	
36	RW-4	Cell 1	Remediation System	1	Grab	
37	RW-5	Cell 1	Remediation System	1	Grab	
38	RW-9R	Cell 1	Remediation System	1	Grab	
39	MW-12	Cell 2		2	Low Flow	
40	MW-13	Cell 2		2	Low Flow	
41	MW-8	Cell 2		2	Low Flow	
42	MW-9	Cell 2		2	Low Flow	
43	MW-3A	Cell 4		4	Low Flow	
44	MW-4	Cell 4		4	Low Flow	
45	MW-4A	Cell 4		4	Low Flow	
46	MW-5A	Cell 4		4	Low Flow	
47	MW-6A	Cell 4		4	Low Flow	
48	MW-103D	Offsite Monitoring Well	Downgradient	1	Low Flow	
49	MW-103S	Offsite Monitoring Well	Downgradient	1	Low Flow	
50	MW-106D	Offsite Monitoring Well	Downgradient	3	Low Flow	Need access
51	MW-106S	Offsite Monitoring Well	Downgradient	3	Low Flow	Need access
52	MW-115D	Offsite Monitoring Well	Downgradient	3	Low Flow	Need access
53	MW-115S	Offsite Monitoring Well	Downgradient	3	Low Flow	Need access
54	MW-116D	Offsite Monitoring Well	Downgradient	3	Low Flow	Need access
55	MW-116S	Offsite Monitoring Well	Downgradient	3	Low Flow	Need access
56	RW-2140H	Residential	Downgradient	5	Tap	Same resident as MW-116S/D
57	RW-7773P	Residential	Downgradient	5	Tap	Same resident as MW-106S/D

Notes:

MW - monitoring well

RW - remediation system well or residential well

See Table 3 for parameter list

Sample type - "grab" collected from designated spigot for that well in remediation system building, "low flow" sampled using low flow well sampling methodology (CDM Smith SOP 1-12), "tap" sample collected from faucet following tap water sampling SOP (CDM Smith SOP 1-9)

TOC - total organic carbon

Table 3. Analytical Methods Matrix, Third Quarter 2018

		Appendix I parameters (per 40 CFR 258)		Additional Appendix II parameters (per 40 CFR 258)									Geochemical parameters						
	Field parameters (pH, DO, SC, ORP, Turbidity, Temperature)	VOCs	Total metals	SVOCs (full suite)	Organo chlorine Pesticides	O/P Pesticides	Chlorinated Herbicides	PCBs	Dioxins/ Furans	Mercury	Cyanide	Total Sulfide	Anions Cl, SO_4	Alkalinity	NO_3+NO_2 as N	Dissolved Gases (methane, ethane, ethene, acetylene)	Total Organic Carbon (TOC)	Ferrous Iron (field kit)	Compound Specific Isotopic Analysis (CSIA)
Parameter List/ Analytical Method	Multiparameter Probe	SW846 8260B	EPA 3010A/ 6010C	SW846 SW8270C	SW846 SW8081 A	SW846 SW814 A	SW846 8151 EPA 8141A/B or 8321A/B	SW846 SW8082	SW846 SW8290	SW846 SW7470A	D 75111-12/ SW9012B/ SM 4500CN	SM 4500S-2	EPA 300	EPA 310.2	EPA 300	RSK-175	EPA 9060	HACH 8146	Univ. of Oklahoma
1	X	X	X							X	X		X	X	X	X	X	X	X
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
3	X	X	X							X	X		X	X	X			X	X
4	X	X	X										X	X	X			X	X
5	X	X	X							X	X								

Notes:

Appendix II parameters limited to Cell 2 wells per recommendations from Cell 2 Assessment report.

Samples for CSIA analysis will be collected and held at the laboratory. VOC sample results will be reviewed and the lab instructed to perform CSIA for PCE, TCE, cis-12DCE, vinyl chloride, ethene and/or ethane on specific samples.

CFR - Code of Federal Regulations

Groundwater Sampling and Analysis Plan
Fort Hall Mine Landfill, Third Quarter, 2018

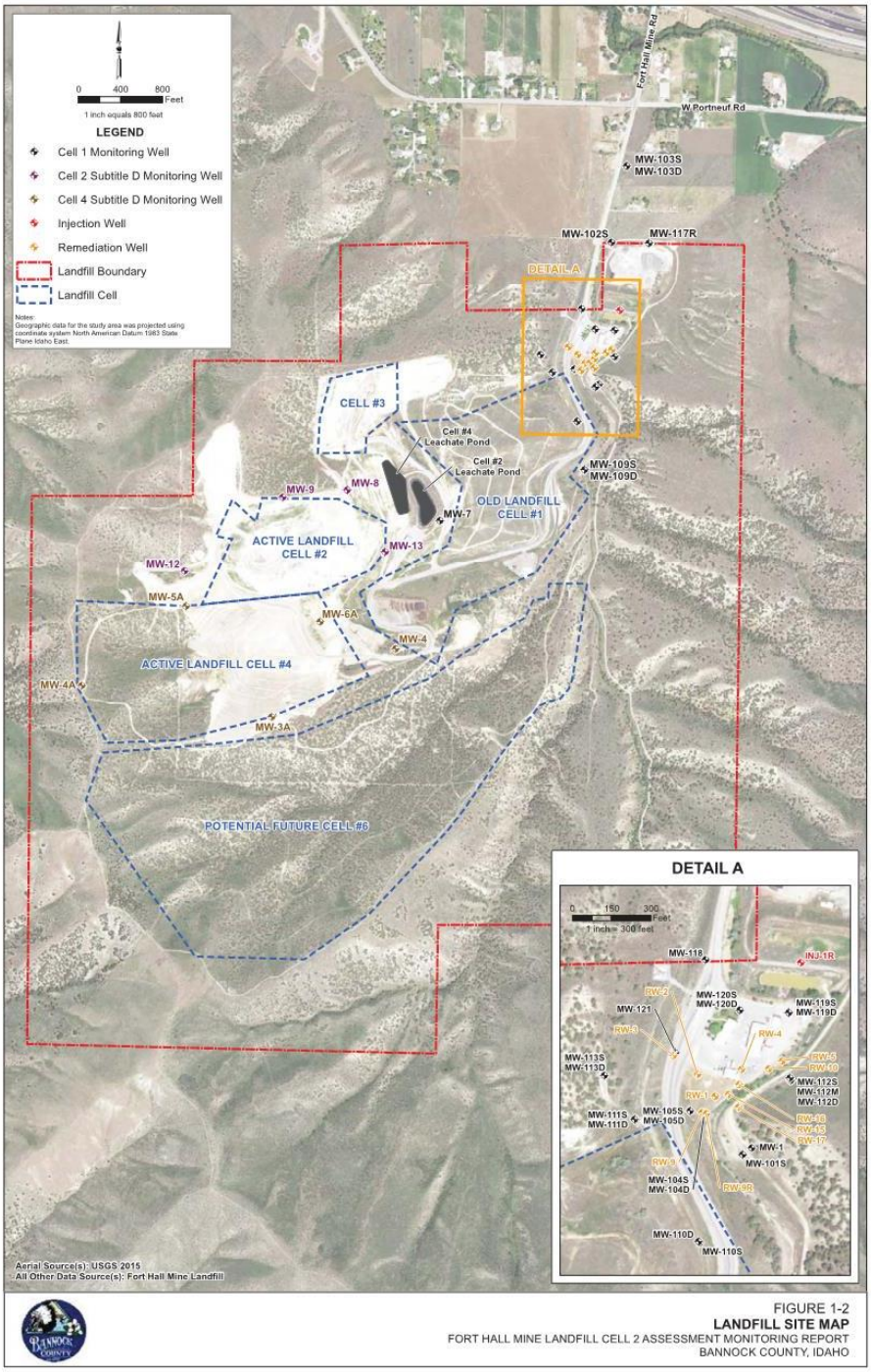


Figure 1. Well and Sampling Locations

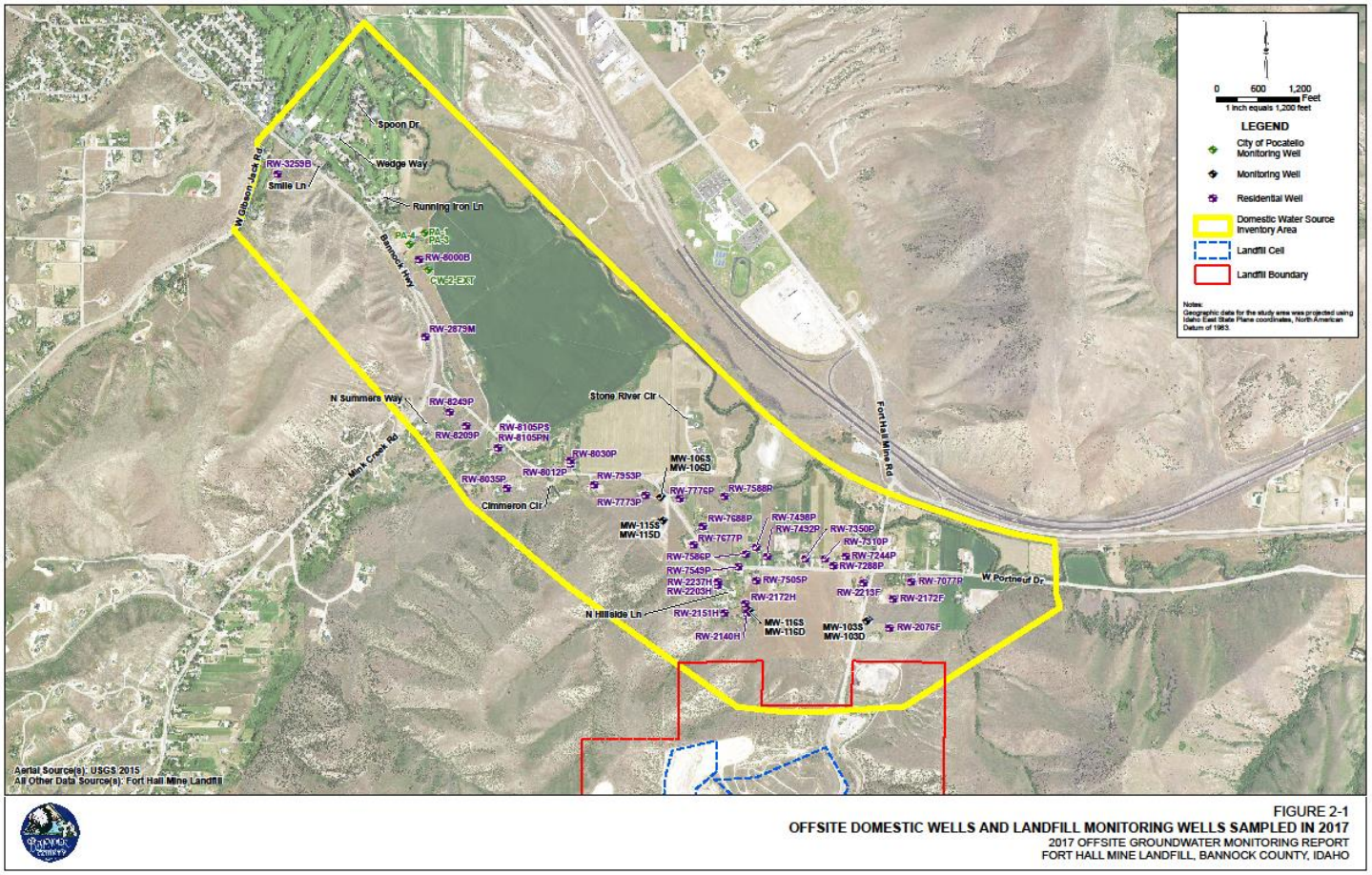


Figure 2. Off-Site Sampling Locations

Groundwater Sampling and Analysis Plan
Fort Hall Mine Landfill, Third Quarter, 2018

Attachment 1
AEEC Quality Assurance Program Plan,
Table 15-1
Fort Hall Mine Landfill, July 2017

Table 15-1
Project Quantitation Limits for Groundwater Analytes
Fort Hall Mine Landfill Quality Assurance Program Plan, Bannock County, Idaho

Analyte	CASRN	EPA Laboratory Method	Full/ Default List	SVOC Partial List 1	SVOC Partial List 2	Metals	Cations	Units	MCL	State of Idaho Groundwater Quality Standards[1]	EPA Tapwater RSL[2]	Project Quantitation Limit Goal [(3)]	Achievable Laboratory Limits		Laboratory
													RDL	MDL	
Volatile Organic Compounds															
1,1,1,2-Tetrachloroethane	630-20-6	8260B	X					µg/L	NS		c 0.57	1	1	0.385	ESC
1,1,1-Trichloroethane	71-55-6	8260B	X					µg/L	200	200	nc 8,000	1	1	0.319	ESC
1,1,2,2-Tetrachloroethane	79-34-5	8260B	X					µg/L	NS		c 0.076	1	1	0.13	ESC
1,1,2-Trichloroethane	79-00-5	8260B	X					µg/L	5	5	c 0.28	1	1	0.383	ESC
1,1-Dichloroethane	75-34-3	8260B	X					µg/L	NS		c 2.8	1	1	0.259	ESC
1,1-Dichloroethene	75-35-4	8260B	X					µg/L	7	7	nc 280	1	1	0.398	ESC
1,1-Dichloropropene	563-58-6	8260B	X					µg/L	NS		NS	1	1	0.352	ESC
1,2,3-Trichloropropane	96-18-4	8260B	X					µg/L	NS		c 0.00075	2.5	2.5	0.807	ESC
1,2,4-Trichlorobenzene	120-82-1	8260B	X					µg/L	70	70	c 1.2	1	1	0.355	ESC
1,2-Dibromo-3-Chloropropane	96-12-8	8260B	X					µg/L	0.2		c 0.00033	5	5	1.33	ESC
1,2-Dibromo-3-Chloropropane	96-12-8	8011	X					µg/L	0.2		c 0.00033	0.02	0.02	0.0043	ESC
1,2-Dibromoethane	106-93-4	8260B	X					µg/L	0.05	0.05	c 0.0075	1	1	0.381	ESC
1,2-Dibromoethane	106-93-4	8011	X					µg/L	0.05	0.05	c 0.0075	0.01	0.01	0.0024	ESC
1,2-Dichlorobenzene	95-50-1	8260B	X					µg/L	600	600	nc 300	1	1	0.349	ESC
1,2-Dichloroethane	107-06-2	8260B	X					µg/L	5	5	c 0.17	1	1	0.361	ESC
1,2-Dichloropropane	78-87-5	8260B	X					µg/L	5	5	c 0.44	1	1	0.306	ESC
1,3-Dichlorobenzene	541-73-1	8260B	X					µg/L	NS	600	NS	1	1	0.22	ESC
1,3-Dichloropropane	142-28-9	8260B	X					µg/L	NS		nc 370	1	1	0.366	ESC
1,4-Dichlorobenzene	106-46-7	8260B	X					µg/L	75	75	c 0.48	1	1	0.274	ESC
2,2-Dichloropropane	594-20-7	8260B	X					µg/L	NS		NS	1	1	0.321	ESC
2-Butanone (MEK)	78-93-3	8260B	X					µg/L	NS		nc 5,600	10	10	3.93	ESC
2-Hexanone	591-78-6	8260B	X					µg/L	NS		nc 38	10	10	3.82	ESC
4-Methyl-2-pentanone (MIBK)	108-10-1	8260B	X					µg/L	NS		nc 6,300	10	10	2.14	ESC
Acetone	67-64-1	8260B	X					µg/L	NS		nc 14,000	50	50	10	ESC
Acetonitrile; Methyl cyanide	75-05-8	8260B	X					µg/L	NS		nc 130	50	50	15	ESC
Acrolein	107-02-8	8260B	X					µg/L	NS		nc 0.042	50	50	8.87	ESC
Acrylonitrile	107-13-1	8260B	X					µg/L	NS		c 0.052	10	10	1.87	ESC
Allyl chloride	107-05-1	8260B	X					µg/L	NS		c 0.73	5	5	1.7	ESC
Benzene	71-43-2	8260B	X					µg/L	5	5	c 0.46	1	1	0.331	ESC
Bromochloromethane	74-97-5	8260B	X					µg/L	NS		nc 83	1	1	0.52	ESC
Bromodichloromethane	75-27-4	8260B	X					µg/L	80	100	c 0.13	1	1	0.38	ESC
Bromoform	75-25-2	8260B	X					µg/L	80	100	c 3.3	1	1	0.469	ESC
Bromomethane	74-83-9	8260B	X					µg/L	NS		nc 7.5	5	5	0.866	ESC
Carbon disulfide	75-15-0	8260B	X					µg/L	NS		nc 810	1	1	0.275	ESC
Carbon tetrachloride	56-23-5	8260B	X					µg/L	5	5	c 0.46	1	1	0.379	ESC
Chlorobenzene	108-90-7	8260B	X					µg/L	100	100	nc 78	1	1	0.348	ESC
Chlorodibromomethane	124-48-1	8260B	X					µg/L	80	100	c 0.87	1	1	0.327	ESC
Chloroethane	75-00-3	8260B	X					µg/L	NS		nc 21,000	5	5	0.453	ESC
Chloroform	67-66-3	8260B	X					µg/L	80	2	c 0.22	5	5	0.324	ESC
Chloromethane	74-87-3	8260B	X					µg/L	NS		nc 190	2.5	2.5	0.276	ESC
Chloroprene	126-99-8	8260B	X					µg/L	NS		c 0.019	50	50	1.7	ESC
cis-1,2-Dichloroethene	156-59-2	8260B	X					µg/L	70	70	nc 36	1	1	0.26	ESC
cis-1,3-Dichloropropene	10061-01-5	8260B	X					µg/L	NS		NS	1	1	0.418	ESC
Dibromomethane	74-95-3	8260B	X					µg/L	NS		nc 8.3	1	1	0.346	ESC
Dichlorodifluoromethane	75-71-8	8260B	X					µg/L	NS		nc 200	5	5	0.551	ESC
Ethyl methacrylate	97-63-2	8260B	X					µg/L	NS		nc 630	5	5	1.4	ESC
Ethylbenzene	100-41-4	8260B	X					µg/L	700	700	c 1.5	1	1	0.384	ESC
Iodomethane	74-88-4	8260B	X					µg/L	NS		NS	10	10	1.71	ESC
Isobutanol; Isobutyl alcohol	78-83-1	8260B	X					µg/L	NS		nc 5,900	100	100	39	ESC
Methacrylonitrile	126-98-7	8260B	X					µg/L	NS		nc 1.9	50	50	13	ESC
Methyl methacrylate	80-62-6	8260B	X					µg/L	NS		nc 1,400	50	50	1.2	ESC
Methylene Chloride	75-09-2	8260B	X					µg/L	5		c 11	5	5	1	ESC
Propionitrile; Ethyl cyanide	107-12-0	8260B	X					µg/L	NS		NS	50	50	13	ESC
Styrene	100-42-5	8260B	X					µg/L	100	100	nc 1,200	1	1	0.307	ESC
Tetrachloroethene	127-18-4	8260B	X					µg/L	5	5	c 11	1	1	0.372	ESC
Toluene	108-88-3	8260B	X					µg/L	1,000	1,000	nc 1,100	5	5	0.78	ESC

Table 15-1
Project Quantitation Limits for Groundwater Analytes
Fort Hall Mine Landfill Quality Assurance Program Plan, Bannock County, Idaho

Analyte	CASRN	EPA Laboratory Method	Full/ Default List	SVOC Partial List 1	SVOC Partial List 2	Metals	Cations	Units	MCL	State of Idaho Groundwater Quality Standards[1]	EPA Tapwater RSL[2]	Project Quantitation Limit Goal [(3)]	Achievable Laboratory Limits		Laboratory
													RDL	MDL	
trans-1,2-Dichloroethene	156-60-5	8260B	X					µg/L	100	100	nc 360	1	1	0.396	ESC
trans-1,3-Dichloropropene	10061-02-6	8260B	X					µg/L	NS		NS	1	1	0.419	ESC
trans-1,4-Dichloro-2-butene	110-57-6	8260B	X					µg/L	NS		c 0.0013	2.5	2.5	0.866	ESC
Trichloroethene	79-01-6	8260B	X					µg/L	5	5	c 0.49	1	1	0.398	ESC
Trichlorofluoromethane	75-69-4	8260B	X					µg/L	NS		nc 5,200	5	5	1.2	ESC
Vinyl acetate	108-05-4	8260B	X					µg/L	NS		nc 410	10	10	1.63	ESC
Vinyl chloride	75-01-4	8260B	X					µg/L	2	2	c 0.019	1	1	0.259	ESC
Xylenes, Total	1330-20-7	8260B	X					µg/L	NS		NS	3	3	1.06	ESC
Semivolatile Organic Compounds															
1,2,4,5-Tetrachlorobenzene	95-94-3	8270C	X					µg/L	NS		nc 1.7	10	10	2.41	ESC
1,3,5-Trinitrobenzene	99-35-4	8270C	X					µg/L	NS		nc 590	10	10	1.32	ESC
1,3-Dinitrobenzene	99-65-0	8270C	X					µg/L	NS		nc 2	10	10	0.359	ESC
1,4-Naphthoquinone	130-15-4	8270C	X					µg/L	NS		NS	50	50	5.56	ESC
1-Naphthylamine	134-32-7	8270C	X					µg/L	NS		NS	10	10	0.289	ESC
2,3,4,6-Tetrachlorophenol	58-90-2	8270C	X					µg/L	NS		nc 240	10	10	2	ESC
2,4,5-Trichlorophenol	95-95-4	8270C	X					µg/L	NS		nc 1,200	10	10	0.236	ESC
2,4,6-Trichlorophenol	88-06-2	8270C	X					µg/L	NS		c 4.1	10	10	0.297	ESC
2,4-Dichlorophenol	120-83-2	8270C	X					µg/L	NS		nc 46	10	10	0.284	ESC
2,4-Dimethylphenol; m-Xylenol	105-67-9	8270C	X					µg/L	NS		nc 360	10	10	0.624	ESC
2,4-Dinitrophenol	51-28-5	8270C	X					µg/L	NS		nc 39	10	10	3.25	ESC
2,4-Dinitrotoluene	121-14-2	8270C	X					µg/L	NS		c 0.24	10	10	1.65	ESC
2,6-Dichlorophenol	87-65-0	8270C	X					µg/L	NS		NS	10	10	2.77	ESC
2,6-Dinitrotoluene	606-20-2	8270C	X	X				µg/L	NS		c 0.049	10	10	0.279	ESC
2-Acetylaminofluorene; 2-AAF	53-96-3	8270C	X	X	X			µg/L	NS		c 0.016	10	10	0.253	ESC
2-Chloronaphthalene	91-58-7	8270C	X					µg/L	NS		nc 750	1	1	0.33	ESC
2-Chlorophenol	95-57-8	8270C	X					µg/L	NS		nc 91	10	10	0.283	ESC
2-Methylnaphthalene	91-57-6	8270C	X					µg/L	NS		nc 36	1	1	0.311	ESC
2-Methylphenol; o-Cresol	95-48-7	8270C	X					µg/L	NS		nc 930	10	10	0.312	ESC
2-Naphthylamine	91-59-8	8270C	X					µg/L	NS		c 0.039	10	10	0.195	ESC
2-Nitroaniline; o-Nitroaniline	88-74-4	8270C	X					µg/L	NS		nc 190	10	10	1.9	ESC
2-Nitrophenol; o-Nitrophenol	88-75-5	8270C	X					µg/L	NS		NS	10	10	0.32	ESC
3&4-Methylphenol (m&p-Cresol)	Not Specified	8270C	X					µg/L	NS		NS	10	10	0.266	ESC
3,3′-Dichlorobenzidine	91-94-1	8270C	X	X				µg/L	NS		c 0.13	10	10	2.02	ESC
3,3′-Dimethylbenzidine	119-93-7	8270C	X					µg/L	NS		c 0.0065	10	10	3.39	ESC
3-Methylcholanthrene	56-49-5	8270C	X	X	X			µg/L	NS		c 0.0011	10	10	0.164	ESC
3-Nitroaniline; m-Nitroaniline	99-09-2	8270C	X					µg/L	NS		NS	10	10	0.308	ESC
4,6-Dinitro-2-methylphenol	534-52-1	8270C	X					µg/L	NS		nc 1.5	10	10	2.62	ESC
4-Aminobiphenyl	92-67-1	8270C	X					µg/L	NS		c 0.003	10	10	0.461	ESC
4-Bromophenyl phenyl ether	101-55-3	8270C	X					µg/L	NS		NS	10	10	0.335	ESC
4-Chloro-3-methylphenol; p-Chloro-m-cresol	59-50-7	8270C	X					µg/L	NS		nc 1,400	10	10	0.263	ESC
4-Chloroaniline; p-Chloroaniline	106-47-8	8270C	X					µg/L	NS		c 0.37	10	10	0.382	ESC
4-Chlorophenyl phenyl ether	7005-72-3	8270C	X					µg/L	NS		NS	10	10	0.303	ESC
4-Nitroaniline; p-Nitroaniline	100-01-6	8270C	X					µg/L	NS		c 3.8	10	10	0.349	ESC
4-Nitrophenol; p-Nitrophenol	100-02-7	8270C	X					µg/L	NS		NS	10	10	2.01	ESC
5-Nitro-o-toluidine	99-55-8	8270C	X					µg/L	NS		c 8.2	10	10	1.99	ESC
7,12-Dimethylbenz[a]anthracene	57-97-6	8270C	X	X	X			µg/L	NS		c 0.0001	10	10	1.71	ESC
a,a-Dimethylphenethylamine	122-09-8	8270C	X					µg/L	NS		NS	50	50	3.13	ESC
Acenaphthene	83-32-9	8270C	X					µg/L	NS		nc 530	1	1	0.316	ESC
Acenaphthylene	208-96-8	8270C	X					µg/L	NS		NS	1	1	0.309	ESC
Acetophenone	98-86-2	8270C	X					µg/L	NS		nc 1,900	10	10	2.71	ESC
Anthracene	120-12-7	8270C	X					µg/L	NS		nc 1,800	1	1	0.291	ESC
Benzo[a]anthracene; Benzanthracene	56-55-3	8270C	X					µg/L	NS		c 0.012	1	1	0.0975	ESC
Benzo[a]pyrene	50-32-8	8270C	X	X				µg/L	0.2	0.2	c 0.0034	1	1	0.34	ESC
Benzo[a]pyrene	50-32-8	8270C SIM	X					µg/L	0.2	0.2	c 0.0034	0.05	0.05	0.0116	ESC
Benzo[b]fluoranthene	205-99-2	8270C	X	X				µg/L	NS		c 0.034	1	1	0.0896	ESC
Benzo[ghi]perylene	191-24-2	8270C	X	X				µg/L	NS		NS	1	1	0.161	ESC
Benzo[k]fluoranthene	207-08-9	8270C	X	X				µg/L	NS		c 0.34	1	1	0.355	ESC

Table 15-1
Project Quantitation Limits for Groundwater Analytes
Fort Hall Mine Landfill Quality Assurance Program Plan, Bannock County, Idaho

Analyte	CASRN	EPA Laboratory Method	Full/ Default List	SVOC Partial List 1	SVOC Partial List 2	Metals	Cations	Units	MCL	State of Idaho Groundwater Quality Standards[1]	EPA Tapwater RSL[2]	Project Quantitation Limit Goal [(3)]	Achievable Laboratory Limits		Laboratory
													RDL	MDL	
Benzyl alcohol	100-51-6	8270C	X					µg/L	NS		nc 2,000	10	10	0.393	ESC
Bis(2-chloroethoxy)methane	111-91-1	8270C	X					µg/L	NS		nc 59	10	10	0.329	ESC
Bis(2-chloroethyl)ether; Dichloroethyl ether	111-44-4	8270C	X					µg/L	NS		c 0.014	10	10	1.62	ESC
Bis(2-chloroisopropyl)ether	108-60-1	8270C	X					µg/L	NS		nc 710	10	10	0.445	ESC
Bis(2-ethylhexyl)phthalate	117-81-7	8270C	X					µg/L	6	6	c 5.6	3	3	0.709	ESC
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	8270C	X					µg/L	NS		c 16	3	3	0.275	ESC
Chlorobenzilate	510-15-6	8270C	X					µg/L	NS		c 0.31	50	50	1.33	ESC
Chrysene	218-01-9	8270C	X					µg/L	NS		c 3.4	1	1	0.332	ESC
Diallate	2303-16-4	8270C	X					µg/L	NS		c 0.54	10	10	0.524	ESC
Dibenz[a,h]anthracene	53-70-3	8270C	X	X				µg/L	NS		c 0.0034	1	1	0.279	ESC
Dibenzofuran	132-64-9	8270C	X					µg/L	NS		nc 7.9	10	10	0.338	ESC
Diethyl phthalate	84-66-2	8270C	X					µg/L	NS		nc 15,000	3	3	0.282	ESC
Dimethyl phthalate	131-11-3	8270C	X					µg/L	NS		NS	3	3	0.283	ESC
Di-n-butyl phthalate	84-74-2	8270C	X					µg/L	NS		nc 900	3	3	0.266	ESC
Di-n-octyl phthalate	117-84-0	8270C	X					µg/L	NS		nc 200	3	3	0.278	ESC
Diphenylamine	122-39-4	8270C	X					µg/L	NS		nc 310	10	10	0.284	ESC
Ethyl methanesulfonate	62-50-0	8270C	X					µg/L	NS		NS	10	10	0.326	ESC
Famphur	52-85-7	8270C	X					µg/L	NS		NS	20	20	1.06	ESC
Fluoranthene	206-44-0	8270C	X					µg/L	NS		nc 800	1	1	0.31	ESC
Fluorene	86-73-7	8270C	X					µg/L	NS		nc 290	1	1	0.323	ESC
Hexachloro-1,3-butadiene	87-68-3	8270C	X					µg/L	NS		c 0.14	10	10	0.329	ESC
Hexachlorobenzene	118-74-1	8270C	X					µg/L	1	1	c 0.0098	1	1	0.341	ESC
Hexachlorocyclopentadiene	77-47-4	8270C	X					µg/L	50	50	nc 0.41	10	10	2.33	ESC
Hexachloroethane	67-72-1	8270C	X					µg/L	NS		c 0.33	10	10	0.365	ESC
Hexachloropropene	1888-71-7	8270C	X					µg/L	NS		NS	50	50	0.149	ESC
Indeno(1,2,3-cd)pyrene	193-39-5	8270C	X	X				µg/L	NS		c 0.034	1	1	0.279	ESC
Isodrin	465-73-6	8270C	X					µg/L	NS		NS	10	10	0.293	ESC
Isophorone	78-59-1	8270C	X					µg/L	NS		c 78	10	10	0.272	ESC
Isosafrole	120-58-1	8270C	X					µg/L	NS		NS	10	10	0.409	ESC
Kepone	143-50-0	8270C	X					µg/L	NS		c 0.0035	20	20	1.88	ESC
Methapyrilene	91-80-5	8270C	X					µg/L	NS		NS	50	50	4.25	ESC
Methyl methanesulfonate	66-27-3	8270C	X					µg/L	NS		c 0.79	50	50	0.647	ESC
Naphthalene	91-20-3	8270C	X					µg/L	NS		c 0.17	1	1	0.372	ESC
Nitrobenzene	98-95-3	8270C	X					µg/L	NS		c 0.14	10	10	0.367	ESC
N-Nitrosodiethylamine	55-18-5	8270C	X					µg/L	NS		c 0.00017	10	10	0.497	ESC
N-Nitrosodimethylamine	62-75-9	8270C	X					µg/L	NS		c 0.00011	10	10	1.26	ESC
N-Nitrosodi-n-butylamine	924-16-3	8270C	X					µg/L	NS		c 0.0027	10	10	0.331	ESC
N-Nitrosodi-n-propylamine	621-64-7	8270C	X					µg/L	NS		c 0.011	10	10	0.403	ESC
N-Nitrosodiphenylamine	86-30-6	8270C	X					µg/L	NS		c 12	10	10	0.304	ESC
N-Nitrosomethylethylamine	10595-95-6	8270C	X					µg/L	NS		c 0.00071	10	10	1.71	ESC
N-Nitrosopiperidine	100-75-4	8270C	X					µg/L	NS		c 0.0082	10	10	0.268	ESC
N-Nitrosopyrrolidine	930-55-2	8270C	X					µg/L	NS		c 0.037	10	10	2.55	ESC
O,O,O-Triethyl phosphorothioate	126-68-1	8270C	X					µg/L	NS		NS	10	10	0.537	ESC
o-Toluidine	95-53-4	8270C	X					µg/L	NS		c 4.7	10	10	0.362	ESC
p-(Dimethylamino)azobenzene	60-11-7	8270C	X					µg/L	NS		c 0.005	10	10	0.208	ESC
Pentachlorobenzene	608-93-5	8270C	X					µg/L	NS		nc 3.2	10	10	0.369	ESC
Pentachloronitrobenzene	82-68-8	8270C	X					µg/L	NS		c 0.12	10	10	0.327	ESC
Pentachlorophenol	87-86-5	8270C	X					µg/L	1	1	c 0.041	1	1	0.313	ESC
Phenacetin	62-44-2	8270C	X					µg/L	NS		c 34	10	10	0.262	ESC
Phenanthrene	85-01-8	8270C	X					µg/L	NS		NS	1	1	0.366	ESC
Phenol	108-95-2	8270C	X					µg/L	NS		nc 5,800	10	10	0.334	ESC
Phorate	298-02-2	8141	X					µg/L	NS		nc 3	50	50	0.382	ESC
p-Phenylenediamine	106-50-3	8270C	X					µg/L	NS		nc 3,800	6,900	6,900	387	ESC
Pronamide	23950-58-5	8270C	X					µg/L	NS		nc 1,200	10	10	0.265	ESC
Pyrene	129-00-0	8270C	X					µg/L	NS		nc 120	1	1	0.33	ESC
Safrole	94-59-7	8270C	X					µg/L	NS		c 0.096	10	10	0.259	ESC
Thionazin	297-97-2	8270C	X					µg/L	NS		NS	10	10	0.204	ESC

Table 15-1
Project Quantitation Limits for Groundwater Analytes
Fort Hall Mine Landfill Quality Assurance Program Plan, Bannock County, Idaho

Analyte	CASRN	EPA Laboratory Method	Full/ Default List	SVOC Partial List 1	SVOC Partial List 2	Metals	Cations	Units	MCL	State of Idaho Groundwater Quality Standards[1]	EPA Tapwater RSL[2]	Project Quantitation Limit Goal [(3)]	Achievable Laboratory Limits		Laboratory
													RDL	MDL	
Organochlorine Pesticides															
4,4′-DDD	72-54-8	8081	X					µg/L	NS		c 0.032	0.05	0.05	0.017	ESC
4,4′-DDE	72-55-9	8081	X					µg/L	NS		c 0.046	0.05	0.05	0.0164	ESC
4,4′-DDT	50-29-3	8081	X					µg/L	NS		c 0.23	0.05	0.05	0.0177	ESC
Aldrin	309-00-2	8081	X					µg/L	NS		c 0.00092	0.05	0.05	0.00813	ESC
alpha-BHC	319-84-6	8081	X					µg/L	NS		c 0.0072	0.05	0.05	0.0166	ESC
beta-BHC	319-85-7	8081	X					µg/L	NS		c 0.025	0.05	0.05	0.0184	ESC
Chlordane	57-74-9	8081	X					µg/L	NS	2	NS	0.5	0.5	0.097	ESC
delta-BHC	319-86-8	8081	X					µg/L	NS		NS	0.05	0.05	0.0197	ESC
Dieldrin	60-57-1	8081	X					µg/L	NS		c 0.0018	0.05	0.05	0.00751	ESC
Endosulfan I	959-98-8	8081	X					µg/L	NS		NS	0.05	0.05	0.0179	ESC
Endosulfan II	33213-65-9	8081	X					µg/L	NS		NS	0.05	0.05	0.0176	ESC
Endosulfan sulfate	1031-07-8	8081	X					µg/L	NS		NS	0.05	0.05	0.0196	ESC
Endrin	72-20-8	8081	X					µg/L	2	2	nc 2.3	0.05	0.05	0.0189	ESC
Endrin aldehyde	7421-93-4	8081	X					µg/L	NS		NS	0.05	0.05	0.0142	ESC
gamma-BHC (Lindane)	58-89-9	8081	X					µg/L	0.2	0.2	c 0.042	0.05	0.05	0.0176	ESC
Heptachlor	76-44-8	8081	X					µg/L	0.4	0.4	c 0.0014	0.05	0.05	0.0108	ESC
Heptachlor epoxide	1024-57-3	8081	X					µg/L	0.2	0.2	c 0.0014	0.05	0.05	0.0175	ESC
Methoxychlor	72-43-5	8081	X					µg/L	40	40	nc 37	0.05	0.05	0.0193	ESC
Toxaphene	8001-35-2	8081	X					µg/L	3	3	c 0.071	0.5	0.5	0.168	ESC
PCBs															
PCB 1016	12674-11-2	8082	X					µg/L	NS	0.5	c 0.22	0.5	0.5	0.1	ESC
PCB 1221	11104-28-2	8082	X					µg/L	NS	0.5	c 0.0047	0.5	0.5	0.073	ESC
PCB 1232	11141-16-5	8082	X					µg/L	NS	0.5	c 0.0047	0.5	0.5	0.042	ESC
PCB 1242	53469-21-9	8082	X					µg/L	NS	0.5	c 0.0078	0.5	0.5	0.047	ESC
PCB 1248	12672-29-6	8082	X					µg/L	NS	0.5	c 0.0078	0.5	0.5	0.086	ESC
PCB 1254	11097-69-1	8082	X					µg/L	NS	0.5	c 0.0078	0.5	0.5	0.047	ESC
PCB 1260	11096-82-5	8082	X					µg/L	NS	0.5	c 0.0078	0.5	0.5	0.12	ESC
Organophosphorus Pesticides															
Dimethoate	60-51-5	8141	X					µg/L	NS		nc 4	1	1	0.105	ESC
Disulfoton	298-04-4	8141	X					µg/L	NS		nc 0.5	1	1	0.277	ESC
Methyl parathion; Parathion methyl	298-00-0	8141	X					µg/L	NS		nc 4.5	1	1	0.257	ESC
Parathion	56-38-2	8141	X					µg/L	NS		nc 86	1	1	0.292	ESC
Chlorinated Herbicides															
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	93-76-5	8151	X					µg/L	NS		nc 160	2	2	0.3	ESC
2,4-D; 2,4-Dichlorophenoxyacetic acid	94-75-7	8151	X					µg/L	70	70	nc 170	2	2	0.4	ESC
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	88-85-7	8151	X					µg/L	7	7	nc 15	2	2	0.5	ESC
2,4,5-TP (Silvex)	93-72-1	8151	X					µg/L	50	50	nc 110	2	2	0.3	ESC
Dioxins and Furans															
2,3,7,8-TCDD	1746-01-6	8290	X					pg/L	30	30	c 0.12	10	10	3.33	Cape Fear
Metals															
Antimony	7440-36-0	6020				X		µg/L	6	6	nc 7.8	2	2	0.754	ESC
Arsenic	7440-38-2	6020				X		µg/L	10	50	c 0.052	2	2	0.25	ESC
Barium	7440-39-3	6020				X		µg/L	2,000	2,000	nc 3,800	5	5	0.36	ESC
Beryllium	7440-41-7	6020				X		µg/L	4	4	nc 25	2	2	0.12	ESC
Cadmium	7440-43-9	6020				X		µg/L	5	5	NS	1	1	0.16	ESC
Calcium	7440-70-2	6020					X	µg/L	NS		NS	1,000	1,000	46.0	ESC
Chromium	7440-47-3	6020				X		µg/L	100	100	NS	2	2	0.54	ESC
Cobalt	7440-48-4	6020				X		µg/L	NS		nc 6	2	2	0.26	ESC
Copper	7440-50-8	6020				X		µg/L	1,300	1,300	nc 800	5	5	0.52	ESC
Iron	7439-89-6	6020					X	µg/L	NS	300[a]	nc 14,000,000	100	100	15	ESC
Lead	7439-92-1	6020				X		µg/L	15	15	nc 15	2	2	0.24	ESC
Magnesium	7439-95-4	6020					X	µg/L	NS		NS	1,000	1,000	100	ESC
Manganese	7439-96-5	6020					X	µg/L	NS	50[a]	NS	5	5	0.25	ESC
Mercury	7439-97-6	7470A	X					µg/L	2	2	nc 0.63	0.2	0.2	0.049	ESC
Nickel	7440-02-0	6020				X		µg/L	NS		nc 390	2	2	0.35	ESC

Table 15-1
Project Quantitation Limits for Groundwater Analytes
Fort Hall Mine Landfill Quality Assurance Program Plan, Bannock County, Idaho

Analyte	CASRN	EPA Laboratory Method	Full/ Default List	SVOC Partial List 1	SVOC Partial List 2	Metals	Cations	Units	MCL	State of Idaho Groundwater Quality Standards[1]	EPA Tapwater RSL[2]	Project Quantitation Limit Goal [(3)]	Achievable Laboratory Limits		Laboratory
													RDL	MDL	
Potassium	7440-09-7	6020					X	µg/L	NS		NS	1000	1,000	37	ESC
Selenium	7782-49-2	6020				X		µg/L	50	50	nc 100	2	2	0.38	ESC
Silver	7440-22-4	6020				X		µg/L	NS	100[a]	nc 94	2	2	0.31	ESC
Sodium	7440-23-5	6020					X	µg/L	NS		NS	1,000	1,000	110	ESC
Thallium	7440-28-0	6020				X		µg/L	2	2	nc 0.2	2	2	0.19	ESC
Tin	7440-31-5	6020				X		µg/L	NS		nc 12,000,000	2	2	0.3	ESC
Vanadium	7440-62-2	6020				X		µg/L	NS		nc 86	5	5	0.18	ESC
Zinc	7440-66-6	6020				X		µg/L	NS	5,000[a]	nc 6,000	25	25	2.56	ESC
Miscellaneous															
Alkalinity	Not Specified	2320B	X					µg/L	NS		NS	20,000	20,000	2710	ESC
Chloride	16887-00-6	9056A	X					µg/L	NS	250,000[a]	NS	1,000	1,000	51.9	ESC
Cyanide	57-12-5	D 7511-09 / 9012B / SM 4500CN E-2011	X					µg/L	200	200	nc 1.5	5	5	1.2	ESC
Sulfate	14808-79-8	9056A	X					µg/L	NS	250,000[a]	NS	5,000	5,000	77.4	ESC
Sulfide	18496-25-8	4500S2-D	X					µg/L	NS		NS	50	50	6.5	ESC

1. Numerical Ground Water Quality Standards as presented at the State of Idaho Ground Water Quality Rule (IDAPA 58.01.11) - https://adminrules.idaho.gov/rules/current/58/
2. Resident Tapwater Regional Screening Levels (May 2016) as presented at EPA website at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016
3. For constituents with MCLs, the project quantitation limit goal is less than MCL, and is thus protective of human health and the environment. Alternate laboratory methods have been specified for three constituents in Table 15-1 in order for the project quantitation limit goals to be less than the respective MCLs; these constituents include 1,2-dibromo-3-chloropropane and 1,2-dibromoethane (EPA Method 8011), and benzo[a]pyrene (EPA Method 8270C SIM).

NOTES:
µg/L = Microgram(s) per liter.
c = Carcinogenic; nc = Noncarcinogenic.
CASRN = Chemical Abstracts Service Registry Number.
ESC = Environmental Science Corporation.
EPA = U.S. Environmental Protection Agency.
MDL = Method detection limit.
MCL = Maximum Contaminant Level.
NS = Not specified.
PCB = Polychlorinated biphenyl.
RDL = Reporting Detection Limit
RSL = Regional Screening Level.
SVOC = Semi-volatile organic compound.

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Groundwater Sampling and Analysis Plan
Fort Hall Mine Landfill, Third Quarter, 2018

Attachment 2
CDM Smith Technical Standard Operating Procedures (SOPs)

Sample Custody	SOP 1-2 Revision: 8 Date: February 2015

Approved: *Signature* **Technical Review:** Scott Kirchner

1.0 Objective

Because of the evidentiary nature of samples collected during environmental investigations, possession must be traceable from the time the samples are collected until their derived data are introduced as evidence in legal proceedings. To maintain and document sample possession, sample custody procedures are followed. All paperwork associated with the sample custody procedures will be retained in CDM Smith files unless the client requests that it be transferred to them for use in legal proceedings or at the completion of the contract.

Note: Sample custody documentation requirements vary with the specific EPA region or client. This technical standard operating procedure (SOP) is intended to present basic sample custody requirements, along with common options. Specific sample custody requirements shall be presented in the project-specific quality assurance (QA) project plan or project-specific modification or clarification form (see Section U-1).

2.0 Background

2.1 Definitions

Sample - A sample is material to be analyzed that is contained in single or multiple containers representing a unique sample identification number.

Sample Custody - A sample is under custody if:

1. It is in your possession
2. It is in your view, after being in your possession
3. It was in your possession and you locked it up
4. It is in a designated secure area

Chain-of-Custody Record - A chain-of-custody record is a form used to document the transfer of custody of samples from one individual to another.

Custody Seal - A custody seal is a tape-like seal that is part of the chain-of-custody process and is used to detect tampering with samples after they have been packed for shipping.

Sample Label - A sample label is an adhesive label placed on sample containers to designate a sample identification number and other sampling information.

Sample Tag - A sample tag is attached with string to a sample container to designate a sample identification number and other sampling information. Tags may be used when it is difficult to physically place adhesive labels on the container (e.g., in the case of small air sampling tubes). Check with your EPA regional Contract Laboratory Program (CLP) coordinator as not all Regions require sample tags.

3.0 General Responsibilities

Sampler - The sampler is personally responsible for the care and custody of the samples collected until they are properly transferred or dispatched.

Field Team Leader - The field team leader (FTL) is responsible for ensuring that strict chain-of-custody procedures are maintained during all sampling events. The FTL is also responsible for coordinating with the subcontractor laboratory to ensure that adequate information is recorded on custody records. The FTL determines whether proper custody procedures were followed during the fieldwork.

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Field Sample Custodian - The field sample custodian, when designated by the FTL, is responsible for accepting custody of samples from the sampler(s) and properly packing and shipping the samples to the laboratory assigned to do the analyses. A field sample custodian is typically designated only for large and complex field efforts.

Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field plan or site/quality assurance project plan (QAPP).

4.0 Required Supplies

- Chain-of-custody records (applicable client or CDM Smith forms)
- Sample labels and/or tags
- Scribe software (if required)
- Custody seals
- Clear tape
- Computer
- Printer and paper

5.0 Procedures

5.1 Chain-of-Custody Record

This procedure establishes a method for maintaining custody of samples through use of a chain-of-custody record. This procedure will be followed for all samples collected or split samples accepted.

Field Custody

1. Collect only the number of samples needed to represent the media being sampled. To the extent possible, determine the quantity and types of samples and sample locations before the actual fieldwork. As few people as possible shall handle samples.

2. Complete sample labels or tags for each sample using waterproof ink.

3. Maintain personal custody of the samples (in your possession) at all times until custody is transferred for sample shipment or directly to the analytical laboratory.

Transfer of Custody and Shipment

1. Complete a chain-of-custody record for all samples (see Figure 1 for an example of a chain-of-custody record. Similar forms may be used when requested by the client). When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents sample custody transfer from the sampler, often through another person, to the sample custodian in the appropriate laboratory.

   - The date/time will be the same for both signatures when custody is transferred directly to another person. When samples are shipped via common carrier (e.g., Federal Express), the date/time will not be the same for both signatures. Common carriers are not required to sign the chain-of-custody record.
   - In all cases, it must be readily apparent that the person who received custody is the same person who relinquished custody to the next custodian.
   - If samples are left unattended or a person refuses to sign, this must be documented and explained on the chain-of-custody record.

   Note: If a field sample custodian has been designated, he/she may initiate the chain-of-custody record, sign, and date as the relinquisher. The individual sampler(s) must sign in the appropriate block, but does (do) not need to sign and date as a relinquisher (refer to Figure 1).

2. Package samples properly for shipment and dispatch to the appropriate laboratory for analysis. Each shipment must be accompanied by a separate chain-of-custody record. If a shipment consists of multiple coolers, a chain-of-custody record shall be filled out for each cooler documenting only samples contained in that particular cooler.

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3. The original record will accompany the shipment, and the copies will be retained by the FTL and, if applicable, distributed to the appropriate sample coordinators. Freight bills will also be retained by the FTL as part of the permanent documentation. The shipping number from the freight bill shall be recorded on the applicable chain-of-custody record and field logbook in accordance with SOP 4-1, Field Logbook Content and Control.

Procedure for Completing CDM Smith Example Chain-of-Custody Record

The following procedure is to be used to fill out the CDM Smith chain-of-custody record. The record provided herein (Figure 1) is an example chain-of-custody record. If another type of custody record (i.e., provided by the EPA Contract Laboratory Program (CLP) or a subcontract laboratory or generated by Scribe) is used to track the custody of samples, the custody record shall be filled out in its entirety.

1. Record project number.
2. Record FTL for the project (if a field sample custodian has been designated, also record this name in the "Remarks" box).
3. Record the name and address of the laboratory to which samples are being shipped.
4. Enter the project name/location or code number.
5. Record overnight courier's airbill number.
6. Record sample location number.
7. Record sample number.
8. Note preservatives added to the sample.
9. Note media type (matrix) of the sample.
10. Note sample type (grab or composite).
11. Enter date of sample collection.
12. Enter time of sample collection in military time (24 hour clock).
13. When required by the client, enter the names or initials of the samplers next to the sample location number of the sample they collected.
14. List parameters for analysis and the number of containers submitted for each analysis.
15. Enter appropriate designation for laboratory quality control (e.g., matrix spike/matrix spike duplicate [MS/MSD], matrix spike/duplicate [MS/D]), or other remarks (e.g., sample depth).
16. Sign the chain-of-custody record(s) in the space provided. All samplers must sign each record.
17. If sample tags are used, record the sample tag number in the "Remarks" column.
18. The originator checks information entered in Items 1 through 16 and then signs the top left "Relinquished by" box, prints his/her name, and enters the current date and time (military).
19. Send the top two copies (usually white and yellow) with the samples to the laboratory; retain the third copy (usually pink) for the project files. Retain additional copies for the project file or distribute as required to the appropriate sample coordinators.
20. The laboratory sample custodian receiving the sample shipment checks the sample label information against the chain-of-custody record. Sample condition is checked and anything unusual is noted under "Remarks" on the chain-of-custody record. The laboratory custodian receiving custody signs in the adjacent "Received by" box and keeps the copy. The white copy is returned to CDM Smith.

5.2 Sample Labels and Tags

Unless the client directs otherwise, sample labels or tags will be used for all samples collected or accepted for CDM Smith projects.

1. Complete one label or tag with the information required by the client for each sample container collected. A typical label or tag would be completed as follows (see Figure 2 for example of sample tag; labels are completed with the equivalent information):

   - Record the project code (i.e., project or task number).
   - Enter the station number (sample number or EPA CLP identification number) if applicable.
   - Record the date to indicate the month, day, and year of sample collection.
   - Enter the time (military) of sample collection.
   - Place a check to indicate composite or grab sample.

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- Record the station (sample) location.
- Sign in the space provided.
- Place a check next to "yes" or "no" to indicate if a preservative was added.
- Place a check under "Analyses" next to the parameters for which the sample is to be analyzed. If the desired analysis is not listed, write it in the empty slot. Note: Do not write in the box for "laboratory sample number."
- Place or write additional relevant information under "Remarks."

2. Place adhesive labels directly on the sample containers. Place clear tape over the label to protect from moisture.

3. Securely attach sample tags to the sample bottle if required. On 2.27 liter (80 oz.) amber bottles, the tag string may be looped through the ring-style handle and tied. On all other containers, it is recommended that the string be looped around the neck of the bottle, then twisted, and relooped around the neck until the slack in the string is removed. In some instances, when the tag cannot be physically attached to the sample container, it is acceptable to simply place the sample tag in the zip lock bag with a sample container.

4. Double-check that the information recorded on the sample label or tag is consistent with the information recorded on the chain-of-custody record.

5.3 Custody Seals

Two custody seals must be placed on opposite corners of all shipping containers (e.g., cooler) before shipment. The seals shall be signed and dated by the shipper.

Custody seals may also be required to be placed on individual sample bottles. Check with the client or refer to EPA regional guidelines for direction. In these instances the custody seal is placed over or in some cases around the lid or cap of the sample container.

5.4 Sample Shipping

SOP 2-1, *Packaging and Shipping Environmental Samples* defines the requirements for packaging and shipping environmental samples.

6.0 Restrictions/Limitations

Check with the EPA region or client for specific guidelines. If no specific guidelines are identified, this procedure shall be followed.

For EPA CLP sampling events, combined chain-of-custody/traffic report forms generated with Scribe or other EPA-specific records may be used. Refer to regional guidelines for completing these forms.

The EPA Scribe software may be used to customize sample labels and custody records when directed by the client or the CDM Smith project manager.

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7.0 References

U. S. Army Corps of Engineers. 2001 or current revision. *Requirements for the Preparation of Sampling and Analysis Plan*, EM 200-1-3. Appendix F. February.

U. S. Environmental Protection Agency. Revised March 1992 or current revision. *National Enforcement Investigations Center, Multi-Media Investigation Manual*, EPA-330/9-89-003-R. p.85.

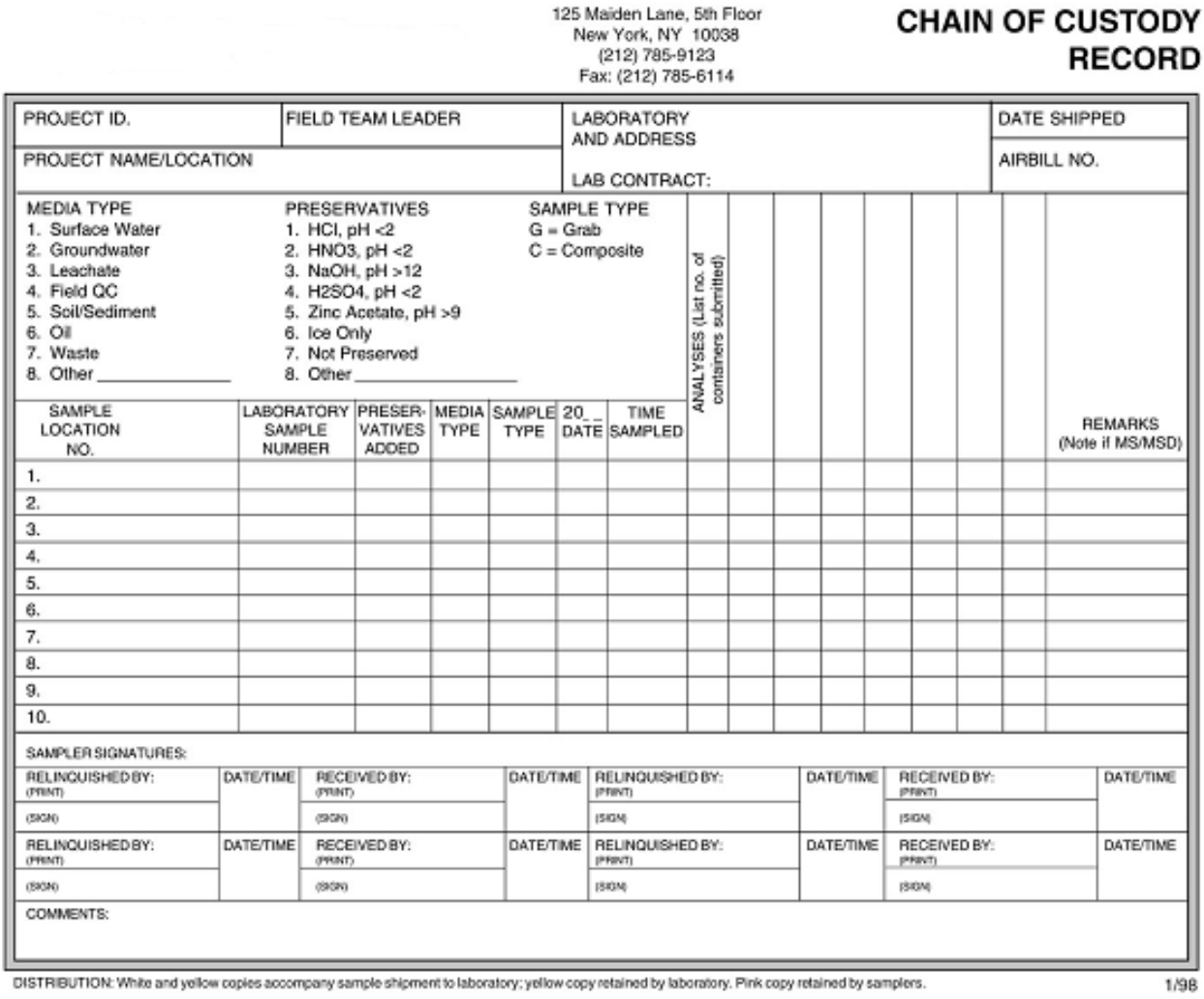
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_____. 2002 or current revision. *EPA Guidance for Quality Assurance Project Plans*, EPA QA/G-5, EPA/240/R-02/009. Section 2.2.3. December.

_____. 2014 or current revision. *Sampler's Guide, Contract Laboratory Program Guidance for Field Samplers*, EPA-540-R-09-03. January.

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Figure 1
Example CDM Smith Chain-of-Custody Record



125 Maiden Lane, 5th Floor
New York, NY 10038
(212) 785-9123
Fax: (212) 785-6114

CHAIN OF CUSTODY RECORD

PROJECT ID.	FIELD TEAM LEADER	LABORATORY AND ADDRESS	DATE SHIPPED
PROJECT NAME/LOCATION		LAB CONTRACT:	AIRBILL NO.

MEDIA TYPE
1. Surface Water
2. Groundwater
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil
7. Waste
8. Other _____

PRESERVATIVES
1. HCl, pH <2
2. HNO3, pH <2
3. NaOH, pH >12
4. H2SO4, pH <2
5. Zinc Acetate, pH >9
6. Ice Only
7. Not Preserved
8. Other _____

SAMPLE TYPE
G = Grab
C = Composite

SAMPLE LOCATION NO.	LABORATORY SAMPLE NUMBER	PRESER-VATIVES ADDED	MEDIA TYPE	SAMPLE TYPE	20__ DATE	TIME SAMPLED	ANALYSES (List no. of containers submitted)								REMARKS (Note if MS/MSD)
1.															
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

SAMPLER SIGNATURES:

RELINQUISHED BY: (PRINT)	DATE/TIME	RECEIVED BY: (PRINT)	DATE/TIME	RELINQUISHED BY: (PRINT)	DATE/TIME	RECEIVED BY: (PRINT)	DATE/TIME
(SIGN)		(SIGN)		(SIGN)		(SIGN)	
RELINQUISHED BY: (PRINT)	DATE/TIME	RECEIVED BY: (PRINT)	DATE/TIME	RELINQUISHED BY: (PRINT)	DATE/TIME	RECEIVED BY: (PRINT)	DATE/TIME
(SIGN)		(SIGN)		(SIGN)		(SIGN)	

COMMENTS:

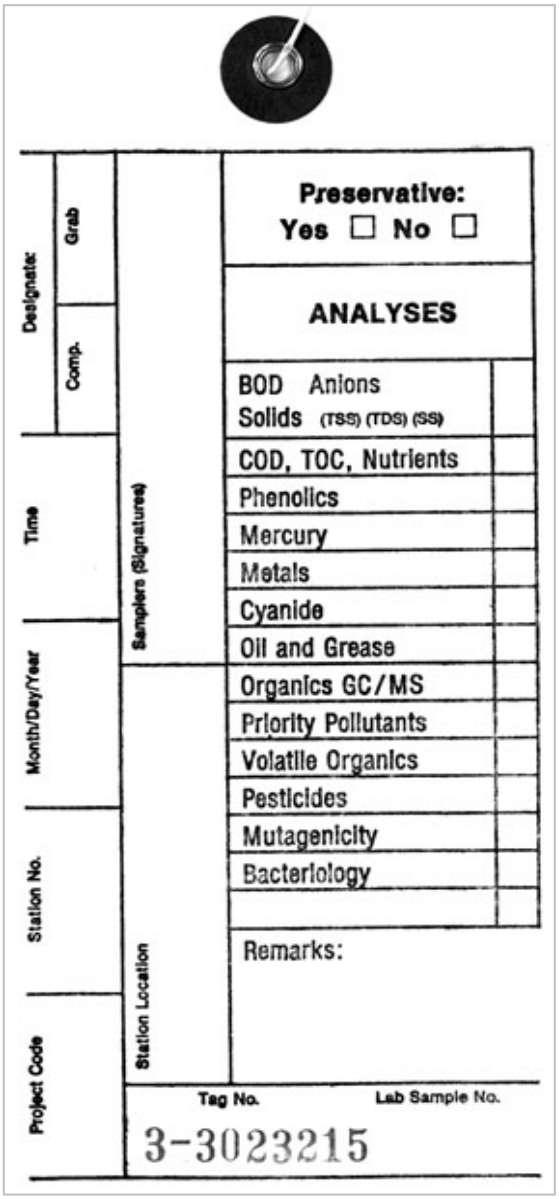
DISTRIBUTION: White and yellow copies accompany sample shipment to laboratory; yellow copy retained by laboratory. Pink copy retained by samplers.

1/98

Note: If requested by the client, different chain-of-custody records may be used. Copies of the template for this record may be obtained from the Chantilly Graphics Department.

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Figure 2
Example Sample Tag



Note: Equivalent sample labels or tags may be used.

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Groundwater Level Measurement	SOP 1-6 Revision: 9 Date: February 2015
Approved: Signature	**Technical Review:** David Schroeder

1.0 Objective

Groundwater level measurements are fundamental to groundwater and solute transport studies and are conducted during groundwater sampling events to calculate the amount of groundwater to be purged from the well. This technical standard operating procedure (SOP) defines the techniques and requirements for obtaining depth to groundwater (or groundwater level) measurements.

2.0 Background

2.1 Definitions

Water Level Indicator - A portable device for measuring the depth from a fixed point (which could be below, at, or above the ground surface) to groundwater inside a well, borehole, or other underground opening.

Measurement Point - An easily located and clearly defined mark at the top of a well from which all water level measurements from that particular well are made. The measurement point shall be as permanent as possible to provide consistency in measurements.

Electrical Tape - A graduated plastic tape onto which a water-sensitive electrode is connected that will electronically signal the presence of water (as a result of circuit closure).

Immiscible Fluids - Two or more fluid substances that will not mix and, therefore, will exist together in a layered form. The fluid with the highest density will exist as the bottom layer, the fluid with the lowest density will exist as the top layer, and any other fluid layers will be distributed relative to their respective densities.

Discharge - The removal/release of water from the zone of saturation.

Recharge - The addition of water to the zone of saturation.

Static Water Level - The level of water in a well, borehole, or other underground opening that is not influenced by discharge or recharge.

Well Casing - A steel, stainless steel, or polyvinyl chloride pipe that extends into a borehole and is connected to the well screen or sealed at the bedrock surface in open-hole wells. The upper portion (approximately 3 to 4 feet) of the well casing is normally enclosed by an outer steel protective casing.

Protective Casing - A steel cylinder or square protective sleeve extending approximately 3 to 5 feet into the ground, surrounding the well casing. For flush-mounted wells, the protective casing will extend only high enough so that the well and protective casing can be enclosed by a Christy box or equivalent vault. In above-grade wells, the protective casing will extend above the ground surface approximately 2 to 3 feet. The protective casing protects the well casing.

2.2 Associated Procedures

- SOP 4-1, *Field Logbook Content and Control*
- SOP 4-5, *Field Equipment Decontamination at Nonradioactive Sites*

2.3 Discussion

The most common uses of static water level data are to: determine the elevation of groundwater, the direction of groundwater flow, identify areas of recharge and discharge, evaluate the effects of manmade and natural stresses on the groundwater system, define the hydraulic characteristics of aquifers, and evaluate stream-aquifer relationships. Specific uses for water level data may include:

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- Determining the change in water level due to distribution and rate of regional groundwater withdrawal
- Showing the relationship of groundwater to surface water
- Estimating the amount, source, and area of recharge and discharge
- Determining rate and direction of groundwater movement

Static water level measurements shall be obtained from each well before purging, sampling, or other disturbance of the water table.

3.0 General Responsibilities

Project Manager - The project manager is responsible for ensuring that measurements are conducted in accordance with this procedure and any other SOP pertaining to site activities related to obtaining groundwater level measurements.

Field Team Leader - The field team leader is responsible for ensuring that field personnel obtain water level measurements in accordance with this and other relevant procedures.

Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field sampling plan or site/quality assurance project plan (QAPP).

4.0 Required Equipment

4.1 General

- Site-specific plans
- Field logbook
- Indelible black ink pens
- Permanent felt-tip marker (e.g., Sharpie)
- Personal protective equipment
- Decontamination equipment and supplies, including rinse bottles and deionized water
- Tap water and large beaker or bucket
- Water level meter

4.2 Measuring Devices

The equipment required to obtain water level measurements is dependent on the type of procedure chosen. Measurements may be made with a number of different devices and procedures. Measurements are taken relevant to a permanent measurement point on the well riser.

Electrical tapes are preferred over other devices such as steel tape because of the electrical tape's simplicity and ability to make measurements in a short period of time. Many types of electrical instruments have been devised for measuring water levels; most operate on the principle that a circuit is completed when two electrodes are immersed in water. Examples of electrical tapes that are frequently used include the Slope Indicator Co.® and Solinst® electronic water level indicators. These instruments are powered by batteries that shall be checked before mobilization to the field.

Electrical tapes are coiled on a hand-cranked reel unit that contains the batteries and a signaling device that indicates when the circuit is closed (i.e., when the probe reaches the water). Electrodes are generally contained in a weighted probe that keeps the tape taut in addition to providing some shielding of the electrodes against false indications as the probe is being lowered into the hole. The electrical tapes are marked with 0.01-foot increments. Caution shall be exercised when using electrical tapes when the water contains elevated amounts of dissolved solids. Under these conditions, the signaling device will remain activated after the probe is removed from the water. When the water being measured contains very low amounts of dissolved solids, it is possible for the probe to extend several inches below the water level before activating the signaling device. Both of these conditions are related to the conductivity of the water and in some cases may be compensated for by the sensitivity control, if the device has this option. In groundwater with high conductivity the sensitivity control may need to be turned down, and in groundwater with low conductivity the sensitivity control may need to be turned up to obtain a proper depth to groundwater measurement.

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5.0 Procedures

5.1 Preparation

The following steps must be taken when preparing to obtain a water level measurement:

1. Assign a designated field logbook to record all field events and measurements according to SOP 4-1. Document any and all deviations from SOPs and site-specific plans in the field logbook and include rationale for the changes.

2. Always exercise caution to prevent inappropriate or contaminated materials from entering an environmental well.

3. Standing upwind from the well, open the groundwater well. Monitor the well with a photoionization detector, flame ionization detector, or equivalent vapor analyzer as soon as the cap is opened, as dictated by the site-specific health and safety plan.

For comparability, water level measurements shall always be referenced to the same vertical (elevation) datum marker, such as a U. S. Geological Survey (USGS) vertical and horizontal control point monument. The elevations calculated from the measurement of static water levels shall be referenced to mean sea level unless otherwise specified in the site-specific plans.

The measurement point must be as permanent as possible, clearly defined, marked, and easily located. Frequently, the top of the PVC riser is designated as the measurement point. However, since the top of the riser is seldom smooth and horizontal, one particular point on the riser pipe shall be designated and clearly marked. This can be accomplished by marking a point on the top of the riser pipe with a permanent marker. To avoid spilling liquids into the well, paints or other liquid marking materials shall not be used.

5.2 Water Level Measurement Using Electrical Water Level Indicators

The following steps must be followed when taking water level measurements using electrical tapes:

1. Before lowering the probe into the well, the circuitry shall be checked by dipping the probe in tap water and checking to ensure that the signaling device responds to probe submergence. The probe shall then be lowered slowly into the well until contact with the water surface is indicated. The electrical tape reading is made at the measuring point. Take a second and third check reading to verify the measurement before completely withdrawing the tape from the well. All three measurements shall be recorded in the field logbook.

2. Independent electrical tape measurements of static water levels using the tape shall agree within ⍰0.01 foot for depths of less than about 200 feet. At greater depths, independent measurements may not be this close. For a depth of about 500 feet, the maximum difference of independent measurement using the same tape shall be within ⍰0.1 foot.

3. Decontaminate the electrical tape according to SOP 4-5 before proceeding to the next well to minimize cross contamination.

It may be necessary to check the electrical tape length with a graduated steel tape after the line has been used for a long period of time (at least annually) or after it has been pulled hard in attempting to free the line. Some electrical tapes, especially the single line wire, are subject to becoming permanently stretched.

5.3 Other Water Level Measurement Methods

Although the method cited above (electrical water level indicator) for measuring water levels predominates in the environmental sector, there are a number of other methods available that may be well suited for a particular purpose.

5.3.1 Ultrasonic Method

The ultrasonic method electronically measures the amount of time it takes a sound wave to reach and reflect off the water surface and return to the ground surface. These instruments contain electronic microprocessors, capable of performing this measurement many times each second. The actual depth to water, as calculated by the microprocessor, is an average of many individual readings.

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5.3.2 Pressure Gauge Method

This method, also called the air-line submergence method, uses a pressure gauge and is the preferred method for obtaining water level measurements in pumping wells. An air line constructed of semi-rigid tubing is inserted into the well below the water table. The tube end at the surface is connected to an air tank or compressor and pressure gauge. Filtered air is then forced through the tube and the resultant pressure is read in pounds per square inch (psi). This reading is converted to feet of water in the column and subtracted from the total tube length to give depth to water. Readings are then converted to groundwater elevation. Results are plotted on a field logging form. Calibration records and the exact procedures used must be maintained.

5.3.3 Acoustic Probe Method

The acoustic probe is an electronic device containing two electrodes and a battery-powered transducer. The probe is attached to a tape. The probe is lowered into the well until a sound is detected, indicating the electrodes in the probe have contacted the water surface. This method is similar to the electrical probe method discussed in Section 5.2.

5.3.4 Continuous Recording Method

The measurement of groundwater elevations within pumping or monitoring wells can be accomplished by the use of a mechanical or digital analog computerized continuous recording system and shall be performed according to specifications given by the manufacturer of each unit. In general, when using the mechanical or digital system, the pressure or electrical transducer is lowered into the well until it intersects the water surface. The actual depth to water is then measured by one of the methods described above and used to calibrate the continuous recorder.

The necessary adjustments and preparations are then completed according to the specifications given for each type of continuous recorder. Proper maintenance of continuous recording devices during water level monitoring shall be performed such that continuous, permanent records are developed for the specified period of time. Records shall be stored on mechanical graph paper or on a microprocessor. Frequent calibrations of equipment shall also be made during monitoring periods of long duration in accordance with the manufacturers' specifications.

6.0 Restrictions/Limitations

6.1 Groundwater and Miscible Fluids

Where water is rapidly dripping or flowing into a well, either from the top of the well or from fractures, obtaining an accurate reading may not be possible.

The effect of the water flowing into the well may interfere with an electronic water level measuring device, resulting in a false water level measurement. If water levels must be recorded in wells completed in aquifers that are recharging or discharging, the electronic water level indicator is the preferred measuring device, but shall be used with the awareness of possible false measurements. To minimize the effects of "splashing," a 1-inch pipe (decontaminated for environmental wells) may be lowered into the pumping well into which the water level indicator is then inserted. This will minimize the effect of "splashing" until the probe contacts the groundwater. It will also protect the probe from becoming tangled in pump wiring or well spacers associated with downhole equipment such as submersible pumps.

6.2 Immiscible Fluids

For wells containing immiscible contaminants, the field personnel will need to use special procedures for the measurement of fluid levels. The procedure to follow will depend on whether layers are light immiscibles that form lenses floating on the top of the water table, or dense immiscibles that sink through the aquifer and form lenses over less permeable layers.

In the case of light immiscibles, measurements of immiscible fluid and water levels cannot be accomplished by using normal techniques. A conventional electrical tape often will not respond to nonconducting immiscible fluids.

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Techniques have been specially developed to measure fluid levels in wells containing immiscible fluids, particularly petroleum products. A special paste or gel applied to the end of the steel tape and submerged in the well will show the top of the oil as a wet line and the top of the water as a distinct color change, or an interface probe can be used that will detect the presence of conducting and nonconducting fluids. Thus, if a well is contaminated with low density, nonconducting immiscible fluids such as gasoline, the probe will first detect the surface of the gasoline, but it will not register electrical conduction. However, when the probe is lowered deeper to contact water, it will detect electrical conduction. Normally, a variation in an audible signal indicates the difference between phases.

Both of these methods have disadvantages. They are less effective with heavier and less refined petroleum products because the product tends to stick to the tape or probe, giving a greater product thickness measurement than is present. Paste or gel cannot be used when sampling groundwater for the same constituents present in the paste or gel product.

Note that water levels obtained in this situation are not suitable for determining hydraulic gradients without further interpretation. To use such data for determining hydraulic gradients, the difference in density between the light immiscible phase and water has to be considered.

Measuring fluid levels in wells screened in lenses of dense immiscible fluids resting on a low permeability formation is somewhat easier, provided the immiscible fluid is nonconducting. The top of the dense layer can be identified by simply using an electrical sounder. As an electrical sounder passes from groundwater into the immiscible phase, the detection unit will deactivate because the fluid will no longer conduct electricity. A better method would be to use an interface probe as described above. The variation in the audible signal associated with the detection of differing phase liquids will also allow the user to obtain a groundwater depth and dense immiscible thickness measurement.

7.0 References

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Tap Water Sampling

SOP 1-9
Revision: 7
Date: February 2015

Approved: *Signature* **Technical Review:** David Sembrot

1.0 Objective

The objective of this technical standard operating procedure (SOP) is to define the requirements for collecting tap water samples for the purpose of assessing water quality. General guidelines for purging the water supply system before sample collection are also provided. Depending on the objective of the sampling event as defined in the site-specific sampling plan, the water source may be from a private or public potable water supply, such as a groundwater well or a surface water reservoir.

2.0 Background

2.1 Definitions

Holding Tank - An in-house water reservoir that provides a limited reserve water supply and equalizes water pressure throughout the plumbing system. Most domestic well holding tanks have a storage capacity of approximately 30 gallons.

Onsite Water Supply - A source of potable water located on the property to be sampled. The water source could be a groundwater aquifer (i.e., a residential groundwater well) or a surface water body (i.e., a water intake from a lake).

Potable Water - Water considered safe for human consumption.

Tap Water Samples - Samples of water collected from a faucet or spigot at a residence, business, or industrial plant. Usually, samples are collected from the tap(s) nearest the water supply source or area of interest along the distribution system.

Water Filter - A device used to remove suspended particulate matter and/or various compounds from the water source. One type of common filter is a water softener that uses a calcium-salt filter to remove calcium and magnesium ions from potable water to reduce the hardness.

2.2 Associated Procedures

- SOP 1-2, *Sample Custody*
- SOP 2-1, *Packaging and Shipping Environmental Samples*
- SOP 4-1, *Field Logbook Content and Control*
- SOP 4-3, *Well Development and Purging*
- SOP 4-5, *Field Equipment Decontamination at Nonradioactive Sites*

2.3 Discussion

Tap water sampling may be conducted in residential, commercial, or industrial areas. Consequently, sampling personnel will interface with the general public (i.e., homeowners, business owners, or concerned citizens) and must present themselves in the utmost professional manner. Permission to access the property must be obtained before conducting the tap water sampling event; the client shall be consulted as to the proper notification procedures. At the time of the sampling, it is recommended that a letter of introduction be presented to the property owner or representative, explaining the purpose of the tap water sampling and indicating the name of the person and phone number to contact if the property owner has questions. At no time shall the sampling team enter a home or business without the approval of the property owner; the property owner or representative must be present to enter a building.

Generally, water supply sources and distribution systems can be categorized into two types:

- Onsite water supplies such as private, groundwater wells or surface water intakes for single residences, businesses, or industrial plants with limited distribution systems

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- Large distribution systems from public or municipal groundwater or surface water supplies with extensive distribution systems for multiple users

The site-specific sampling plan shall describe the source of the potable water supply, the water distribution system, and other site-specific factors that may affect the water quality (well construction details, local hydrogeology, the presence of filters or holding tanks within the distribution system, pipe age, and composition, etc.). It is preferable to collect the samples from a tap located prior to a filtering device or a holding tank so that contaminants will be less likely to have been removed or allowed to settle out. The sampling objectives and sampling requirements, including analytical parameters, preservatives, and sample handling procedures must also be specified. Depending on the water source and distribution system, the site-specific sampling plan shall describe the requirements for purging the system before collecting the tap water sample and for disposing of the purged water.

The procedures described in this SOP provide guidelines to obtain representative tap water samples from water supplies/distribution systems ranging from small onsite water supplies to large multiuser distribution systems.

3.0 General Responsibilities

Field Team Leader - The field team leader is responsible for ensuring that sampling efforts are conducted in accordance with this procedure and any associated SOPs.

Sampling Personnel - Field team members are responsible for conducting tap water sampling events in accordance with this procedure, all associated SOPs, and requirements as described in the site-specific plans.

Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field plan or site/quality assurance project plan (QAPP).

4.0 Required Equipment

All or part of the equipment listed may be required at any specific site, depending on the plan(s) for that site.

- Site-specific plans including letter(s) of introduction
- Field logbook and indelible black ink pens and markers
- Forms and other documentation for sample shipment
- Sample containers, labels, and preservatives, as required
- Insulated cooler and waterproof sealing tape
- Ice bags or “blue ice”
- Plastic zip-top bags
- 5-gallon bucket and stopwatch
- Temperature, conductivity, pH, dissolved oxygen, and turbidity meters (with clean beakers or other appropriate containers), as required by the site-specific plans
- Photoionization detector (PID) and/or other monitoring/screening instruments as required by the site-specific health and safety plan or sampling plan
- Decontamination supplies, as required by SOP 4-5
- Personal protective equipment (PPE), as required by the site-specific health and safety plan
- Latex or appropriate gloves

5.0 Procedures

1. Obtain the name(s) of the resident(s) or water supply owner/operator, the exact mailing address, and telephone numbers. This information is required to obtain access to the property to be sampled and to submit a letter of introduction to the owner/representative.

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2. Determine the location of the tap to be sampled based on its proximity to the water source. It is preferable that the tap being sampled be prior to any holding or pressure tanks, filters, water softeners, or other treatment devices that may be present.

3. If the sample must be collected at a point in the water line beyond a pressurization or holding tank, a sufficient volume of water shall be purged to provide a complete exchange of fresh water into the tank and at the location where the sample is collected. If the sample is collected from a tap or spigot located just before a storage tank, spigots located inside the building or structure shall be turned on to prevent any backflow from the storage tank to the sample tap or spigot. It is generally advisable to open as many taps as possible during the purge, to ensure a rapid and complete exchange of water in the tanks.

4. Samples collected to determine if system related variables (e.g., transmission pipes, water coolers/heaters, holding/ pressurization tanks) are contributing to the quality of potable water shall be collected after a specific time interval (e.g., weekend, holiday). Sample collection shall consist of an initial flush, a sample after several minutes, and another sample after the system has been purged.

5. Devices such as hoses, filters, or aerators attached to the tap may harbor a bacterial population and therefore shall be removed before sampling.

6. Potable water samples which have been chlorinated must be treated with sodium thiosulfate to dechlorinate the sample prior to other preservation and shipping for analysis.

7. Sample containers shall not be rinsed before use when sampling for bacterial content, and precautions shall be taken to avoid splashing drops of water from the ground or sink into either the bottle or cap.

8. Samples of the raw water supply and the treated water after chlorination shall be collected when sampling at a water treatment plant.

9. In the logbook, record the location and describe the general condition of the tap selected for sampling. The rationale used in selecting the tap sampling location, including any discussions with the property owner, shall also be recorded. Provide a sketch of the water supply/distribution system noting the location of any filters or holding tanks and the water supply source (i.e., an onsite groundwater well or surface water intake or a water service line from a public water main). If an onsite water supply is present, observe and record the surrounding site features that may provide potential sources of contamination to the water supply.

10. Don the appropriate personal protective clothing as dictated by the site-specific health and safety plan. Latex gloves shall be changed between sampling locations to avoid possible cross contamination of the tap water samples.

11. Before sample collection, the supply system shall be purged by turning the cold water tap on. The following general guidelines shall be followed to determine when the system is adequately purged (refer to the site-specific sampling plans for any other requirements):

    - **Onsite Water Supply**. A minimum of three standing volumes of water (i.e., the static volume of water in the well and holding tank, if present) shall be purged. Obtain water temperature, conductivity, and pH measurements after each volume of water is purged. If the standing volume of water in the supply system is unknown, the tap shall be allowed to run for a minimum of 15 minutes and temperature, conductivity, and pH measurements, or other parameters as specified by the project plan, shall be collected at approximately 3- to 5-minute intervals. (In general, well construction details and holding tank volumes shall be obtained before conducting the sampling event to estimate the standing volume of the water supply system.) The system is considered adequately purged when the temperature, conductivity, and pH stabilize within 10 percent for three consecutive readings. If these parameters do not stabilize within 15 minutes, then purging shall be discontinued and tap water samples may be collected as discussed in Section 6.0.

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- **Large Distribution Systems**. Because it is impractical to purge the entire volume of standing water in a large distribution network, a tap shall be run for a minimum of 5 minutes, which shall be adequate to purge the water service line. Obtain temperature, conductivity, and pH measurements at approximately 1-minute intervals. The system is considered adequately purged when the temperature, conductivity, and pH readings, or other parameters as specified

  by the project plan, stabilize within 10 percent for three consecutive readings. If these parameters do not stabilize within 5 minutes, then purging shall be discontinued and tap water samples may be collected as discussed in Section 6.0.

  During purging, a 5-gallon bucket and stopwatch may be used to estimate the flow rate if required by the site-specific plans. Dispose of the purged water according to the site-specific plans. Record the temperature/conductivity/pH readings, or other parameters as specified by the project plan, the volume of water purged, the flow rate if measured, and the method of disposal in the field logbook.

12. After purging the supply system, collect the samples directly from the tap (i.e., if a hose was used for purging, the hose shall be disconnected before sampling). Any fittings on the end of the faucet that might introduce air into the sample (i.e., a fine mesh screen that is commonly screwed onto the faucet) shall be removed before sample collection also.

13. Obtain a smooth-flowing water stream at moderate pressure with no splashing. Samples for volatile organic compound (VOC) analyses shall be collected using a reduced flow rate (see below). Hold the sample bottle in one hand and the cap in the other; do not touch the inside of the cap; do not allow the faucet to touch the inside of the bottle; do not allow splashing water from the ground or sink to enter the bottle or cap. VOC samples shall be filled first, followed by other organic analyses, inorganic analyses, and then other water quality parameters. Refer to the site-specific plans for the required sample parameters, preservatives, and sample handling procedures. The following general guidelines shall be followed when collecting samples:

    - **VOC**. Reduce the flow rate to a minimum to reduce aeration of the VOC sample. Use a pre-preserved "test" vial to determine the appropriate amount of hydrochloric acid (HCl) needed to reduce the pH of the sample to less than 2. Dispose of this test vial after the appropriate amount of HCl is determined. Add the required amount of HCl to the sample vials and then fill the vials with the sample water. Quickly replace the cap and check for air bubbles. If air bubbles are present, the vial will be discarded and a new vial will be filled as detailed above.

    - **Semivolatile Organic Compounds (SVOCs), Pesticides, and Polychlorinated Biphenyls (PCBs)**. Generally, aqueous samples for SVOCs and pesticides/PCBs require no preservative. Sample containers may be filled directly from the tap.

    - **Total (unfiltered) Metals**. Generally, tap water samples are not collected for filtered (dissolved) metals because risk assessment data needs require total metals analyses (check the site-specific plans to determine filtering requirements). The sample container for total metals may be filled directly from the tap. Nitric acid (HNO_3) shall then be added to the filled container to preserve the sample to a pH less than 2.

    - **Other Sample Parameters**. Other water quality parameters, such as cyanide dissolved oxygen, hardness, nitrate/nitrite, etc., shall be collected and preserved as required by the site-specific sampling plans.

14. Label all sample containers as required and place them in a cooler with ice. Record all appropriate data in the field logbook and on the chain-of-custody forms.

6.0 Restrictions/Limitations

To protect the sample from contamination on the exterior of a tap, a tap shall not be chosen for sampling if any of the following conditions exist:

- A leaky tap allowing water to flow out from around the stem of the valve handle and down the outside of the faucet.
- A tap located too close to the bottom of the sink or the ground surface.
- A tap that allows water to run up on the outside of the lip.

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- A tap that does not deliver a steady stream of water. A temporary fluctuation in line pressure may cause sheets of microbial growth, lodged in some pipe sections or faucet connections, to break loose.

Careful sampling for VOC analysis, or for any other compound(s) that may be degraded by aeration, is necessary to minimize sample disturbance and, hence, analyte loss.

7.0 References

U. S. Environmental Protection Agency. 2013. Region 4. The Field Branches Quality System and Technical Procedures, Potable Water Sampling. SESDPROC-305-R3. May.

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Low- Stress (Low-Flow) Groundwater Sampling	SOP 1-12 Revision: 2 Date: February 2015
Approved: Joyell Mullins	**Technical Review:** Lynne France

1.0 Objective

The purpose of this technical standard operating procedure (SOP) is to define the procedural requirements for low-flow (minimal drawdown) groundwater sampling.

2.0 Background

Low-flow groundwater sampling is a method of collecting samples from a well that, unlike traditional purging methods, does not require the removal of large volumes of water from the well. The objective of low-flow groundwater sampling is to collect samples with minimal alterations to water chemistry through pumping the well at a rate low enough to minimize drawdown and to avoid disturbance in the well. Low-flow groundwater sampling refers to the velocity with which water enters the pump intake, and that which is imparted to the formation pore water in the immediate vicinity of the well screen. It does not necessarily refer to the flow rate of water discharged at the surface of the well which can be affected by flow regulators or restrictions.

Water level drawdown provides the best indication of the stress imparted by a given flow-rate for a given hydrological situation. The objective of low-flow groundwater sampling is to pump the well in a manner that minimizes stress (drawdown) to the system. Minimal drawdown must be stabilized such that the water to be sampled is representative of the formation surrounding the screened interval, and is not from the stagnant water column above the screened interval. Minimal drawdown is achieved to the extent practical taking site sampling objectives into account. Typically flow rates on the order of 0.1 to 0.5 liter per minute (L/min) are used. However, achieving flow rates of 0.1 to 0.5 L/min can be dependent on site-specific hydrogeology. Some very coarse-textured formations have successfully been sampled via low-flow techniques at flow rates up to 1 L/min. The effectiveness of using low-flow purging is intimately linked with proper well screen location, well screen length, and well construction and development techniques.

Low-flow groundwater sampling can be used to collect samples for all categories of aqueous-phase contaminants and naturally occurring analytes, including volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and other organic compounds; metals and other inorganics; pesticides; polychlorinated biphenyls (PCBs); radionuclides; and microbiological constituents. Low-flow groundwater sampling techniques are particularly well-suited in applications where it is desirable to sample aqueous-phase constituents that may sorb or partition to particulate matter. It is not applicable to sampling wells that contain either light or dense non-aqueous-phase liquids (LNAPLs or DNAPLs).

A variety of sampling devices are available for low-flow groundwater sampling, including peristaltic pumps, bladder pumps, electrical submersible pumps, and gas-driven pumps. Pump type should be selected based on known site conditions, including well depth, well diameter, water level, and anticipated well volume, as well as sampling objectives. Note that peristaltic pumps (suction pumps) cannot be used under conditions in which the water table is greater than 25 feet below ground surface. Additionally, in most instances, peristaltic pumps may not be used for collecting VOC samples because they create a vacuum that potentially contributes bias to sampling for VOC's via low flow technicques. Bailers, too, are generally inappropriate devices for low-flow sampling. Gas-driven pumps are generally not advisable for VOC or SVOC sample collection due to the potential for sample contamination.

Dedicated pumps (those which are permanently installed in the well –e.g., bladder pumps) are preferred over portable pumps because they eliminate disturbance to the water column in the well during pump insertion, thus providing lower turbidity values, shorter purge times, and lower purge volumes to achieve stabilized indicator parameter measurements. However, portable pumps can be used if care is taken to minimize disturbance to the water column during pump insertion, and if adequate time is allowed following pump insertion and prior to pump operation for any particulates agitated in the water column to settle. Both dedicated and portable pumps should be easily adjustable, and should operate reliably at lower flow rates. All pumps typically have some limitations which should be evaluated with respect to site-specific considerations and data quality objectives on a case-by-case basis.

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Low- Stress (Low-Flow) Groundwater Sampling

SOP 1-12
Revision: 2
Date: February 2015

Water quality indicator parameters should be continuously monitored during low-flow purging using a flow-through cell, or in-line parameter monitoring techniques. Continuous indicator parameter monitoring is a critical component to low-flow groundwater sampling. Water quality indicator parameters include temperature, pH, oxidation-reduction potential (ORP), specific conductivity, dissolved oxygen (DO), and turbidity. The flow-through cell enables continuous collection of real-time parameters during low-flow purging. Stabilization is achieved after all parameters fall within established limits for three successive readings as discussed in Section 5. Stabilization of low-flow parameters is further discussed in Section 5.0 (Procedure) of this SOP.

Advantages of low-flow groundwater sampling are:
- Improved sample quality (e.g., less turbid and more representative of the aquifer)
- Potentially reduced purging and sampling times
- Reduced purge water volume

2.1 Associated Procedures
- SOP 1-6, *Water Level Measurement*
- SOP 4-5, *Field Equipment Decontamination at Nonradioactive Sites*
- SOP 2-2, *Guide to Handing of Investigation Derived Waste*

3.0 General Responsibilities
Site Manager - The site manager is responsible for ensuring that field personnel are trained in the use of this procedure and for verifying that well development and purging are carried out in accordance with this procedure.

Field Team Leader - The field team leader is responsible for complying with this procedure.

Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field plan or site-/project-specific quality assurance plan.

4.0 Required Equipment
- Pump (including peristaltic pumps, bladder pumps, electrical submersible pumps, and gas-driven pumps as discussed in Section 2.0 of this SOP)
- Appropriate controller for selected pump type
- For bladder pumps: Compressor and controller for the system (compressed non-reactive gas may also be used in lieu of a compressor)
- Power source (e.g., battery or generator), as required
- Pump tubing (typically polyethylene with Teflon® lining).Note that portable bladder pumps require combination tubing (for air and water); therefore the correct tubing sizes for the portable bladder pump should be verified. Additionally, peristaltic pumps require flexible tubing (silicone or Tygon) tubing for the pump head.
- Electronic water level meter or oil-water interface probe (according to SOP 1-6)
- Water quality meter(e.g., YSI 600 Series) with a closed flow-through cell for continuous in-line measurement of temperature, pH, conductivity, ORP, and DO prior to sample collection
- Turbidity meter (Reporting in nephelometric turbidity units [NTUs])
- Standards for calibration and field check, as needed, of water quality and turbidity meters (as determined by anticipated field conditions)
- Volume measuring device to determine flow (e.g., graduated cylinder)
- Stop watch
- Tape measure
- Personal protective equipment as specified in the site-specific health and safety plan
- Polyethylene sheeting

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- Sample containers, including packaging supplies and all associated paperwork (e.g., chain of custody forms) as required in the sampling plan and/pr SOP 2-1, Packaging and Shipping Environmental Samples
- Decontamination supplies, as required, according to SOP 4-5
- Disposal drums (e.g., 55-gallon Department of Transportation-approved) or other purge water storage container, if required by the site-specific sampling plan
- Photoionization detector (PID)/organic vapor monitor (OVM) or equivalent as specified in site-specific health and safety plan

Note: All sampling devices (bladders, pumps, and tubing) should be constructed of stainless steel, polyethylene, Teflon®, glass, or similar non-reactive materials.

5.0 Procedure

The following steps must be followed for low-flow groundwater sampling activities:

1. Review site-specific health and safety plan, and site-specific project and sampling plans before initiating sampling activities.

2. Review available existing data for site to evaluate approach to sampling site wells: prepare to sample site wells in the order of least contaminated to most contaminated. Additionally, existing site data should be reviewed to determine anticipated hydrogeologic conditions and well completion details.

3. Prior to sampling, all sampling devices and monitoring equipment shall be calibrated according to manufacturer's recommendations and the site-specific sampling plan. Calibration of pH should be performed with at least two buffers which bracket the expected pH range. DO calibrations should be corrected for local barometric pressure readings and altitude.

4. Put on personal protective clothing and equipment as specified in the site-specific health and safety plan.

5. Open the well cover and check condition of the wellhead, including the condition of the surveyed reference mark, if any. If no reference mark exists, create a reference mark on the north side of the well riser using a permanent marker or equivalent. Record the location of the reference mark in the field notes.

6. Monitor the air space at the wellhead for VOCs using a PID/OVM or equivalent immediately upon removal of the well plug and as according to health and safety requirements.

7. Determine the depth to static water level in accordance with SOP 1-6, taking precautions to minimize disturbance of the stagnant water column above the screened interval during water level measurement. Well depth should be obtained from review of the well completion logs or from previous work. Insertion of a water level measuring device to the bottom of the well casing will result in resuspension of settled solids from the formation surrounding the screened interval, thus requiring longer purging times for turbidity and other field parameter equilibration.

8. Dedicated sampling devices (those permanently installed in the well) capable of pumping and sampling are preferred over any other type of device. Any portable sampling device should be slowly and carefully lowered to the middle of the screened interval or slightly above the middle to minimize excessive mixing of the stagnant water in the casing above the screen with the screened interval zone water, and to minimize resuspension of solids collected at the bottom of the well or in the surrounding formation within the screened interval.

9. New polyethylene tubing shall be used for each sample when using non-dedicated sampling equipment. Prepare the pump and tubing for insertion into the well. Lower the pump intake down into the well casing. Connect the flow-though cell in-line with the pump effluent tubing.

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10. Generally, the pump intake should be placed in the mid-point of the screened interval. This provides consistency between sampling rounds. However, if the geology of the screened interval consists of heterogeneous materials with layers of contrasting hydraulic conductivity, the pump intake should be positioned adjacent to the zone of highest hydraulic conductivity (as determined via review of the existing site hydrogeologic conditions/well completion logs). Also, the sampling plan should be consulted to determine if particular zones (e.g., known zones of contamination) are targeted for sampling per DQOs).

11. To achieve low-flow purging conditions, the purge rate should generally not exceed 0.5 L/min. Adjust the pump control to stabilize the flow rate, and therefore minimize drawdown (less than 0.3 foot during purging activities). The water level in the well should be measured throughout the purging process to monitor drawdown. Flow rate can be measured from the discharge tube using a volumetric measuring device (e.g., a graduated cylinder) and a stop watch (Note: determine flow rate by measuring volume in 0.5-minute or 1-minute increments.)

12. Record water level measurements, and field parameters including pH, temperature, specific conductivity, oxidation reduction potential (ORP), DO, turbidity, and flow rate every three to five minutes during the purging process. Record all measurements and observations in the log book or on a Groundwater Purging and Sampling Form (Attachment 1). Purging shall continue until the field parameters have stabilized. Parameters are considered stable when three consecutive readings are within the limits of the criteria defined in Table 5.1 and/or in accordance with the site-specific sampling plan. Turbidity ideally should stabilize below 10 NTU prior to sample collection, particularly if groundwater samples are to be collected for metals or PCB analyses.

TABLE 5.1 Stabilization of Water Quality Indicator Parameters

Parameter	Units	Stabilization Criteria
Water Level	Feet/meters	< 0.3 foot (< 0.1 meter)
Temperature	°F/°C	± 3 percent, or ±1.8 degrees Fahrenheit (°F) /±1 degree Celsius (°C)
pH	(n/a)	± 10 percent, or ±0.1 standards units (SU)
Specific Conductivity	µm/cm	±3 percent (microsiemens per centimeter, or µm/cm)
ORP	mV	±10 millivolts (mV)
Dissolved Oxygen	mg/L	±10 percent, or 0.2 milligram per liter (mg/L) - whichever is greater
Turbidity	NTU	± 1 Nephelometric Turbidity Unit (NTU) (±10 percent for turbidity if greater than 10 NTU)
Flow Rate	L/min	0.1 to 0.5 Liters per minute (L/min) (< 1 L/min), Specific flow rates and sampling rates to be identified in the sampling plan if project/contract required.

13. In low recharge aquifers, the following steps shall be followed:
    (1) If the initial water level is less than 10 feet above the top of the well screen, then purge the well until dry and allow sufficient recharge to collect samples.
    (2) If the initial water level in the well is greater than 10 feet above the top of the screen, then care shall be taken to prevent the dewatering of the screened interval during purging of the well.
        (2a) Continue purging until the water level is between 1 foot (0.3 meter) and 5 feet (1.5 meters) above the top of the screened interval.
        (2b) Allow the well to recharge, then continue purging until at least one full initial well volume has been purged.
    (3) Record all data, measurements, and observations in the log book.

14. After field parameters have stabilized, disconnect the flow through cell, and collect groundwater samples directly from the discharge tubing into an appropriate sample container. If using a peristaltic pump to collect VOC samples, refer to item 16 of this SOP for the correct procedure for sampling VOCs with a peristaltic pump. If an in-line, flow-through cell is used to continuously monitor indicator parameters, it should be disconnected or bypassed during sample collection. During sample collection, maintain the pump rate at the same rate used during purging (unless specified in the sampling plan). The pump rate used during sample collection may need to be lowered to minimize aeration, bubble formation, or turbulent flow of water into sample bottles, or to prevent sample preservatives from being washed out of the sample container.

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15. Groundwater sampling (including the collection of all required quality assurance/quality control samples specified in the sampling plan) shall be performed immediately upon completion of purging (unless time for recharge is required for low-recharge wells) using the same equipment used for purging. Sampling should occur in a progression from the least to the most contaminated well, if this is known. Generally, volatile (e.g., solvents and fuel constituents) and gas sensitive (e.g., Fe^{2+}, CH_4, H_2S/HS^-, and alkalinity) analytes should be sampled first. The sequence in which samples for most inorganic parameters are collected is immaterial unless filtered (dissolved) samples are required. Filtered samples should be collected last and in-line filters should be used. After all unfiltered samples have been collected, a 0.45 micron (µm) in-line filter shall be inserted in the discharge line for collection of filtered samples, as required.

16. VOC samples should not be collected directly from the discharge end of a peristaltic pump. After field parameters have stabilized, and all other samples have been collected as required, stop the pump and simultaneously pinch the discharge end of the tubing shut. Disconnect the flow-through cell. Remove the tubing from the well and fill the VOC sample containers from the influent end of the sample tubing, (the end of the tubing that was located down-well during purging activities). The flow rate when filling sample vials may be controlled by setting the peristaltic pump in reverse.

17. Place all samples in a cooler with ice or ice packs to comply with project, laboratory, and/or regulatory requirements.

18. After sampling activities have been completed, remove the portable pump assembly from the well, if used, and decontaminate all non-disposable components. Replace the well plug. Secure the well plug and well cover. Clean up the work area: containerize and/or dispose of purge water as required by the site-specific sampling plan, and dispose of tubing and all other disposable sampling equipment as investigation derived waste (IDW) after each use as described in the site-specific sampling plan.

6.0 Restrictions/Limitations

Only grounded electrical devices should be used for low-flow sampling activities. If a gasoline-powered electrical source is used, place portable power sources (e.g., generators) 50 feet (15 meters) or farther from the wellhead to prevent potential contamination of samples. Additionally, it should be clearly noted in the field notes or on the Groundwater Sampling Log (Attachment 1) if a well has been pumped dry and allowed to recharge prior to sample collection, as low-flow sampling data is no longer applicable.

7.0 References

ASTM D6452-99(2012)e1, Standard Guide for Purging Methods for Wells Used for Groundwater Quality Investigations, ASTM International, West Conshohocken, PA, 2012.

ASTM D4448-01(2013), Standard Guide for Sampling Ground-Water Monitoring Wells, ASTM International, West Conshohocken, PA, 2013.

Puls, R.W. and M.J. Barcelona. April 1996. *Low-Flow (Minimal Drawdown) Ground Water Sampling Procedures*. U.S. EPA, Ground Water Issue, Publication Number EPA/540/S-95/504.

U. S. Environmental Protection Agency. May 2002. *Groundwater Sampling Guidelines for Superfund and RCRA Project Managers.* Ground Water Forum Issue Paper, EPA 542-S-02-001, OSWER, Technology Innovative Office, Washington, D.C.

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Low- Stress (Low-Flow) Groundwater Sampling

SOP 1-12
Revision: 2
Date: February 2015

Attachment 1

EXAMPLE LOW-FLOW GROUNDWATER SAMPLING PURGING DATA SHEET

Site Name: _____ **Date:** _____ **OVM:** **FID** ☐ **PID** ☐ **In Casing (ppm): (Initial)** _____ **(Vented to)** _____

Well ID: _____ **Purging/Sampling Device:** _____

Initial Static Water Level (feet btoc): _____ **Analytical Parameters:** _____

Final Water Level (feet btoc): _____ **QC Samples Collected:** _____

Purge Start Time: _____ **Sample Number:** _____

Sample Time: _____ **Samplers' Signatures:** _____

Time	Water Level (ft btoc)	Temperature (ºC)	pH (SU)	Conductivity (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments (e.g., depth of pump intake, screened interval)

Parameter	Units	Stabilization Criterion
Water Level	Feet/meters	< 0.3 foot (< 0.1 meter)
Temperature	°F/°C	± 3 percent, or ±1.8 degrees Fahrenheit (°F) /±1 degree Celsius (°C)
pH	(n/a)	± 10 percent, or ±0.1 standards units (SU)
Specific Conductivity	µm/cm	±3 percent (microsiemens per centimeter, or µm/cm)
ORP	mV	±10 millivolts (mV)
Dissolved Oxygen	mg/L	±10 percent, or 0.2 milligram per liter (mg/L) - whichever is greater
Turbidity	NTU	± 1 Nephelometric Turbidity Unit (NTU) (±10 percent for turbidity if greater than 10 NTU)
Flow Rate	L/min	0.1 to 0.5 Liters per minute (L/min) (< 1 L/min)

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Packaging and Shipping Environmental Samples	SOP 2-1 Revision: 6 Date: February 2015

Approved: *Signature* **Technical Review:** T. Burgesser/C. Zakowski

1.0 Objective

The objective of this technical standard operating procedure (SOP) is to outline the requirements for the packaging and shipment of environmental samples. Additionally, Sections 2.0 through 7.0 outline requirements for the packaging and shipping of regulated environmental samples under the Department of Transportation (DOT) Hazardous Materials Regulations, the International Air Transportation Association (IATA), and International Civil Aviation Organization (ICAO) Dangerous Goods Regulations for shipment by air and applies only to domestic shipments. This SOP does not cover the requirements for packaging and shipment of equipment (including data loggers and self-contained breathing apparatus [SCBAs] or bulk chemicals that are regulated under the DOT, IATA, and ICAO.

1.1 Packaging and Shipping of All Samples

This SOP applies to the packaging and shipping of all environmental samples. If the sample is preserved or radioactive, the following sections may also be applicable.

Section 2.0 - Packaging and Shipping Samples Preserved with Methanol
Section 3.0 - Packaging and Shipping Samples Preserved with Sodium Hydroxide
Section 4.0 - Packaging and Shipping Samples Preserved with Hydrochloric Acid
Section 5.0 - Packaging and Shipping Samples Preserved with Nitric Acid
Section 6.0 - Packaging and Shipping Samples Preserved with Sulfuric Acid
Section 7.0 - Packaging and Shipping Limited-Quantity Radioactive Samples

NOTE: This SOP does not address shipment of hazardous materials. Don't ship a hazardous material unless you have received training that meets the requirements of CDM Smith and the DOT. Check with CDM Smith University for training courses.

1.2 Background

1.2.1 Definitions

Environmental Sample - An aliquot of air, water, plant material, sediment, or soil that represents the contaminant levels on a site. Samples of potential contaminant sources, like tanks, lagoons, or non-aqueous phase liquids are normally not "environmental" for this purpose. This procedure applies only to environmental samples that contain less than reportable quantities for any foreseeable hazardous constituents according to DOT regulations promulgated in 49 CFR - Part 172.101 Appendix A.

Custody Seal - A custody seal is a narrow adhesive-backed seal that is applied to individual sample containers and/or the container (i.e., cooler) before offsite shipment. Custody seals are used to demonstrate that sample integrity has not been compromised during transportation from the field to the analytical laboratory.

Inside Container - The container, normally made of glass or plastic, that actually contacts the shipped material. Its purpose is to keep the sample from mixing with the ambient environment.

Outside Container - The container, normally made of metal or plastic, that the transporter contacts. Its purpose is to protect the inside container.

Secondary Containment - The outside container provides secondary containment if the inside container breaks (i.e., plastic overpackaging if liquid sample is collected in glass).

Excepted Quantity - Excepted quantities are limits to the mass or volume of a hazardous material in the inside and outside containers below which DOT, IATA, ICAO regulations do not apply. The excepted quantity limits are very low. Most regulated shipments will be made under limited quantity.

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Limited Quantity - Limited quantity is the maximum amount of a hazardous material below which there are specific labeling or packaging exceptions.

Performance Testing - Performance testing is the required testing of outer packaging. These tests include drop and stacking tests.

Qualified Shipper - A qualified shipper is a person who has been adequately trained to perform the functions of shipping hazardous materials.

1.2.2 Associated Procedures

- SOP 1-2, *Sample Custody*

1.2.3 Discussion

Proper packaging and shipping is necessary to ensure the protection of the integrity of environmental samples shipped for analysis. These shipments are potentially subject to regulations published by DOT, IATA, or ICAO. Failure to abide by these rules places both CDM Smith and the individual employee at risk of serious fines. The analytical holding times for the samples must not be exceeded. The samples shall be packed in time to be shipped for overnight delivery. Make arrangements with the laboratory before sending samples for weekend delivery.

1.3 Required Equipment

- Coolers with return address of the appropriate CDM Smith office
- Heavy-duty plastic garbage bags
- Plastic zip-type bags, small and large
- Clear tape
- Nylon reinforced strapping tape
- Duct tape
- Kitty litter/pine bedding (or an equivalent nonflammable material that is inert and absorbent)*
- Bubble wrap (optional)
- Ice
- Custody seals
- Completed chain-of-custody record or contract laboratory program (CLP) custody records, if applicable
- Completed bill of lading
- This End Up and directional arrow labels

*Check for any client-specific or laboratory requirements related to the use of absorbent packaging materials.

1.4 Packaging Environmental Samples

The following steps must be followed when packing sample bottles and jars for shipment:

1. Verify the samples undergoing shipment meet the definition of “environmental sample” and are not a hazardous material as defined by DOT. Professional judgment and/or consultation with qualified persons such as the appropriate health and safety coordinator or the health and safety manager shall be observed.

2. Select a sturdy cooler in good repair. Tape any interior opening in the cooler (drain plug) from the inside to ensure control of interior contents. Ensure the handles used for carrying the cooler are in good repair. Also, tape the drain plug from the outside of the cooler. Line the cooler with a large heavy-duty plastic garbage bag.

3. Be sure the caps on all bottles are tight (will not leak); check to see that labels and chain-of-custody records are completed properly (SOP 1-2, Sample Custody).

4. Place all bottles in separate and appropriately sized plastic zip-top bags and close the bags. Up to three volatile organic analyte (VOA) vials may be packed in one bag. Binding the vials together with a rubber band on the outside of the bag, or separating them so that they do not contact each other, will reduce the risk of breakage. VOA vials may be packaged in foam containers designed for packaging them as well. Bottles may be wrapped in bubble wrap. Optionally,

   place three to six VOA vials in a quart metal can and then fill the can with kitty litter/pine bedding or equivalent. ***Note***: Trip blanks must be included in coolers containing VOA samples.

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5. Place 2 to 4 inches of an absorbent material into a cooler that has been lined with a garbage bag, and then place the bottles and cans in the bag with sufficient space to allow for the addition of packing material between the bottles and cans. It is preferable to place glass sample bottles and jars into the cooler vertically. Glass containers are less likely to break when packed vertically rather than horizontally.

6. While placing sample containers into the cooler, conduct an inventory of the contents of the shipping cooler against the chain-of-custody record. The chain-of-custody with the cooler shall reflect only those samples within the cooler.

7. Put ice in large plastic zip-top bags (double bagging the zip-tops is preferred) and properly seal. Place the ice bags on top of and/or between the samples. Several bags of ice are required (dependant on outdoor temperature, staging time, etc.) to maintain the cooler temperature at approximately 4° Celsius (C) if the analytical method requires cooling. Fill all remaining space between the bottles or cans with packing material. Securely fasten the top of the large garbage bag with fiber or duct tape.

8. Place the completed chain-of-custody record or the CLP traffic report form (if applicable) for the laboratory into a plastic zip-top bag, seal the bag, tape the bag to the inner side of the cooler lid and close the cooler.

9. The cooler lid shall be secured with nylon reinforced strapping tape by wrapping each end of the cooler a minimum of two times. Attach a completed chain-of-custody seal across the opening of the cooler on opposite sides. The custody seals shall be affixed to the cooler with half of the seal on the strapping tape so that the cooler cannot be opened without breaking the seal. Complete two more wraps around with fiber tape and place clear tape over the custody seals.

10. The shipping container lid must be marked **"THIS END UP"** and arrow labels that indicate the proper upward position of the container shall be affixed to the cooler. A label containing the name and address of the shipper (CDM Smith) shall be placed on the outside of the container. Labels used in the shipment of hazardous materials (such as Cargo Only Air Craft, Flammable Solids, etc.) are not permitted on the outside of containers used to transport environmental samples and shall not be used. The name and address of the laboratory shall be placed on the container, or when shipping by common courier, the bill of lading shall be completed and attached to the lid of the shipping container.

2.0 Packaging and Shipping Samples Preserved with Methanol

2.1 Containers

1. The maximum volume of methanol in a sample container is limited to 30 milliliters (ml).

2. The sample container must not be full of methanol.

2.2 Responsibility

It is the responsibility of the qualified shipper to:

1. Ensure that the samples undergoing shipment contain no other contaminant that meets the definition of "hazardous material" as defined by DOT.

2. Determine the amount of preservative in each sample so that accurate determination of quantities can be made.

   Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field plan or site-/project-specific quality assurance project plan (QAPP).

2.3 Additional Required Equipment

The following equipment is needed in addition to the required equipment listed in Section 1.3:

1. Inner packing may consist of glass or plastic jars

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2. Outer packaging (for limited quantities) insulated cooler that has passed the ICAO drop test

3. Survey documentation (if shipping from Department of Energy [DOE] or radiological sites)

4. Class 3 flammable liquid labels

5. Orientation labels

6. Consignor/consignee labels

2.4 Packaging Samples Preserved with Methanol

The following steps are to be followed when packaging limited-quantity sample shipments:

1. Tape any interior opening in the cooler (drain plug) from the inside to ensure control of interior contents. Also, tape the drain plug from the outside of the cooler.

2. All sample containers will be properly labeled and the label protected with waterproof tape before sampling.

   At a minimum the label must contain:

   - Project name
   - Project number
   - Date and time of sample collection
   - Sample location
   - Sample identification number
   - Collector's initials
   - Preservative (note amount of preservative used in miscellaneous section of the chain-of-custody form)

3. Wrap each container (40-ml VOA vials) in bubble wrap (secure with waterproof tape) to prevent breakage.

4. Place the bubble-wrapped container into a 2.7-mil zip-type bag, removing trapped air.

5. Place wrapped containers inside a polyethylene bottle filled with an absorbent; seal the bottle. (Maximum of 4 VOA vials will fit inside a 500-ml wide-mouth polyethylene bottle.)

6. Total volume of methanol per shipping container must not exceed 500 ml.

7. Place sufficient amount of an absorbent in the bottom of the cooler to absorb any leakage that may occur.

8. Place a garbage bag in the cooler.

9. Pack the samples appropriately inside the garbage bag (bottles placed upright) to prevent movement during shipment.

10. Place a sufficient amount of double-bagged ice around the samples to maintain the required temperature during shipment.

11. Seal the garbage bag by tieing or taping.

12. The maximum weight of the cooler shall not exceed 30 kg (66 lbs) for any limited-quantity shipment of dangerous goods.

13. Secure the chain-of-custody form (placed inside a zip-type bag) to the interior of the cooler lid.

14. If the shipment is from a DOE or other facility, place the results of the radiation screen and cooler/sample survey with the chain-of-custody.

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15. Wrap strapping tape or duct tape around both ends of the cooler and around the cooler lid.

16. Affix custody seals to opposite sides of the cooler lid. Cover the custody seals with clear waterproof tape.

17. Mark the outside of the cooler with the proper shipping name of the contents, corresponding UN number, and LTD. QTY. (as shown below).

    Methanol Mixture
    UN1230
    LTD. QTY.

18. Place a label on the front of the cooler with the company name, contact name, phone number, full street address, and state with zip code for both shipper and recipient.

19. Affix a Flammable Liquid label to the outside of the cooler.

20. Affix package orientation labels on two opposite sides of the cooler.

21. Secure the marking and labels to the surface of the cooler with clear waterproof tape to prevent accidental removal during shipment. An example of cooler labeling/marking locations is shown in Figure 1.

    Note: No marking or labeling can be obscured by strapping or duct tape.

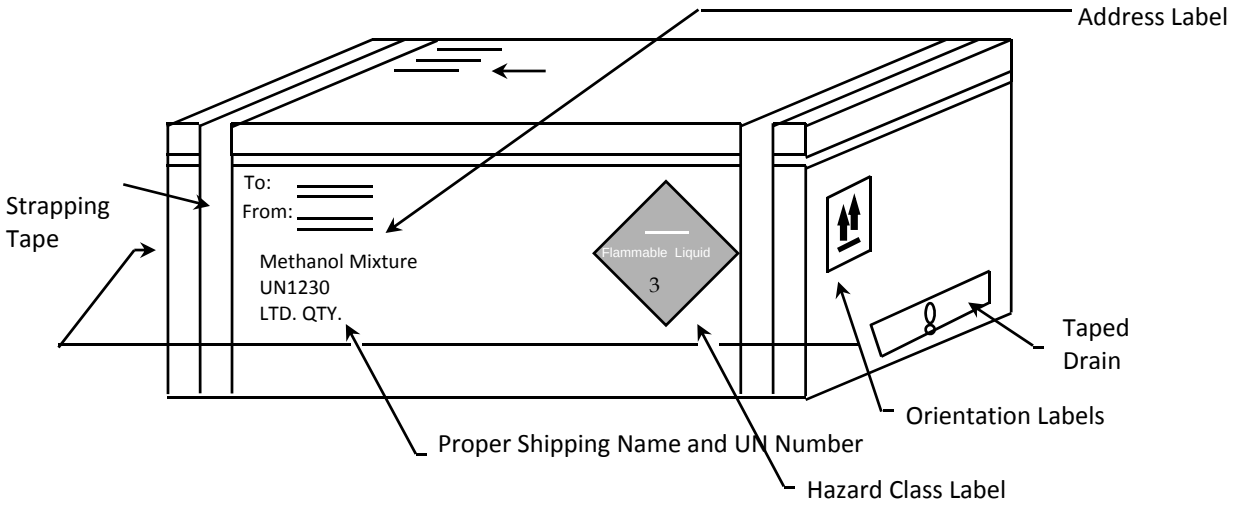
    Note: The inner packaging of dangerous goods must be placed into the designated cooler for shipment. Other nonregulated environmental samples may be added to the cooler for shipment.

22. When shipping from a DOE facility, the cooler will be surveyed by a qualified radiation control technician to ensure that radiation flux on exterior surfaces does not exceed 0.5 millirem/hour (mrem/h) on all sides. This survey will be documented and the results reviewed by the qualified shipper.

23. Complete the Dangerous Goods and Hazardous Materials Inspection Checklist for Shipping Limited-Quantity(Appendix A).

24. Complete a Dangerous Goods Airbill.

Figure 1
Example of Cooler Label/Marking Locations



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3.0 Packaging and Shipping Samples Preserved with Sodium Hydroxide

3.1 Containers

The inner packaging container (and amount of preservative) that may be used for these shipments includes:

Excepted Quantities of Sodium Hydroxide Preservatives

Preservative		*Desired in Final Sample*		*Quantity of Preservative (ml) for Specified Container*				
		pH	**Conc.**	**40 ml**	**125 ml**	**250 ml**	**500 ml**	**1 L**
NaOH	30%	>12	0.08%		.25	0.5	1	2

5 drops = 1 ml

3.2 Responsibility

It is the responsibility of the qualified shipper to determine the amount of preservative in each sample so that accurate determination of quantities can be made.

Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field plan or site-/project-specific QAPP.

3.3 Additional Required Equipment

The following equipment is needed in addition to the required equipment listed in Section 1.3:

- Outer packaging (for limited quantities) insulated cooler that has passed the ICAO drop test
- Inner packings may consist of glass or plastic jars no larger than 1 pint
- Survey documentation (if shipping from DOE or radiological sites)
- Class 8 corrosive labels
- Orientation labels
- Consignor/consignee labels

3.4 Packaging Samples Preserved with Sodium Hydroxide

Samples containing sodium hydroxide (NaOH) as a preservative that exceed the excepted concentration of 0.08 percent (2 ml of a 30 percent NaOH solution per liter) may be shipped as a limited quantity per packing instruction Y819 of the IATA/ICAO Dangerous Goods Regulations.

The following steps are to be followed when packaging limited-quantity samples shipments:

1. Tape any interior opening in the cooler (drain plug) from the inside to ensure control of interior contents. Also, tape the drain plug from the outside of the cooler.

2. All sample containers will be properly labeled and the label protected with waterproof tape before sampling.

   At a minimum the label must contain:

   - Project name
   - Project number
   - Date and time of sample collection
   - Sample location
   - Sample identification number
   - Collector's initials
   - Preservative (note amount of preservative used in miscellaneous section of the chain-of-custody form)

3. This step is optional; wrap each container in bubble wrap (secure with waterproof tape) to prevent breakage.

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4. Place the bubble-wrapped container into a 2.7-mil zip-type bag, removing trapped air.
5. Place glass containers inside a polyethylene bottle filled with an absorbent; seal the bottle.
6. The total volume of sample in each cooler must not exceed 1 liter.
7. Place sufficient amount of an absorbent in the bottom of the cooler to absorb any leakage that may occur.
8. Place a garbage bag in the cooler.
9. Pack the samples appropriately inside the garbage bag (bottles placed upright) to prevent movement during shipment.
10. Place sufficient amount of double-bagged ice around the samples to maintain the required temperature during shipment.
11. Seal the garbage bag by tieing or taping.
12. The maximum weight of the cooler shall not exceed 30 kg (66 lbs) for any limited-quantity shipment of dangerous goods.
13. Secure the chain-of-custody form (placed inside a zip-type bag) to the interior of the cooler lid.
14. If the shipment is from a DOE or other facility, place the results of the radiation screen and cooler/sample survey with the chain-of-custody.
15. Wrap strapping tape or duct tape around both ends of the cooler and around the cooler lid.
16. Affix custody seals to opposite sides of the cooler lid. Cover the custody seals with clear waterproof tape.
17. Mark the outside of the cooler with the proper shipping name of the contents, corresponding UN number, and LTD. QTY. (as shown below).

    Sodium Hydroxide Solution
    UN1824
    LTD. QTY.

18. Place a label on the front of the cooler with the company name, contact name, phone number, full street address, and state with zip code for both shipper and recipient.
19. Affix a Corrosive label to the outside of the cooler.
20. Affix package orientation labels on two opposite sides of the cooler.
21. Secure the marking and labels to the surface of the cooler with clear waterproof tape to prevent accidental removal during shipment. An example of cooler labeling/marking locations is shown in Figure 1.

    Note: Samples meeting the exception concentration of 0.08 percent NaOH by weight may be shipped as nonregulated or nonhazardous following the procedure in Section 1.4.

    Note: No marking or labeling can be obscured by strapping or duct tape.

    Note: The inner packaging of dangerous goods must be placed into the designated cooler for shipment. Other nonregulated environmental samples may be added to the cooler for shipment.

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22. When shipping from a DOE facility, the cooler will be surveyed by a qualified radiation control technician to ensure that radiation flux on exterior surfaces does not exceed 0.5 mrem/h on all sides. This survey will be documented and the results reviewed by the qualified shipper.

23. Complete the Dangerous Goods and Hazardous Materials Inspection Checklist for Shipping Limited-Quantity (Appendix A).

24. Complete a Dangerous Goods Air Bill.

4.0 Packaging and Shipping Samples Preserved with Hydrochloric Acid

4.1 Containers

The inner packaging container (and amount of preservative) that may be used for these shipments includes:

Excepted Quantities of Hydrochloric Acid Preservatives

Preservative		*Desired in Final Sample*		*Quantity of Preservative (ml) for Specified Container*		
		pH	**Conc.**	**40 ml**	**125 ml**	**250 ml**
HCl	2N	<1.96	0.04%	.2	.5	1

5 drops = 1 ml

4.2 Responsibility

It is the responsibility of the qualified shipper to:

- Determine the samples undergoing shipment contain no other contaminant that meets the definition of hazardous material as defined by DOT.

- Determine the amount of preservative in each sample so that accurate determination of quantities can be made.

Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field plan or site-/project-specific QAPP.

4.3 Additional Required Equipment

The following equipment is needed in addition to the required equipment listed in Section 1.3.

- Inner packing may consist of glass or plastic jars no larger than 1 pint.
- Outer packaging (for limited quantities) insulated cooler that has passed the ICAO drop test.
- Survey documentation (if shipping from DOE or radiological sites)
- Class 8 corrosive labels
- Orientation labels
- Consignor/consignee labels

4.4 Packaging Samples Preserved with Hydrochloric Acid

The following steps are to be followed when packaging limited-quantity sample shipments:

1. Tape any interior opening in the cooler (drain plug) from the inside to ensure control of interior contents. Also, tape the drain plug from the outside of the cooler.

2. All sample containers will be properly labeled and the label protected with waterproof tape before sampling.

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At a minimum the label must contain:

- Project name
- Project number
- Date and time of sample collection
- Sample location
- Sample identification number
- Collector's initials
- Preservative (note amount of preservative used in miscellaneous section of the chain-of-custody form)

- Wrap each container (40-ml VOA vials) in bubble wrap (secure with waterproof tape) to prevent breakage.
- Place the bubble-wrapped container into a 2.7-mil zip-type bag, removing trapped air.
- Place wrapped containers inside a polyethylene bottle filled with an absorbent; seal the bottle. (No more than 4 VOA vials will fit inside a 500-ml wide-mouth polyethylene bottle.)
- Total volume of sample inside each cooler must not exceed 1 liter.
- Place sufficient amount of an absorbent in the bottom of the cooler to absorb any leakage that may occur.

3. Place a garbage bag in the cooler.
4. Pack the samples appropriately inside the garbage bag (bottles placed upright) to prevent movement during shipment.
5. Place sufficient amount of double-bagged ice around the samples to maintain the required temperature during shipment.
6. Seal the garbage bag by tieing or taping.
7. The maximum weight of the cooler shall not exceed 30 kg (66 lbs) for any limited-quantity shipment of dangerous goods.
8. Secure the chain-of-custody form (placed inside a zip-type bag) to the interior of the cooler lid.
9. If the shipment is from a DOE or other facility, place the results of the radiation screen and cooler/sample survey with the chain-of-custody.
10. Wrap strapping tape or duct tape around both ends of the cooler and around the cooler lid.
11. Affix custody seals to opposite sides of the cooler lid. Cover the custody seals with clear waterproof tape.
12. Mark the outside of the cooler with the proper shipping name of the contents, corresponding UN number, and LTD. QTY. (as shown below).

    Hydrochloric Acid Solution
    UN1789
    LTD. QTY.

13. Place a label on the front of the cooler with the company name, contact name, phone number, full street address, and state with zip code for both shipper and recipient.
14. Affix a Corrosive label to the outside of the cooler.
15. Affix package orientation labels on two opposite sides of the cooler.

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16. Secure the marking and labels to the surface of the cooler with clear waterproof tape to prevent accidental removal during shipment. An example of cooler labeling/marking locations is shown in Figure 1.

    Note: Samples containing less than the exception concentration of 0.04 percent HCl by weight will be shipped as nonregulated or nonhazardous following the procedure in Section 1.4.

    Note: No marking or labeling can be obscured by strapping or duct tape.

    Note: The inner packaging of dangerous goods must be placed into the designated cooler for shipment. Other nonregulated environmental samples may be added to the cooler for shipment.

17. When shipping from a DOE facility, the cooler will be surveyed by a qualified radiation control technician to ensure that radiation flux on exterior surfaces does not exceed 0.5 mrem/h on all sides. This survey will be documented and the results reviewed by the qualified shipper.

18. Complete the Dangerous Goods and Hazardous Materials Inspection Checklist for Shipping Limited-Quantity (Appendix A).

19. Complete a Dangerous Goods Airbill.

5.0 Packaging and Shipping Samples Preserved with Nitric Acid

5.1 Containers

The inner packaging container (and amount of preservative) that may be used for these shipments includes:

Excepted Quantities of Nitric Acid Preservatives

Preservative		*Desired in Final Sample*		*Quantity of Preservative (ml) for Specified Container*				
		pH	**Conc.**	**40 ml**	**125 ml**	**250 ml**	**500 ml**	**1 L**
HNO_3	6N	<1.62	0.15%		2	4	5	8

5 drops = 1 mg/L

5.2 Responsibility

It is the responsibility of the qualified shipper to:

1. Determine the samples undergoing shipment contain no other contaminant that meets the definition of hazardous material as defined by DOT.

2. Determine the amount of preservative in each sample so that accurate determination of quantities can be made.

    Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field plan or site-/project-specific QAPP.

5.3 Additional Required Equipment

The following equipment is needed in addition to the required equipment listed in Section 1.3:

- Inner packings may consist of glass or plastic jars no larger than 100 ml.
- Outer packaging (for limited quantities) insulated cooler that has passed the ICAO drop test.
- Survey documentation (if shipping from DOE or radiological sites)
- Class 8 corrosive labels
- Orientation labels
- Consignor/consignee labels

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5.4 Packaging Samples Preserved with Nitric Acid

Samples containing nitric acid (HNO_3)as a preservative that exceed the excepted concentration of 0.15 percent HNO_3 will be shipped as a limited quantity per packing instruction Y807 of the IATA/ICAO Dangerous Goods Regulations.

The following steps are to be followed when packaging limited-quantity sample shipments:

1. Tape any interior opening in the cooler (drain plug) from the inside to ensure control of interior contents. Also, tape the drain plug from the outside of the cooler.

2. All sample containers will be properly labeled and the label protected with waterproof tape before sampling.

   At a minimum the label must contain:
   - Project name
   - Project number
   - Date and time of sample collection
   - Sample location
   - Sample identification number
   - Collector's initials
   - Preservative (note amount of preservative used in miscellaneous section of the chain-of-custody form)

3. This step is optional; wrap each container in bubble wrap (secure with waterproof tape) to prevent breakage.

4. Place the bubble-wrapped container into a 2.7-mil zip-type bag, removing trapped air.

5. Place glass containers inside a polyethylene bottle filled with an absorbent; seal the bottle.

6. Place sufficient amount of an absorbent in the bottom of the cooler to absorb any leakage that may occur.

7. Place a garbage bag in the cooler.

8. Pack the samples appropriately inside the garbage bag (bottles placed upright) to prevent movement during shipment.

9. Place sufficient amount of double-bagged ice around the samples to maintain the required temperature during shipment.

10. Seal the garbage bag by tieing or taping.

11. The maximum volume of preserved solution in the cooler must not exceed 500 ml.

12. The maximum weight of the cooler shall not exceed 30 kg (66 lbs) for any limited-quantity shipment of dangerous goods.

13. Secure the chain-of-custody form (placed inside a zip-type bag) to the interior of the cooler lid.

14. If the shipment is from a DOE or other facility, place the results of the radiation screen and cooler/sample survey with the chain-of-custody.

15. Wrap strapping tape or duct tape around both ends of the cooler and around the cooler lid.

16. Affix custody seals to opposite sides of the cooler lid. Cover the custody seals with clear waterproof tape.

17. Mark the outside of the cooler with the proper shipping name of the contents, corresponding UN number, and LTD. QTY. (as shown below).

    Nitric Acid Solution (with less than 20 percent)
    UN2031
    Ltd. Qty.

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18. Place a label on the front of the cooler with the company name, contact name, phone number, full street address, and state with zip code for both shipper and recipient.

19. Affix a Corrosive label to the outside of the cooler.

20. Affix package orientation labels on two opposite sides of the cooler.

21. Secure the marking and labels to the surface of the cooler with clear waterproof tape to prevent accidental removal during shipment. An example of cooler labeling/marking locations is shown in Figure 1.

    Note: Samples meeting the exception concentration of 0.15 percent HNO3 by weight will be shipped as nonregulated or nonhazardous following the procedure in Section 1.4.

    Note: No marking or labeling can be obscured by strapping or duct tape.

    Note: The inner packaging of dangerous goods must be placed into the designated cooler for shipment. Other nonregulated environmental samples may be added to the cooler for shipment.

22. When shipping from a DOE facility, the cooler will be surveyed by a qualified radiation control technician to ensure that radiation flux on exterior surfaces does not exceed 0.5 mrem/h on all sides. This survey will be documented and the results reviewed by the qualified shipper.

23. Complete the Dangerous Goods and Hazardous Materials Inspection Checklist for Shipping Limited-Quantity (Appendix A).

24. Complete a Dangerous Goods Airbill.

6.0 Packaging and Shipping Samples Preserved with Sulfuric Acid

6.1 Containers

The inner packaging container (and amount of preservative) that may be used for these shipments includes:

Excepted Quantities of Sulfuric Acid Preservatives

Preservative		*Desired in Final Sample*		*Quantity of Preservative (ml) for Specified Container*				
		pH	**Conc.**	**40 ml**	**125 ml**	**250 ml**	**500 ml**	**1 L**
H_2SO_4	37N	<1.15	0.35%	.1	.25	0.5	1	2

5 drops = 1 ml

6.2 Responsibility

It is the responsibility of the qualified shipper to:

1. Determine the samples undergoing shipment contain no other contaminant that meets the definition of hazardous material as defined by DOT.

2. Determine the amount of preservative in each sample so that accurate determination of quantities can be made.

Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field plan or site-/project-specific QAPP.

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6.3 Additional Required Equipment

The following equipment is needed in addition to the required equipment listed in Section 1.3:

- Inner packings may consist of glass or plastic jars no larger than 100 ml.
- Outer packaging (for limited quantities) insulated cooler that has passed the ICAO drop test.
- Survey documentation (if shipping from DOE or radiological sites)
- Class 8 corrosive labels
- Orientation labels
- Consignor/consignee labels

6.4 Packaging of Samples Preserved with Sulfuric Acid

Samples containing sulfuric acid (H_2SO_4) as a preservative that exceed the excepted concentration of 0.35 percent will be shipped as a limited quantity per packing instruction Y809 of the IATA/ICAO Dangerous Goods Regulations.

The following steps are to be followed when packaging limited-quantity samples shipments:

1. Tape any interior opening in the cooler (drain plug) from the inside to ensure control of interior contents. Also, tape the drain plug from the outside of the cooler.

2. All sample containers will be properly labeled and the label protected with waterproof tape before sampling.

   At a minimum the label must contain:

   - Project name
   - Project number
   - Date and time of sample collection
   - Sample location
   - Sample identification number
   - Collector's initials
   - Preservative (note amount of preservative used in miscellaneous section of the chain-of-custody form)

3. Wrap each glass container in bubble wrap (secure with waterproof tape) to prevent breakage.

4. Place the bubble-wrapped container into a 2.7-mil zip-type bag, removing trapped air.

5. Place glass containers inside a polyethylene bottle filled with an absorbent; seal the bottle.

6. Place sufficient amount of an absorbent in the bottom of the cooler to absorb any leakage that may occur.

7. Place a garbage bag in the cooler.

8. Pack the samples appropriately inside the garbage bag (bottles placed upright) to prevent movement during shipment.

9. Place sufficient amount of double-bagged ice around the samples to maintain the required temperature during shipment.

10. Seal the garbage bag by tieing or taping.

11. The maximum volume of preserved solution in the cooler must not exceed 500 ml.

12. The maximum weight of the cooler shall not exceed 30 kg (66 lbs) for any limited-quantity shipment of dangerous goods.

13. Secure the chain-of-custody form (placed inside a zip-type bag) to the interior of the cooler lid.

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14. If the shipment is from a DOE or other facility, place the results of the radiation screen and cooler/sample survey with the chain-of-custody.

15. Wrap strapping tape or duct tape around both ends of the cooler and around the cooler lid.

16. Affix custody seals to opposite sides of the cooler lid. Cover the custody seals with clear waterproof tape.

17. Mark the outside of the cooler with the proper shipping name of the contents, corresponding UN number, and LTD. QTY. (as shown below).

    Sulfuric Acid Solution
    UN2796
    LTD. QTY.

18. Place a label on the front of the cooler with the company name, contact name, phone number, full street address, and state with zip code for both shipper and recipient.

19. Affix a Corrosive label to the outside of the cooler.

20. Affix package orientation labels on two opposite sides of the cooler.

21. Secure the marking and labels to the surface of the cooler with clear waterproof tape to prevent accidental removal during shipment. An example of cooler labeling/marking locations is shown in Figure 1.

    Note: Samples containing less than the exception concentration of 0.35 percent H_2SO_4 by weight will be shipped as nonregulated or nonhazardous in accordance with the procedure described in Section 1.4.

    Note: No marking or labeling can be obscured by strapping or duct tape.

    Note: The inner packaging of dangerous goods must be placed into the designated cooler for shipment. Other nonregulated environmental samples may be added to the cooler for shipment.

22. When shipping from a DOE facility, the cooler will be surveyed by a qualified radiation control technician to ensure that radiation flux on exterior surfaces does not exceed 0.5 mrem/h on all sides. This survey will be documented and the results reviewed by the qualified shipper.

23. Complete the Dangerous Goods and Hazardous Materials Inspection Checklist for Shipping Limited-Quantity (Appendix A).

24. Complete a Dangerous Goods Airbill.

7.0 Packaging and Shipping Limited-Quantity Radioactive Samples

7.1 Containers

The inner packaging containers that may be used for these shipments include:

1. Any size sample container

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7.2 Description/Responsibilities

The qualified shipper will determine that the samples undergoing shipment contain no other contaminant that meets the definition of hazardous material as defined by DOT.

The qualified shipper will ship all samples that meet the Class 7 definition of radioactive materials and meet the activity requirements specified in Table 4 and 7 of 49 CFR 173.425, as Radioactive Materials in Limited Quantity. The qualified shipper will verify that all packages and their contents meet the requirements of 49 CFR 173.421, *Limited Quantities of Radioactive Materials*.

The packaging used for shipping will meet the general requirements for packaging and packages specified in 49 CFR 173.24 and the general design requirements provided in 173.410. These standards state that a package must be capable of withstanding the effects of any acceleration, vibration, or vibration resonance that may arise under normal condition of transport without any deterioration in the effectiveness of the closing devices on the various receptacles or in the integrity of the package as a whole and without loosening or unintentionally releasing the nuts, bolts, or other securing devices even after repeated use.

If the shipment is from a DOE facility, radiological screenings will be completed on all samples taken. The qualified shipper will review the results of each screening (alpha, beta, and gamma speciation). Samples will not be shipped offsite until the radiological screening has been performed.

The total activity for each package will not exceed the relevant limits listed in Table 4 and 7 of 49 CFR 173.425. The A_2 value of the material will be calculated based on all radionuclides found during previous investigations (if any) in the area from which the samples are derived. The A_2 values to be used will be the most restrictive of all potential radionuclides as listed in 49 CFR 173.435.

The radiation level at any point on the external surface of the package bearing the sample(s) will not exceed 0.005 millisievert per hour (mSv/h) (0.5 mrem/hour). These will be verified by dose and activity monitoring before shipment of the package.

The removable radioactive surface contamination on the external surface of the package will not exceed the limits specified in 49 CFR 173.443(a). CDM Smith will apply the DOE-established free release criteria for removable surface contamination of less than 20 dpm/100 cm^2 (alpha) and 1,000 dpm/100 cm^2 (beta/gamma). It shall be noted that these values are more conservative than the DOT requirements for removable surface contamination.

The qualified shipper will verify that the outside of the inner packaging is marked “Radioactive.”

The qualified shipper will verify that the excepted packages prepared for shipment under the provisions of 49 CFR 173.421 have a notice enclosed, or shown on the outside of the package, that reads, **“This package conforms to the conditions and limitations specified in 49 CFR 173.421 for radioactive material, excepted package-limited quantity of material, UN2910.”**

> ***Note:*** Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field plan or site-/project-specific QAPP.

7.3 Additional Required Equipment

The following equipment is needed in addition to the required equipment listed in Section 1.3:

- Survey documentation/radiation screening results (if shipping from DOE or radiological sites)
- Orientation labels
- Excepted quantities label
- Consignor/consignee labels

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7.4 Packaging of Limited-Quantity Radioactive Samples

The following steps are to be followed when packaging limited-quantity sample shipments:

1. The cooler is to be surveyed by a qualified radiation control technician to ensure that radiation flux on exterior surfaces does not exceed 0.5 mrem/h on all sides. This survey will be documented and the results reviewed by the qualified shipper.

2. Tape any interior opening in the cooler (drain plug) from the inside to ensure control of interior contents. Also, tape the drain plug from the outside of the cooler.

3. All sample containers will be properly labeled and the label protected with waterproof tape before sampling. At a minimum the label must contain:

   - Project name
   - Project number
   - Date and time of sample collection
   - Sample location
   - Sample identification number
   - Collector's initials

4. This step is optional; wrap each container in bubble wrap (secure with waterproof tape) to prevent breakage.

5. Place sufficient amount of an absorbent, or approved packaging material, in the bottom of the cooler to absorb any leakage that may occur.

6. Place a garbage bag in the cooler.

7. Pack the samples appropriately inside the garbage bag (bottles placed upright) to prevent movement during shipment.

8. If required, place a sufficient amount of double-bagged ice around the samples to maintain the required temperature during shipment.

9. Seal the garbage bag by tieing or taping.

10. Place a label marked Radioactive on the outside of the sealed bag.

11. Enclose a notice that includes the name of the consignor or consignee and the following statement: ***"This package conforms to the conditions and limitations specified in 49 CFR 173.421 for radioactive material, excepted package-limited quantity of material, UN2910."***

12. Note that both DOT and IATA apply different limits to the quantity in the inside packing and in the outside packing.

13. The maximum weight of the package shall not exceed 30 kg (66 lbs) for any limited-quantity shipment of dangerous goods.

14. Secure the chain-of-custody form (placed inside a zip-type bag) to the interior of the cooler lid.

15. If the shipment is from a DOE or other facility, place the results of the radiation screen and cooler/sample survey with the chain-of-custody.

16. If a cooler is used, wrap strapping tape or duct tape around both ends of the cooler and around the cooler lid.

17. Affix custody seals to opposite sides of the cooler lid. Cover the custody seals with clear waterproof tape.

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18. Place a label on the front of the cooler with the company name, contact name, phone number, full street address, and state with zip code for both shipper and recipient.

19. Affix package orientation labels on two opposite sides of the cooler/package.

20. Affix a completed Excepted Quantities label to the side of the cooler/package.

21. Secure any marking and labels to the surface of the cooler with clear waterproof tape to prevent accidental removal during shipment. An example of the cooler labeling/marking is shown in Figure 2.

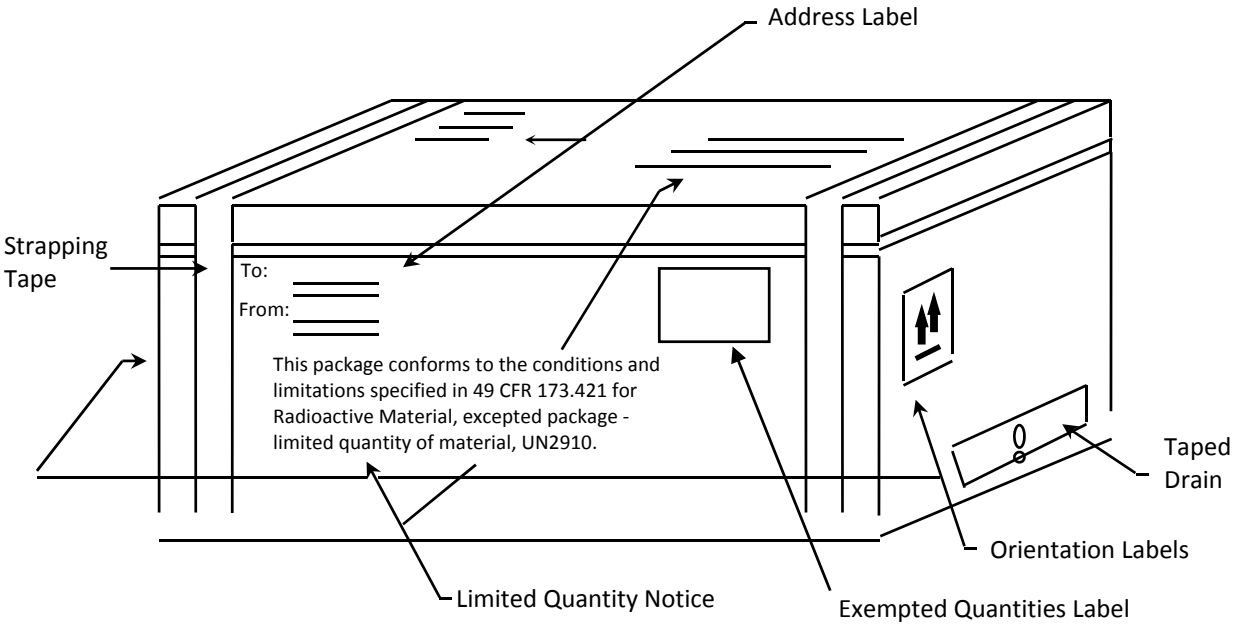
    Note: No marking or labeling can be obscured by strapping or duct tape.

22. Complete the Shipment Quality Assurance Checklist (Appendix B).

    Note: Except as provided in 49 CFR 173.426, the package will not contain more than 15 grams of ^{235}U.

    Note: A declaration of dangerous goods is not required.

Figure 2
Radioactive Material – Limited-Quantity Cooler Marking Example



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8.0 References

U. S. Environmental Protection Agency. Region IV. May 2013, or current revision. *Field Branches Quality Management Plan*.

_____. August 2011 or current revision. Region IV. *Field Branches Quality Policy*.

_____. 2007 or current revision. *Sampler's Guide, Contract Laboratory Program, Guidance for Field Samplers*, EPA-540-R-07-06.

Title 49 Code of Federal Regulations, Department of Transportation. 2015 or current revision. *Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements*, 49 CFR 172.

Title 49 Code of Federal Regulations, Department of Transportation. 2015 or current revision. *Shippers - General Requirements for Shipments and Packagings*, 49 CFR 173.

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Appendix A

Dangerous Goods and Hazardous Materials Inspection Checklist for Shipping Limited-Quantity

Sample Packaging

Yes	No	N/A	
☐	☐	☐	The VOA vials are wrapped in bubble wrap and placed inside a zip-type bag.
☐	☐	☐	The VOA vials are placed into a polyethylene bottle, filled with an absorbent, and tightly sealed.
☐	☐	☐	The drain plug is taped inside and outside to ensure control of interior contents.
☐	☐	☐	The samples have been placed inside garbage bags with sufficient bags of ice to preserve samples at 4°C.
☐	☐	☐	The cooler weighs less than the 66-pound limit for limited-quantity shipment.
☐	☐	☐	The garbage bag has been sealed with tape (or tied) to prevent movement during shipment.
☐	☐	☐	The chain-of-custody has been secured to the interior of the cooler lid.
☐	☐	☐	The cooler lid and sides have been taped to ensure a seal.
☐	☐	☐	The custody seals have been placed on both the front and back hinges of the cooler, using waterproof tape.

Air Waybill Completion

Yes	No	N/A	
☐	☐	☐	Section 1 has the shipper's name, company, and address; the account number, date, internal billing reference number; and the telephone number where the shipper can be reached.
☐	☐	☐	Section 2 has the recipient's name and company along with a telephone number where they can be reached.
☐	☐	☐	Section 3 has the **Bill Sender** box checked.
☐	☐	☐	Section 4 has the **Standard Overnight** box checked.
☐	☐	☐	Section 5 has the **Deliver Weekday** box checked.
☐	☐	☐	Section 6 has the number of packages and their weights filled out. Was the total of all packages and their weights figured up and added at the bottom of Section 6?
☐	☐	☐	Under the **Transport Details** box, the **Cargo Aircraft Only** box is obliterated, leaving only the **Passenger and Cargo Aircraft** box.
☐	☐	☐	Under the **Shipment Type**, the **Radioactive** box is obliterated, leaving only the **Non-Radioactive** box.
☐	☐	☐	Under the **Nature and Quantity of Dangerous Goods** box, the **Proper Shipping Name, Class or Division, UN or ID No., Packing Group, Subsidiary Risk, Quantity and Type of Packing, Packing Instructions, and Authorization** have been filled out for the type of chemical being sent.
☐	☐	☐	The **Name, Place and Date, Signature, and Emergency Telephone Number** appears at the bottom of the FedEx Airbill.
☐	☐	☐	The statement "In accordance with IATA/ICAO" appears in the **Additional Handling Information** box.
☐	☐	☐	The **Emergency Contact Information** at the bottom of the FedEx Airbill is truly someone who can respond any time of the day or night.

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Packaging and Shipping Environmental Samples

SOP 2-1
Revision: 6
Date: February 2015

Proper Shipping Name	*Class or Division*	*UN or ID No.*	*Packing Group*	*Sub Risk*	*Quantity*	*Packing Instruction*	*Authorization*
Hydrochloric Acid Solution	8	UN1789	II		1 plastic box × 0.5 L	Y809	Ltd. Qty.
Nitric Acid Solution (with less than 20%)	8	UN2031	II		1 plastic box × 0.5 L	Y807	Ltd. Qty.
Sodium Hydroxide Solution	8	UN1824	II		1 plastic box × 0.5 L	Y809	Ltd. Qty.
Sulfuric Acid Solution	8	UN2796	II		1 plastic box × 0.5 L	Y809	Ltd. Qty.
Methanol	3	UN1230	II		1 plastic box × 1 L	Y305	Ltd. Qty.

Sample Cooler Labeling

Yes	No	N/A	
☐	☐	☐	The proper shipping name, UN number, and Ltd. Qty. appears on the shipping container.
☐	☐	☐	The corresponding hazard labels are affixed on the shipping container; the labels are not obscured by tape.
☐	☐	☐	The name and address of the shipper and receiver appear on the top and side of the shipping container.
☐	☐	☐	The air waybill is attached to the top of the shipping container.
☐	☐	☐	**Up Arrows** have been attached to opposite sides of the shipping container.
☐	☐	☐	Packaging tape does not obscure markings or labeling.

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Packaging and Shipping Environmental Samples	SOP 2-1 Revision: 6 Date: February 2015

Appendix B

Shipment Quality Assurance Checklist

Date: _____ Shipper: _____ Destination: _____

Item(s) Description: _____

Radionuclide(s): _____

Radiological Survey Results: surface _____mrem/hr 1 meter _____

Instrument Used: Mfgr: _____ Model: _____

S/N: _____ Cal Date: _____

Limited-Quantity or Instrument and Article

Yes	**No**		
___	___	1.	Strong tight package (package that will not leak material during conditions normally incidental to transportation).
___	___	2.	Radiation levels at any point on the external surface of package less than or equal to 0.5 mrem/hr.
___	___	3.	Removable surface contamination less than 20 dpm/100 cm^2 (alpha) and 1,000 dpm/100 cm^2 (beta/gamma).
___	___	4.	Outside inner package bears the marking "Radioactive."
___	___	5.	Package contains less than 15 grams of ^{235}U (check yes if ^{235}U not present).
___	___	6.	Notice enclosed in or on the package that includes the consignor or consignee and the statement, **"This package conforms to the conditions and limitations specified in 49 CFR 173.421 for radioactive material, excepted package-limited quantity of material, UN2910."**
___	___	7.	Activity less than that specified in 49 CFR 173.425. Permissible package limit: Package Quantity:
___	___	8.	On all air shipments, the statement **Radioactive Material, excepted package-limited quantity of material** shall be noted on the air waybill.

Qualified Shipper: _____ Signature: _____

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Guide to Handling Investigation-Derived Waste	SOP 2-2 Revision: 8 Date: February 2015

Approved: *Signature* **Technical Review:** Dave Sembrot

1.0 Objective

This technical standard operating procedure (SOP) presents guidance for the management of investigation-derived waste (IDW). The primary objectives for managing IDW during field activities include:

- Leaving the site in no worse condition than existed before field activities
- Removing wastes that pose an immediate threat to human health or the environment
- Proper handling of onsite wastes that do not require offsite disposal or extended aboveground containerization
- Complying with federal, state, local, and facility applicable or relevant and appropriate requirements (ARARs)
- Careful planning and coordination of IDW management options
- Minimizing the quantity of IDW

2.0 Background

2.1 Definitions

Hazardous Waste - Discarded material that is regulated listed waste, or waste that exhibits ignitability, corrosivity, reactivity, or toxicity as defined in 40 CFR 261.3 or state regulations.

Investigation-Derived Wastes - Discarded materials resulting from field activities such as sampling, surveying, drilling, excavation, and decontamination processes that, in present form, possess no inherent value or additional usefulness without treatment. Wastes may be solid, sludge, liquid, gaseous, or multiphase materials that may be classified as hazardous or nonhazardous.

Mixed Waste - Any material that has been classified as both hazardous and radioactive.

Radioactive Wastes - Discarded materials that are contaminated with radioactive constituents with specific activities in concentrations greater than the latest regulatory criteria (i.e., 10 CFR 20).

Treatment, Storage, and Disposal Facility (TSDF) - Permitted facilities that accept hazardous waste shipments for further treatment, storage, and/or disposal. These facilities must be permitted by the U. S. Environmental Protection Agency (EPA) and appropriate state and local agencies.

Aqueous liquid – a water based polar solution with a specific gravity at or near 1. Light non-aqueous phase liquids, also known as (a.k.a) LNAPL (non-polar), such as oils, typically float on aqueous (polar) solutions (or pure water). Dense non-aqueous phase liquids (a.k.a. DNAPL), such as chlorinated organic solvents or PCB containing oils, sink in aqueous based liquids.

2.2 Discussion

Field investigation activities result in the generation of waste materials that may be characterized as hazardous or radioactive. IDWs may include drilling muds, cuttings, and purge water from test pit and well installation; purge water, soil, and other materials from collection of samples; residues from testing of treatment technologies and pump and treat systems; personal protective equipment (PPE); solutions (aqueous or otherwise) used to decontaminate nondisposable protective clothing and equipment; and other wastes or supplies used in sampling and testing potentially hazardous or radiologically contaminated material.

Note: The client's representatives may not be aware of all potential contaminants. The management of IDW must comply with applicable regulatory requirements.

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3.0 General Responsibilities

Site Manager - The site manager is responsible for ensuring that all IDW procedures are conducted in accordance with this SOP. The site manager is also responsible for ensuring that handling of IDW is in accordance with site-specific requirements.

Project Manager - The project manager is responsible for identifying site-specific requirements for the disposal of IDW in accordance with federal, state, and/or facility requirements.

Field Crew Members - Field crew members are responsible for implementing this SOP and communicating any unusual or unplanned condition to the project manager's attention.

Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field plan or site/project specific quality assurance plan.

4.0 Required Equipment

Equipment required for IDW containment will vary according to site-specific/client requirements. Management decisions concerning the necessary equipment required shall consider: containment method, sampling, labeling, maneuvering, and storage (if applicable). Equipment must be onsite and inspected before commencing work.

The selection of the container type and size for containerizing IDW must consider:

- waste/contaminant segregation (i.e. do not mix hazardous and non-hazardous wastes or incompatible materials),
- efficiency/ability to move the containerized waste (i.e. size of equipment needed vs. accessibility and bulk vs. individual containers),
- cost of storage, (i.e. rental vs. purchase)
- transportation and disposal of the material in the containers selected.

4.1 IDW Containment Devices

The appropriate containment device (drums, tanks, etc.) will depend on site- or client-specific requirements and the ultimate disposition of the IDW. Typical IDW containment devices can include:

- Plastic sheeting (polyethylene) with a minimum thickness of 20 micrometers
- Department of Transportation (DOT)-approved steel containers
- Polyethylene or steel bulk storage tanks

Containment of IDW shall be segregated by waste type (i.e., solid or liquid, corrosive or flammable, etc.) and source location. Volume of the appropriate containment device will depend on site-specific requirements.

4.2 IDW Container Labeling

A "Waste Container" or "IDW Container" label or indelible marking shall be applied to each container. Labeling or marking requirements for onsite IDW not expected to be transported offsite are as detailed below.

- Labels and markings must contain the following information: project name, generation date, location of waste origin, container identification number, sample number (if applicable), and contents (drill cuttings, purge water, PPE, etc.).
- Each label or marking will be applied to the upper one-third of the container at least twice, on opposite sides.
- Containers that are 5 gallons or less may only require one label or set of markings.
- Labels or markings will be positioned on a smooth part of the container. The label must not be affixed across container bungs, seams, ridges, or dents.
- Labels must be constructed of a weather-resistive material with markings made with a permanent marker or paint pen and capable of enduring the expected weather conditions. If markings are used, the color must be easily distinguishable from the container color.
- Labels will be secured in a manner to ensure that they remain affixed to the container.

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Labeling or marking requirements for IDW expected to be transported offsite must be in accordance with the requirements of 49 CFR 172.

4.3 IDW Container Movement

Staging areas for IDW containers shall be predetermined and in accordance with site-specific and/or client requirements. Arrangements shall be made before field mobilization as to the methods and personnel required to safely transport IDW containers to the staging area. Transportation of IDW containers offsite via a public roadway is prohibited unless 49 CFR 172 requirements are met.

4.4 IDW Container Storage

Containerized IDW awaiting results of pending chemical analysis or further onsite treatment shall be staged on site. Staging areas and bulk storage procedures are to be determined according to site-specific requirements. Containers are to be stored in such a fashion that the labels can be easily read. A secondary/spill container must be provided for liquid IDW storage and as appropriate for solid IDW storage (e.g., steel drums shall not be stored in direct contact with the ground).

5.0 Procedures

The three general options for managing IDW are: (1) collection and onsite disposal, (2) collection for offsite disposal, and (3) collection and interim management. Attachment 1 summarizes media-specific information on generation processes and management options. The option selected shall take into account the following factors:

- Type (soil, sludge, liquid, debris), quantity, and source of IDW
- Risk posed by managing the IDW onsite
- Compliance with regulatory requirements
- IDW minimization and consistency with the IDW remedy and the site remedy

In all cases the client shall approve the plans for IDW. Formal plans for the management of IDW must be prepared as part of a work plan or separate document.

5.1 Collection and Onsite Disposal

5.1.1 Soil/Sludge/Sediment

The options for handling soil/sludge/sediment IDW are:

1. Return IDW to boring, pit, or source immediately after generation as long as returning the media to these areas will not increase site risks (e.g., so that “clean” areas are not contaminated, the IDW material will not be replaced at a greater depth, or in a different area than from where it was originally obtained.

2. Spread IDW around boring, pit, or source within the area of contamination (AOC) as long as returning the media to these areas will not increase site risks (e.g., direct contact with surficial contamination).

3. Consolidate IDW in a pit within the AOC as long as returning the media to these areas will not increase site risks (e.g., the contaminated soil will not be replaced at a greater depth than where it was originally so that it will not contaminate “clean” areas).

4. Send to onsite TSDF. This option may require results of laboratory analysis before treatment/disposal.

Note: These options may require client and/or regulatory approval.

5.1.2 Aqueous Liquids

The options for handling aqueous liquid IDW are:

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1. Discharge to surface water, only when IDW is not contaminated, and with written client approval.

2. Discharge to ground surface close to the well from which it was extracted, only if soil contaminants will not be mobilized in the process and the action will not contaminate clean areas. If IDW from the sampling of background upgradient wells is not a community concern or associated with soil contamination, this presumably uncontaminated IDW may be released on the ground around the well with written client approval.

3. Discharge to sanitary sewer, only when IDW is not contaminated and with written client approval.

4. Send to onsite treatment/disposal facility, with facility acceptance and written client approval.

Note: These options may require results of laboratory analysis to obtain client and/or regulatory approval.

5. When small amounts (i.e., less than 5 gallons) of used decontamination fluids are generated during site characterization activities (e.g., during soil sampling using direct push technology methods), the fluids may be allowed to evaporate by spreading them on an asphalted surface, or allowing for evaporation from an open bucket.

5.1.3 Disposable PPE

The options for handling disposable PPE are:

1. Double-bag contents in nontransparent trash bags and place in onsite industrial dumpster, only if PPE is not contaminated.

2. Containerize, label, and send to onsite TSDF. This may require results of laboratory analysis before treatment/disposal.

5.2 Collection for Offsite Disposal

Before sending IDW to an offsite TSDF or to a publicly owned treatment works (POTW), laboratory analysis may be required. Manifests are required to accompany any IDW determined to be hazardous. In some instances, a bill of lading can be used for nonhazardous solid IDW (i.e., wooden pallets, large quantities of plastic sheeting). Arrangements must be made with the client responsible for the site to sign as generator on any waste profile and all manifests or bill of ladings; it is CDM Smith's policy not to sign any waste profile or manifest. The TSDF and transporter must be permitted for the respective wastes. Nonbulk containers (e.g., drums) must have a DOT-approved label adhered to the container and all required associated placard stickers before leaving for an offsite TSDF. These labels must include information as required in 49 CFR 172. Bulk containers (i.e., rolloffs, tanks) do not require container specific labels for transporting offsite, but must include appropriate placards as required in 49 CFR 172.

5.2.1 Soil/Sludge/Sediment

When the final site remedy requires offsite treatment and disposal, the IDW may be stored (e.g., drummed, covered in a waste pile) or returned to its source until final disposal. The management option selected shall take into account the potential for increased risks, applicable regulations, and other relevant site-specific factors (e.g., weather, storage space, and public concern/perceptions).

5.2.2 Aqueous Liquids

When the final site remedy requires offsite treatment and disposal, the IDW may be stored (e.g., mobile tanks or drums with appropriate secondary containment) until final disposal. The management option selected shall take into account the potential for increased risks, applicable regulations, and other relevant site-specific factors (e.g., weather, storage space, and public concern/perceptions).

5.2.3 Disposable PPE

When the final site remedy requires offsite treatment and disposal, the IDW may be containerized and stored. The management option selected shall take into account potential for increased risks, applicable regulations, and other relevant site-specific factors (e.g., weather, storage space, and public concern/perceptions).

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5.3 Collection and Interim Management

All interim measures must be approved by the client and regulatory agencies.

1. Storing IDW onsite until the final action may be practical in the following situations:
   - Returning wastes (especially sludges and soils) to their onsite source area would require reexcavation for disposal as determined for the final site remedy.
   - Interim storage in containers may be necessary to provide adequate protection to human health and the environment.
   - Offsite disposal options may trigger land disposal regulations under the Resource Conservation and Recovery Act (RCRA). Storing IDW until the final disposal of all wastes from the site will eliminate the need to address this issue more than once.
   - Interim storage may be necessary to provide time for sampling and analysis.
2. Segregate and containerize all waste for future treatment and/or disposal.
   - Containment options for soil/sludge/sediment may include drums or covered waste piles in AOC.
   - Containment options for aqueous liquids may include mobile tanks or drums.
   - Containment options for PPE may include drums or roll-off boxes.

6.0 Restrictions/Limitations

Site managers shall determine the most appropriate disposal option for aqueous liquids on a site-specific basis. Parameters to consider, especially when determining the level of protection, include the volume of IDW, the contaminants present in the aqueous liquid, the nature of contaminants present in the site soil , and whether groundwater or surface water is a drinking water supply, and if obtained from contaminated groundwater, whether the plume is contained or migrating. Special disposal/handling may be needed for drilling fluids because they may contain significant solid components and therefore may need to be handled, treated, disposed as non-liquid wastes.

Disposable sampling materials, disposable PPE, decontamination fluids, etc. will always be managed on a site-specific basis. Under no circumstances shall these types of materials e stored in a site office or warehouse.

7.0 References

Environmental Resource Center. 1997. *Hazardous Waste Management Compliance Handbook 2nd Edition*. Karnofsky (Editor).

Academy of Certified Hazardous Materials Manager. May 1999. *Hazardous Materials Management Desk Reference*. Cox.

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U. S. Environmental Protection Agency. 1987. *A Compendium of Superfund Field Operations Methods*, EPA/540/P-87/001.1.

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Attachment 1
IDW Management Options

Type of IDW	*Generation Processes*	*Management Options*
Soil	▪ Well/Test pit installations ▪ Borehole drilling ▪ Soil sampling	**Onsite Disposal** ▪ Return to boring, pit, or source immediately after generation ▪ Spread around boring, pit, or source within the AOC ▪ Consolidate in a pit (within the AOC) ▪ Send to onsite TSDF **Offsite Disposal** ▪ Client to send to offsite TSDF **Interim Management** ▪ Store for future treatment and/or disposal
Sludge/Sediment	▪ Sludge pit/sediment sampling	**Onsite Disposal** ▪ Return to pit or source immediately after generation ▪ Send to onsite TSDF **Offsite Disposal** ▪ Send to offsite TSDF* **Interim Management** ▪ Store for future treatment and/or disposal
Aqueous Liquids (groundwater, surface water, drilling fluids, wastewater)	▪ Well installation/development ▪ Well purging during sampling ▪ Groundwater discharge during pump tests ▪ Surface water sampling ▪ Wastewater sampling	**Onsite Disposal** ▪ Pour onto ground close to well (nonhazardous waste) ▪ Discharge to sewer ▪ Send to onsite TSDF **Offsite Disposal** ▪ Send to offsite TSDF* ▪ Client to send to publicly owned treatment works (POTW) **Interim Management** ▪ Store for future treatment and/or disposal
Decontamination Fluids	▪ Decontamination of PPE and equipment	**Onsite Disposal** ▪ Send to onsite TSDF ▪ Evaporate (for small amounts of low contamination organic fluids) ▪ Discharge to ground surface **Offsite Disposal** ▪ Send to offsite TSDF* ▪ Discharge to sewer **Interim Management** ▪ Store for future treatment and/or disposal
Disposable PPE and Sampling Equipment	▪ Sampling procedures or other onsite activities	**Onsite Disposal** ▪ Place in onsite industrial dumpster ▪ Send to onsite TSDF **Offsite Disposal** ▪ Send to offsite TSDF* **Interim Management** ▪ Store for future treatment and/or disposal

* Client must sign waste profile, manifest, etc. for any waste sent offsite.
Adapted from U. S. Environmental Protection Agency, *Guide to Management of Investigation-Derived Wastes*, 9345-03FS, January 1992.

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Field Logbook Content and Control	SOP 4-1 Revision: 8 Date: February 2015

Approved: *Signature* **Technical Review:** Robert Alexander

1.0 Objective

The objective of this technical standard operating procedure (SOP) is to set criteria for content entry and form of field logbooks. Field logbooks are an essential tool to document field activities for historical and legal purposes.

2.0 Background

2.1 Definitions

Biota - The flora and fauna of a region.

Magnetic Declination Corrections - Compass adjustments to correct for the angle between magnetic north and geographical meridians.

2.2 Discussion

Information recorded in field logbooks includes field team names; observations; data; calculations; date/time; weather; and description of the data collection activity, methods, instruments, and results. Additionally, the logbook may contain deviations from plans and descriptions of wastes, biota, geologic material, and site features including sketches, maps, or drawings as appropriate.

3.0 General Responsibilities

Field Team Leader (FTL) - The FTL is responsible for ensuring that the format and content of data entries are in accordance with this procedure.

Site Personnel - All CDM Smith employees who make entries in field logbooks during onsite activities are required to read this procedure before engaging in this activity. The FTL will assign field logbooks to site personnel who will be responsible for their care and maintenance. Site personnel will return field logbooks to the records file at the end of the assignment.

Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities should be defined in the field plan or site-/project-specific quality assurance project plan (QAPP).

4.0 Required Equipment

- Site-specific plans
- Field logbook
- Indelible black or blue ink pen
- Ruler or similar scale

5.0 Procedures

5.1 Preparation

In addition to this SOP, site personnel responsible for maintaining logbooks must be familiar with all procedures applicable to the field activity being performed. These procedures should be consulted as necessary to obtain specific information about equipment and supplies, health and safety, sample collection, packaging, decontamination, and documentation requirements. These procedures should be available electronically, or located at the field office or vehicle for easy reference.

Field logbooks shall be bound with lined, consecutively numbered pages. All pages must be numbered before initial use of the logbook. Before use in the field, each logbook will be marked with a specific document control number issued by the document control administrator, if required by the contract quality implementation plan (QIP). Not all contracts require document control numbers. The following information shall be recorded on the cover of the logbook:

- Field logbook document control number (if applicable).
- Start date of entries.

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- Activity (if the logbook is to be activity-specific), site name, and location.
- Name of CDM Smith contact and phone number(s) (typically the project manager).
- End date of entries.
- In specific cases, special logbooks may be required (e.g., waterproof paper for stormwater monitoring).

The first few (approximately three) pages of the logbook will be reserved for a table of contents (TOC). Mark the first page with the heading and enter the following:

Table of Contents

Date/Description	Pages
(Start Date)/Reserved for TOC	1-3

The remaining pages of the table of contents will be designated as such with "TOC" written on the top center of each page. The table of contents should be completed as activities are completed and before placing the logbook in the records file.

5.2 Operation

Requirements that must be followed when using a logbook:

- Record work, observations, quantities of materials, calculations, drawings, and related information directly in the logbook. If data collection forms are specified by an activity-specific plan, this information does not need to be duplicated in the logbook. However, any forms used to record site information must be referenced in the logbook.
- Do not start a new page until the previous one is full or has been marked with a single diagonal line so that additional entries cannot be made. Use both sides of each page.
- Do not erase or blot out any entry at any time. Indicate any deletion by a single line through the material to be deleted. Initial and date each deletion. Take care to not obliterate what was written previously.
- Do not remove any pages from the book.
- All entries must be clearly written and legible.

Specific requirements for field logbook entries include:

- Initial and date each page.
- Sign and date the final page of entries for each day.
- Initial and date all changes.
- Multiple authors must sign out the logbook by inserting the following:
  Above notes authored by:
  - (Sign name)
  - (Print name)
  - (Date)
- A new author must sign and print his/her name before additional entries are made.
- Draw a diagonal line through the remainder of the final page at the end of the day.
- Record the following information on a daily basis:
  - Date and time
  - Name of individual making entry
  - Names of field team and other persons onsite
  - Description of activity being conducted including station or location (i.e., well, boring, sampling location number) if appropriate
  - Weather conditions (i.e., temperature, cloud cover, precipitation, wind direction, and speed) and other pertinent data
  - Level of personal protection used
  - Serial numbers of instruments
  - Equipment calibration information
  - Serial/tracking numbers on documentation (e.g., carrier air bills)

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Entries into the field logbook shall be preceded with the time (written in military units) of the observation. The time should be recorded frequently and at the point of events or measurements that are critical to the activity being logged. All measurements made and samples collected must be recorded unless they are documented by automatic methods (e.g., data logger) or on a separate form required by an operating procedure. In these cases, the logbook must reference the automatic data record or form.

At each station where a sample is collected or an observation or measurement made, a detailed description of the location of the station is required. Use a compass (include a reference to magnetic declination corrections), scale, or nearby survey markers, as appropriate. A sketch of station location may be warranted. All maps or sketches made in the logbook should have descriptions of the features shown and a direction indicator. It is preferred that maps and sketches be oriented so that north is toward the top of the page. Maps, sketches, figures, or data that will not fit on a logbook page should be referenced and attached to the logbook to prevent separation.

Other events and observations that should be recorded include:

- Changes in weather that impact field activities.
- Deviations from procedures outlined in any governing documents. Also record the reason for any noted deviation.
- Problems, downtime, or delays.
- Upgrade or downgrade of personal protection equipment.
- Visitors to the site.

5.3 Post-Operation

To guard against loss of data as a result of damage or disappearance of logbooks, completed pages shall be periodically photocopied or scanned (weekly, at a minimum) and forwarded to the field or project office. Other field records shall be photocopied or scanned and submitted regularly and as promptly as possible to the office. When possible, electronic media such as flash drives or disks should be copied and forwarded to the project office. Follow the records control procedures specified in the site-specific plan.

At the conclusion of each activity or phase of site work, the individual responsible for the logbook will ensure that all entries have been appropriately signed and dated and that corrections were made properly (single lines drawn through incorrect information, then initialed and dated). The completed logbook shall be submitted to the records file.

6.0 Restrictions/Limitations

Field logbooks constitute the official record of onsite technical work, investigations, and data collection activities. Their use, control, and ownership are restricted to activities pertaining to specific field operations carried out by CDM Smith personnel and their subcontractors. They are documents that may be used in court to indicate dates, personnel, procedures, and techniques employed during site activities. Entries made in these logbooks should be factual, clear, precise, and nonsubjective. Field logbooks, and entries within, are not to be used for personal use.

7.0 References

EPA 2007. Contract Laboratory Program Guidance for Field Samplers. Office of Superfund Remediation and Technology Innovation. OSWER 9240.0-44. EPA 540-R-07-06. July.

US EPA. 2014. Region 4. The Field Branches Quality System and Technical Procedures, Soil Sampling. SESDPROC-010-R5. May.

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Field Equipment Decontamination at Nonradioactive Sites	SOP 4-5 Revision: 10 Date: February 2015

Approved: *Signature* **Technical Review:** Robert R. Alexander

1.0 Objective

The objective of this technical standard operating procedure (SOP) is to describe the general procedures required for decontamination of field equipment at nonradioactive sites. This SOP serves as a general guide and is applicable at most sites; however, it shall be noted that site-specific conditions (i.e., type of contamination, type of media sampled), the governing agency (e.g., EPA, DOE, USACE), and site-specific work plans, sampling and analysis plans and/or quality assurance (QA) project plans may require modifications to the decontamination procedures provided in this SOP. Decontamination of field equipment is necessary to ensure acceptable quality of samples by preventing cross contamination. Further, decontamination reduces health hazards and prevents the spread of contaminants offsite.

2.0 Background

2.1 Definitions

Acid Rinse - A solution of 10 percent nitric or hydrochloric acid made from reagent grade acid and analyte-free water.

Analyte-Free Water - Tap water that has been treated so that the water contains no detectable heavy metals or other inorganic compounds. Analyte-free water shall be stored only in clean glass, stainless steel, or plastic containers that can be closed when not in use.

Clean - Free of contamination and when decontamination has been completed in accordance with this SOP.

Cross Contamination - The transfer of contaminants through equipment or personnel from the contamination source to less contaminated or noncontaminated samples or areas.

Decontamination - The process of rinsing or otherwise cleaning the surfaces of sampling or other equipment to rid them of contaminants and to minimize the potential for cross contamination of samples or exposure to personnel.

Safety Data Sheets (SDS) - These documents discuss the proper storage and physical and toxicological characteristics of a particular substance used during decontamination. These documents, generally included in site health and safety plans, shall be kept on site at all times during field operations.

Organic-Free/Analyte-Free Water - Tap water that has been treated so that the water meets the analyte-free water criteria and contains no detectable organic compounds. Organic-free/analyte-free water shall be stored only in clean glass, Teflon™, or stainless steel containers that can be closed when not in use.

Potable Water - Tap water may be obtained from any municipal system. Chemical analysis of the water source may be required before it is used for decontamination purposes.

Sampling Equipment - Equipment that comes into direct contact with the sample media. Such equipment includes split spoon samplers, well casing and screens, and spatulas or bowls used to homogenize samples.

Soap - Low-sudsing, nonphosphate detergent such as Liquinox™.

Solvent Rinse - Pesticide grade, or better, isopropanol, acetone, or methanol.

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2.2 Associated Procedures

- SOP 1-1 – *Surface Water Sampling*
- SOP 1-3 – *Surface Soil Sampling*
- SOP 1-4 – *Subsurface Soil Sampling*
- SOP 1-5 – *Groundwater Sampling Using Bailers*
- SOP 1-7 – *Wipe Sampling*
- SOP 1-9 – *Tap Water Sampling*
- SOP 1-11 – *Sediment/Sludge Sampling*
- SOP 1-12 – *Low Flow (Low-Stress) Groundwater Sampling*
- SOP 1-13 – *Drum Sampling*
- SOP 1-14 – *Lagoon Sampling*
- SOP 1-15 – Procedures for Determination of Screening-Level Elemental Concentrations in Soil and Sediment using Field Portable X-Ray Fluorescence Spectrometry
- SOP 2-2 – *Guide to Handling Investigation-Derived Waste*
- SOP 3-1 – *Geoprobe® Sampling*

3.0 Responsibilities

The project manager or designee, generally the field team leader (FTL), ensures that field personnel are trained in the performance of this procedure and that decontamination is conducted in accordance with this SOP and site-specific work plans. The FTL may also be required to collect and document rinsate samples (also known as equipment blanks) to provide quantitative verification that these procedures have been correctly implemented.

Note: Responsibilities may vary from site to site. Therefore, all field team member responsibilities shall be defined in the field plan or site-/project-specific quality assurance project plan (QAPP).

4.0 Required Equipment

- Stiff-bristle scrub brushes
- Plastic buckets and troughs
- Soap
- Nalgene or Teflon sprayers or wash bottles or 2- to 5-gallon, manual-pump sprayer (pump sprayer material must be compatible with the solution used)
- Plastic sheeting, plastic bags, and/or aluminum foil to keep decontaminated equipment clean between uses
- Disposable wipes, rags, or paper towels
- Potable water*
- Analyte-free water
- Organic-free/analyte-free water
- Gloves, safety glasses, and other protective clothing as specified in the site-specific health and safety plan
- High-pressure pump with soap dispenser or steam-spray unit (for large equipment only)
- Appropriate decontamination solutions pesticide grade or better and traceable to a source (e.g., 10 percent and/or 1 percent nitric acid [HNO_3], acetone, methanol, isopropanol, hexane)
- Tools for equipment assembly and disassembly (as required)
- 55-gallon drums or tanks for temporary storage of decontamination water (as required)
- Pallets for drums or tanks holding decontamination water (as required)

* Potable water may be required to be tested for contaminants before use. Check field plan for requirements.

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5.0 Procedures

All reusable equipment (nondedicated) used to collect, handle, or measure samples shall be decontaminated before coming into contact with any sampled media or personnel using the equipment. Decontamination of equipment shall occur either at a central decontamination station or at portable decontamination stations set up at the sampling location, drill site, or monitoring well location. The centrally located decontamination station shall include an appropriately sized bermed and lined area on which equipment decontamination shall occur and shall be equipped with a collection system and storage vessels. In certain circumstances, berming is not required when small quantities of water are being generated and for some short duration field activities (i.e., pre-remedial sampling). Equipment shall be transported to and from the decontamination station in a manner to prevent cross contamination of equipment and/or area. For example, precautions taken may include enclosing augers in plastic wrap while being transported on a flatbed truck.

The decontamination area shall be constructed so that contaminated water is either collected directly into appropriate containers (5-gallon buckets or steel wash tubs) or within the berms of the decontamination area that then drains into a collection system. Water from the collection system shall be transferred into 55-gallon drums or portable tanks for temporary storage. Typically, decontamination water shall be staged until sampling results or waste characterization results are obtained and evaluated and the proper disposition of the waste is determined (SOP 2-2, *Guide to Handling Investigation-Derived Waste*). The exact procedure for decontamination waste disposal shall be discussed in the work plan. Also, solvent and acid rinse fluids may need to be segregated from other investigation-derived wastes.

All items that shall come into contact with potentially contaminated media shall be decontaminated before use and between sampling and/or drilling locations. If decontaminated items are not immediately used, they shall be covered either with clean plastic or aluminum foil depending on the size of the item. All decontamination procedures for the equipment being used are as follows:

General Guidelines

- Potable, analyte-free, and organic-free/analyte-free water shall be free of all contaminants of concern. Following the field QA sampling procedure described in the sampling plan, analytical data from the water source may be required.
- Sampling equipment that has come into contact with oil and grease shall be cleaned with methanol or other approved alternative to remove the oily material. This may be followed by a hexane rinse and then another methanol rinse. Regulatory or client requirements regarding solvent use shall be stated in the sampling plan.
- All solvents and acids shall be pesticide grade or better and traceable to a source. If provided, certificates of analyses should be placed in the project files. The corresponding lot numbers shall be recorded in the appropriate logbook.

Note: Solvents and acids are potentially hazardous materials and must be handled, stored, and transported accordingly. Solvents shall never be used in a closed building. See the site-specific health and safety plan and/or the chemical's MSDS for specific information regarding the safe use of the chemical.

- Decontaminated equipment shall be allowed to air dry before being used.
- Documentation of all equipment type, date, time, and method of decontamination along with associated field QA sampling shall be recorded in the appropriate logbook.
- Gloves, boots, safety glasses, and any other personnel protective clothing and equipment shall be used as specified in the site-specific health and safety plan.

5.1 Heavy Equipment Decontamination

Heavy equipment includes drilling rigs, well development rigs, and backhoes. Follow these steps when decontaminating this equipment:

1. Establish a bermed decontamination area that is large enough to fully contain the equipment to be cleaned. If available, an existing wash pad or appropriate paved and bermed area may be used; otherwise, use one or more layers of heavy plastic sheeting to cover the ground surface and berms. All decontamination pads shall be upwind of the area under investigation.

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2. With the rig in place, spray areas (rear of rig or backhoe) exposed to contaminated media using a hot water high-pressure sprayer. Be sure to spray down all surfaces, including the undercarriage.

3. Use brushes, soap, and potable water to remove dirt whenever necessary.

4. Remove equipment from the decontamination pad and allow it to air dry before returning it to the work site.

5. After decontamination activities are completed, collect all contaminated wastewater, plastic sheeting, and disposable gloves, boots, and clothing in separate containers or receptacles. All receptacles containing contaminated items must be properly labeled for disposal as detailed in the field plan. Liquids and solids must be drummed separately.

5.2 Downhole Equipment Decontamination

Downhole equipment includes hollow-stem augers, drill pipes, rods, stems, etc. Follow these steps when decontaminating this equipment:

1. Set up a centralized decontamination area, if possible. This area shall be set up to collect contaminated rinse waters and to minimize the spread of airborne spray.

2. Set up a “clean” area upwind of the decontamination area to receive cleaned equipment for air-drying. At a minimum, clean plastic sheeting must be used to cover the ground, tables, or other surfaces on which decontaminated equipment is to be placed. All decontamination pads shall be upwind of any areas under investigation.

3. Place the object to be cleaned on aluminum foil or plastic-covered wooden sawhorses or other supports. The objects to be cleaned shall be at least 2 feet above the ground to avoid splashback when decontaminating.

4. Using soap and potable water in the hot water high-pressure sprayer (or steam unit), spray the contaminated equipment. Aim downward to avoid spraying outside the decontamination area. Be sure to spray inside corners and gaps especially well. Use a brush, if necessary, to dislodge dirt.

5. If using soapy water, rinse the equipment using clean, potable water. If using hot water, the rinse step is not necessary if the hot water does not contain a detergent. If the hot water contains a detergent, this final clean water rinse is required.

6. Using a suitable sprayer, rinse the equipment thoroughly with analyte-free water.

7. Remove the equipment from the decontamination area and place in a clean area upwind to air dry.

8. After decontamination activities are completed, collect all contaminated wastewaters, plastic sheeting, and disposable gloves, boots, and clothing in separate containers or receptacles. All receptacles containing contaminated items must be properly labeled for disposal. Liquids and solids must be drummed separately.

5.3 Sampling Equipment Decontamination

Follow these steps when decontaminating sampling equipment:

1. Set up a decontamination line on plastic sheeting. The decontamination line shall progress from "dirty" to "clean." A clean area shall be established upwind of the decontamination wash/rinse activities to dry the equipment. At a minimum, clean plastic sheeting must be used to cover the ground, table, or other surfaces that the decontaminated equipment is placed for drying.

2. Disassemble any items that may trap contaminants internally. Do not reassemble the items until decontamination and air drying are complete.

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3. Wash the items with potable water and soap using a stiff brush as necessary to remove particulate matter and surface films. The items may be steam cleaned using soap and hot water as an alternative to brushing. Note: Polyvinyl chloride or plastic items shall not be steam cleaned. Items that have come into contact with concentrated and/or oily contaminants may need to be rinsed with a solvent such as hexane and allowed to air dry prior to this washing step.

4. Thoroughly rinse the items with potable water.

5. The specific chemicals and/or fluids to be used in the decontamination process will be defined in the sampling plan. If sampling for metals, typically the potable water and soap wash is followed by a potable water rinse then an analyte-free water rinse; alternatively, an acid solution (e.g., 10 percent nitric acid) rinse followed by a rinse using analyte-free water may be specified in some instances. If sampling for organic compounds, thoroughly rinse the items with solvent (e.g., isopropanol) followed by a rinse using organic-free/analyte-free water. Again, the specific chemicals used in any acid rinse or solvent rinse phases shall be specified in the sampling plan. Any acid rinsate and solvent rinsate must each be containerized separately. Acids and solvents are potentially hazardous materials and care must be exercised when using these chemicals to prevent adverse health affects (e.g., skin burns, irritation to the eyes and respiratory system). Appropriate personal protective equipment must be worn when using these chemicals. The use of acids and solvents for decontamination should be carefully considered. These chemicals (including spent rinsate) must be managed and stored appropriately. Special measures such as proper labels, paperwork, notification, etc. may be required when transporting or shipping these chemicals.

6. Allow the items to air dry completely.

7. After drying, reassemble the parts as necessary and wrap the items in clean plastic wrap or in aluminum foil.

8. After decontamination activities are completed, collect all contaminated waters, used solvents and acids, plastic sheeting, and disposable personal protective equipment. Place the contaminated items in properly labeled drums for disposal. Liquids and solids must be drummed separately. Refer to site-specific plans for labeling and waste management requirements.

5.4 Pump Decontamination

Follow the manufacturer's recommendation for specified pump decontamination procedures. At a minimum, follow these steps when decontaminating pumps:

1. Set up the decontamination area and separate "clean" storage area using plastic sheeting to cover the ground, tables, and other surfaces. Set up four containers: the first container shall contain dilute (nonfoaming) soapy water, the second container shall contain potable water, the third container shall be empty to receive wastewater, and the fourth container shall contain analyte-free water.

2. The pump shall be set up in the same configuration as for sampling. Submerge the pump intake (or the pump, if submersible) and all downhole-wetted parts (tubing, piping, foot valve) in the soapy water of the first container. Place the discharge outlet in the wastewater container above the level of the wastewater. Pump soapy water through the pump assembly until it discharges to the waste container. Scrub the outside of the pump and other wetted parts with a metal brush.

3. Move the pump assembly to the potable water container while leaving discharge outlet in the waste container. All downhole-wetted parts must be immersed in the potable water rinse. Pump potable water through the pump assembly until it runs clear.

4. Move the pump intake to the analyte-free water container. Pump the water through the pump assembly. Pump the volume of water through the pump specified in the field plan. Usually, three pump-and-line-assembly volumes shall be required.

5. Decontaminate the discharge outlet by hand, following the steps outlined in Section 5.3.

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6. Remove the decontaminated pump assembly to the clean area and allow it to air dry upwind of the decontamination area. Intake and outlet orifices shall be covered with aluminum foil to prevent the entry of airborne contaminants and particles.

5.5 Low Stress (Low Flow) Sampling Pump Decontamination

Sampling equipment used for Low Stress (Low Flow) Groundwater Sampling (SOP 1-12) must be decontaminated thoroughly each day before use (daily decontamination) and after each well is sampled (between-well decontamination). All non-disposable equipment, including the pump (support cable and electrical wires which are in contact with the sample) will be decontaminated as described below. Dedicated, in-place pumps and tubing must be thoroughly decontaminated using "daily decontamination" procedures prior to their initial use or installation.

5.5.1 Prior to Sampling Event Decontamination

Please Note: Steps 5 through 13 should only be performed once (for each pump that is to be used) before the commencement of a particular sampling event by a person qualified to disassemble pumps.

1. Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and thoroughly flush other equipment with potable water.

2. Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Liquinox™, for 5 minutes and thoroughly flush other equipment with fresh detergent solution. Use the detergent sparingly.

3. Rinse: Operate pump in a deep basin of potable water for 5 minutes and thoroughly flush other equipment with potable water for 5 minutes.

4. Analyte-Free Rinse: Operate pump in a deep basin of analyte-free water to pump out 1 to 2 gallons of this final rinse water.

5. Disassemble pump.

6. Wash pump parts (inlet screen, shaft suction interconnector, motor lead assembly, stator house): Place the disassembled parts of the pump into a deep basin containing 8 to 10 gallons of non-phosphate detergent solution. Scrub all pump parts with a test tube brush.

7. Rinse pump parts with potable water for five minutes.

8. Rinse the pump parts with demonstrated analyte-free water.

9. If sampling for metals, an acid rinse may be specified in the sampling plan; if so, place impeller assembly in a large glass beaker and rinse with 1% nitric acid (HNO3).

10. Rinse impeller assembly with potable water for five minutes.

11. If sampling for organics, a solvent rinse may be specified; if so, place impeller assembly in a large glass bleaker and rinse with isopropanol or appropriate organic solvent specified in the site-specific plan.

12. Thoroughly rinse impeller assembly with demonstrated analyte-free water.

13. Reassemble pump.

5.5.2 Daily and Between-Well Decon

1. Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and thoroughly flush other equipment with potable water for five minutes.

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2. Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Liquinox™, for 5 minutes and thoroughly flush other equipment with fresh detergent solution. Use the detergent sparingly.
3. Rinse: Operate pump in a deep basin of potable water for 5 minutes and thoroughly flush other equipment with potable water for five minutes.
4. Final Rinse: Operate pump in a deep basin of analyte-free water to pump out 1 to 2 gallons of this final rinse water.

5.6 Instrument Probe Decontamination

Instrument probes used for field measurements such as pH meters, conductivity meters, etc. shall be decontaminated between samples and after use with analyte-free, or better, water.

5.7 Waste Disposal

Refer to site-specific plans and SOP 2-2 for waste disposal requirements. The following are guidelines for disposing of wastes:

- All wash water, rinse water, and decontamination solutions that have come in contact with contaminated equipment are to be handled, packaged, labeled, marked, stored, and disposed of as investigation-derived waste.
- Small quantities of decontamination solutions may be allowed to evaporate to dryness.
- If large quantities of used decontamination solutions shall be generated, each type of waste shall be contained in separate containers.
- Unless otherwise required, plastic sheeting and disposable protective clothing may be treated as solid, nonhazardous waste.
- Waste liquids shall be sampled, analyzed for contaminants of concern in accordance with disposal regulations, and disposed of accordingly.

6.0 Restrictions/Limitations

Nitric acid and polar solvent rinses are necessary only when sampling for metals or organics, respectively. These steps shall not be used, unless required, because of the potential for acid burns and ignitability hazards.

If the field equipment is not thoroughly rinsed and allowed to completely air dry before use, volatile organic residue, which interferes with the analysis, may be detected in the samples. The occurrence of residual organic solvents is often dependent on the time of year sampling is conducted. In the summer, volatilization is rapid, and in the winter, volatilization is slow. Check with your EPA region, state, and client for approved decontamination solvents.

7.0 References

American Society for Testing and Materials. 2015. *Standard Practice for Decontamination of Field Equipment at Waste Sites*, ASTM D5088-15. January 15.

Puls, R.W. and M.J. Barcelona. 1996. Low-Flow (Minimal Drawdown) Ground-water Sampling Procedures, EPA/540/S-95/504.

U. S. Environmental Protection Agency. 1987. *A Compendium of Superfund Field Operations Methods*, EPA/540/P-87/001.1.

_____. 1998. EPA Region 2, Ground Water Sampling Procedure Low Stress (Low Flow) Purging and Sampling, March 16.

_____. 1992. *Standard Operating Safety Guidelines*; Publication 9285.1-03. June.

_____. 2011. Region 4. The Field Branches Quality System and Technical Procedures, Soil Sampling. SESDPROC-205-R2. December. http://www.epa.gov/region4/sesd/fbqstp/

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Appendix B

Field Books and Forms

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kama Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Ww=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A - Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8000 - Dissolved CH4 (RSK-175 SAC/RAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-119S-20181003	10/3/18	14:50	G	W				1							1	1		1	1	1	3	1		
MW-119D-20181003	10/3/18	16:10	G	W				1							1	1		1	1	1	3	1		
MW-118D-20181003	10/3/18	17:35	G	W				1							1	1		1	1	1	3	1		

280-115186 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/4/18 16:00	CDMSmith		10/5/18 0930	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 2.9 +0.7 Iced

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kayla Cooke	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:

Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested
City: Helena	TAT Requested (days):	
State, Zip: MT, 59601		
Phone:	PO #:	
Email: HillsMW@cdmsmith.com	WO #:	
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #	
Site:	SSOW#:	

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOC's	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCB's	8290 - Dioxins/Furans (ITA-SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-105D-20181004	10/4/18	10:00	G	W			3	1							1	1	0	1	1	1	3	1		
MW-105S-20181004	10/4/18	11:30	G	W			3	1							1	1	0	1	1	1	3	1		
TB-2-UA-20181004	10/4/18	12:50	G	W			2																	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 10/4/18 1600	Company	Received by:	Date/Time: 10/5/18 0930	Company TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.5°C, 1 Frozen JAE

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kyle Vosi	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 385-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:

Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested
City: Helena	TAT Requested (days):	
State, Zip: MT, 59601		
Phone:	PO #:	
Email: HillsMW@cdmsmith.com	WO #:	
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #	
Site:	SSOW#:	

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-104S-20181004	10/4/18	0925	G	W			3	1							1	1		1	1	1	3	1		
MW-104D-20181004	10/4/18	1035	G	W			3	1							1	1		1	1	1	3	1		
TB-3-WX-20181004	10/4/18	1155	G	W			2																	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/4/18 1600			10/5/18 0930	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 0.6 to 1.7 Frankstar JAR

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kara Loshe	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A - Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-120D-20181003	10/3/18	15:40	G	W			3	1							1	1		1	1	1	1	1		
MW-120S-20181003	10/3/18	17:00	G	W			3	1							1	1		1	1	1	1	1		
MW-119S-20181003	10/3/18	14:50	G	W			3																	
MW-119D-20181003	10/3/18	16:10	G	W			3																	
MW-118D-20181003	10/3/18	17:35	G	W			3																	
TB-1-VOC-20181003	10/4/18	845	G	W			2																	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/4/18 16:00	CDMSmith		10/5/18 0930	TAEDW
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.8 to 0.7 Inverted JAE

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Zama LeSueur	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A - Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA-SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-1115-20181004	10/4/18	1430	G	W			3	1							1	1		1	1	1	3	1	12	
MW-1-20181005	10/5/18	1100	G	W			3	1							1	1		1	1	1	3	1	12	
EB-1-VOC-20181004	10/4/18	1455	G	W			3																3	
TB-4-VOC-20181005	10/5/18	1135	G	W			2																2	
MW-111D-20181004	10/4/18	1425	G	W			3																3	
MW-113D-20181004	10/4/18	1715	G	W			3																3	
MW-1135-20181004	10/4/18	1495	G	W			3																3	
MW-1015-20181005	10/5/18	0900	G	W		Y	9																9	

280-115218 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Zama LeSueur	10/5/18 1600			10-06-18 0905	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.1, 1.6, 0.7 +0.7 IR9 XFERED BY LC 10-06-18

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kerra Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Wwater, Sesolid, Owwastelolf, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	~~8270C - SVOCs~~	~~8081A - Organochlorine Pesticides~~	~~8141A - Organophosphorous Pesticides~~	~~8151A - Chlorinated Herbicides~~	~~8082A - PCBs~~	~~8290 - Dioxins/Furans (TA SACRAMENTO)~~	7470A - Mercury	4500_CN_E - Total Cyanide	~~9034/9030_S2_D - Total Sulfide~~	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S	X	
MW-111D-20181004	10/4/18	1625	G	W				1							1	1		1	1	1	3	1	9	
MW-113D-20181004	10/4/18	1715	G	W				1							1	1		1	1	1	3	1	9	
MW-113S-20181004	10/4/18	1445	G	W				1							1	1		1	1	1	3	1	9	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/5/18 1600			10-06-18 0905	TAIDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Cosme	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorus Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-1015-20181005	10/5/18	0900	G	W			Y	3							3	3		3	3	3	9	3	30	
							RL	10/5/18																

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/5/18 16:00			10-06-18 0905	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

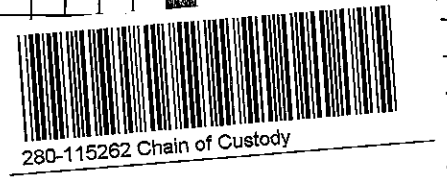
Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kayla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	B	N	N	N	N	N	B	B	B	C/B	N	N	S	A	S		
MW-13Q-20181006	10/6/18	1630	G	W					3	2	3	2	2										10	



Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 4 Data Package

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/8/18 12:00		[signature]	10/9/18 0845	TAOER
2						
3						

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.1, 1.5, 1.3, 0.9, 1.6, 0.9 +0.7 IR #9

Transfer by JO

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kara Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A - Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:			A	B	N	N	N	N	N	N	D	B	C/B	N	S	A	S			
MW-13Q-20181006	10/6/18		G	W			3	1						1	1	1	1	1	1			3	
MW-13-20181006	10/6/18		G	W		Y	9	3						3	3	3	3	3	3			21	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 4 Data Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
		10/8/18 1200			10/9/18 0845	TAOOK
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kona Gosha	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 303-727-0157	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of Containers	Special Instructions/Note:
			Preservation Code:			A	B	N	N	N	N	N	B	B	B	C/B	N	N	S	A	S		
MW-13Q-20181006	10/6/18	16:30	G	W									2									2	
MW-13-20181006	10/6/18	09:30	G	W									6									6	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)
Other:	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/8/18 12:00			10/9/18 0855	TAGEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B—VOCs	6010B/7000—Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290--Dioxins/Furans (TA SACRAMENTO)	7470A--Mercury	4500_CN_E--Total Cyanide	SM4500_S2_D--Total Sulfide	9056A--Anions (Cl and SO4)	2320B--Alkalinity	353.2--Nitrate/Nitrite	RSK-175--Dissolved Gases (MEE,A)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				X																X	
MW-13-20181006	10/6/18	09:30	G	W		Y			2	2	2	2	2										20	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 4 Data Package

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/8/18 12:00			10/9/18 0845	TAGGN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8280 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	B	B	B	C/B	N	N	S	A	S		
MW-13-20181006	10/6/18	09:30	G	W			Y		2	2	2	2	2										3	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 4 Data Package

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/8/18 12:00			10/9/18 0895	
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Field Filtered Sample (Yes or No)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	8260B--VOCs	6010/6020--Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290--Dioxins/Furans (EPA-SAGR-MENT0)	7470A--Mercury	4500--CN_E--Total Cyanide	SM4500--S2_D--Total Sulfide	9056A--Anions (Cl and SO4)	2320B--Alkalinity	353.2--Nitrate/Nitrite	RSK-175--Dissolved Gases (MEEA)	9060A--TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-13-20181006	10/6/18	09:30			Y			a	a	a	a	a									6	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)
Other:	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 4 Data Package

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/8/18 1200		[signature]	10/9/18 0845	TAOEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Lesley	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601	PO #:			
Phone:	WO #:			
Email: HillsMW@cdmsmith.com	Project #: See TA PM at sample receipt for project #			
Project Name: Bannock Ft. Hall Mine LF, Idaho	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify), Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-12-20181008	10/8/18	1010	G	W										2									2	
MW-9-20181007	10/7/18	14:00	G	W										2									2	
IWT-AR-20181006	10/6/18	18:00	G	W										2									2	
MW-8-20181007	10/7/18	10:35	G	W										2									2	

280-115307 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ___ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level IV & Data Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10/10/18 0900	TAOEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.1, 0.9, 0.8, 1.7, 4.9, 4.6, 3.5 +0.7 transfer JAC

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Mark Hills	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-1095-20181006	10/6/18	1130	G	W				1							1	1		1	1	1	3	1		
MW-112M-20181006	10/6/18	1510	G	W				1							1	1		1	1	1	3	1		
MW-112MD-20181005	10/5/18	1515	G	W				1							1	1		1	1	1	3	1		

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/9/18 1420			10/10/18 0900	TAD
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kayla Leshe	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Wwater, Ssolid, Owaste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S	X	
RW-4-20181007	10/7/18	1240	G	W				1							1	1		1	1	1	3	1	9	
MW-121-20181007	10/7/18	1015	G	W				1							1	1		1	1	1	3	1	9	
RW-7773P-20181007	10/7/18	1405	G	W				1							1	1							3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level TWO

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/9/18 1600			10/10/18 0900	FTN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kayla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
RW-3-20181007	10/7/18	1045	G	W				1							1	1		1	1	1	3	1	9	
MW-7-20181008	10/8/18	0950	G	W				1							1	1		1	1	1	3	1	9	
MW-100D-20181008	10/8/18	1640	G	W				1							1	1		1	1	1			5	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level TWO

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/9/18 1600			10/10/18 0900	TAL EN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kona Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify), Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-112D-20181005	10/5/18	1350	G	W			3	1							1	1		1	1	1	3	1	12	
MW-4-20181005	10/5/18	1500	G	W			3	1										1	1	1			6	
MW-109D-20181006	10/6/18	0945	G	W			3	1							1	1		1	1	1	3	1	12	
MW-112MD-20181005	10/5/18	1515	G	W			3																	
MW-112M-20181005	10/5/18	510	G	W			3																	
MW-109S-20181006	10/6/18	1150	G	W			3																	
RW-9-20181007	10/7/18	1230	G	W			3																	
EB-0-VOC-20181006	10/6/18	920	G	W			3																	
EB-2-VOC-20181006	10/6/18	915	G	W			3																	
TB-7-VOC-20181009	10/9/18	1130	G	W			2																	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level IV TD

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/7/18 1600			10/10/18 0900	CDM
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kaleigh	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0407	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-115D-20181008	10/8/18	1305	W	G			3	1							1	1		1	1	1			8	
MW-6A-20181009	10/9/18	1400	W	G			3	1										1	1	1			6	
MW-4A-20181005	10/5/18	1305	W	G			3	1										1	1	1			6	
MW-4AQ-20181005	10/5/18	1305	W	G			3	1										1	1	1			6	
EB-4-VOC-20181009	10/9/18	1455	W	G			3																	
MW-106D-20181008	10/8/18	1400	W	G			3																	
RW-17-20181007	10/7/18	1130	W	G			3																	
EB-3-VOC-100718	10/7/18	905	W	G			3																	
RW-3-20181007	10/7/18	1045	W	G			3																	
MW-7-20181008	10/8/18	950	W	G			3																	
RW-10-20181007	10/7/18	1115	W	G			3																	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1400			10/10/18 0900	TAMEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kala Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC		Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S			
MW-3A-20181008	10/8/18	1435	G	W			3	1										1	1	1					6	
MW-1035-20181009	10/9/18	1005	G	W			3	1							1	1		1	1	1	3	1			12	
MW-1030-20181009	10/9/18	1410	G	W			3	1							1	1		1	1	1	3	1			12	
TB-9-VOC-20181009	10/9/18	1500	G	W			2																		2	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level IV

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/9/18 1600			10/10/18 0900	TADEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

280-115369

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kale Cosle	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-7270107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Field Filtered Sample (Yes or No)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorus Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
						A	D	N	N	N	N	N	D	D	B	CB	N	N	S	A	S		
MW-1065-20181007	10/7/18	1605	G	W		3	1							1	1		1	1	1			03	
MW-1101-20181007	10/7/18	1325	G	W		3	1							1	1		1	1	1	3	1	07	
MW-1155-20181008	10/8/18	1445	G	W		3	1							1	1		1	1	1			06	
TB-6-VOC-20181009	10/9/18	1115	G	W		2																02	
RW-4-20181007	10/7/18	0940	G	W		3																03	
MW-121-20181007	10/7/18	1015	G	W		3																03	
RW-7773P-20181007	10/7/18	1605	G	W		3																03	
EB-4-VOC-20181007	10/7/18	1656	G	W		3																03	
INF-COM-20181007	10/7/18	1630	G	W		3																03	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)
Other:	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level TWO

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/9/18 16:00		[signature]	10.10.18 1650	TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.3, 0.4, 2.7, 2.0, 1.2, 0.8, 0.7, 0.1, 2.6 +0.7, IR9 transferred by DB 10/10/18

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin Lose	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785 220 0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	E	C/B	N	N	S	A	S		
RW-10-20181007	10/7/18	1115	G	W				1							1	1		1	1	1	3	1		
RW-9-20181007	10/7/18	1230	G	W				1							1	1		1	1	1	3	1		
RW-17-20181007	10/7/18	1130	G	W				1							1	1		1	1	1	3	1		

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2SO3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - ph 4-5
Z - other (specify)
Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify): Level IV

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 16:00			10-10-18 1650	TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kona Ushe	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:			A	B	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-1025-20191006	10/6/19	1600	G	W			1							1	1		1	1	1	3	1	6	
MW-1105-20191006	10/6/19	1545	G	W			1							1	1		1	1	1	3	1	6	
RW-15-20191006	10/6/19	1750	G	W			1							1	1		1	1	1	3	1	6	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level Two

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/19 1600			10/10/19 1650	TAN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8280 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	A	D	N	N	N	N	N	N	D	D	C/B	N	N	S	A	S	X	
MW-9-20181007	10/7/18	14:00	G	W				2	2	2	2	2										5	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level Four Data QA/QC

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10.10.18 1650	TADN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Loslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601	PO #:			
Phone:	WO #:			
Email: HillsMW@cdmsmith.com	Project #: See TA PM at sample receipt for project #			
Project Name: Bannock Ft. Hall Mine LF, Idaho	SSOW#:			
Site:				

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:			A	D	N	N	N	N	N	N	D	B	C	N	N	S	A	S		
MW-12-20181008	10/8/18	1010	G	W				2	2	2	2	2											

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level FOUR Data Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10.10.18 1650	TAL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			Preservation Codes:
State, Zip: MT, 59601	PO #:			A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2SO3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - ph 4-5 L - EDA Z - other (specify)
Phone:	WO #:			Other:
Email: HillsMW@cdmsmith.com				
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	K	N	N	D	B	CB	AK	N	S	A	S		
MW-8-20181007	10/7/18	10:35	G	W					2	2	2	2	2											

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level Four Data Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 14:00	CDMSmith		10-10-18 1105	TABU
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	A	D	N	N	N	N	N	D	D	D	C/B	N	N	S	A	S	X	
INJ-1R-20181006	10/6/18	1800	G	W					2	2	2	2	2										10	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level FOUR Data Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/6/18 16:00			10.10.18 1650	TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kayla Lesle	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of Containers Supplied	Special Instructions/Note:
MW-12-20181008	10/8/18	10:10	G	W		N	3	1							1	1	1	1	1	1			9	
MW-9-20181007	10/7/18	14:00	G	W		N	3	1							1	1	1	1	1	1			9	
MW-8-20181007	10/7/18	10:35	G	W		N	3	1							1	1	1	1	1	1			9	
TW-1R-20181006	10/6/18	18:00	G	W		N	3	1							1	1	1	1	1	1		1	10	
							2																2	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level FOUR Date Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10-10-18 1650	TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kaleena	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-6107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601	PO #:			
Phone:	WO #:			
Email: HillsMW@cdmsmith.com	Project #: See TA PM at sample receipt for project #			
Project Name: Bannock Ft. Hall Mine LF, Idaho	SSOW#:			
Site:				

Analysis Requested

Field Filtered Sample (Yes or No)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wasteoil, BT=Tissue, A=Air)	Preservation Code	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers
MW-109S-20181006	10/6/18	1130	G	W		4	6	2						2	2		2	2	2	6	2	
MW-5A-20181008	10/8/18	1210	G	W			3	1									1	1	1			
EW-15-20181006	10/6/18	1750	G	W			3															
MW-102S-20181006	10/6/18	1600	G	W			3															
MW-110S-20181006	10/6/18	1545	G	W			3															
TB-B-UOC-20181009	10/9/18	1430	G	W			2															

280-115369 Chain of Custody

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Special Instructions/Note:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ___ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level Two

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10-10-18 1650	TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 5.3, 0.4, 2.7, 2.0, 1.2, 0.5, 0.7, 0.1, 2.6, 10.7, 11.9

Stored by AMA 10.10.18

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Michelle Goldberg	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: (908) 370-5534	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:

Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Helena	TAT Requested (days): 2 Day TAT * See NOTE FOR RW-2140H		
State, Zip: MT, 59601			
Phone:	PO #:		
Email: HillsMW@cdmsmith.com	WO #:		
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #		
Site:	SSOW#:		

280-115944 Chain of Custody

K - EDTA
L - EDA
Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (I	9060A - TOC	Total Number of containe	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-1165-20181019	10/19/18	1345	G	W			3	1							1	1	✓	✓ MG 10/23/18	✓	✓			8	MG 10/23/18
MW-116D-20181019	10/19/18	1145	G	W			3	1							1	1	✓	✓ MG 10/23/18	✓	✓			8	
MW-116D-20181019-X MG 10/23/18 2	10/19/18	1730	G	W			3	1							1	1	✓	✓ MG 10/23/18	✓	✓			8	
RW-2140H-20181019	10/19/18	1815	G	W			3	1							1	1							5	TAT 15 Days
EB-5-VOC-20181019	10/19/18	1400	G	W			3																3	
TB-10-VOC-20181019	10/19/18	1600	G	W			2																2	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level Two

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: M. Goldberg	Date/Time: 10/22/18 1235	Company: CDMSmith	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 10/23/18 0850	Company TA Den

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.2°C IR#9 CF+0.7 checked by JPK

Notes: Need adapters for tubing, some of different sizes
42 is missing the short big soft tubing
43 is really soft

*Road Wash out 1095/D

Without Pump/tubing

TIC

Recon Trip Information

Count	Location	Group	Area	PID Measurements PID	CO	H2S	O2	LEL	DTW	TD	Notes
1	Combined Influent Sample	Cell 1	Remediation System								
2	INJ-1R (effluent sample)	Cell 1	Remediation System								
3	MW-1 4-inch well	Cell 1	Upgradient	0.0	0.0	0.0	20.9	0.0	64.37	74.75 3'	designated tubing/pump → very oxidized
4	MW-101S 4-inch well	Cell 1	Upgradient	0.0	0.0	0.0	20.9	0.0	89.24	81.49	No Pump/designated tubing
5	MW-102S 4-inch well	Cell 1	Downgradient	0.0	0.0	0.0	20.9	0.0	132.82	131.26	designated 3' pump and tubing
6	MW-104D *	Cell 1	Upgradient	0.0	0.0	0.0	20.9	0.0	57.62	90.19	NO Pump or tubing
7	MW-104S *	Cell 1	Upgradient	0.0	0.0	0.0	20.9	0.0	54.94	69.24	Dedicated tubing NO pump
8	MW-105D	Cell 1 Bees	Upgradient	0.0	0.0	0.0	20.9	0.0	62.06	83.41	3' Pump / Dedicated tubing
9	MW-105S	Cell 1 Bees	Upgradient	0.0	0.0	0.0	20.9	0.0	57.39	67.19	2' Pump / Dedicated Tubing → Very Oxidized
10	MW-109D	Cell 1	Upgradient	0.0	0.0	0.0	20.9	0.0	62.07	97.90	No Pump or tubing
11	MW-109S	Cell 1	Upgradient	0.0	0.0	0.0	20.9	0.0	49.61	65.09	Dedicated tubing / NO Pump
12	MW-110D ✓	Cell 1 Bees	Upgradient	0.0	0.0	0.0	20.9	0.0	—	—	Dedicated tubing / estimate NO PUMP
13	MW-110S *	Cell 1	Upgradient	5.4	0.0	0.0	19.3	0.0	120.87	128.68	Dedicated tubing / NO PUMP
14	MW-111D	Cell 1	Upgradient	0.0	2	0.0	20.9	0.0	71.25	126.09	Dedicated Tubing / Pump
15	MW-111S DTW 49.89	Cell 1	Upgradient	0.0	2	0.0	20.9	7	49.89	75.50	Dedicated Tubing / NO pump
16	MW-112D	Cell 1	Upgradient	0.0	0.0	0.0	20.9	0.0	—	—	Dedicated tubing / Pump
17	MW-112M	Cell 1 Bees	Upgradient	0.0	0.0	0.0	20.9	0.0	—	—	Dedicated tubing / NO Pump → Planon tubing for this one
18	MW-112S	Cell 1 Bees	Upgradient	0.0	0.0	0.0	20.9	0.0	62.16	62.93	NO Pump / NO tubing
19	MW-113D Tubing in shed	Cell 1	Upgradient	0.0	0.0	0.0	20.9	0.0	29.46	137.60	Dedicated Tubing / No Pump
20	MW-113S	Cell 1	Upgradient	0.0	0.0	0.0	20.9	0.0	29.67	97.78	Dedicated Tubing / Pump
21	MW-117R 2' pump	Cell 1	Downgradient	0.0	0.0	0.0	20.9	0.0	125.45	125.71	Dedicated tubing / Pump
22	MW-118D	Cell 1	Downgradient	0.0	0.0	0.0	20.9	0.0	85.70	104.59	3' Pump / Dedicated Tubing
23	MW-119D	Cell 1	Downgradient	0.0	0.0	0.0	20.9	0.0	77.76	102.09	3' Pump / Dedicated Tubing
24	MW-119S	Cell 1	Downgradient	0.0	0.0	0.0	20.9	0.0	68.90	81.83	3' Pump / Dedicated tubing
25	MW-120D	Cell 1	Downgradient	0.0	0.0	0.0	20.9	0.0	78.57	100.54	3' Pump in well / Dedicated tubing
26	MW-120S	Cell 1	Downgradient	0.0	0.0	0.0	20.9	0.0	78.62	81.26 2'	Pump in well / Dedicated tubing
27	MW-121 85.70	Cell 1	Downgradient	0.0	0.0	0.0	20.9	0.0	62.90	88.78	Designated tubing / NO Pump → oxidized
28	MW-7 4-inch well	Cell 1	Downgradient	0.0	0.0	0.0	20.9	0.0	144.65	148.04	NO Pump / No tubing
29	RW-1	Cell 1	Remediation System								
30	RW-10	Cell 1	Remediation System								
31	RW-15	Cell 1	Remediation System								
32	RW-16	Cell 1	Remediation System								
33	RW-17	Cell 1	Remediation System								
34	RW-2	Cell 1	Remediation System								
35	RW-3	Cell 1	Remediation System								
36	RW-4	Cell 1	Remediation System								
37	RW-5	Cell 1	Remediation System								
38	RW-9R	Cell 1	Remediation System								
39	MW-12 4-inch well	Cell 2		0.0	0.0	0.0	20.9	0.0	187.80	~194-196	dedicated tubing / 3' pump
40	MW-13	Cell 2		0.0	0.0	0.0	20.9	0.0	82.92	181.73	dedicated tubing / 3' pump
41	MW-8 4-inch well	Cell 2		0.0	0.0	0.0	20.9	0.0	200.41	~234	dedicated tubing / 3' pump
42	MW-9 4-inch well	Cell 2		0.0	0.0	0.0	18.1	0.0	273.46	~270	dedicated tubing / 3' pump
43	MW-3A 4-inch well	Cell 4		0.0	0.0	0.0	20.9	0.0	288.37	~300	Dedicated tubing / 3' Pump
44	MW-4 4-inch well	Cell 4		31.5	0.0	0.0	20.9	0.0	131.40	179.90	Dedicated tubing / 3' Pump
45	MW-4A 4-inch well	Cell 4		0.0	0.0	0.0	20.9	0.0	145.64	~209	Dedicated Tubing / 3' Pump
46	MW-5A 4-inch well	Cell 4		0.0	0.0	0.0	20.9	0.0	277.73	~300	Dedicated Tubing / 3' Pump

Need WL meter 7300
MW-3A some black oil

Recon Trip Information

				PID Measurements							
Count	Location	Group	Area	PID	CO	H2S	O2	LEL	DTW	TD	Notes
47	MW-6A 4-inch well	Cell 4		0.0	0.0	0.0	20.9	0.0	94.88	172	Designated Tubing /3' Pump
48	~~MW-103D~~	Offsite Monitoring Well	Downgradient								
49	~~MW-103S~~	Offsite Monitoring Well	Downgradient								
50	~~MW-106D~~	Offsite Monitoring Well	Downgradient								
51	~~MW-106S~~	Offsite Monitoring Well	Downgradient								
52	~~MW-115D~~	Offsite Monitoring Well	Downgradient								
53	~~MW-115S~~	Offsite Monitoring Well	Downgradient								
54	~~MW-116D~~	Offsite Monitoring Well	Downgradient								
55	~~MW-116S~~	Offsite Monitoring Well	Downgradient								
56	RW-2140H	Residential	Downgradient								
57	RW-7773P	Residential	Downgradient								

Notes:

MW - monitoring well

RW - remediation system well or residential well

See Table 3 for parameter list

Sample type - "grab" collected from designated spigot for that well in remediation system building, "low flow" sampled using low flow well sampling methodology (CDM Smith SOP 1-12), "tap" sample collected from faucet following tap water sampling SOP (CDM Smith SOP 1-9)

TOC - total organic carbon

CDM Smith

WATER LEVEL MEASUREMENTS

Project: Fort Hall Mine Road Landfill — Project No.:
Weather Conditions: 60s Light Rain — Date: 10/3/18
Site Conditions: — Measured By: CK, MG, BA, KW, KC
Measurement Device: — Calculations By:
Elevation Datum:

Well	Time	Depth to Water	~~Reference~~ Outer casing height (ft)	~~Reference~~ Outer casing Elevation to PVC	~~Water~~ Stickup height ~~Elevation~~	Comments
MW-5A	0915	277.33	2.20	0.55	1.65	PID = 0.0 CO = 1
MW-4A	0943	145.46	3.08	0.41	2.67	PID = 0.6
MW-3A	1004	286.54	3.17	0.74	2.43	NO MULTIRAE HITS
MW-4	1048	130.85	2.35	0.41	1.94	NO MULTIRAE HITS
MW-12	1100	157.24	3.02	0.54	2.48	NO MULTIRAE HITS
MW-9	1120	222.75	1.92	0.16	1.76	NO MULTIRAE HITS
MW-8	1129	199.90	2.71	0.91	1.80	NO MULTIRAE HITS
MW-6A	1140	93.29	3.95	0.53	3.42	NO MULTIRAE HITS
MW-13	1149	78.10	2.87	0.38	2.4	NO MULTIRAE HITS
MW-7	1156	144.50	1.19	0.28	0.91	NO MULTIRAE HITS
MW-110D	1212	126.41	2.39	0.38	2.01	NO MULTIRAE HITS
MW-110S	1220	120.85	1.88	0.11	1.77	NO MULTIRAE HITS
MW-113D	1230	27.16	2.31	0.22	2.09	NO MULTIRAE HITS
MW-113S	1234	27.70	2.31	0.34	1.97	NO MULTIRAE HITS
MW-111D	1237	89.15	2.27	0.75	1.52	NO MULTIRAE HITS
MW-111S	1240	56.32	1.90	0.21	1.69	NO MULTIRAE HITS
MW-121	1250	62.70	Flush Mount	0.29	—	NO MULTIRAE HITS
MW-103D	1304	99.79	1.90	0.2 casing above		NO MULTIRAE HITS
MW-103S	1313	103.55	1.40	0.29 casing above		CO-21 Oxy-20.0

Bees/Black Widow ←

025791 ↓

Additional Comments

TD - 295.60 for well 5A (Silty bottom)
TD - 201.12 for well 4A
TD - 398.80 for well 3A
TD - 196.33 for well 12
TD - 197.64 for well 7
TD - 163.11 for Well MW-110D
TD - 182.60 for MW-103D
TD - 115.20 for MW-103S

CDM Smith

WATER LEVEL MEASUREMENTS

Project Fort Hall Mine ~~Road~~ Landfill — Project No. _____

Weather Conditions 60s light rain — Date 10/3/2018

Site Conditions _____ — Measured By KW, KL, MG, CK, BA

Measurement Device See comments — Calculations By _____

Elevation Datum _____

Well	Time	Depth to Water	~~Stick up Height Reference~~	~~Reference Elevation~~	~~Water Elevation~~	Comments
MW-119S	~~0826~~ 0832	68.90	Outer casing Height (inch)	Outer casing to PVC (inch)	Stick up Height (inch)	IP - 036343
MW-119S	0836	68.93	21.5	5.0	16.5	IP - 021865
MW-119S	0835	68.88	↓	↓	↓	dipper-T 24227
MW-119S	0829	68.88				dipper-T 43999
MW-119S	0838	68.90				Model 101 - 025711
MW-119S	0840	68.92	↓	5.0	↓	Model 101 - 036482
MW-119D	0843	71.24	21.5	5.5	16.00	036482 - model 101
MW-120S	0942	78.55	28.75	15.25	13.50	43999 - dipper T
MW-120D	0945	78.46	28.75	15.75	13.00	↓
MW-105S	1014	57.40	8.25	1.00	7.25	
MW-105D	1011	59.75	8.25	2.25	6.00	
MW-104S	1018	54.95	8.13	—	8.13	
MW-104D	1020	57.62	8.13	2.00	6.13	
MW-102S	1030	132.19	—	24.13	24.13	
MW-117R	1039	125.43	33.5	4.00	29.50	TD = 128, Had to pull pump for WL
MW-112S	1110	62.09	20.00	2.00	18.00	TD = ~~126~~ 162.90
MW-112M	1118	65.14	22.75	3.75	19.00	TD = 78.00 4" silt on bottom
MW-112D	1120	66.90	22.75	2.25	20.50	TD = 102
MW-101S	1137	59.23	—	21.00	21.00	
MW-1	1143	63.35	—	35.25	35.25	
MW-109S	1159	49.58	—	25.00	25.00	
MW-109D	1201	62.56	25.00	1.50	23.50	
MW-115D	1248	84.15	19.00	1.00	18.00	TD = ~~122.0~~ 122.50
MW-115S	1236	89.10	~~94~~ 22.50	3.75	18.75	TD = 94.00

Additional Comments _____

CDM Smith

WATER LEVEL MEASUREMENTS

Project Fort Hall Mine Land FIN
Weather Conditions 60s light rain
Site Conditions
Measurement Device See comments
Elevation Datum

Project No.
Date 10/3/18
Measured By KW, KL
Calculations By

Well	Time	Depth to Water	~~Reference~~ outer casing Height (inches)	~~Reference~~ PVC (in) Elevation (outer casing to stickup)	~~Water~~ Stickup Height (in) Elevation	Comments
MW-106S	1306	62.38	~~35~~	30.00	30.00	4399 - dipper T ID = 82.00
MW-106D	1259	61.60	25.75	9.00	16.75	ID = 100.30
MW-118	1315	85.68	19.25	0.75	18.5	
MW-116S						
MW-116D						

Additional Comments

CDM Smith

WATER LEVEL MEASUREMENTS

Project: Fort Hall Mine Landfill
Project No.:
Weather Conditions: Rain, 40°F
Date: 10/9/18
Site Conditions: Wet
Measured By:
Measurement Device: Heron dipper-T (Pine 43949)
Calculations By:
Elevation Datum:

Well	Time	Depth to Water	Reference	Reference Elevation	Water Elevation	Comments
MW-119D	0837	70.44				
MW-119S	0843	62.65				
MW-120D	0853	77.04				
MW-120S	0858	77.18				
MW-118	0907	85.63				
MW-104D	0923	56.60				
MW-104S	0927	54.73				
MW-105S	0933	57.20				
MW-105D	0938	59.52				
MW-121	1000	62.42				
MW-4A	1019	~~42~~ 145.20				
MW-3A	1030	286.29				
MW-4	1045	130.62				
MW-6A	1055	93.11				
MW-5A	1118	277.11				
MW-12	1127	157.00				
MW-8	1135	199.70				
MW-9	1145	222.47				
MW-13	1153	77.95				
MW-7	1201	144.29				
MW-110D	1212	126.33				
MW-110S	1215	120.86				
MW-111S	1223	63.54				
MW-111D	1225	68.18				

Additional Comments:

CDM Smith

WATER LEVEL MEASUREMENTS

Project: Fort Hall Mine Landfill
Project No.:
Weather Conditions: Rain, 40's
Date: 10/9/18
Site Conditions: Wet
Measured By:
Measurement Device: Heron dipper-T (Pine 439)
Calculations By:
Elevation Datum:

Well	Time	Depth to Water	Reference	Reference Elevation	Water Elevation	Comments
MW-113D	1229	27.61				
MW-113S	1231	27.11				
MW-102S	1300	132.[illegible]7				
MW-112M	1310	64.31				
MW-112D	1312	65.14				
MW-112S	1315	62.34				
MW-101S	1319	59.12				
MW-1	1322	63.17				
MW-109D	1330	62.41				
MW-109S	1335	49.58				
MW-117S	1353	125.65				
MW-115D	1404	84.30				
~~MW-~~						
MW-115S	1407	84.23				
MW-106S	1413	62.51				
MW-106D	1415	61.72				
MW-103D		99.45				
MW-103S		103.68				

Additional Comments:

Date: October 3, 2018 Author: Karla Lesué

Project/Client: Bamock County Landfill

Weather:	AM - Rain. Cloudy. 65°F
	PM -
Field Team:	Kelsey Verge, Nichole Colosky, Connor Colby, Bob Alcrada, Karla Lesué
Activity:	Monthly Gw Sampling
Work Plan:	
Equipment:	Monitoring well equipment
H&S Issues:	Vapor, water, slippy, slip hzd fall.
PPE:	Level D
07:15	Field team assembled, met with county
07:30	Team meeting w/ Dania Craigs
0800	Health and safety meeting
	Calibrating PIDs
0805	Start all water level equipment at MW-1195
	Teams splitting up to take water levels at all wells. Will also take total depth of wells that were missed last week.
	Measuring height of stick-up.
14:00	Finished collecting water levels.
	Setting up as a single team on MW-1195.

Date: October 3, 2018 Author: Karla Lesué

Project/Client: Bamock County Landfill

14:40	KW / CK setting up on MW-120D
14:50	MW-1195-20181003
	MG / BA setting up on MW-119D
15:40	MW-120D-20181003
	KW / CK setting up on MW-120S
16:10	MW-119D-20181003
	MG / BA setting up on MW-118D
17:00	MW-120S-20181003
	KW / CK trying to find MW-1165/D. Could not locate for water level.
17:35	MW-118D-20181003
	Packing up and cleaning.
18:00	All teams offsite

Oct 3 2018

Date: October 4, 2018	**Author:** Karla Leslie			
Project/Client: Benson County Fort Hall Mine Landfill				
Weather:	AM - Cloudy 60°F			
	PM - Rain 40°F			
Field Team:	Karla Leslie, Kelsey Wenger, Bob Alexander, Michelle Goldberg, Connor Kelly			
Activity:	Starting well Sapling			
Work Plan:				
Equipment:				
H&S Issues:	Weather, Lightning, insects, Slip, trip, fall			
PPE:	Level D			
0730	Team onsite. Inspect Retrieval system			
0740	calibrate PIDs			
0750	Health and safety meeting weather, insects, slip, trip, falls			
0910	Setting up on MW-104D: Sonthy in well. Setting up on MW-104S			
0940	Started purging MW-104S			
0940	Setting up MW-105D			
0945	TB-NOC-20181003			
0850	Started purging MW-105D			
0925	MW-104S-20181004			

Date: October 4, 2018	**Author:** Karla Leslie			
Project/Client: Benson County Fort Hall Mine Landfill				
1000	MW-105D-20181004			
1010	Started purging MW-104D			
1035	MW-104D-20181004	Decon pumps		
1040	Started purging MW-105S			
1130	MW-105S-20181004			
1230	Moving to MW-111 and MW-113			
	Karla offsite to ship Samples			
	Problems getting water from MW-113.			
	Switching to MW-1135.			
~~1315~~	~~Left site~~ 1250	TB-WOC-20181004		
~~1320~~	1255	TB-3-WOC-20181004		
1258	Started purging MW-111D			
1353	Started purging MW-1135			
1425	Sampled	MW-111D-20181004		
1535	Karla offsite to ship Samples	1445 MW-1135-20181004		
1537	Started purging MW-111S			
1559	Started purging MW-113D			
1630	Sampled	MW-1135-20181004		
1655	Decon pump	EB-1-WOC-20181004		
1715	Sampled	MW-113D-20181004		
	Packing equipment. Did not decon pump			
1830	Team offsite			
		W4148		

Date: October 5, 2018 Author: Karla Leslie

Project/Client: Bannock County - Fort Hall Mine Landfill

Weather:	AM - 45°F cloudy
	PM -
Field Team:	Karla Leslie, Kelsy Wegel, Michelle Lobdell, Connor Kelly, Bob Alexade
Activity:	Groundwater sampling
Work Plan:	
Equipment:	Groundwater sampling equipment, Hanna, water levels, controllers, compressor, nitrogen gas
H&S Issues:	Compressed gas, traffic
PPE:	Level D
0715	Teams onsite organizing equipment
	Calibrating PIDs
0745	Health and safety meeting.
0800	Setting up on MW-101S only. Waiting for Bob Alexade to arrive with nitrogen.
0805	Setting up on MW-101S
0822	Started purging.
0900	Sampled [MW-101S-20181005] MS/MSD
0915	Bob Alexade onsite with nitrogen. Demo pump
	Health and safety meeting regarding compressed gas
	Michelle Lobdell / Bob Alexade / Karla Leslie to MW-3A

Date: October 5, 2018 Author: Karla Leslie

Project/Client: Bannock County - Fort Hall Mine Landfill

	No water in sample line, possible hole in air line
	run to MW-4 to test equipment
1005	KW/CK purging MW-1
1100	Sampled [MW-1-20181005]
1130	KL offsite to ship samples
1135	[TB-4-COC-20181005]
1225	Started purging MW-4A mg/BA
1301	Started purging MW-112M KW/BK
1305	Sampled [MW-4A-20181005]
~~1355~~	~~Sampled [MW-112S-20181005]~~ KL 10/5/18
130	Sampled [MW-4AQ-20181005] Field duplicate
1350	Sampled [MW-112D-2018005]
1425	Started purging MW-4 mg/BA
1437	Started purging MW-112M
1500	Sampled [MW-4-20181005] BA offsite
1510	Sampled [MW-112M-20181005]
1515	Sampled [MW-112MQ-20181005] Re duplicate
15:53	Started purging MW-6A
16:40	Sampled [MW-6A-20181005]
	KW, CK hooked to bail MW-117. Could
	not get by water. Dry
17:00	Team unpacking into storage unit.
15:30	Team offsite

Date: October 6, 2018 **Author:** Karla Leslie

Project/Client: Bemock County - Fort Hall Mine Landfill

Weather:	**AM -**				
	PM -				
Field Team:	Karla Leslie, Kelsey Weaye, Bob Alexander,				
	Michelle Ordaby, Conor Kelly				
Activity:	Groundwater sampling. Treatment System				
	Valve shooting.				
Work Plan:					
Equipment:					
H&S Issues:					
PPE:	Level D				
08:00	Team onsite				
	Health + Safety meeting				
08:20	KW + CK setting up on MW-109D. Dean				
	pump from MW-112M and used on this well.				
8:25	BA + MC setting up on MW-13				
8:45	Started purging MW-13				
9:05	Started purging MW-109D				
9:10	Taking equipment blank from pump that was				
	decon'ed yesterday after MW-101S.				
9:15	EB-01-VOC-20181005				
9:20	EB-01-VOC-20181005	Sonic woke			

Date: October 6, 2018 **Author:** Karla Leslie

Project/Client: Bemock County - Fort Hall Mine Landfill

09:30	Sampled	MW-13-20181006	MS/MSD		
09:45	Sampled	MW-109D-20181006			
10:48	Started purging MW-109S				
11:30	Sampled	MW-109S-20181006	MS/MSD		
	Splitting up teams. KW to MW-102, MC filling				
	bottles at MW-13, BA/CK to MW-110S/D.				
	Karla troubleshooting treatment system.				
11:35	David Gangs on site at Market Plot.				
11:50	David Gangs off site.				
	Pump/tubing problems at MW-102. Tubing				
	problems at MW-110S.				
14:50	Purging MW-110S				
15:21	Purging MW-102S				
15:45	Sampled	MW-110S-20181006			
16:00	Sampled	MW-102S-20181006			
16:30	Sampled	MW-130-20181006	Field duplicate		
17:30	KW + KL move to treatment system				
	BA + CK set up on MW-110D.				
	Problems with pumps at MW-110D.				
17:50	Sampled	RW-15-20181006			
18:00	Sampled	INJ-1R-20181006			
18:50	Started purging MW-110D. Pump still not				
19:50	working. Giving up. Team offsite				

Date: October 7, 2018	**Author:** Karla Leslie
Project/Client: Bannock Landfill - Fort Hall Municipal Landfill	
Weather:	AM - 48°F Cloudy, windy
	PM - 58°F Sny, windy
Field Team:	Karla Leslie, Bob Alexander, Kelsey, Wease,
	Connor Kelly, Nicole Goldsby
Activity:	Pump well sampling
Work Plan:	
Equipment:	Groundwater sampling equipment
H&S Issues:	Slipping, fall, heavy lifting.
PPE:	Level D
08:00	Teams on-site. Calibrate PIDs and Horiba's
08:45	Health and safety meeting.
09:00	KL to Treatment plant, KW/CK to Cell 1
	(MW-101), BA/NG to Cell 2 (MW-8)
09:05	Equipment Blank of pump decomed at this time
	Pump last used at MW-102 (yesterday)
09:05	EB-3-VOC-20181006
09:15	Started purging MW-101
09:20	RW-10 Fe^{2+} 0.0 g/mL
09:24	RW-4 Fe^{2+} 0.68 g/mL
09:29	RW-3 Fe^{2+} 0.01 g/mL

Date: October 7, 2018	**Author:** Karla Leslie
Project/Client: Bannock County - Fort Hall Mine Landfill	
09:32	RW-15 Fe^{2+} 0.03 g/mL
09:35	RW-9 Fe^{2+} 0.00 g/mL Horiba: Black precipitate
09:35	Started purging MW-8
09:43	RW-17 Fe^{2+} 0.0 g/mL
09:47	IWS-1R Fe^{2+} 0.01 g/mL
10:00	INF-COM Fe^{2+} 0.73 g/mL
10:15	Sampled MW-101-20181007
10:35	Sampled MW-8-20181007
10:45	RW-3-20181007
11:15	RW-10-20181007
11:30	RW-17-20181007
12:03	Started purging MW-110D
12:30	RW-9-20181007
12:40	RW-4-20181007
13:00	Started purging MW-9
13:25	Sampled MW-110D-20181007
14:00	Sampled MW-9-20181007
	Heard from Nicole Hendley, would like us to sample
	this afternoon. Role offsite to get connector.
15:00	KW/CK and KL onsite at Cynthia Gardner property.
	RW-7 TJ3 pulled for watering lawn. Once it's
	connected to well will retry.
	TJ's stuck in MW-110D

Date: October 7, 2018 **Author:** Karla Cashe					
Project/Client: Bamock Landfill - Foothill Mine Landfill					
Weather:	**AM -**				
	PM -				
Field Team:					
Activity:					
Work Plan:					
Equipment:					
H&S Issues:					
PPE:					
15:30	Started purging RW-7773P				
15:38	Started purging MW-1065				
16:05	Sampled MW-1065-20181007				
16:05	Sampled ~~MW-10~~ RW-7773P-20181007 (KC 10/7/18)				
16:30	Sampled ambient air shipper INF-COM-20181007				
	Pumps 10, 3, 15, and 17 were running.				
16:40	Treatment system OFF Collected flows				
16:50	Equipment blanked on pump after MW-1065				
	Decon'd both pumps EB-4-UX-20181007				
	Cardinal set tub, out of cell.				
17:50	Items packed and offsite				

10/7/18

Date: **Author:**					
Project/Client:					

10/7/18

Date: October 8, 2018 Author: Karla Leslie

Project/Client: Bannock County - Fort Hall Mine Landfill

Weather:	AM -
	PM -
Field Team:	Karla Leslie, Brad Alexander, Kelsey Weaga
	Michelle Goldbey, Tom Kelly
Activity:	Groundwater Sampling
Work Plan:	
Equipment:	Bladder pumps, controllers, compressors,
	nitrogen tanks, Harribags
H&S Issues:	Slip, trip, fall, heavy lifting, compressed gas
PPE:	Level D

730	Teams onsite. Calibrating PIDs.
744	Health and safety meeting
755	Kwick setting up at MW-7
0830	Started purging at MW-7
0925	Started purging at MW-12
0930	TB-4-VOC-20181008
1010	Sampled MW-12-20181008
0950	Sampled MW-7-20181008
1100	Kwick LL offsite to store cal fluids
1203	All onsite
1213	Started purging MW-115D

Date: October 8, 2018 Author: Karla Leslie

Project/Client: Bannock County - Fort Hall Mine Landfill

1145	Started purging MW-5A
1240	Sampled MW-5A-20181008
1305	Sampled MW-115D-20181008
1340	~~Sampled~~ Started purging MW-3A
1358	Started purging MW-115S Karla relieved Kelsey at MW-106D
1435	Sampled MW-3A-20181008
1445	Sampled MW-115S-20181008
1455	Equipment staged after MW-115D before MW-106D.
	EB-4-VOC-20181008
1534	Started purging MW-106D
1640	Sampled MW-106D-20181008
1530	Teams offsite

Out 9/10/18

Date:	October 9, 2018 **Author:** Kona Kelsey
Project/Client:	Bannock County / Fort Hall Mine Landfill
Weather:	AM - Rain, 45° F
	PM -
Field Team:	Kona Kelsey, Bob Alexander, Kelsey Wager, Connor Kelly, Michelle Goldberg
Activity:	Monitoring well sampling
Work Plan:	
Equipment:	Groundwater sampling equipment
H&S Issues:	Rain, slippery falls, cold weather precautions
PPE:	Level D
07:30	Train stuck on tracks, Teams not arrived.
08:00	Teams onsite. Health and safety meeting.
	Connor/Kelsey setting up on MW-103S/D.
	Once set up Bob/Kelsey will start water levels
	in Cell 2 and Cell 4.
	Kon-cad nickel pump coolers
08:30	TB-5-VOC-20181009
0350	~~Sampled~~ Started purging MW-103S
1005	Sampled MW-103S-20181009
1103	~~Started~~ purging MW-103D
11:15	TB-6-VOC-20181009

Date:	October 9, 2018 **Author:**
Project/Client:	Bannock County / Fort Hall Mine Landfill
11:30	TB-7-VOC-20181009
14:10	Sampled MW-103D-20181009
14:38	TB-8-VOC-20181009
15:00	TB-9-VOC-20181009
15:30	Turned on the tracker system. Reset flowrates
15:40	Kona offsite to Fedex
	Team cleaning and organizing. Emptying the DPW
	into the leach pond.
1645	All team offsite

10/9/18

Date: 10/19/18 Author: M. Goldberg

Project/Client: Bannock County Landfill

Weather: AM - Windy, 30-40°F

PM -

Field Team: M. Goldberg (COM Smith)
C. Kelley (COM Smith)

Activity: Sampling Monitoring and Residential wells.

Work Plan:

Equipment: All groundwater sampling equipment.

H&S Issues: Temp., Livestock, Slips Trips & Falls

PPE: Level D

0700 C. Kelley and M. Goldberg arrive on site to pack up vehicles and install pump at Production Well.

0730 Leave Landfill and arrive at Production Well. Begin installing pump at production well.

0850 Arrive on site at MW-116 residence and speak with homeowner Jody Bunker. The two goats pose no health and safety concern.

MG 10/19/18

Date: 10/19/18 Author: M. Goldberg

Project/Client: Bannock County Landfill

0900 D. Goings ~~AA~~ MG 10/19/18 (IDEQ) and Tamzen MacBeth (COM Smith) arrive on site.

0942 Begin purging at residential well RW-2140H.

1025 Take sample RW-2140H-20181019 at RW-2140H. Move to the deeper well MW-1116D. Pump is set a 130 ft bgs and screen is from 122-142 ft bgs (historical data) however we found TD to be 140 bgs.

1040 Begin purging at MW-1116D.

1140 Complete purging at MW-1116D

~~Take~~ MG 10/19/18 1145 Take sample at MW-1116D-20181019

1310 Begin purging at MW-1116S.

1345 Complete purging at MW-1116S and take sample MW-1116S-20181019

1400 Discussion occurred about sampling methods and T. Macbeth (COM Smith) asked us to resample MW-1116D and purge more water.

MG 10/19/18

Date: 10/19/18 Author: M.Goldberg

Project/Client: Bannock County Landfill

~~Weather:~~ ~~AM~~ - 1400 (cont.) Take equipment blank after deconing pumps. EB-5-VOC-20181019

~~Field Team:~~ ~~PM~~ -

1452 Begin purging from MW-116D.

1730 Take sample MW-116D-20181019-R

~~Activity:~~ We will know the second sample by the "R" on the end of the name.

~~Work Plan:~~ Homeowner states there is

~~Equipment:~~ 200ft of piping to an 8-inch well so will be resampling the

~~H&S Issues:~~ RW well also

~~PPE:~~ 1740 Begin purging RW-2140H again. We are using a 5-gallon bucket with a YSI in it and purged at 45 sec/ 5 gallons. We purged onto the lawn as instructed by homeowner. ORP was not stabalizing due to an open system.

1815 Take sample RW-2140H-20181019

The previous sample with the same naming convention was disposed of.

1830 All teams off site.

MG 10/19/18

Date: Author:

Project/Client:

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: Oct 3, 2018

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) _____

Well ID: MW-1195

Purging/Sampling Device: Peristaltic ~~Bailer~~ pump

Initial Static Water Level (feet btoc): 68.88

Analytical Parameters: _____

Final Water Level (feet btoc): ~~69~~ 68.93 RPA

QC Samples Collected: _____

Purge Start Time: 14:20

Sample Number: _____

Sample Time: 1450

Controller Settings: DURING: Recharge: 15 secs Discharge: 5 secs Pressure: 80 psi
Sample: 12.5 2.5 90

Samplers' Signatures: B. Alexander, M. Goldberg

Cycles Per Minute: 3 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1423	69.05	13.72	6.81	0.822	3.19	119	0.0	600	lowering Cycles due to drawdown
1428	69.00	13.26	6.73	0.824	2.68	133	0.0	600	oil interface probe negative
1433	68.90	13.07	6.72	0.825	2.58	139	0.0	600	
1438	69.00	13.09	6.71	0.823	2.62	140	0.0	600	
1443	69.00	13.36	6.71	0.827	2.72	143	0.0	600	
Sampled at Flow rate of 300 mL/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.02

Rp - 71.5 ft

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/3/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) _____

Well ID: MW-119D Purging/Sampling Device: Dedicated Bladder pump

Initial Static Water Level (feet btoc): 71.09 Analytical Parameters: _____

Final Water Level (feet btoc): 72.72 QC Samples Collected: _____

Purge Start Time: 15:34 Sample Number: _____

Sample Time: 16:10 Controller Settings: Recharge: During: 17.5 Sample: 17.5 secs Discharge: 2.5 2.5 secs Pressure: 90 psi

Samplers' Signatures: B. Alexander, M. Goldberg Cycles Per Minute: 3 90

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1539	72.31	16.83	6.94	0.787	5.91	146	2.3	400	
1544	72.51	16.97	6.82	0.782	4.91	149	1.2	150	
1549	72.39	17.15	6.80	0.790	4.44	150	1.4	150	
1554	72.40	17.17	6.79	0.792	4.18	151	0.0	150	
1559	72.41	16.94	6.79	0.795	4.02	151	0.0	150	
1604	72.41	16.90	6.78	0.793	3.86	151	0.0	150	
1609	72.42	16.51	6.79	0.793	3.86	152	0.0	150	
Sampled at flow rate 150 mL/min RPA									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.02

Depth to pump 91.28'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: _____ Date: 10/3/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-120D Purging/Sampling Device: Dedicated Pump

Initial Static Water Level (feet btoc): 78.39 Analytical Parameters: _____

Final Water Level (feet btoc): _____ QC Samples Collected: _____

Purge Start Time: 1445 Sample Number: _____

Sample Time: 1540 Controller Settings: Recharge: 10 secs Discharge: 4 secs Pressure: ~~45~~ 50 psi

Samplers' Signatures: CK, KW Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1453	78.90	17.24	6.55	1.04	3.95	129	17.1	300	
1458	78.94	16.35	6.48	1.07	3.41	128	7.2	200	
1503	78.84	16.74	6.46	1.08	3.64	126	5.8	100	
1510	78.95	16.29	6.46	1.10	2.97	124	3.9	200	
1515	78.94	16.24	6.46	1.12	2.49	123	3.8	200	
1520	78.95	16.28	6.45	1.12	2.13	122	3.0	200	
1525	78.96	16.29	6.45	1.13	1.75	121	2.8	200	
1528	78.96	16.28	6.45	1.13	1.65	120	2.5	200	
1531	78.96	16.41	6.45	1.13	1.45	118	2.3	200	
1534	78.96	16.42	6.45	1.13	1.39	117	2.5	200	
1537	78.96	16.49	6.45	1.13	1.27	117	2.3	200	
1540	SAMPLE								
1600	79.11								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.15

pump depth = 91.47

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: _____ Date: 10/3/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-120S Purging/Sampling Device: Dedicated Pump

Initial Static Water Level (feet btoc): 78.74 Analytical Parameters: _____

Final Water Level (feet btoc): _____ QC Samples Collected: _____

Purge Start Time: 1621 Sample Number: _____

Sample Time: 1700 Controller Settings: Recharge: 16 secs Discharge: 4 secs Pressure: 45 psi

Samplers' Signatures: KW Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1629	78.71	21.28	6.80	1.26	6.78	~~94.3~~ 122	94.3	100	
1635	78.69	20.32	6.59	1.24	~~4.35~~ 3.79	137	435	100	
1640	78.75	19.16	6.50	1.26	1.02	132	28	~90	
1645	78.72	18.57	6.47	1.25	0.54	123	123	90	
1650	78.71	18.50	6.45	1.26	0.56	118	46.7	100	
1655	78.71	18.33	6.45	1.26	0.51	115	34.3	100	
1700 – SAMPLE									
1734	78.69								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.00

Pump depth = 78.82

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/3/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) _____

Well ID: MW118 Purging/Sampling Device: dedicated bladder pump

Initial Static Water Level (feet btoc): 85.71 Analytical Parameters: _____

Final Water Level (feet btoc): 85.73 QC Samples Collected: _____

Purge Start Time: 1702 Sample Number: _____

Sample Time: 1735 Controller Settings: During: Recharge: 15 secs Discharge: 5 secs Pressure: 80 psi

Samplers' Signatures: M. Goldberg, B. Alexander Sampling: Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1707	85.73	14.45	7.02	1.81	1.62	158	9.6	400	oil interface negative
1712	85.73	13.71	6.92	1.93	1.02	160	0.5	400	
1717	85.74	13.54	6.88	2.05	1.13	162	0.0	400	
1722	85.74	13.49	6.87	2.13	1.20	162	0.00	400	
1727	85.74	13.46	6.86	2.16	1.15	164	0.0	400	
1732	85.73	13.54	6.85	2.20	1.16	165	0.0	400	
Sampled at a flow rate of 150 ml/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0

Depth to pump = 87.94

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/4/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) _____

Well ID: ~~MW-104D~~ MW-104S Purging/Sampling Device: Rental Bladder Pump

Initial Static Water Level (feet btoc): 54.99 Analytical Parameters: _____

Final Water Level (feet btoc): 54.96 QC Samples Collected: _____

Purge Start Time: 0840 Sample Number: _____

Sample Time: 0925 Purging Controller Settings: Recharge: 10/11 secs Discharge: 5/4 secs Pressure: 35/35 psi

Samplers' Signatures: KW, CK Sampling Cycles Per Minute: 4/4

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0844	55.05	15.96	6.01	1.53	4.23	202	22.0	350	No hits from oil interface probe
0849	55.04	13.63	6.15	1.46	1.97	187	4.1	350	
0854	55.11	13.50	6.17	1.43	1.69	184	1.9	350	
0901	55.07	13.45	6.19	1.42	1.42	179	1.4	350	
0906	55.10	13.42	6.21	1.41	1.89	177	2.0	350	
0911	55.09	1341	6.23	1.41	1.27	175	1.5	350	
0916	55.06	13.39	6.23	1.41	1.15	174	1.0	350	
0921	55.09	1337	6.26	1.41	0.00	173	1.0	350	
0925	SAMPLE							~200	
0954	54.96								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.0

pump depth = 58.5 ft

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: _____ Date: 10/4/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-104D Purging/Sampling Device: Rental Bladder Pump

Initial Static Water Level (feet btoc): ~~58~~ 59.72 Analytical Parameters: _____

Final Water Level (feet btoc): 59.01 QC Samples Collected: _____

Purge Start Time: 1007 Sample Number: _____

Sample Time: 1035 Controller Settings: Recharge: 12 secs Discharge: 3 secs Pressure: 45 psi

Samplers' Signatures: KW, CK Cycles Per Minute: 4

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1011	58.89	13.76	6.53	1.26	~~4.50~~ 4.58	122	22.4	150	NO HITS FROM OIL INTERFACE PROBE
1016	59.21	13.75	6.54	1.27	0.78	105	21.1	150	
1021	59.10	13.82	6.55	1.28	0.52	100	20.5	80	
1027	59.10	13.95	6.55	1.28	0.48	100	18.0	90	
1032	59.06	13.99	6.58	1.29	0.39	98	13.1	90	
1035	SAMPLE								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.00

pump depth = 79 ft

10/4/2018

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: ~~[redacted]~~ Date: ~~10/3/18~~ 10/4/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) N/A

Well ID: MW-105D Purging/Sampling Device: Dedicated Bladder Pump

Initial Static Water Level (feet btoc): 59.74 Analytical Parameters: _____

Final Water Level (feet btoc): 61.30 QC Samples Collected: _____

Purge Start Time: 0850 Sample Number: MW-105D-20181004

Sample Time: 1000 Controller Settings: During Recharge: 17.5 secs Discharge: 2.5 secs Pressure: 45 psi

Samplers' Signatures: B. Alexander. Sampling: 17.5 2.5 Cycles Per Minute: 3 45 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0855	61.82	13.17	6.69	1.27	4.04	190	3.87	300	Oil interface probe negative
0900	~~13.32~~ 61.28	13.28	6.81	1.26	3.01	179	~~4.30~~ 2.02	150	
0905	61.15	13.27	6.84	1.26	2.72	176	~~3.82~~ 2.82	150	
0910	61.41	13.24	6.86	1.26	2.31	173	2.30	75	
0915	61.41	13.26	6.87	1.26	2.12	171	1.3	100	
0920	61.45	13.20	6.87	1.26	1.85	170	1.0	75	
0925	61.36	13.26	6.88	1.27	1.72	168	1.3	75	
0930	61.29	13.30	6.88	1.27	1.61	168	1.2	75	
0935	61.24	13.32	6.89	1.28	1.47	168	0.8	75	
0940	61.20	13.33	6.88	1.29	1.36	168	0.3	75	
0945	61.20	13.31	6.89	1.29	1.27	168	0.5	75	
0950	61.20	13.31	6.88	1.30	1.22	168	0.2	75	
0955	61.20	13.30	6.88	1.30	1.08	168	0.2	75	
Sampled at a flow rate of 75mL/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.01

Depth to pump 78.48

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: _____ Date: 10/04/18

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) N/A

Well ID: MW-105S

Purging/Sampling Device: Dedicated bladder pump

Initial Static Water Level (feet btoc): 57.40

Analytical Parameters: _____

Final Water Level (feet btoc): 57.49

QC Samples Collected: _____

Purge Start Time: 1040

Sample Number: _____

Sample Time: 1130

Controller Settings: Recharge: During 17.5 secs Discharge: 2.5 / 2.5 secs Pressure: 45 / 45 psi
Sampling: 17.5

Samplers' Signatures: _____

Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1045	57.44	13.60	7.00	2.63	6.12	-19	40.1	150	Oil interface probe negative
1050	57.48	13.46	6.94	2.86	4.44	-41	54.6	150	
1055	57.49	13.35	6.92	3.16	2.05	-54	52.9	150	
1100	57.49	13.31	6.92	3.27	1.35	-55	45.4	150	
1105	57.49	13.25	6.91	3.32	0.62	-57	32.8	150	
1110	57.49	13.20	6.91	3.33	0.35	-59	25.5	150	
1115	57.49	13.12	6.90	3.34	0.26	-62	17.7	150	
1120	57.49	13.09	6.88	3.34	0.22	-64	15.0	150	
1125	57.49	13.12	6.88	3.34	0.21	-65	11.0	150	
1130	Sampled at a flow rate of 150 mL/min								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): >3.30 mg/L

Pump set @ 64.79

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/4/18

Well ID: MW-111D

Initial Static Water Level (feet btoc): 68.01

Final Water Level (feet btoc): 69.86

Purge Start Time: 12.58

Sample Time: 1425

Samplers' Signatures: B. Alexander, M. Goldberg

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0 ppm (Vented to) _____

Purging/Sampling Device: Designated Pump

Analytical Parameters: _____

QC Samples Collected: _____

Sample Number: _____

Controller Settings: During Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1303		15.41	7.61	6.47	5.71	-42	4.7	80	Oil interface probe negative
1308	69.43	14.38	7.16	6.62	3.46	-55	41.6	80	
1313	69.60	14.10	6.93	6.73	2.03	-50	16.8	80	
1318	69.69	14.15	6.83	6.93	1.31	-57	10.2	90	
1323	69.69	14.21	6.82	6.99	1.24	-59	6.1	45	
1328	69.61	14.32	6.83	7.04	1.20	-61	3.5	45	
1333	69.50	14.45	6.82	7.05	1.25	-62	2.9	45	
1338	69.44	14.60	6.81	7.06	1.21	-59	1.9	45	
1343	69.39	14.73	6.80	7.07	1.44	-64	1.7	45	Drained truck battery, jumped started
1348	69.20	15.47	6.73	6.96	0.42	-63	~~0.4~~ 1.8	~~45~~ 225	Running controller with truck running - working much better
1403	69.88	14.89	6.72	6.93	0.21	-62	2.2	45	
1408	69.70	14.83	6.74	6.97	0.43	-65	1.7	45	
1413	~~68.68~~ 69.68	15.20	6.73	6.96	0.81	-66	1.7	45	
1418	69.60	15.33	6.76	6.97	0.88	-65	1.4	45	
1423	69.57	15.38	6.78	7.01	0.88	-65	1.0	45	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): >3.30

Depth of pump: 110.22

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/4/18

Well ID: ~~MW-11S~~ MW-111S

Initial Static Water Level (feet btoc): 63.52

Final Water Level (feet btoc): 65.89

Purge Start Time: 1537

Sample Time: 1630

Samplers' Signatures:

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0 ppm (Vented to) N/A

Purging/Sampling Device: Rented bladder pump

Analytical Parameters:

QC Samples Collected:

Sample Number:

Controller Settings: Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1542	63.97	14.90	6.85	7.01	1.90	-79	61.5	300	Discharge at beginning was
1547	64.36	14.42	6.83	7.08	0.80	-83	45.4	100	grayish in appearance, water
1552	64.58	14.50	6.86	7.03	0.67	-82	32.7	100	forms bubbles as it is
1557	64.74	14.57	6.90	7.00	0.88	-80	24.3	60	being sampled. Also, a sheen
1602	64.92	14.61	6.89	7.01	1.58	-78	16.8	60	was noticed on the surface
1607	65.04	14.83	~~6.89~~	7.02	1.94	-78	16.2	45	of the discharge water
1612	65.11	14.89	6.92	7.03	2.01	-79	18.5	45	Oil interface probe was negative
1617	65.19	15.06	6.96	7.22	2.09	-79	19.4	45	
1622	65.25	14.93	6.95	7.33	2.11	-80	25.3	45	
1627	65.31	14.82	6.96	7.44	2.04	-80	25.5	45	
Sampled at a flow rate of 45mL/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 2.16

Depth of pump = 67.0

10/4/18

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: _____ Date: ~~10/3/18~~ 10/4/18

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-135

Purging/Sampling Device: Dedicated pump

Initial Static Water Level (feet btoc): 27.54

Analytical Parameters: _____

Final Water Level (feet btoc): 28.79

QC Samples Collected: _____

Purge Start Time: 1353

Sample Number: _____

Sample Time: 1445

Controller Settings: Recharge: 2.5 secs Discharge: 2.5 secs Pressure: 50 psi

Samplers' Signatures: CK KW

Cycles Per Minute: 4

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1358	28.54	14.42	6.90	1.94	0.93	-63	1.7	390	
1403	29.10	13.24	6.56	2.16	0.00	6	11.5	200	
1408	28.95	13.57	6.49	2.17	0.00	32	7.4	200	
1413	29.03	13.60	6.48	2.18	0.00	45	7.1	200	
1418	29.09	13.47	6.46	2.19	0.00	51	9.1	200	
1423	29.15	13.52	6.44	2.19	0.00	58	8.7	200	
1428	29.24	13.44	6.44	220	0.00	62	7.4	200	
1433	29.10	13.59	6.44	2.20	0.00	61	6.3	150	
1438	29.05	13.70	6.45	2.20	0.00	62	4.7	150	
1443	29.04	13.78	6.43	220	0.00	64	3.1	150	
1445	SAMPLE								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.05

pump depth = 81.5'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: _____ Date: 10-4-18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0 ppm (Vented to) _____

Well ID: 113D Purging/Sampling Device: Rental Bladder Pump

Initial Static Water Level (feet btoc): ~~25.97~~ 27.27 Analytical Parameters: _____

Final Water Level (feet btoc): 30.58 QC Samples Collected: _____

Purge Start Time: ~~1552~~ 1559 Sample Number: _____

Sample Time: 1715 Controller Settings: Recharge: 11 secs Discharge: 4 secs Pressure: ~~85~~ 75 psi

Samplers' Signatures: CK, KW Cycles Per Minute: 4

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1604	28.91	~~28~~ 14.59	7.03	0.793	4.60	100	14.7	100	NO H2S FROM OIL INTERFACE PROBE
1609	~~29~~ 29.50	14.28	7.00	0.801	1.82	100	27.3	100	
1614	29.62	14.34	6.95	0.803	1.31	98	32.9	50	
1619	29.42	~~14~~ 14.66	6.92	0.834	1.14	94	28.1	50	
1624	29.40	14.70	6.91	0.843	1.22	92	26.1	30	
1629	29.32	14.90	6.89	0.859	1.18	88	24.5	30	
1634	29.31	15.01	6.88	0.867	1.16	87	23.9	30	
1639	29.26	15.12	6.87	0.876	1.15	87	22.0	30	
1644	29.34	15.14	6.85	0.883	1.25	89	21.8	60	
1649	29.50	14.80	6.86	0.908	1.06	83	22.6	50	
1654	30.11	14.16	6.86	0.913	0.96	90	39.0	50	
1659	30.17	14.06	6.85	0.912	0.92	91	41.4	50	
1704	30.25	13.93	6.85	0.912	0.78	93	38.4	50	
1708	30.29	13.85	6.84	0.912	0.69	94	39.8	50	
1711	30.32	13.81	6.84	0.912	0.67	95	41.1	50	

SAMPLED @ 1715

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.19

PUMP DEPTH: ~~59.5~~ 1251

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: _____ Date: 10/5/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) _____

Well ID: MW4 Purging/Sampling Device: Dedicated bladder pump

Initial Static Water Level (feet btoc): 130.87 Analytical Parameters: _____

Final Water Level (feet btoc): 131.54 QC Samples Collected: _____

Purge Start Time: 1425 Sample Number: _____

Sample Time: 1500 Controller Settings: Recharge: 15.5 (15.5) secs Discharge: 4.5 (During Sampling: 4.5) secs Pressure: 120 (120) psi

Samplers' Signatures: _____ Cycles Per Minute: 3 (3)

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1430	131.28	12.93	6.88	0.839	4.14	41	76.5	300	Floating product at 130.94
1435	131.52	12.84	6.78	0.821	1.07	-4	23.4	225	thin layer
1440	131.60	12.85	6.77	0.819	0.50	-20	11.0	180	
1445	131.58	12.90	6.77	0.819	0.32	-26	8.9	180	
1450	131.58	13.09	6.76	0.817	0.33	-28	6.8	180	
1455	131.58	13.10	6.77	0.819	0.31	-30	5.8	180	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.60

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/5/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) N/A

Well ID: Well 4A Purging/Sampling Device: Dedicated Bladder Pump

Initial Static Water Level (feet btoc): ~~146.40~~ RRA 145.40 Analytical Parameters:

Final Water Level (feet btoc): QC Samples Collected:

Purge Start Time: 1225 Sample Number:

Sample Time: 1305 Controller Settings: Recharge: 13.0 secs Discharge: 7.0 secs Pressure: 100 psi

Samplers' Signatures: M. Goldberg, B. Alexander Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1230	145.52	12.47	6.36	0.695	10.71	184	11.2	450	Oil interface probe negative
1235	145.56	12.04	6.54	0.679	9.43	168	13.3	300	
1240	145.54	12.04	6.64	0.675	8.98	161	14.2	270	
1245	145.54	11.98	6.72	0.673	8.85	154	11.4	270	
1250	145.54	11.98	6.80	0.672	8.68	150	12.2	270	
1255	145.54	12.16	6.86	0.672	8.59	143	10.1	270	
1300	145.54	12.12	6.90	0.671	8.53	141	9.3	270	
Sampled at a flow rate of 270 mL/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0

Depth to pump not determined

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: ~~MW-6A~~ Date: 10/5/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0 ppm (Vented to) _____

Well ID: MW-6A Purging/Sampling Device: Dedicated pump

Initial Static Water Level (feet btoc): 93.35 Analytical Parameters: _____

Final Water Level (feet btoc): 94.96 QC Samples Collected: _____

Purge Start Time: 15:53 Sample Number: _____

Sample Time: 1640 Controller Settings: Recharge: 16.5 secs Discharge: 3.5 secs Pressure: 105 psi

Samplers' Signatures: M. Goldberg Same for sampling Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1605	93.62	16.00	7.04	0.734	4.80	89	8.7	80	Oil interface probe negative
1610	93.67	16.10	7.02	0.736	5.70	91	8.6	80	
1615	94.00	14.91	7.58	0.730	7.72	95	18.9	120	
1620	94.48	14.37	7.14	0.724	8.28	107	21.5	120	
1625	94.79	14.62	7.17	0.722	8.39	105	18.4	120	
1630	94.80	14.77	7.18	0.721	8.42	105	18.3	120	
1635	94.84	14.80	7.20	0.722	8.38	106	18.8	120	
	94.96								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Ferrous Iron (mg/L): 0.08

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: [redacted] Date: 10/05/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) _____

Well ID: MW-101S Purging/Sampling Device: Rental Bladder Pump

Initial Static Water Level (feet btoc): 59.20 Analytical Parameters: _____

Final Water Level (feet btoc): 59.34 QC Samples Collected: _____

Purge Start Time: 0822 Sample Number: _____

Sample Time: 0900 Controller Settings: Recharge: 10 secs Discharge: 5 secs Pressure: 40 psi

Samplers' Signatures: C. Kelley, K. Waage Cycles Per Minute: 4

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0827	59.30	12.08	6.09	0.644	8.70	199	17.4	225	NO hits on oil interface
0832	59.30	11.85	6.59	0.636	7.33	162	5.3	225	probe
0837	59.33	11.84	6.84	0.631	6.89	155	6.2	225	
0842	59.32	11.77	6.94	0.627	6.77	154	5.8	225	
0847	59.33	11.78	6.99	0.629	6.57	154	6.0	225	
0852	59.33	11.78	~~7.03~~ 7.04	0.629	6.56	154	5.3	225	
0857	59.33	11.80	7.04	0.629	6.38	154	5.3	225	
0900 — SAMPLE									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.0

Pump set @ 65'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/5/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-1 Purging/Sampling Device: Dedicated Pump

Initial Static Water Level (feet btoc): 63.44 Analytical Parameters: _____

Final Water Level (feet btoc): 65.88 QC Samples Collected: _____

Purge Start Time: 1005 Sample Number: _____

Sample Time: 1100 Controller Settings: Recharge: 17.5 secs Discharge: 2.5 secs Pressure: 47 psi

Samplers' Signatures: CK, KW Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1010	63.93	12.06	7.54	0.437	6.61	110	7.1	210	No hits on oil interface probe
1015	64.41	12.12	7.54	0.433	1.96	-10	17.2	200	
1020	64.55	12.11	7.61	0.433	1.25	-28	20.7	~~1095~~	
1026	64.75	12.24	7.68	0.432	0.89	-40	21.4	95	
1033	64.87	12.14	7.77	0.433	2.25	-38	18.9	50	
1038	64.90	12.12	7.82	0.433	0.73	-34	17.9	35	
1043	64.97	12.36	7.82	0.431	0.64	-27	18.1	35	
1048	65.06	12.52	7.85	0.431	0.66	-23	16.4	25	
1053	65.12	12.48	7.88	0.432	0.52	-19	14.9	25	
1058	65.16	12.57	7.90	0.431	0.51	-15	14.0	25	
1100	SAMPLE								~5 feet of brown "coating" on bottom of tubing

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.06

pump depth = 83'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: PHML Date: 10/5/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-~~[illegible]~~ 112D Purging/Sampling Device: Dedicated Pump

Initial Static Water Level (feet btoc): 68.87 Analytical Parameters: _____

Final Water Level (feet btoc): 68.19 QC Samples Collected: _____

Purge Start Time: 1301 Sample Number: _____

Sample Time: 1350 Controller Settings: Recharge: 12 secs Discharge: 3 secs Pressure: 45 psi

Samplers' Signatures: CK, KW Cycles Per Minute: 4

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1306	~~68.80~~	12.84	7.48	0.703	9.60	123	22.3	NM	No hits on oil interface probe
1314	68.39	13.02	7.38	0.694	6.60	128	463	75	
1319	68.44	12.83	7.36	0.692	6.29	130	52.4	75	
1324	68.40	12.73	7.35	0.691	6.12	132	41.6	75	
1329	68.36	12.71	7.36	0.691	6.20	133	30.5	75	
1335	68.35	12.59	7.41	0.692	5.87	132	24.1	75	
1340	68.35	12.58	7.38	0.691	6.00	133	18.6	75	
1345	68.33	12.49	7.42	0.691	6.16	134	13.3	75	Sheen on bailer
1350	SAMPLE								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.00

pump depth = 94.5'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/5/18

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-112M

Purging/Sampling Device: Rental Bladder Pump

Initial Static Water Level (feet btoc): 65.04

Analytical Parameters: _____

Final Water Level (feet btoc): 65.36

QC Samples Collected: _____

Purge Start Time: 1437

Sample Number: _____

Sample Time: 1510

Controller Settings: Recharge: 11 secs Discharge: 4 secs Pressure: 95 30 psi

Samplers' Signatures: KW, CK

Cycles Per Minute: 4

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1445	65.25	13.74	7.22	0.754	8.23	142	133	100	No hits on oil interface
1450	65.28	13.47	7.06	0.756	6.47	140	110	100	probe
1455	65.29	13.54	7.00	0.757	6.03	138	85.9	100	
1500	65.32	13.57	6.98	0.757	5.92	137	53.1	100	
1505	65.33	13.69	6.98	0.756	5.82	136	35.7	100	
1510	SAMPLE								
1515 - DUP									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.02

Pump = 71'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/5/2018

Well ID: MW-117R

Initial Static Water Level (feet btoc): 125.49

Final Water Level (feet btoc): _____

Purge Start Time: 1630

Sample Time: _____

Samplers' Signatures: _____

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Purging/Sampling Device: Bailer

Analytical Parameters: _____

QC Samples Collected: _____

Sample Number: _____

Controller Settings: Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
Well dry. No water was retrieved using a bailer.									No hits on oil interface probe

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION			
Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): _____

128 - 125.43 = 2.57

2.57 * 0.16 = 0.41 gal per well volume

1.23 gal = 3 well volumes

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHNL Date: 10/6/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-109S Purging/Sampling Device: Rental Bladder Pump

Initial Static Water Level (feet btoc): 49.59 Analytical Parameters: _____

Final Water Level (feet btoc): 49.60 QC Samples Collected: _____

Purge Start Time: 1048 Sample Number: _____

Sample Time: 1130 Controller Settings: Recharge: 10.5 secs Discharge: 44.5 secs Pressure: ~~75~~ 35 psi

Samplers' Signatures: KW, CK Cycles Per Minute: 4

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1100	49.60	12.29	6.60	0.745	1.63	188	20.2	150	No hits on oil
1105	49.60	12.03	6.53	0.745	0.86	175	4.2	150	interface probe
1110	49.61	11.90	6.50	0.748	0.68	169	1.2	150	
1115	49.61	11.87	6.48	0.746	0.63	165	0.3	150	
1120	49.60	11.78	6.47	0.746	0.61	162	0.1	175	
1125	49.61	11.69	6.47	0.746	0.56	161	0.0	175	
1130	SAMPLE								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.05

pump depth = 54'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/6/18

Well ID: MW-109D

Initial Static Water Level (feet btoc): 62.05

Final Water Level (feet btoc): 63.55

Purge Start Time: 0900

Sample Time: 0945

Samplers' Signatures: KW, CK

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Purging/Sampling Device: Rental Bladder Pump

Analytical Parameters: _____

QC Samples Collected: _____

Sample Number: _____

Controller Settings: Recharge: 12 secs Discharge: 3 secs Pressure: 45 psi

Cycles Per Minute: 4

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0909	63.55	12.71	5.97	0.845	14.41	197	10.2	95	No hits on oil interface
0914	63.54	12.26	6.27	0.840	5.69	178	10.9	40	probe
0919	63.55	12.22	6.40	0.837	5.33	177	10.1	40	
0924	63.54	12.21	6.48	0.834	5.29	180	6.9	40	
0929	63.55	12.24	6.54	0.827	5.11	183	4.6	40	
0934	63.58	12.23	6.58	0.826	5.06	185	3.3	40	
0939	63.58	12.19	6.60	0.824	5.05	187	1.8	40	
0945									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.00

Pump depth = 85'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/6/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-102S Purging/Sampling Device: Rental Bladder Pump

Initial Static Water Level (feet btoc): 132.25 Analytical Parameters: _____

Final Water Level (feet btoc): 132.41 QC Samples Collected: _____

Purge Start Time: 1521 Sample Number: _____

Sample Time: 1600 Controller Settings: Recharge: 15 secs Discharge: 5 secs Pressure: ~~150~~ 165 psi

Samplers' Signatures: KW Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1534	132.31	12.03	7.01	0.495	7.15	175	2.4	150	No hits on oil interface probe
1539	132.35	11.87	7.09	0.493	6.42	182	2.7	125	
1544	132.39	11.81	7.11	0.496	6.11	185	2.2	110	
1549	132.40	11.81	7.15	0.497	6.12	186	2.3	110	
1554	132.42	11.83	7.17	0.496	6.06	187	2.1	110	
1600	SAMPLE								
									Couldn't get water with dedicated pump. Tried troubleshooting. Switched to rental pump. Had issues getting water. Eventually got water.

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Ferrous Iron (mg/L): 0.07

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Pump depth = 136'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: _____ Date: 10/6/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) N/A

Well ID: ~~MW-5~~ RRA 1105 Purging/Sampling Device: Rented bladder pump

Initial Static Water Level (feet btoc): ~~119.90~~ RRA 120.92 Analytical Parameters: _____

Final Water Level (feet btoc): 120.91 QC Samples Collected: _____

Purge Start Time: ~~1340~~ 1452 Sample Number: _____

Sample Time: 1545 Controller Settings: Recharge: During Sampling _____ secs Discharge: _____ secs Pressure: _____ psi

Samplers' Signatures: C. Kelley, R. Alexander Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1502	121.01	12.84	6.59	1.42	4.09	178	3.9	240	Started purge at 1340, but
1507	120.93	13.07	6.53	1.42	2.50	177	2.5	240	subsequently found a hole
1512	120.93	13.21	6.51	1.43	1.70	176	1.4	210	in the dedicated water part
1517	120.93	13.33	6.52	1.43	1.15	173	1.1	210	of the line. Installed new
1522	120.93	13.36	6.50	1.43	0.84	165	0.6	210	fused (blue/white) tubing.
1527	120.93	13.29	6.50	1.43	0.60	160	0.4	210	
1532	120.93	13.17	6.50	1.43	0.39	157	0.1	210	O.H-water meter malfunctioning
1537	120.93	13.09	6.50	1.43	0.28	157	0.0	210	so no reading taken
1542	120.93	13.05	6.50	1.43	0.25	156	0.0	210	
Sampled at a flow rate of 210 mL/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.03

Depth to pump 125.0

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: ~~10/6/18~~ 10/7/18

Well ID: ~~110D~~ 110D

Initial Static Water Level (feet btoc): ~~126.39~~ 125.91

Final Water Level (feet btoc): 127.65

Purge Start Time: ~~1735~~ 1203

Sample Time: 1325

Samplers' Signatures: KW / CK

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) _____

Purging/Sampling Device: Rental Bladder Pump

Analytical Parameters: _____

QC Samples Collected: _____

Sample Number: _____

Controller Settings: Recharge: 23 secs Discharge: 7 secs Pressure: 80 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1224	127.33	12.47	7.52	~~3.755~~	14.77	121	7.2	90	Oil-water meter malfunctioning,
1229	129.65	12.51	7.50	0.745	11.87	120	3.5	50	so no reading.
1234	129.65	12.48	7.46	0.745	9.78	117	1.2	50	
1241	127.66	12.63	7.43	0.747	9.67	111	1.8	50	
1246	127.66	12.64	7.44	0.747	6.28	108	1.2	50	
1251	127.65	12.63	7.43	0.747	5.09	106	1.7	50	
1256	127.66	12.68	7.42	0.746	4.32	102	2.3	50	
1301	127.66	12.73	7.42	0.745	3.79	99	1.3	50	
1306	127.66	12.80	7.42	0.745	3.40	96	1.8	50	
1311	127.66	13.18	7.42	0.745	3.13	93	0.5	50	
1316	127.66	13.69	7.42	0.746	3.04	89	1.4	50	
1321	127.66	14.14	7.42	0.748	2.87	88	1.4	50	
1325	SAMPLED								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.00

Depth to pump ~~156.5~~ 155.5
RRA

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: Oct 6 '14 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0 ppm (Vented to) N/A

Well ID: MW-13 Purging/Sampling Device: Dedicated bladder pump

Initial Static Water Level (feet btoc): 78.02 Analytical Parameters: _____

Final Water Level (feet btoc): _____ QC Samples Collected: _____

Purge Start Time: 0845 Sample Number: _____

Sample Time: _____ Controller Settings: During Recharge: 16.5 secs Discharge: 3.5 (35) secs Pressure: 100 psi
Sampling: 16.5 (100)

Samplers' Signatures: M. Goldberg, R. Alexander Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0850	79.65	14.16	6.71	0.536	9.68	161	18.3	100	0.1 interface probe negative
0855	79.36	13.73	7.02	0.540	9.99	152	5.7	100	
0900	79.28	13.61	7.21	0.540	9.78	154	14.0	100	
0905	79.40	13.60	7.30	0.547	10.76	156	43.1	150	
0910	79.29	13.39	7.35	0.542	10.60	158	34.5	100	
0915	79.27	13.33	7.38	0.543	10.34	158	33.9	100	
0920	79.21	13.35	7.41	0.543	9.90	159	29.5	100	
0925	79.20	13.34	7.44	0.543	9.72	159	29.6	100	
Sampled at a flow rate of 100 mL/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.32

Depth to pump 167.2

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/7/18

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-121

Purging/Sampling Device: Rental Bladder Pump

Initial Static Water Level (feet btoc): 62.16

Analytical Parameters: _____

Final Water Level (feet btoc): 63.82

QC Samples Collected: _____

Purge Start Time: 0915

Sample Number: _____

Sample Time: 1015

Controller Settings: Recharge: 17.5 secs Discharge: 2.5 secs Pressure: 45 psi

Samplers' Signatures: KW/CK

Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0925	63.31	9.59	6.66	2.48	1.90	7	1.89	70	No hits on oil interface probe
0930	63.44	9.52	6.76	2.55	1.63	1	35.6	30	
0935	63.48	10.07	6.78	2.56	2.24	1	30.6	30	
0940	63.50	10.38	6.80	2.58	~~1.36~~ 1.32	1	28.2	~~28.2~~ 30	
0945	63.54	10.86	6.80	2.59	1.24	2	30.4	30	
0950	63.58	11.39	6.81	2.58	1.24	3	29.1	30	
0955	63.60	11.81	6.81	2.58	1.12	4	33.38	30	
1000	63.62	12.25	6.81	2.53	1.19	6	31.2	30	
1005	63.65	13.17	6.82	2.52	0.992	8	31.8	~~31.8~~ 30	
1008	63.66	13.31	6.82	2.51	0.83	6	32.4	30	
1011	63.67	13.45	6.81	2.50	0.78	7	33.4	30	
1015	SAMPLE								~~Brown~~ ~2 feet of brown "coating" on bottom of tubing

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 1.15

Pump depth = 75'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/7/18

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-106S

Purging/Sampling Device: Rental Bladder Pump

Initial Static Water Level (feet btoc): 62.48

Analytical Parameters: _____

Final Water Level (feet btoc): ~~1605~~ 62.49

QC Samples Collected: _____

Purge Start Time: 1538

Sample Number: _____

Sample Time: 1605

Controller Settings: Recharge: 12 secs Discharge: 3 secs Pressure: 40 psi

Samplers' Signatures: CK / KW

Cycles Per Minute: 4

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1544	62.48	13.93	7.45	0.574	7.60	132	0.0	340	No hits on oil interface
1549	62.49	13.05	7.39	0.570	6.52	141	0.0	180	probe
1554	62.49	12.93	7.40	0.570	6.70	142	0.0	180	
1559	62.49	13.00	7.39	0.570	6.52	143	0.0	180	
1604	62.49	12.91	7.38	0.569	6.41	144	0.0	180	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Ferrous Iron (mg/L): 0.02

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Pump depth = 70'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: ~~1060~~ Date: 10-8-16 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: 1060 Purging/Sampling Device: _____

Initial Static Water Level (feet btoc): 62.47 Analytical Parameters: _____

Final Water Level (feet btoc): 62.49 QC Samples Collected: _____

Purge Start Time: ~~1554~~ 1534 Sample Number: _____

Sample Time: 1640 Controller Settings: Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Samplers' Signatures: AL/KW Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1542	62.48	15.13	7.44	0.547	8.73	164	0.3	200	
1547	~~61.97~~ 62.48	13.89	7.42	0.581	8.27	167	0.0	200	
1552	62.48	13.53	7.41	0.581	7.29	165	0.0	200	
1557	62.48	13.45	~~7.20~~ 7.38	0.582	7.08	167	0.0	200	
1604	62.48	13.05	7.40	0.583	6.88	170	0.0	200	
1609	62.48	12.97	7.41	0.583	6.69	172	0.0	200	
1617	62.48	~~13.05~~ 1305	7.38	0.585	8.00	173	0.0	200	
1622	62.48	12.81	7.38	0.585	6.90	175	0.0	200	
1627	62.48	12.90	7.36	0.585	6.70	179	0.0	200	
1632	~~62.48~~ 62.48	12.84	7.36	0.584	6.64	180	0.0	200	
1637	62.48	12.73	7.37	0.586	6.52	182	0.0	200	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.04

PUMP DEPTH: 91.5'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/7/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) N/A

Well ID: MW8 Purging/Sampling Device: Dedicated Bladder Pump

Initial Static Water Level (feet btoc): 199.78 Analytical Parameters: _____

Final Water Level (feet btoc): 201.75 QC Samples Collected: _____

Purge Start Time: 0935 Sample Number: _____

Sample Time: _____ Controller Settings: During Recharge: 15.5 secs Discharge: 4.5 secs Pressure: 150 psi

Samplers' Signatures: _____ Sampling 15.5 4.5 Cycles Per Minute: 450/5

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0940	~~11.91~~ 199.94	11.91	6.27	0.514	6.78	144	14.8	200	Oil-water interface probe
0945	200.12	11.37	6.51	0.514	8.28	151	0.0	100	not working - no measurement
0950	200.20	11.41	6.64	0.510	8.62	155	1.0	100	
0955	200.29	12.11	6.79	0.502	8.03	159	8.2	140	
1000	200.35	12.34	6.87	0.503	7.79	161	9.2	150	
1005	200.45	12.60	6.95	0.501	7.43	165	8.3	150	
1010	200.53	12.70	7.00	0.500	7.31	168	7.7	150	
1015	200.60	12.79	7.04	0.499	7.27	171	6.5	150	
1020	200.68	12.93	7.07	0.497	7.23	173	5.7	150	
1025	200.75	12.99	7.09	0.497	7.20	175	5.4	150	
1030	200.83	13.03	7.10	0.497	7.18	177	4.5	150	
Sampled at a flow rate of 150 mL/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.05

Depth to pump not determined.

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/7/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) _____

Well ID: MW9 Purging/Sampling Device: Dedicated Pump

Initial Static Water Level (feet btoc): 222.59 Analytical Parameters: _____

Final Water Level (feet btoc): 223.73 QC Samples Collected: _____

Purge Start Time: 1300 Sample Number: _____

Sample Time: 1400 Controller Settings: Recharge: 14 secs Discharge: 6 secs Pressure: 160 psi

Samplers' Signatures: M. Goldberg, B. Alexander Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1305	222.73	12.92	6.32	6.35	0.72	72	10.2	140	Oil interface probe broken
1310	222.85	13.08	6.24	6.31	0.55	40	1.4	140	
1315	222.93	13.32	6.31	6.31	0.47	-9	1.6	150	
1320	223.04	13.42	6.32	6.25	0.30	-24	4.6	150	
1325	223.15	13.51	6.50	5.80	0.13	-54	12.3	150	
1330	223.22	13.61	6.61	5.52	0.05	-67	15.6	150	
1335	223.30	13.68	6.67	5.32	0.08	-49	15.6	150	
1340	223.34	13.70	6.69	5.23	0.08	-35	12.9	150	
1345	223.35	13.74	6.69	5.17	0.05	-25	8.2	150	
1350	223.43	13.59	6.68	5.08	0.05	-21	5.7	150	
1355	223.48	13.61	6.67	4.94	0.06	-17	3.1	150	
Sampled at a flow rate of 150 mL/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.45

- Depth to pump not determined

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHNL Date: 10/7/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) not taken (Vented to) —

Well ID: ~~MW-10~~ RW-7773P Purging/Sampling Device: In well pump

Initial Static Water Level (feet btoc): — Analytical Parameters: VOCs, Metals, Mercury, Cyanide

Final Water Level (feet btoc): — QC Samples Collected:

Purge Start Time: 15:30 Sample Number: RW-7773P-20181007

Sample Time: 1605 Controller Settings: Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Samplers' Signatures: K. Leslie, R. Alexander Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
15:30	—	12.64	7.23	0.551	5.70	82	0.0	1500	Sampled at frost free spigot
15:35	—	12.70	7.18	0.552	5.53	85	0.0	1000	South of house
15:40	—	12.67	7.18	0.552	5.55	86	0.0	600	Removed 24x 5-gallon buckets
15:45	—	12.63	7.16	0.551	5.08	84	0.0	750	prior to sampling purge water
1550	—	12.66	7.17	0.551	4.97	83	0.0		Purged on ground
1555	—	12.62	7.15	0.550	5.05	84	0.0	750	
1600	—	12.69	7.16	0.550	4.99	84	0.0	750	
Sampled at a flow rate of 750 mL/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): _____

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/8/18

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-7

Purging/Sampling Device: Rental Bladder Pump

Initial Static Water Level (feet btoc): 144.22

Analytical Parameters: _____

Final Water Level (feet btoc): 144.97

QC Samples Collected: _____

Purge Start Time: 0830

Sample Number: _____

Sample Time: 0950

Controller Settings: Recharge: 36 secs Discharge: 24 secs Pressure: ~100 psi

Samplers' Signatures: CK/KW

Cycles Per Minute: 1

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0905	144.49	11.11	6.63	0.609	7.83	129	6.6	20	No hits on oil interface probe
0910	144.53	11.73	6.67	0.604	6.70	139	4.4	75	
0916	144.55	12.62	6.74	0.597	5.98	151	3.5	75	
0920	144.60	13.17	6.76	0.594	5.84	158	1.8	75	
0925	144.65	13.77	6.79	0.590	5.47	163	1.1	80	
0930	144.67	14.16	6.80	0.588	5.32	166	1.2	80	
0935	144.71	14.42	6.81	0.587	~~5.45~~	166	1.8	80	
0940	~~14.55~~	14.55	6.84	0.585	~~5.47~~ 5.15	168	0.1	80	
-	~~144.73~~				~~5.08~~			~~80~~	
0945	144.76	14.81	6.85	0.584	5.06	170	0.0	80	
~~0950~~ 0948	144.79	14.96	6.86	0.584	4.93	171	0.0	80	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.00

pump depth = 179'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/08/18

Well ID: MW-115D

Initial Static Water Level (feet btoc): 84.22

Final Water Level (feet btoc): 84.28

Purge Start Time: 1213

Sample Time: 1305

Samplers' Signatures: CK/KW

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Purging/Sampling Device: Rental Bladder Pump

Analytical Parameters: _____

QC Samples Collected: _____

Sample Number: _____

Controller Settings: Recharge: 11 secs Discharge: 49 secs Pressure: 965 psi

Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1222	84.26	13.02	7.35	0.636	7.59	170	1.7	100	No hits on oil interface
1227	84.25	13.29	7.35	0.640	8.15	168	0.0	100	probe
1232	84.26	13.31	7.34	0.640	7.94	168	0.0	100	
1237	84.26	13.60	7.35	0.639	7.63	167	0.0	100	
1242	84.26	13.96	7.38	0.638	7.66	166	0.0	100	
1247	84.25	14.24	7.38	0.639	7.41	163	0.0	100	
1252	84.26	14.75	7.39	0.639	7.31	159	0.0	100	
1258	84.25	14.87	7.40	0.639	7.39	157	0.0	100	
1303	84.28	14.94	7.41	0.639	7.22	157	0.0	100	
1305	SAMPLE								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.00

pump depth = 110'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/08/18

Well ID: ~~MW-105S~~ MW-115S

Initial Static Water Level (feet btoc): 84.22

Final Water Level (feet btoc): 84.26

Purge Start Time: 1358

Sample Time: 1445

Samplers' Signatures: KW/CK

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Purging/Sampling Device: Rental Pump Bladder

Analytical Parameters: _____

QC Samples Collected: _____

Sample Number: _____

Controller Settings: Recharge: 13 secs Discharge: 7 secs Pressure: 50 psi

Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1408	84.25	16.36	7.44	0.672	13.52	164	0.0	140	No hits on oil interface probe
1422	84.25	14.33	7.35	0.677	7.81	170	0.0	140	
1427	84.24	14.34	7.35	0.677	7.63	170	0.0	140	
1432	84.24	14.50	7.34	0.677	7.49	170	0.0	140	
1437	84.24	14.35	7.36	0.677	7.43	174	0.0	140	
1442	84.25	14.21	7.35	0.677	7.40	175	0.0	140	
1445 - SAMPLE									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.04

pump depth = 87'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/8/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0 ppm (Vented to) N/A

Well ID: MW12 Purging/Sampling Device: Dedicated bladder pump

Initial Static Water Level (feet btoc): 157.03 Analytical Parameters: _____

Final Water Level (feet btoc): 158.24 QC Samples Collected: _____

Purge Start Time: 0925 Sample Number: _____

Sample Time: 1010 Controller Settings: During Recharge: 16.0 secs Discharge: 4.0 secs Pressure: 130 psi
Sampling: 16.0 4.0 130

Samplers' Signatures: M. Goldberg, R. Alexander Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0930	157.44	11.49	5.99	0.478	9.94	199	1.5	225	Oil-water probe not working
0935	157.50	11.57	6.29	0.471	0.6	189	0.7	225	
0940	157.58	11.63	6.48	0.469	9.77	184	0.0	225	
0945	157.64	11.77	6.63	0.467	9.73	181	0.0	225	
0950	157.72	11.88	6.70	0.465	9.94	181	0.0	225	
0955	157.95	12.02	6.79	0.464	9.86	180	0.0	225	
1000	158.98	12.07	6.84	0.463	9.64	179	0.0	180	
1005	159.00	12.20	6.88	0.461	9.57	178	0.0	200	
Sampled at a flow rate of 200ml/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0

Depth to ~~water~~ pump RPA not determined

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHM Date: 10/5/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0 ppm (Vented to) N/A

Well ID: ~~FB~~ MW5A (PRA) Purging/Sampling Device: Dedicated bladder pump

Initial Static Water Level (feet btoc): 277.14 Analytical Parameters: _____

Final Water Level (feet btoc): 278.12 QC Samples Collected: _____

Purge Start Time: 1145 Sample Number: _____

Sample Time: 1240 Controller Settings: Recharge: During sampling: _____ secs Discharge: _____ secs Pressure: _____ psi

Samplers' Signatures: M. Goldberg, R. Alexander Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1150	277.38	15.41	7.04	0.457	9.22	139	0.0	100	Oil-water probe not working
1155	277.48	14.02	7.19	0.467	9.24	137	1.2	150	
1200	277.64	13.28	7.21	0.468	13.56	137	7.2	200	
1205	277.78	13.53	7.17	0.466	11.44	138	~~7~~ 11.4	125	
1210	277.86	13.49	7.16	0.467	10.10	138	21.0	125	
1215	277.95	13.36	7.14	0.466	9.67	137	25.7	125	
1220	277.93	13.44	7.14	0.471	9.63	135	25.3	100	
1225	278.02	13.44	7.15	0.468	9.57	134	23.0	100	
1230	278.08	13.25	7.16	0.469	9.~~39~~52	135	22.5	100	
1235	278.11	13.21	7.15	0.469	9.~~58~~	135	20.5	100	
Sampled at a flow rate of 100 mL/min									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.02

Depth to pump not determined

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHNC Date: 10/8/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) N/A

Well ID: MW3A Purging/Sampling Device: Dedicated bladder pump

Initial Static Water Level (feet btoc): 286.24 Analytical Parameters:

Final Water Level (feet btoc): 289.43 QC Samples Collected:

Purge Start Time: 1340 Sample Number:

Sample Time: 1430 Controller Settings: Recharge: 21.0 secs Discharge: 9.0 secs Pressure: 240 psi
During Sampling 21.0 9.0 240

Samplers' Signatures: B. Alexander, M Goldberg Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1345	286.90	12.06	7.39	0.518	11.31	142	12.1	225	Started with an initial higher
1350	287.36	11.88	7.31	0.519	10.82	146	17.1	150	pressure of 270 psi and throttled
1355	287.73	11.93	7.24	0.520	10.32	145	2.7	150	back to reduce drawdown.
1400	288.11	11.93	7.21	0.522	9.82	145	5.8	150	Oil-water probe not working.
1405	288.29	12.43	7.22	0.519	9.18	144	4.7	125	
1410	288.51	12.44	7.22	0.517	8.76	143	3.3	125	
1415	288.71	12.48	7.22	0.514	8.40	142	3.1	100	
1420	288.85	12.75	7.19	0.513	8.28	140	3.1	90	
1425	288.96	12.87	7.21	0.513	8.02	140	3.5	80	
1430	289.08	12.97	7.20	0.510	7.80	139	3.5	80	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Ferrous Iron (mg/L): 0.0

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: _____ Date: 10/9/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-1035 Purging/Sampling Device: Dedicated Pump

Initial Static Water Level (feet btoc): 103.68 Analytical Parameters: _____

Final Water Level (feet btoc): 103.66 QC Samples Collected: _____

Purge Start Time: 0850 Sample Number: _____

Sample Time: 1005 Controller Settings: Recharge: 14 secs Discharge: 6 secs Pressure: 50 psi

Samplers' Signatures: CA Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0907	103.69	9.61	6.73	0.632	16.87	180	0.0	100	
0943	103.64	10.46	6.64	0.629	6.76	169	0.0	90	
0948	103.65	10.47	6.67	0.630	6.85	169	0.0	90	
0953	103.66	10.52	6.70	0.631	6.52	169	0.0	90	
0958	103.66	10.50	6.74	0.631	6.46	168	0.0	90	
1005	SAMPLE								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.01

Pump depth = ~105'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: _____ Date: 10-9-18

Well ID: 103D

Initial Static Water Level (feet btoc): 99.45

Final Water Level (feet btoc): _____

Purge Start Time: 1103

Sample Time: _____

Samplers' Signatures: CK

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Purging/Sampling Device: _____

Analytical Parameters: _____

QC Samples Collected: _____

Sample Number: _____

Controller Settings: Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1127	100.06	9.57	7.27	0.550	4.23	145	2.0	40	NO HIT ON OIL WATER
1132	100.17	9.16	7.28	0.543	3.63	148	164	40	INTERFACE PROBE
1138	100.24	9.16	7.28	0.544	3.39	148	201	20	
1143	100.28	8.92	7.30	0.545	3.36	147	170	20	
1148	100.33	8.89	7.30	0.545	3.04	147	148	20	
1153	100.35	8.28	7.28	0.545	2.44	148	130	20	
1158	100.40	8.11	7.29	0.546	2.37	147	130	20	
1203	100.45	8.01	7.29	0.547	2.37	147	128	20	
1208	100.50	7.90	7.30	0.547	2.34	146	124	20	
1213	100.52	7.82	7.30	0.546	2.33	145	125	20	
1218	100.57	7.72	7.31	0.546	2.31	145	120	20	
1223	100.59	7.72	7.32	0.544	2.68	144	119	20	
1228	100.64	7.68	7.34	0.544	2.78	144	103	20	
1233	100.67	7.62	7.33	0.544	2.61	144	98.3	20	
1238	100.71	7.61	7.34	0.543	2.42	143	97.2	20	
1243	100.75	7.57	7.34	0.543	2.41	142	89.2	20	
1248	100.78	7.58	7.35	0.542	2.29	142	79.5	20	
1253	100.80	7.55	7.35	0.543	2.14	141	74	20	
1258	100.80	7.51	7.33	0.543	2.12	141	72.5	20	
1303	100.82	7.47	7.35	0.543	2.17	140	72.8	20	
1308	100.83	7.43	7.35	0.543	2.15	140	72.5	20	
1313	100.84	7.34	7.34	0.544	2.44	139	72.5	20	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Ferrous Iron (mg/L): _____

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: _____ Date: 10-9-18

Well ID: 103D

Initial Static Water Level (feet btoc): 99.45

Final Water Level (feet btoc): 102.58

Purge Start Time: 1103

Sample Time: 1410

Samplers' Signatures: CK

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Purging/Sampling Device: _____

Analytical Parameters: _____

QC Samples Collected: _____

Sample Number: _____

Controller Settings: Recharge: 47 secs Discharge: 13 secs Pressure: 100 psi

Cycles Per Minute: 1

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1330	100.98	7.23	7.39	0.537	4.45	143	44-338	80	
1335	101.08	9.32	7.36	0.538	2.80	142	70.5	80	
1340	101.31	10.23	7.35	0.541	2.15	132	63.2	80	
1345	101.42	10.25	7.35	0.543	1.85	135	59.9	80	
1350	101.48	10.15	7.36	0.543	1.81	134	55.7	50	
1355	101.60	10.07	7.36	0.542	1.57	132	48.0	50	
1400	101.63	10.05	7.36	0.542	1.61	131	35.4	40	
1405	101.69	9.84	7.36	0.541	1.58	129	29.5	40	
1410	SAMPLE								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Ferrous Iron (mg/L): 0.15

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

PUMP DEPTH: ~175'

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/19/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) N/A (Vented to) _____

Well ID: RW-2140H Purging/Sampling Device: A spigot/hose

Initial Static Water Level (feet btoc): N/A (after pump install) Analytical Parameters: _____

Final Water Level (feet btoc): N/A QC Samples Collected: N/A

Purge Start Time: 1735 Sample Number: RW-2140H-20181019

Sample Time: 1815 Controller Settings: Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Samplers' Signatures: M. Goldberg, C. Kelley Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1740	N/A	12.32	6.86	1.07	5.66	30	0.6	5gal/45sec	
1745		12.26	6.84	1.07	5.73	67	0.6		
1750		12.25	6.82	1.07	5.78	95	0.6		
1755		12.24	6.82	1.07	5.73	107	0.4		
1800		12.23	6.82	1.07	5.72	117	0.5		
1805		12.23	6.82	1.07	5.72	123	0.5		
1810		12.22	6.82	1.07	5.75	129	0.4		
Sample @ 1815									

ORP is having trouble stabalizing because we aren't using a closed system

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Water level (prior to pump install)(ft btoc): N/A

Total Depth (ft btoc): N/A

Stick up height (in): N/A

Depth of pump (ft btoc): N/A

* Homeowner's spigot has 200' of piping to a well that is 8" diameter.

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L):

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/19/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) _____

Well ID: MW-1165 Purging/Sampling Device: Rented Pump

Initial Static Water Level (feet btoc): 79.76 (after pump install) Analytical Parameters: _____

Final Water Level (feet btoc): 80.76 QC Samples Collected: N/A

Purge Start Time: 1310 Sample Number: MW-1165-20181019

Sample Time: 1345 Controller Settings: Recharge: 15.5 secs Discharge: 4.5 secs Pressure: 50 psi

Samplers' Signatures: M. Goldberg, C. Kelley Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1320	80.8	12.60	7.22	1.05	6.10	111	69.0	90	
1325	80.8	12.67	7.15	1.05	5.75	112	68.4	90	
1330	80.76	12.63	7.13	1.05	5.61	115	66.9	90	
1335	80.75	12.60	7.13	1.05	5.53	118	57.9	90	
1340	80.77	12.52	7.13	1.05	5.48	120	49.3	90	
Sample at 1345									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Water level (prior to pump install)(ft btoc): 80.75

Total Depth (ft btoc): 92.7

Stick up height (in): Not a stick up. Flush mount TIC → Top of mount is 4.5 inches

Depth of pump (ft btoc): 85

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.09

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/19/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) _____

Well ID: MW-116D Purging/Sampling Device: Rented Pump

Initial Static Water Level (feet btoc): 79.23 (after pump install) Analytical Parameters: _____

Final Water Level (feet btoc): 85.67 QC Samples Collected: N/A

Purge Start Time: ~~1140~~ 1040 Sample Number: MW-116D-20181019

Sample Time: 1145 Controller Settings: Recharge: 15.5 secs Discharge: 4.5 secs Pressure: 70 psi
Sampling: 15 15 75

Samplers' Signatures: M. Goldberg, C. Kelley Cycles Per Minute: 3
2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1100	81.39	9.71	6.94	0.248	1.40	-43	39.1	50	
1105	81.85	10.07	6.96	0.329	0.83	-76	28.8	75	
1110	82.20	10.13	7.01	0.347	0.60	-90	27.4	75	
1115	82.50	10.20	7.13	0.357	0.48	-105	49.9	60	
1120	82.87	10.08	7.19	0.359	0.43	-109	47.5	80	
1125	83.00	10.22	7.20	0.359	0.38	-111	43.8	55	
1130	83.21	10.29	7.22	0.359	0.33	-113	38.9	20	
1135	83.21	10.26	7.23	0.359	0.41	-112	36.9	20	
1140	83.21	10.27	7.21	0.358	0.45	-110	39.4	20	
Sample @ 1145									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Water level (prior to pump install)(ft btoc): 81.35

Total Depth (ft btoc): 140.97

Stick up height (in): Not a stick up, Flush Mount; TIC → Top of Mount is 4.5 inches

Depth of pump (ft btoc): 130

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 1.19

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/19/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0ppm (Vented to) _____

Well ID: MW-116D - 2 Redo Purging/Sampling Device: Rented Pump

Initial Static Water Level (feet btoc): [redacted] (after pump install) Analytical Parameters: _____

Final Water Level (feet btoc): 81.47 QC Samples Collected: N/A

Purge Start Time: 1452 Sample Number: MW-116D-20181019-2

Sample Time: 1730 Controller Settings: Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Samplers' Signatures: M. Goldberg, C. Kelley Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1452	83.90							150	
1500	85.47							110	
1505	86.02							130	
1525	88.10							130	
1535	89.56	14.32	7.18	0.286	0.00	-104	23.9	140	
1540	90.05	14.15	7.16	0.284	0.00	-102	21.7	140	
1545	91.16	13.86	7.13	0.277	0.00	-98	20.4	140	
1550	91.31	13.97	7.11	0.273	0.00	-97	17.4	140	
1555	91.38	14.79	7.10	0.267	0.00	-94	17.5	75	
1600	91.26	15.11	7.09	0.265	0.00	-93	20.8	75	
1605	91.35	15.25	7.08	0.266	0.00	-91	17.1	75	
1610	91.45	15.24	7.07	0.263	0.00	-89	16.6	75	
1615	91.48	15.11	7.06	0.285	0.00	-88	18.4	75	
1620	91.52	15.14	7.09	0.318	0.00	-92	11.9	75	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Water level (prior to pump install)(ft btoc): _____

Total Depth (ft btoc): 140.97

Stick up height (in): _____

Depth of pump (ft btoc): 130

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.70

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: FHML Date: 10/19/18 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-116D-2 Redo Purging/Sampling Device: _____

Initial Static Water Level (feet btoc): _____ (after pump install) Analytical Parameters: _____

Final Water Level (feet btoc): _____ QC Samples Collected: _____

Purge Start Time: _____ Sample Number: _____

Sample Time: _____ Controller Settings: Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Samplers' Signatures: M. Goldberg, C. Kelley Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1625	91.60	14.98	7.12	0.338	0.0	-97	15.6	80	
1630	91.67	14.98	7.15	0.340	0.0	-100	13.9	80	
1645	91.97	14.34	7.11	0.337	0.0	-96	17.0	100	
1650	92.06	14.25	7.09	0.341	0.0	-95	17.4	100	
1655	92.31	14.20	7.10	0.362	0.0	-97	18.1	100	
1700	92.45	14.07	7.10	0.320	0.0	-96	17.0	100	
1717	92.12	13.76	7.06	0.326	0.0	-89	16.1	80	
1722	92.14	13.56	7.05	0.332	0.0	-89	13.1	80	
1727	92.06	13.39	7.05	0.342	0.0	-88	11.7	80	
Sample @ 1730									

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Water level (prior to pump install)(ft btoc): _____

Total Depth (ft btoc): _____

Stick up height (in): _____

Depth of pump (ft btoc): _____

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L):

EQUIPMENT CALIBRATION LOG

SITE NAME: Fort Hall ~~Road~~ Mine Landfill (FHM#4)

Instrument (Name/Model No./Serial No.): Horiba U-52 21534/24600

Manufacturer: _____

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
10/2/2018	3.90	pH 4.00	Exp: 02/2019	No	4.00	Pass	KW
↓	4.51	4.49 mS/cm	Lot #18041181	No	4.49	Pass	KW
↓	0.0	0.0 NTU	↓	No	0.0	Pass	KW
↓	8.39	DO mg/L	↓	No	8.88	pass	KW
10/3/2018	4.00	pH 4.00	~~Exp: 02/2019~~	No	4.00	Pass	KW
↓	4.43	4.49 mS/cm	~~Lot # 18041181~~	No	4.45	Pass	KW
↓	0.4	0.0 NTU	↓	No	0.0	Pass	KW
↓	9.79	~~DO~~ mg/L	↓	No	9.05	Pass	KW
10/4/2018	4.02	pH 4.00	Exp: 02/2019	No	4.00	pass	KW
↓	4.42	4.49 ms/cm	Lot # 18041181	No	4.46	Pass	KW
↓	0.6	0.0 NTU	↓	No	0.0	Pass	KW
↓	9.93	DO mg/L	↓	No	10.39	Pass	KW
10/5/2018	4.05	pH 4.00	Exp: 02/20	No	4.00	Pass	KW
↓	4.41	4.49 ms/cm	Lot # 18041181	No	4.46	Pass	KW

EQUIPMENT CALIBRATION LOG

SITE NAME: Fort Hall Mine Landfill

Instrument (Name/Model No./Serial No.): Horiba U-52 21534/24600

Manufacturer: _____

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
10/5/2018	0.0	0.0 NTU	↓	No	0.0	Pass	KW
↓	9.92	DO mg/L	↓	No	10.04	Pass	KW
10/7/2018	3.86	4.00 pH	Exp = 02/2019	No	4.00	Pass	KW
↓	4.42	4.49 ms/cm	Lot# 1804481	No	4.46	Pass	KW
↓	1.6	0.0 NTU	↓	No	0.3	Pass	KW
↓	11.75	DO mg/L	↓	No	10.67	Pass	KW
10/7/2018	4.11	pH 4.00	Exp: 02/2019	No	4.00	Pass	KW
↓	4.52	4.49 ms/cm	Lot# 1804481	No	4.51	Pass	KW
↓	0.0	0.0 NTU	↓	No	0.0	Pass	KW
↓	9.28	DO mg/L	↓	No	10.36	Pass	KW
10/8/2018	4.03	pH 4.00	Exp: 02/2019	No	4.00	Pass	KW
↓	4.57	4.49 ms/cm	Lot# 1804481	No	4.50	Pass	KW
↓	1.9	0.0 NTU	↓	No	0.0	Pass	KW
↓	9.83	DO mg/L	↓	No	9.63	Pass	KW

EQUIPMENT CALIBRATION LOG

SITE NAME: Fort Hall Road Landfill

Instrument (Name/Model No./Serial No.): Horiba U-52 21915/25355

Manufacturer: _____

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
10/2/18	~~4.02~~ 3.82	pH 4.00	Exp: 02/2019	No*	4.00	*Second	KW
↓	5.42	4.49 ms/cm	Lot # 18044181	No*	5.04	calibration	KW
↓	0.0	0.0 NTU	↓	No*	0.1	needed	KW
↓	8.89	DO mg/L	↓	No*	9.74	↓	KW
*10/2/18	4.00	pH 4.00	Exp. 02/2019	No	4.00	Pass	KW
↓	5.04	4.49 ms/cm	Lot # 18044181	No	4.49	Pass	KW
↓	0.1	0.0 NTU	↓	No	0.0	Pass	KW
↓	9.74	DO mg/L	↓	No	9.69	Pass	KW
10/3/2018	4.01	pH 4.00	Exp: 02/2019	No	4.00	Pass	KW
↓	4.43	4.49 ms/cm	Lot # 18044181	No	4.46	Pass	KW
↓	0.0	0.0 NTU	↓	No	0.0	Pass	KW
↓	10.20	DO mg/L	↓	No	9.44	pass	KW
10/4/18	4.02	pH 4.00	Exp: 02/2019		4.00		
	4.42	4.49 ms/cm	Lot # 18044181		4.46		

*Second calibration

EQUIPMENT CALIBRATION LOG

SITE NAME: Fort Hall Mine Landfill

Instrument (Name/Model No./Serial No.): Horiba U-52 21915/ 25355

Manufacturer: _____

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
10/4/18	0.4	0.0 NTU	↓	No	0.0	Pass	KW
↓	10.99	DO mg/L	↓	No	11.28	Pass	KW
10/5/18	3.99	pH 4.00	02/2019	No	4.00	Pass	KW
↓	4.53	4.49 ms/cm	Lot #= 18044181	No	4.50	Pass	KW
↓	0.4	0.0 NTU	↓	No	0.0	Pass	KW
↓	10.01	DO mg/L	↓	No	10.82	Pass	KW
10/6/18	3.93	pH 4.00	Exp = 02/2019	No	4.00	Pass	KW
↓	4.48	4.49 ms/cm	Lot# 18044181	No	4.51	Pass	KW
↓	5.4	0.0 NTU	↓	No	0.0	Pass	KW
↓	12.35	DO mg/L	↓	No	10.05	Pass	KW
10/7/18	4.10	pH 4.00	~~Exp: 02~~/2019	No	4.00	Pass	KW
↓	4.31	4.49 ms/cm	Lot # 18044181	No	4.47	Pass	KW
↓	0.0	0.0 NTU	↓	No	0.0	Pass	KW
↓	9.61	DO mg/L	↓	No	10.93	Pass	KW

EQUIPMENT CALIBRATION LOG

SITE NAME: Fort Hall Mine Road Landfill

Instrument (Name/Model No./Serial No.): MultiRAE 042251

Manufacturer: _____

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
10/3/18	N/A	hydrogen sulfide 10 PPM	~~10~~ Exp Sept 2020	No	10	Pass	KW
↓	↓	Carbon monoxide 50 ppm	~~50~~ #A043072	No	50	Pass	KW
↓	↓	oxygen 18%	~~18%~~ ↓	No	18%	Pass	KW
~~↓~~	↓	~~Nitrogen~~ balance	↓	↓	↓	↓	↓
↓	↓	methane 2.5% (50LEL)	~~50~~ ↓	No	50	Pass	KW
↓	↓	isobutylene 100 PPM	~~50~~ Exp=8/28/ Lot=IBH-~~B~~ 202	No	100.3	Pass	KW
10/4/18	N/A	hydrogen sulfide 10 PPM	248-100-1 ~~Exp~~ Sept 2020	No	10	Pass	KW
↓	↓	CO 50 PPM	#A043729	No	50	Pass	KW
↓	↓	oxygen 18%	↓	No	18%	Pass	KW
↓	↓	methane 50LEL	↓	No	50	Pass	KW
↓	↓	isobutylene 100 PPM	Exp 8/28/2021 Lot=IBH 248-100-1	No	100.1	Pass	KW
10/5/18	N/A	hydrogen sulfide 10 PPM	Exp Sept 2020	No	10.2	Pass	KW
↓	↓	CO 50 ppm	#A043072 9	No	50	Pass	KW
↓	↓	oxygen 18%	↓	No	18%	Pass	KW

EQUIPMENT CALIBRATION LOG

SITE NAME: Fort Hall Mine Landfill

Instrument (Name/Model No./Serial No.): MultiRAE 042251

Manufacturer: _____

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
10/5/18	N/A	methane 50 LEL	↓	No	50	Pass	KW
↓	↓	isobutylene 100 PPM	Exp 8/28/2021 Lot=IBH-248-100-1	No	100.1	Pass	KW
10/6/18	N/A	hyd sulfide 10 PPM	Exp Sept 2020	No	~~49~~ 10	Pass	KW
↓	↓	CO 50 PPM	#A04 30729	No	49	Pass	KW
↓	↓	oxygen 18%	↓	No	18%	Pass	KW
↓	↓	methane 50 LEL	↓	No	50	Pass	KW
↓	↓	Isobutylene 100 PPM	Exp 8/28/2021 Lot # IBH-248-100-1	No	100.1	Pass	KW
10/7/18	N/A	hyd sulfide 10 PPM	Exp Sept 2020	No	10.1	Pass	KW
↓	↓	CO 50 PPM	#A04 30729	No	53	Pass	KW
↓	↓	oxygen 18%	↓	No	18%	Pass	KW
↓	↓	methane 50 LEL	↓	No	50	Pass	KW
↓	↓	Isobutylene 100 PPM	Exp 8/28/2021 Lot # IBH-248-100-1	No	100.0	Pass	KW
10/8/18	N/A	hyd sulfide 10 PPM	Exp Sep 2020	No	9.5	Pass	KW
↓	↓	CO 10 PPM	#A04 30729	No	~~58~~ 10	Pass	KW

EQUIPMENT CALIBRATION LOG

SITE NAME: Fort Hall Mine Landfill

Instrument (Name/Model No./Serial No.): MultiRAE 042251

Manufacturer: _____

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
10/3/18	N/A	Oxygen 18%		No	18%	Pass	KW
↓	↓	Methane 50 LEL	↓	No	49	Pass	KW
↓	↓	Isobutylene 100PPM	Exp 8/28/2021 Lot # 1BH-219-100-1	No	100.1	Pass	KW

EQUIPMENT CALIBRATION LOG

SITE NAME: Fort Hall Mine

Instrument (Name/Model No./Serial No.): MultiRae Plus Pine ID 18613

Manufacturer: _____

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
10/3/18		H_2S (25ppm)	SDS# 50312 Sept 2019	N/A	24	Pass	
		CO (50ppm)	↓	↓	49	Pass	
		CH_4 (50% LEL)	↓	↓	49	Pass	
		Oxy (20.9)	↓	↓	20.9	Pass	
		VOC (100ppm)	SDS# 50054 July 2021	N/A	97.2	Pass	
10/4/18		H_2S (25ppm)	~~SDS# 50054~~ ↓ Sept 2019	SDS# 50312 N/A			
		CO (50ppm)	↓	↓			
		CH_4 (50% LEL)	↓	↓			
		Oxy (20.9	↓	↓			
		VOC (100ppm)	SDS# 50054 Sept 2019	↓			

Appendix C

Analytical Results

Analyte	USEPA MCL (ug/L)	Area	Cell 1																									
		Well ID	MW-1		MW-101S		MW-102S		MW-104D		MW-104S		MW-105D		MW-105S		MW-109D		MW-109S		MW-110D		MW-110S		MW-111D		MW-111S		MW-112D	
		Sample Name	MW-1-20181005		MW-101S-20181005		MW-102S-20181006		MW-104D-20181004		MW-104S-20181004		MW-105D-20181004		MW-105S-20181004		MW-109D-20181006		MW-109S-20181006		MW-110D-20181007		MW-110S-20181006		MW-111D-20181004		MW-111S-20181004		MW-112D-20181005	
		Sample Date	10/5/2018		10/5/2018		10/6/2018		10/4/2018		10/4/2018		10/4/2018		10/4/2018		10/6/2018		10/6/2018		10/7/2018		10/6/2018		10/4/2018		10/4/2018		10/5/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1,2-Tetrachloroethane		ug/l	0.21	U	0.21	U	0.21	U	0.84	U	4.2	U	1.1	U	0.42	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.42	U	0.21	U
1,1,1-Trichloroethane	200	ug/L	0.16	U	0.16	U	0.16	U	0.64	U	3.2	U	0.8	U	0.32	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.32	U	**0.92**	**J**
1,1,2,2-Tetrachloroethane		ug/l	0.21	U	0.21	U	0.21	U	0.84	U	4.2	U	1.1	U	0.42	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.42	U	**0.21**	**U**
1,1,2-Trichloroethane		ug/l	0.27	U	0.27	U	0.27	U	1.1	U	5.4	U	1.4	U	0.54	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.54	U	**0.27**	**U**
1,1-Dichloroethane	--	ug/L	**0.23**	**J**	0.22	U	0.22	U	**1.8**	**J**	4.4	U	**3.3**	**J**	0.75	J	0.22	U	0.22	U	0.22	U	**0.99**	**J**	**1.7**		**1.2**	**J**	**0.43**	**J**
1,1-Dichloroethene	7	ug/L	0.23	U	0.23	U	0.23	U	0.92	U	4.6	U	1.2	U	0.46	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.46	U	**1.3**	
1,1-Dichloropropene		ug/L	0.19	U	0.19	U	0.19	U	0.76	U	3.8	U	0.95	U	0.38	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.38	U	0.19	U
1,2,3-Trichloropropane		ug/L	0.33	U	0.33	U	0.33	U	1.3	U	6.6	U	1.7	U	0.66	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.66	U	0.33	U
1,2,4-Trichlorobenzene		ug/L	0.21	U	0.21	U	0.21	U	0.84	U	4.2	U	1.1	U	0.42	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.42	U	0.21	U
1,2-Dibromo-3-Chloropropane		ug/L	0.47	U	0.47	U	0.47	U	1.9	U	9.4	U	2.4	U	0.94	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.94	U	0.47	U
1,2-Dibromoethane		ug/L	0.18	U	0.18	U	0.18	U	0.72	U	3.6	U	0.9	U	0.36	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.36	U	0.18	U
1,2-Dichlorobenzene	600	ug/L	0.15	U	0.15	U	0.15	U	0.6	U	3	U	0.75	U	**0.34**	**J**	0.15	U	0.15	U	0.15	U	**0.72**	**J**	**16**		**14**		0.15	U
1,2-Dichloroethane	5	ug/L	0.13	U	0.13	U	0.13	U	0.52	U	2.6	U	0.65	U	**0.28**	**J**	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.26	U	0.13	U
1,2-Dichloropropane	5	ug/L	0.18	U	0.18	U	0.18	U	0.72	U	3.6	U	0.9	U	**0.38**	**J**	0.18	U	0.18	U	0.18	U	**0.67**	**J**	**1.7**		**2.2**		0.18	U
1,3-Dichlorobenzene	--	ug/L	0.13	U	0.13	U	0.13	U	0.52	U	2.6	U	0.65	U	0.26	U	0.13	U	0.13	U	0.13	U	0.13	U	**0.24**	**J**	0.26	U	0.13	U
1,3-Dichloropropane		ug/L	0.22	U	0.22	U	0.22	U	0.88	U	4.4	U	1.1	U	0.44	U	0.22	U	0.22	U	0.22	U	0.22	U	**0.22**	**U**	0.44	U	0.22	U
1,4-Dichlorobenzene	75	ug/L	0.16	U	0.16	U	0.16	U	0.64	U	3.2	U	0.8	U	0.32	U	0.16	U	0.16	U	0.16	U	**0.36**	**J**	**5.8**		**4.8**		0.16	U
2,2-Dichloropropane		ug/L	0.18	U	0.18	U	0.18	U	0.72	U	3.6	U	0.9	U	0.36	U	0.18	U	0.18	U	0.18	U	0.18	U	**0.18**	**U**	0.36	U	0.18	U
Chloroprene		ug/L	0.21	U	0.21	U	0.21	U	0.84	U	4.2	U	1.1	U	0.42	U	0.21	U	0.21	U	0.21	U	0.21	U	**0.21**	**U**	0.42	U	0.21	U
2-Hexanone		ug/L	1.7	U	1.7	U	1.7	U	6.8	U	34	U	8.5	U	3.4	U	1.7	U	1.7	U	1.7	U	1.7	U	**1.7**	**U**	3.4	U	1.7	U
Acetone	--	ug/L	1.9	U	1.9	U	1.9	U	7.6	U	38	U	9.5	U	3.8	U	1.9	U	1.9	U	1.9	U	1.9	U	**12**	**J+**	20	U	1.9	U
Acetonitrile		ug/L	9.6	U	9.6	U	9.6	U	38	U	190	U	48	U	19	U	9.6	U	9.6	U	9.6	U	9.6	U	**9.6**	**U**	19	U	9.6	U
Acrolein		ug/L	2.8	U	2.8	U	2.8	U	11	U	56	U	14	U	5.6	U	2.8	U	2.8	U	2.8	U	2.8	U	**2.8**	**U**	5.6	U	2.8	U
Acrylonitrile		ug/L	1.4	U	1.4	U	1.4	U	5.6	U	28	U	7	U	2.8	U	1.4	U	1.4	U	1.4	U	1.4	U	**1.4**	**U**	2.8	U	1.4	U
Allyl chloride		ug/L	0.17	U	0.17	U	0.17	U	0.68	U	3.4	U	0.85	U	0.34	U	0.17	U	0.17	U	0.17	U	0.17	U	**0.17**	**U**	0.34	U	0.17	U
Benzene	5	ug/L	0.16	U	0.16	U	0.16	U	0.64	U	3.2	U	0.8	U	0.32	U	0.16	U	0.16	U	0.16	U	**0.32**	**J**	**17**		**28**		0.16	U
Chlorobromomethane		ug/L	0.1	U	0.1	U	0.1	U	0.4	U	2	U	0.5	U	0.2	U	0.1	U	0.1	U	0.1	U	0.1	U	**0.1**	**U**	0.2	U	0.1	U
Chlorodibromomethane		ug/L	0.17	U	0.17	U	0.17	U	0.68	U	3.4	U	0.85	U	0.34	U	0.17	U	0.17	U	0.17	U	0.17	U	**0.17**	**U**	0.34	U	0.17	U
Bromoform		ug/L	0.19	U	0.19	U	0.19	U	0.76	U	3.8	U	0.95	U	0.38	U	0.19	U	0.19	U	0.19	U	0.19	U	**0.19**	**U**	0.38	U	0.19	U
Bromomethane		ug/L	0.21	U	0.21	U	0.21	U	0.84	U	4.2	U	1.1	U	0.42	U	0.21	U	0.21	U	0.21	U	0.21	U	**0.21**	**U**	0.42	U	0.21	U
Carbon disulfide		ug/L	0.45	U	0.45	U	0.45	U	1.8	U	9	U	2.3	U	0.9	U	0.45	U	0.45	U	0.45	U	0.45	U	**0.45**	**U**	0.9	U	0.45	U
Carbon tetrachloride		ug/L	0.19	U	0.19	U	0.19	U	0.76	U	3.8	U	0.95	U	0.38	U	0.19	U	0.19	U	0.19	U	0.19	U	**0.19**	**U**	0.38	U	0.19	U
Chlorobenzene	100	ug/L	0.17	U	0.17	U	0.17	U	0.68	U	3.4	U	0.85	U	0.34	U	0.17	U	0.17	U	0.17	U	0.17	U	**1.1**		**2**		0.17	U
Chloroethane	--	ug/L	0.41	U	0.41	U	0.41	U	1.6	U	8.2	U	2.1	U	0.82	U	0.41	U	0.41	U	0.41	U	0.41	U	**1.2**	**J**	**1.2**	**J**	0.41	U
Chloroform	80	ug/L	0.16	U	**0.16**	**J**	0.16	U	0.64	U	3.2	U	**1.5**	**J**	**1.4**	**J**	**0.45**	**J**	**0.8**	**J**	0.16	U	0.16	U	0.16	U	0.32	U	**0.28**	**J**
Chloromethane		ug/L	0.3	U	0.3	U	0.3	U	1.2	U	6	U	1.5	U	0.6	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.6	U	**0.3**	**U**
cis-1,2-Dichloroethene	70	ug/L	**3.4**		**0.28**	**J**	0.15	U	**16**		**12**	**J**	**12**		**22**		0.15	U	0.15	U	**1.2**		**22**		**1.1**		**0.61**	**J**	**0.2**	**J**
cis-1,3-Dichloropropene		ug/L	0.16	U	**0.16**	**U**	0.16	U	**0.64**	**U**	3.2	U	**0.8**	**U**	0.32	U	0.16	U	0.16	U	**0.16**	**U**	0.16	U	0.16	U	**0.32**	**U**	**0.16**	**U**
Dichlorobromomethane		ug/L	0.17	U	**0.17**	**U**	0.17	U	**0.68**	**U**	3.4	U	**0.85**	**U**	0.34	U	0.17	U	0.17	U	**0.17**	**U**	0.17	U	0.17	U	**0.34**	**U**	**0.17**	**U**
Dibromomethane		ug/L	0.17	U	**0.17**	**U**	0.17	U	**0.68**	**U**	3.4	U	**0.85**	**U**	0.34	U	0.17	U	0.17	U	**0.17**	**U**	0.17	U	0.17	U	**0.34**	**U**	**0.17**	**U**
Dichlorodifluoromethane	--	ug/L	0.31	U	**0.33**	**J**	0.31	U	**1.6**	**J**	6.2	U	**3.3**	**J**	0.62	U	0.31	U	0.31	U	**1.1**	**J**	0.31	U	0.31	U	**0.66**	**J**	**2**	
Ethyl methacrylate		ug/L	0.86	U	0.86	U	0.86	U	3.4	U	17	U	4.3	U	1.7	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	**1.7**	**U**	0.86	U
Ethylbenzene	700	ug/L	0.16	U	0.16	U	0.16	U	0.64	U	3.2	U	0.8	U	0.32	U	0.16	U	0.16	U	0.16	U	0.16	U	**9**		**14**		0.16	U
Iodomethane		ug/L	0.23	U	0.23	U	0.23	U	0.92	U	4.6	U	1.2	U	0.46	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.46	U	0.23	U
Isobutanol; Isobutyl alcohol		ug/L	37	U	37	U	37	U	150	U	730	U	180	U	73	U	37	U	37	U	37	U	37	U	37	U	73	U	37	U
2-Butanone (MEK)		ug/L	2	U	2	U	2	U	8	U	40	U	10	U	4	U	2	U	2	U	2	U	2	U	2	U	4	U	2	U
4-Methyl-2-pentanone (MIBK)		ug/L	0.98	U	0.98	U	0.98	U	3.9	U	20	U	4.9	U	2	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	2	U	0.98	U
Methyl methacrylate		ug/L	1.1	U	1.1	U	1.1	U	4.4	U	22	U	5.6	U	2.2	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	2.2	U	1.1	U
Methacrylonitrile		ug/L	1.6	U	1.6	U	1.6	U	6.4	U	32	U	8	U	3.2	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	3.2	U	1.6	U
Methylene Chloride	5	ug/L	0.32	U	0.32	U	0.32	U	8	U	40	U	10	U	4	U	0.32	U	0.32	U	0.32	U	0.32	U	2	U	0.64	U	0.32	U
Propionitrile		ug/L	3.7	U	3.7	U	3.7	U	15	U	74	U	19	U	7.4	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	7.4	U	3.7	U
Styrene	100	ug/L	0.17	U	0.17	U	0.17	U	0.68	U	3.4	U	0.85	U	0.34	U	0.17	U	0.17	U	0.17	U	**0.44**	**J**	0.17	U	0.34	U	0.17	U
Tetrachloroethene	5	ug/L	**0.29**	**J**	**6.3**		0.2	U	**9.3**		**86**		**30**		**3.5**		**8.6**		**30**		**0.61**	**J**	**4.1**		**1.1**		0.4	U	**11**	
Toluene	1000	ug/L	0.17	U	0.17	U	0.17	U	0.68	U	3.4	U	0.85	U	0.34	U	0.17	U	0.17	U	**0.23**	**J**	0.17	U	**0.25**	**J**	0.34	U	0.17	U
trans-1,2-Dichloroethene	100	ug/L	**0.39**	**J**	0.15	U	0.15	U	0.6	U	3	U	0.75	U	0.3	U	0.15	U	0.15	U	0.15	U	**0.15**	**J**	**0.27**	**J**	**0.34**	**J**	0.15	U
Trichloroethene	5	ug/L	**13**		**16**		0.16	U	**140**		**750**		**240**		**51**		**60**		**110**		**8.5**	**J**	**76**		**12**		0.32	U	**200**	
Trichlorofluoromethane	--	ug/L	0.29	U	0.29	U	0.29	U	1.2	U	5.8	U	1.5	U	0.58	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.58	U	**1**	**J**
Vinyl chloride	2	ug/L	0.1	U	0.1	U	0.1	U	**9**		**3.3**	**J**	**1.1**	**J**	**3.1**		0.1	U	0.1	U	0.1	U	6.7		**0.46**	**J**	0.2	U	0.1	U
Xylenes, total	--	ug/L	0.19	U	0.19	U	0.19	U	0.76	U	3.8	U	0.95	U	0.38	U	0.19	U	0.19	U	0.19	U	0.19	U	**1.1**	**J**	**1.9**	**J**	0.19	U

Notes:

Highlight indicates values great than the MCL

USEPA = United States Environmental Protection Agency

MCL = maximum contaminant level

ug/L = microgram per liter

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

UJ =The non-detection at the associated value is an estimate

J+ = Result is estimated and biased high

CDM Smith

		Area	Cell 1																						Remediation System					
		Well ID	MW-112M		MW-112M		MW-113D		MW-113S		MW-118D		MW-119D		MW-119S		MW-120D		MW-120S		MW-121		MW-4		MW-7		INF-COM		INJ-1R		RW-10	
		Sample Name	MW-112M-20181005		MW-112MQ-20181005		MW-113D-20181004		MW-113S-20181004		MW-118D-20181003		MW-119D-20181003		MW-119S-20181003		MW-120D-20181003		MW-120S-20181003		MW-121-20181007		MW-4-20181005		MW-7-20181008		INF-COM-20181007		INJ-1R-20181006		RW-10-20181007	
		Sample Date	10/5/2018		10/5/2018		10/4/2018		10/4/2018		10/3/2018		10/3/2018		10/3/2018		10/3/2018		10/3/2018		10/7/2018		10/5/2018		10/8/2018		10/7/2018		10/6/2018		10/7/2018	
Analyte	USEPA MCL (ug/L)	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1,2-Tetrachloroethane		ug/l	0.84	U	0.84	U	0.42	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
1,1,1-Trichloroethane	200	ug/L	0.64	U	**0.67**	**J**	0.32	U	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	0.16	U	**0.22**	**J**	0.16	U	0.16	U	0.16	U	0.16	U
1,1,2,2-Tetrachloroethane		ug/l	0.84	U	0.84	U	0.42	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
1,1,2-Trichloroethane		ug/l	1.1	U	1.1	U	0.54	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
1,1-Dichloroethane	--	ug/L	0.88	U	0.88	U	**11**		**25**		**6.2**		0.88	U	0.88	U	**1.1**	**J**	**1.1**	**J**	**0.58**	**J**	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1-Dichloroethene	7	ug/L	0.92	U	0.92	U	**0.64**	**J**	**1.3**	**J**	**0.99**	**J**	0.92	U	0.92	U	0.92	U	0.92	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U
1,1-Dichloropropene		ug/L	0.76	U	0.76	U	0.38	U	0.76	U	0.76	U	0.76	U	0.76	U	0.76	U	0.76	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
1,2,3-Trichloropropane		ug/L	1.3	U	1.3	U	0.66	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
1,2,4-Trichlorobenzene		ug/L	0.84	U	0.84	U	0.42	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
1,2-Dibromo-3-Chloropropane		ug/L	1.9	U	1.9	U	0.94	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U
1,2-Dibromoethane		ug/L	0.72	U	0.72	U	0.36	U	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,2-Dichlorobenzene	600	ug/L	0.6	U	0.6	U	0.3	U	**8.3**		0.6	U	0.6	U	0.6	U	**0.92**	**J**	**0.89**	**J**	**0.45**	**J**	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
1,2-Dichloroethane	5	ug/L	0.52	U	0.52	U	**3.4**		**4.1**		0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,2-Dichloropropane	5	ug/L	0.72	U	0.72	U	**2.3**		**4.4**		0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,3-Dichlorobenzene	--	ug/L	0.52	U	0.52	U	0.26	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,3-Dichloropropane		ug/L	0.88	U	0.88	U	0.44	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,4-Dichlorobenzene	75	ug/L	0.64	U	0.64	U	0.32	U	**5**		0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	**0.21**	**J**	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
2,2-Dichloropropane		ug/L	0.72	U	0.72	U	0.36	U	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Chloroprene		ug/L	0.84	U	0.84	U	0.42	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
2-Hexanone		ug/L	6.8	U	6.8	U	3.4	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Acetone	--	ug/L	7.6	U	7.6	U	3.8	U	7.6	U	7.6	U	7.6	U	7.6	U	7.6	U	7.6	U	10	U	1.9	U	1.9	U	**4.1**	**J**	**2.3**	**J**	1.9	U
Acetonitrile		ug/L	38	U	38	U	19	U	38	U	38	U	38	U	38	U	38	U	38	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U
Acrolein		ug/L	11	U	11	U	5.6	U	11	U	11	U	11	U	11	U	11	U	11	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U
Acrylonitrile		ug/L	5.6	U	5.6	U	2.8	U	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	5.6	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
Allyl chloride		ug/L	0.68	U	0.68	U	0.34	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Benzene	5	ug/L	0.64	U	0.64	U	**2.2**		**7.8**		0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	**0.61**	**J**	0.16	U	0.16	U	**0.33**	**J**	0.16	U	0.16	U
Chlorobromomethane		ug/L	0.4	U	0.4	U	0.2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Chlorodibromomethane		ug/L	0.68	U	0.68	U	0.34	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Bromoform		ug/L	0.76	U	0.76	U	0.38	U	0.76	U	0.76	U	0.76	U	0.76	U	0.76	U	0.76	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Bromomethane		ug/L	0.84	U	0.84	U	0.42	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Carbon disulfide		ug/L	1.8	U	1.8	U	0.9	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
Carbon tetrachloride		ug/L	0.76	U	0.76	U	0.38	U	0.76	U	0.76	U	0.76	U	0.76	U	0.76	U	0.76	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Chlorobenzene	100	ug/L	0.68	U	0.68	U	0.34	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Chloroethane	--	ug/L	1.6	U	1.6	U	0.82	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Chloroform	80	ug/L	**0.66**	**J**	**0.72**	**J**	**1.9**	**J**	**3.3**	**J**	**0.96**	**J**	0.64	U	0.64	U	0.64	U	0.64	U	0.16	U	0.16	U	0.16	U	**0.29**	**J**	0.16	U	**0.63**	**J**
Chloromethane		ug/L	1.2	U	1.2	U	**0.6**	**U**	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
cis-1,2-Dichloroethene	70	ug/L	0.6	U	0.6	U	**17**		**38**		**9**		**1.3**	**J**	**1.3**	**J**	**15**		**16**		**1.5**		**0.97**	**J**	**16**		**0.84**	**J**	0.15	U	**0.99**	**J**
cis-1,3-Dichloropropene		ug/L	0.64	U	0.64	U	**0.32**	**U**	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	0.16	U	**0.16**	**U**	0.16	U	0.16	U	0.16	U	0.16	U
Dichlorobromomethane		ug/L	0.68	U	0.68	U	**0.34**	**U**	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.17	U	**0.17**	**U**	0.17	U	0.17	U	0.17	U	0.17	U
Dibromomethane		ug/L	0.68	U	0.68	U	**0.34**	**U**	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.17	U	**0.17**	**U**	0.17	U	0.17	U	0.17	U	0.17	U
Dichlorodifluoromethane	--	ug/L	1.2	U	1.2	U	**25**		**35**		**3.9**	**J**	1.2	U	1.2	U	1.2	U	1.2	U	**0.64**	**J**	**0.72**	**J**	0.31	U	0.31	U	0.31	U	0.31	U
Ethyl methacrylate		ug/L	3.4	U	3.4	U	1.7	U	3.4	U	3.4	U	3.4	U	3.4	U	3.4	U	3.4	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U
Ethylbenzene	700	ug/L	0.64	U	0.64	U	0.32	U	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Iodomethane		ug/L	0.92	U	0.92	U	0.46	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U
Isobutanol; Isobutyl alcohol		ug/L	150	U	150	U	73	U	150	U	150	U	150	U	150	U	150	U	150	U	37	U	37	U	37	U	37	U	37	U	37	U
2-Butanone (MEK)		ug/L	8	U	8	U	4	U	8	U	8	U	8	U	8	U	8	U	8	U	2	U	2	U	2	U	2	U	2	U	2	U
4-Methyl-2-pentanone (MIBK)		ug/L	3.9	U	3.9	U	2	U	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U	0.98	U	0.98	U	0.98	U	2.4	J	0.98	U	0.98	U
Methyl methacrylate		ug/L	4.4	U	4.4	U	2.2	U	4.4	U	4.4	U	4.4	U	4.4	U	4.4	U	4.4	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Methacrylonitrile		ug/L	6.4	U	6.4	U	3.2	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
Methylene Chloride	5	ug/L	1.3	U	1.3	U	**4.8**	**J+**	**4.9**	**J+**	8	U	1.3	U	8	U	8	U	8	U	0.32	U	0.32	U	0.32	U	2	U	0.32	U	0.32	U
Propionitrile		ug/L	15	U	15	U	7.4	U	15	U	15	U	15	U	15	U	15	U	15	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U
Styrene	100	ug/L	0.68	U	0.68	U	0.34	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Tetrachloroethene	5	ug/L	**7**		8.2		**5**		**31**		**19**		**9**		**9.3**		**15**		**16**		**0.78**	**J**	**4.1**		**0.38**	**J**	**1.5**		0.2	U	**19**	
Toluene	1000	ug/L	0.68	U	0.68	U	0.34	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.17	U	0.17	U	0.17	U	**0.3**	**J**	0.17	U	0.17	U
trans-1,2-Dichloroethene	100	ug/L	0.6	U	0.6	U	**0.6**	**J**	**1.8**	**J**	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
Trichloroethene	5	ug/L	**120**		**130**		**5.5**		**23**		**170**		**65**		**53**		**160**		**150**		**4**		**0.32**	**J**	**0.75**	**J**	**10**		**0.61**	**J**	**49**	
Trichlorofluoromethane	--	ug/L	1.2	U	1.2	U	**3.1**	**J**	**4**	**J**	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U
Vinyl chloride	2	ug/L	0.4	U	0.4	U	**27**		**96**		**0.85**	**J**	0.4	U	0.4	U	**2.7**	**J**	**2.9**	**J**	0.1	U	**0.63**	**J**	0.1	U	**0.15**	**J**	0.1	U	0.1	U
Xylenes, total	--	ug/L	0.76	U	0.76	U	0.38	U	**1.4**	**J**	0.76	U	0.76	U	0.76	U	0.76	U	0.76	U	0.19	U	**0.51**	**J**	0.19	U	0.19	U	0.19	U	0.19	U

Notes:

Highlight indicates values great than the MCL

USEPA = United States Environmental Protection Agency

MCL = maximum contaminant level

ug/L = microgram per liter

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

UJ =The non-detection at the associated value is an estimate

J+ = Result is estimated and biased high

CDM Smith

Analyte	USEPA MCL (ug/L)	Area	Remediation System										Offsite Wells																Residential Wells			
		Well ID	RW-15		RW-17		RW-3		RW-4		RW-9R		MW-103D		MW-103S		MW-106D		MW-106S		MW-115D		MW-115S		MW-116D		MW-116S		RW-2140H		RW-7773P	
		Sample Name	RW-15-20181006		RW-17-20181007		RW-3-20181007		RW-4-20181007		RW-9R-20181007		MW-103D-20181009		MW-103S-20181009		MW-106D-20181008		MW-106S-20181007		MW-115D-20181008		MW-115S-20181008		MW-116D-20181019		MW-116S-20181019		RW-2140H-20181019		RW-7773P-20181007	
		Sample Date	10/6/2018		10/7/2018		10/7/2018		10/7/2018		10/7/2018		10/9/2018		10/9/2018		10/8/2018		10/7/2018		10/8/2018		10/8/2018		10/19/2018		10/19/2018		10/19/2018		10/7/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1,2-Tetrachloroethane		ug/l	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
1,1,1-Trichloroethane	200	ug/L	0.16	U	0.16	U	0.16	U	**0.17**	**J**	**0.33**	**J**	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,1,2,2-Tetrachloroethane		ug/l	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
1,1,2-Trichloroethane		ug/l	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
1,1-Dichloroethane	--	ug/L	**0.64**	**J**	**0.32**	**J**	**1**		**0.65**	**J**	**1.8**		0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1-Dichloroethene	7	ug/L	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U
1,1-Dichloropropene		ug/L	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
1,2,3-Trichloropropane		ug/L	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
1,2,4-Trichlorobenzene		ug/L	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
1,2-Dibromo-3-Chloropropane		ug/L	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U
1,2-Dibromoethane		ug/L	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,2-Dichlorobenzene	600	ug/L	**0.5**	**J**	0.15	U	**0.41**	**J**	**0.23**	**J**	**0.58**	**J**	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
1,2-Dichloroethane	5	ug/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,2-Dichloropropane	5	ug/L	0.18	U	0.18	U	**0.24**	**J**	**0.21**	**J**	**0.38**	**J**	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,3-Dichlorobenzene	--	ug/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,3-Dichloropropane		ug/L	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,4-Dichlorobenzene	75	ug/L	**0.24**	**J**	0.16	U	**0.4**	**J**	0.16	U	**0.33**	**J**	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
2,2-Dichloropropane		ug/L	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Chloroprene		ug/L	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
2-Hexanone		ug/L	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Acetone	--	ug/L	10	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	10	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Acetonitrile		ug/L	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U
Acrolein		ug/L	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U
Acrylonitrile		ug/L	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
Allyl chloride		ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Benzene	5	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	**0.23**	**J**	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Chlorobromomethane		ug/L	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Chlorodibromomethane		ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Bromoform		ug/L	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Bromomethane		ug/L	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Carbon disulfide		ug/L	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
Carbon tetrachloride		ug/L	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Chlorobenzene	100	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Chloroethane	--	ug/L	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Chloroform	80	ug/L	**0.6**	**J**	**0.67**	**J**	**0.63**	**J**	**0.55**	**J**	**0.28**	**J**	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	**0.21**	**J**	**0.22**	**J**	0.16	U
Chloromethane		ug/L	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	**0.3**	**U**	0.3	U	0.3	U
cis-1,2-Dichloroethene	70	ug/L	**12**		**3.2**		**9.1**		**8.7**		**15**		0.15	U	**0.57**	**J**	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	**2.1**		**2.3**		0.15	U
cis-1,3-Dichloropropene		ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Dichlorobromomethane		ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Dibromomethane		ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Dichlorodifluoromethane	--	ug/L	**0.41**	**J**	**0.34**	**J**	**0.72**	**J**	0.31	U	**0.49**	**J**	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Ethyl methacrylate		ug/L	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U
Ethylbenzene	700	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Iodomethane		ug/L	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U
Isobutanol; Isobutyl alcohol		ug/L	37	U	37	U	37	U	37	U	37	U	37	U	37	U	37	U	37	U	37	U	37	U	37	U	37	U	37	U	37	U
2-Butanone (MEK)		ug/L	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
4-Methyl-2-pentanone (MIBK)		ug/L	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U
Methyl methacrylate		ug/L	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Methacrylonitrile		ug/L	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
Methylene Chloride	5	ug/L	0.32	U	0.32	U	0.32	U	0.32	U	2	U	2	U	2	U	0.32	U	2	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Propionitrile		ug/L	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U
Styrene	100	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Tetrachloroethene	5	ug/L	**19**		**22**		**19**		**16**		**12**		0.2	U	**1.4**		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	**2.2**		**4.9**		0.2	U
Toluene	1000	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	**0.34**	**J**	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
trans-1,2-Dichloroethene	100	ug/L	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
Trichloroethene	5	ug/L	**100**		**100**		**130**		**110**		**210**		0.16	U	**8**		0.16	U	0.16	U	0.16	U	**0.35**	**J**	0.16	U	**26**		**34**		0.16	U
Trichlorofluoromethane	--	ug/L	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U
Vinyl chloride	2	ug/L	**3.3**		**0.54**	**J**	**1.2**		**0.37**	**J**	**2.4**		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Xylenes, total	--	ug/L	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U

Notes:

Highlight indicates values great than the MCL

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U = Analyte was not detected at the associated value

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J+ = Result is estimated and biased high

CDM Smith

Analyte	USEPA MCL (ug/L)	Well ID	Cell 2								Cell 4							
			MW-12		MW-13		MW-8		MW-9		MW-3A		MW-4A		MW-5A		MW-6A	
		Sample Name	MW-12-20181008		MW-13-20181006		MW-8-20181007		MW-9-20181007		MW-3A-20181008		MW-4A-20181005		MW-5A-20181008		MW-6A-20181005	
		Sample Date	10/8/2018		10/6/2018		10/7/2018		10/7/2018		10/8/2018		10/5/2018		10/8/2018		10/5/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1,2-Tetrachloroethane		ug/l	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
1,1,1-Trichloroethane	200	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,1,2,2-Tetrachloroethane		ug/l	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
1,1,2-Trichloroethane		ug/l	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
1,1-Dichloroethane	--	ug/L	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1-Dichloroethene	7	ug/L	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U
1,1-Dichloropropene		ug/L	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
1,2,3-Trichloropropane		ug/L	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
1,2,4-Trichlorobenzene		ug/L	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
1,2-Dibromo-3-Chloropropane		ug/L	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U
1,2-Dibromoethane		ug/L	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,2-Dichlorobenzene	600	ug/L	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
1,2-Dichloroethane	5	ug/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,2-Dichloropropane	5	ug/L	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,3-Dichlorobenzene	--	ug/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
1,3-Dichloropropane		ug/L	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,4-Dichlorobenzene	75	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
2,2-Dichloropropane		ug/L	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Chloroprene		ug/L	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
2-Hexanone		ug/L	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Acetone	--	ug/L	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Acetonitrile		ug/L	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U	9.6	U
Acrolein		ug/L	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U
Acrylonitrile		ug/L	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
Allyl chloride		ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Benzene	5	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Chlorobromomethane		ug/L	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Chlorodibromomethane		ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Bromoform		ug/L	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Bromomethane		ug/L	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Carbon disulfide		ug/L	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
Carbon tetrachloride		ug/L	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Chlorobenzene	100	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Chloroethane	--	ug/L	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Chloroform	80	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Chloromethane		ug/L	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
cis-1,2-Dichloroethene	70	ug/L	0.15	U	**0.4**	**J**	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
cis-1,3-Dichloropropene		ug/L	0.16	U	**0.16**	**U**	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Dichlorobromomethane		ug/L	0.17	U	**0.17**	**U**	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Dibromomethane		ug/L	0.17	U	**0.17**	**U**	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Dichlorodifluoromethane	--	ug/L	0.31	U	**0.39**	**J**	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Ethyl methacrylate		ug/L	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U	0.86	U
Ethylbenzene	700	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Iodomethane		ug/L	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U	0.23	U
Isobutanol; Isobutyl alcohol		ug/L	37	U	37	U	37	U	37	U	37	U	37	U	37	U	37	U
2-Butanone (MEK)		ug/L	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
4-Methyl-2-pentanone (MIBK)		ug/L	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U
Methyl methacrylate		ug/L	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Methacrylonitrile		ug/L	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
Methylene Chloride	5	ug/L	0.32	U	0.32	U	0.32	U	0.32	U	2	U	0.32	U	0.32	U	0.32	U
Propionitrile		ug/L	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U
Styrene	100	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
Tetrachloroethene	5	ug/L	0.2	U	**0.23**	**J**	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Toluene	1000	ug/L	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
trans-1,2-Dichloroethene	100	ug/L	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
Trichloroethene	5	ug/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
Trichlorofluoromethane	--	ug/L	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U
Vinyl chloride	2	ug/L	0.1	U	0.1	U	0.1	U	**0.53**	**J**	0.1	U	0.1	U	0.1	U	0.1	U
Xylenes, total	--	ug/L	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U

Notes:

Highlight indicates values great than the MCL

USEPA = United States Environmental Protection Agency

MCL = maximum contaminant level

ug/L = microgram per liter

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

UJ =The non-detection at the associated value is an estimate

J+ = Result is estimated and biased high

CDM Smith

Well ID		MW-12		MW-13		MW-8		MW-9		INJ-1R	
Sample Name		MW-12-20181008		MW-13-20181006		MW-8-20181007		MW-9-20181007		INJ-1R-20181006	
Sample Date		10/8/2018		10/6/2018		10/7/2018		10/7/2018		10/6/2018	
Analyte	**Unit**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**
Semivolatile organics (SVOCs), Pesticides, Herbicides											
1,2,4,5-TETRACHLOROBENZENE	ug/l	2	U	1.8	U	1.9	U	1.9	U	1.7	U
1,3,5-TRINITROBENZENE	ug/l	4.6	U	4.1	U	4.4	U	4.5	U	4	U
1,3-DINITROBENZENE	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
1,4-NAPHTHOQUINONE	ug/l	16	U	14	U	15	U	15	U	14	U
1-NAPHTHYLAMINE	ug/l	3.5	U	3.2	U	3.4	U	3.5	U	3.1	U
2,3,4,6-TETRACHLOROPHENOL	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
2,4,5-TRICHLOROPHENOL	ug/l	0.51	U	0.46	U	0.49	U	0.5	U	0.45	U
2,4,6-TRICHLOROPHENOL	ug/l	0.33	U	0.3	U	0.32	U	0.32	U	0.29	U
2,4-D (DICHLOROPHENOXYACETIC ACID)	ug/l	0.21	U	0.22	U	0.22	U	0.21	U	0.2	U
2,4-DICHLOROPHENOL	ug/l	0.73	U	0.66	U	0.7	U	0.72	U	0.64	U
2,4-DIMETHYLPHENOL	ug/l	0.66	U	0.6	U	0.64	U	0.65	U	0.58	U
2,4-DINITROPHENOL	ug/l	11	U	10	U	11	U	11	U	10	U
2,4-DINITROTOLUENE	ug/l	1.9	U	1.7	U	1.8	U	1.9	U	1.7	U
2,6-DICHLOROPHENOL	ug/l	1.5	U	1.4	U	1.5	U	1.5	U	1.4	U
2,6-DINITROTOLUENE	ug/l	2.2	U	2	U	2.1	U	2.1	U	1.9	U
2-ACETYLAMINOFLUORENE	ug/l	8	U	7.2	U	7.7	U	7.8	U	7	U
2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE)	ug/l	3.5	U	3.2	U	3.4	U	3.5	U	3.1	U
2-CHLORONAPHTHALENE	ug/l	0.3	U	0.27	U	0.29	U	0.29	U	0.26	U
2-CHLOROPHENOL	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
2-METHYLNAPHTHALENE	ug/l	0.33	U	0.3	U	0.32	U	0.32	U	0.29	U
2-METHYLPHENOL (O-CRESOL)	ug/l	1.1	U	1	U	1.1	U	1.1	U	0.99	U
2-NITROANILINE	ug/l	2	U	1.8	U	1.9	U	1.9	U	1.7	U
2-NITROPHENOL	ug/l	0.45	U	0.4	U	0.43	U	0.44	U	0.39	U
3- AND 4- METHYLPHENOL (TOTAL)	ug/l	0.29	U	0.26	U	0.27	U	0.28	U	0.25	U
3,3'-DICHLOROBENZIDINE	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
3,3'-DIMETHYLBENZIDINE	ug/l	4.6	U	4.1	U	4.4	U	4.5	U	4	U
3-METHYLCHOLANTHRENE	ug/l	1.9	U	1.8	U	1.9	U	1.9	U	1.7	U
3-NITROANILINE	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
4,6-DINITRO-2-METHYLPHENOL	ug/l	4.6	U	4.1	U	4.4	U	4.5	U	4	U
4-AMINOBIPHENYL (4-BIPHENYLAMINE)	ug/l	5.1	U	4.6	U	4.9	U	5	U	4.5	U
4-BROMOPHENYL PHENYL ETHER	ug/l	0.49	U	0.44	U	0.47	U	0.48	U	0.43	U
4-CHLORO-3-METHYLPHENOL	ug/l	2.8	U	2.5	U	2.6	U	2.7	U	2.4	U
4-CHLOROANILINE	ug/l	2.4	U	2.2	U	2.4	U	2.4	U	2.2	U
4-CHLOROPHENYL PHENYL ETHER	ug/l	1.9	U	1.7	U	1.8	U	1.9	U	1.7	U
4-NITROANILINE	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
4-NITROPHENOL	ug/l	1.4	U	1.3	U	1.4	U	1.4	U	1.2	U
5-NITRO-O-TOLUIDINE	ug/l	1.6	U	1.4	U	1.5	U	1.6	U	1.4	U
7,12-DIMETHYLBENZ(A)ANTHRACENE	ug/l	1.8	U	1.6	U	1.7	U	1.7	U	1.6	U
ACENAPHTHENE	ug/l	0.32	U	0.29	U	0.31	U	0.31	U	0.28	U
ACENAPHTHYLENE	ug/l	0.56	U	0.51	U	0.54	U	0.55	U	0.49	U
Acetic acid, (2,4,5-trichlorophenoxy)-	ug/l	0.19	U	0.2	U	0.2	U	0.19	U	0.18	U
ACETOPHENONE	ug/l	0.27	U	0.25	U	0.26	U	0.27	U	0.24	U
ALDRIN	ug/l	0.0063	U	0.006	U	0.0059	U	0.006	U	0.0056	U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	ug/l	0.0056	U	0.0054	U	0.0053	U	0.0054	U	0.005	U
ALPHA ENDOSULFAN	ug/l	0.0062	U	0.0059	U	0.0058	U	0.0059	U	0.0055	U
ALPHA, ALPHA DIMETHYLPHENETHYLAMINE	ug/l	23	U	21	U	22	U	22	U	20	U
ANTHRACENE	ug/l	0.48	U	0.43	U	0.46	U	0.47	U	0.42	U
BENZO(A)ANTHRACENE	ug/l	0.4	U	0.36	U	0.38	U	0.39	U	0.35	U
BENZO(A)PYRENE	ug/l	0.35	U	0.32	U	0.34	U	0.35	U	0.31	U
BENZO(B)FLUORANTHENE	ug/l	0.61	U	0.55	U	0.58	U	0.59	U	0.53	U
BENZO(G,H,I)PERYLENE	ug/l	0.57	U	0.52	U	0.55	U	0.56	U	0.5	U
BENZO(K)FLUORANTHENE	ug/l	0.53	U	0.48	U	0.51	U	0.52	U	0.46	U
BENZYL ALCOHOL	ug/l	0.26	U	0.24	U	0.25	U	0.26	U	0.23	U
BENZYL BUTYL PHTHALATE	ug/l	1.1	U	1	U	1.1	U	1.1	U	1	U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	ug/l	0.0093	U	0.0089	U	0.0087	U	0.0088	U	0.0083	U
BETA ENDOSULFAN	ug/l	0.0075	U	0.0072	U	0.007	U	0.0071	U	0.0067	U
BIS(2-CHLOROETHOXY) METHANE	ug/l	1.1	U	1	U	1.1	U	1.1	U	0.98	U
BIS(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	ug/l	0.47	U	0.42	U	0.45	U	0.46	U	0.41	U

Notes:
ug/L = microgram per liter
Q = qualifier
J = Result is estimated
U = Analyte was not detected at the associated value
UJ =The non-detection at the associated value is an estimate
J+ = Result is estimated and biased high

CDM Smith

Well ID		MW-12		MW-13		MW-8		MW-9		INJ-1R	
Sample Name		MW-12-		MW-13-		MW-8-		MW-9-		INJ-1R-	
Sample Date		10/8/2018		10/6/2018		10/7/2018		10/7/2018		10/6/2018	
Analyte	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
BIS(2-CHLOROISOPROPYL) ETHER	ug/l	0.32	U	0.29	U	0.31	U	0.31	U	0.28	U
BIS(2-ETHYLHEXYL) PHTHALATE	ug/l	0.64	U	0.58	U	0.62	U	0.63	U	0.56	U
Chlordane (Technical)	ug/l	0.15	U	0.14	U	0.14	U	0.14	U	0.13	U
CHLOROBENZILATE	ug/l	0.75	U	0.68	U	0.72	U	0.74	U	0.66	U
CHRYSENE	ug/l	0.62	U	0.56	U	0.59	U	0.6	U	0.54	U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	ug/l	0.0062	U	0.0059	U	0.0058	U	0.0059	U	0.0055	U
DIALLATE (TOTAL OF CIS AND TRANS ISOMERS)	ug/l	0.64	U	0.58	U	0.62	U	0.63	U	0.56	U
DIBENZ(A,H)ANTHRACENE	ug/l	0.58	U	0.53	U	0.56	U	0.57	U	0.51	U
DIBENZOFURAN	ug/l	0.33	U	0.3	U	0.32	U	0.32	U	0.29	U
DIELDRIN	ug/l	0.0067	U	0.0065	U	0.0063	U	0.0064	U	0.006	U
DIETHYL PHTHALATE	ug/l	0.43	U	0.39	U	0.42	U	0.43	U	0.38	U
DIMETHOATE	ug/l	0.49	U	0.45	U	0.45	U	0.46	U	0.44	U
DIMETHYL PHTHALATE	ug/l	0.24	U	0.22	U	0.23	U	0.24	U	0.21	U
DI-N-BUTYL PHTHALATE	ug/l	1.3	U	1.2	U	1.3	U	1.3	U	1.2	U
DI-N-OCTYLPHTHALATE	ug/l	0.4	U	0.36	U	0.38	U	0.39	U	0.35	U
DINOSEB	ug/l	0.45	U	0.48	U	0.48	U	0.46	U	0.43	U
DIPHENYLAMINE	ug/l	1.2	U	1.1	U	1.2	U	1.2	U	1.1	U
DISULFOTON	ug/l	0.35	U	0.32	U	0.32	U	0.33	U	0.31	U
ENDOSULFAN SULFATE	ug/l	0.0061	U	0.0058	U	0.0057	U	0.0058	U	0.0054	U
ENDRIN	ug/l	0.0084	U	0.0081	U	0.0079	U	0.008	U	0.0075	U
ENDRIN ALDEHYDE	ug/l	0.0094	U	0.009	UJ	0.0088	U	0.0089	U	0.0084	U
ETHYL METHANESULFONATE	ug/l	1.1	U	0.97	U	1	U	1.1	U	0.95	U
FAMPHUR	ug/l	0.19	U	0.18	U	0.18	U	0.18	U	0.17	U
FLUORANTHENE	ug/l	0.23	U	0.21	U	0.22	U	0.22	U	0.2	U
FLUORENE	ug/l	0.35	U	0.32	U	0.34	U	0.35	U	0.31	U
GAMMA BHC (LINDANE)	ug/l	0.0073	U	0.0071	U	0.0069	U	0.007	U	0.0066	U
HEPTACHLOR	ug/l	0.0082	U	0.0079	U	0.0077	U	0.0078	U	0.0073	U
HEPTACHLOR EPOXIDE	ug/l	0.008	U	0.0077	U	0.0075	U	0.0076	U	0.0071	U
HEXACHLOROBENZENE	ug/l	0.76	U	0.68	U	0.72	U	0.74	U	0.66	U
HEXACHLOROBUTADIENE	ug/l	3.8	U	3.4	U	3.6	U	3.7	U	3.3	U
HEXACHLOROCYCLOPENTADIENE	ug/l	11	U	10	UJ	11	U	11	U	10	U
HEXACHLOROETHANE	ug/l	2.4	U	2.2	U	2.3	U	2.4	U	2.1	U
HEXACHLOROPROPENE	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
INDENO(1,2,3-C,D)PYRENE	ug/l	0.74	U	0.67	U	0.71	U	0.73	U	0.65	U
ISODRIN	ug/l	0.0042	U	0.004	U	0.0039	U	0.0039	U	0.0037	U
ISOPHORONE	ug/l	0.24	U	0.22	U	0.23	U	0.24	U	0.21	U
ISOSAFROLE	ug/l	1.1	U	1	U	1.1	U	1.1	U	1	U
KEPONE	ug/l	0.37	U	0.36	U	0.35	U	0.35	U	0.33	U
METHAPYRILENE	ug/l	23	U	21	U	22	U	22	U	20	U
METHOXYCHLOR	ug/l	0.014	U	0.013	U	0.013	U	0.013	U	0.012	U
METHYL METHANESULFONATE	ug/l	1.1	U	1	U	1.1	U	1.1	U	1	U
NAPHTHALENE	ug/l	0.33	U	0.3	U	0.32	U	0.32	U	0.29	U
NITROBENZENE	ug/l	0.93	U	0.84	U	0.89	U	0.91	U	0.81	U
NITROSOMETHYLETHYLAMINE	ug/l	2	U	1.8	U	1.9	U	2	U	1.8	U
N-NITROSODIETHYLAMINE	ug/l	2	U	1.8	U	1.9	U	1.9	U	1.7	U
N-NITROSODIMETHYLAMINE	ug/l	0.33	U	0.3	U	0.32	U	0.32	U	0.29	U
N-NITROSO-DI-N-BUTYLAMINE	ug/l	1.4	U	1.3	U	1.3	U	1.4	U	1.2	U
N-NITROSODI-N-PROPYLAMINE	ug/l	0.4	U	0.36	U	0.38	U	0.39	U	0.35	U
N-NITROSODIPHENYLAMINE	ug/l	0.5	U	0.45	U	0.48	U	0.49	U	0.44	U
N-NITROSOPIPERIDINE	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
N-NITROSOPYRROLIDINE	ug/l	0.92	U	0.83	U	0.88	U	0.9	U	0.81	U
O,O,O-TRIETHYL PHOSPHOROTHIOATE	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
O-TOLUIDINE	ug/l	1.6	U	1.4	U	1.5	U	1.6	U	1.4	U
P,P'-DDD	ug/l	0.0082	U	0.0079	U	0.0077	U	0.0078	U	0.0073	U
P,P'-DDE	ug/l	0.008	U	0.0077	U	0.0075	U	0.0076	U	0.0071	U
P,P'-DDT	ug/l	0.016	U	0.015	U	0.015	U	0.015	U	0.014	U
PARATHION, ETHYL	ug/l	0.16	U	0.14	U	0.14	U	0.15	U	0.14	U
PARATHION, METHYL	ug/l	0.15	U	0.14	U	0.14	U	0.14	U	0.14	U
P-DIMETHYLAMINOAZOBENZENE	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
PENTACHLOROBENZENE	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U

Notes:
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CDM Smith

Well ID		MW-12		MW-13		MW-8		MW-9		INJ-1R	
Sample Name		MW-12-		MW-13-		MW-8-		MW-9-		INJ-1R-	
Sample Date		10/8/2018		10/6/2018		10/7/2018		10/7/2018		10/6/2018	
Analyte	**Unit**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**
PHENOL	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
PHORATE	ug/l	0.17	U	0.15	U	0.15	U	0.16	U	0.15	U
P-PHENYLENEDIAMINE	ug/l	5.7	U	5.2	UJ	5.5	U	5.6	U	5	U
PRONAMIDE	ug/l	2.3	U	2.1	U	2.2	U	2.2	U	2	U
PYRENE	ug/l	0.42	U	0.38	U	0.41	U	0.41	U	0.37	U
SAFROLE	ug/l	1.3	U	1.2	U	1.2	U	1.3	U	1.1	U
SILVEX (2,4,5-TP)	ug/l	0.17	U	0.18	U	0.18	U	0.17	U	0.16	U
TOXAPHENE	ug/l	0.39	U	0.38	U	0.37	U	0.37	U	0.35	U
ZINOPHOS	ug/l	0.99	U	0.89	U	0.95	U	0.97	U	0.87	U
Polychlorinated Biphenyl (PCBs)											
PCB-1016 (AROCLOR 1016)	ug/l	0.13	U	0.13	U	0.12	U	0.13	U	0.12	U
PCB-1221 (AROCLOR 1221)	ug/l	0.23	U	0.22	U	0.21	U	0.22	U	0.2	U
PCB-1232 (AROCLOR 1232)	ug/l	0.18	U	0.17	U	0.17	U	0.17	U	0.16	U
PCB-1242 (AROCLOR 1242)	ug/l	0.11	U	0.11	U	0.1	U	0.11	U	0.099	U
PCB-1248 (AROCLOR 1248)	ug/l	0.097	U	0.094	U	0.092	U	0.093	U	0.087	U
PCB-1254 (AROCLOR 1254)	ug/l	0.12	U	0.12	U	0.11	U	0.12	U	0.11	U
PCB-1260 (AROCLOR 1260)	ug/l	0.17	U	0.16	U	0.16	U	0.16	U	0.15	U
Dioxins/Furans											
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	pg/l	0.14	U	0.36	U	0.3	U	0.33	U	0.29	U

Notes:
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Analyte	USEPA MCL (ug/L)	Area	Cell 1																			
		Well ID	MW-1		MW-101S		MW-102S		MW-104D		MW-104S		MW-105D		MW-105S		MW-109D		MW-109S		MW-110D	
		Sample Name	MW-1-20181005		MW-101S-20181005		MW-102S-20181006		MW-104D-20181004		MW-104S-20181004		MW-105D-20181004		MW-105S-20181004		MW-109D-20181006		MW-109S-20181006		MW-110D-20181007	
		Sample Date	10/5/2018		10/5/2018		10/6/2018		10/4/2018		10/4/2018		10/4/2018		10/4/2018		10/6/2018		10/6/2018		10/7/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Antimony	6	ug/L	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	**0.61**	**J**	0.4	U
Arsenic	10	ug/L	**0.9**	**J**	**2.3**	**J**	**1.3**	**J**	**0.75**	**J**	**0.77**	**J**	**0.97**	**J**	**8.6**		**0.62**	**J**	**0.68**	**J**	**1.3**	**J**
Barium	2000	ug/L	**58**		**120**		**35**		**310**		**270**		**270**		**690**		**140**		**140**		**180**	
Beryllium	4	ug/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U
Cadmium	5	ug/L	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Calcium		ug/L	**27000**		**80000**		**51000**		**180000**		**190000**		**200000**		**270000**		**110000**		**88000**		**98000**	
Chromium, Total	100	ug/L	0.5	U	**1.1**	**J**	**0.89**	**J**	**0.84**	**J**	0.5	U	**0.73**	**J**	**2.6**		**0.7**	**J**	**0.64**	**J**	**0.65**	**J**
Cobalt		ug/L	0.054	U	**0.31**	**J**	0.054	U	**2.1**		**0.16**	**J**	**0.082**	**J**	**0.95**	**J**	0.054	U	0.054	U	**0.099**	**J**
Copper	1300	ug/L	0.56	U	**0.57**	**J**	0.56	U	**0.9**	**J**	**0.58**	**J**	0.56	U	0.56	U	0.56	U	**0.57**	**J**	0.56	U
Iron		ug/L	**2700**		**330**		**150**	**J+**	**170**	**J+**	22	U	22	U	**7400**		**40**	**J**	100	U	100	U
Lead	15	ug/L	**0.69**	**J**	**0.25**	**J**	0.18	U	**0.27**	**J**	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Magnesium		ug/L	**18000**		**29000**		**25000**		**62000**		**60000**		**64000**		**110000**		**44000**		**40000**		**31000**	
Manganese		ug/L	**230**		**71**		**1.7**	**J+**	**180**		**52**		**4.7**		**9100**		**0.4**	**J**	**0.35**	**J**	**25**	
Mercury	2	ug/L	0.027	U	0.027	U	0.027	U	0.027	U	**0.027**	**J**	**0.085**	**J**	**0.075**	**J**	0.027	U	0.027	U	0.027	U
Nickel		ug/L	0.3	U	**1.3**	**J**	0.3	U	**3.5**		**2.9**		**1.7**	**J**	**11**		0.3	U	0.3	U	**0.87**	**J**
Potassium		ug/L	**2700**	**J**	**5000**		**5000**		**4900**		**5800**		**4100**		**5400**		**3300**		**4000**		**6100**	
Selenium	50	ug/L	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Silver		ug/L	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U
Sodium		ug/L	**40000**		**33000**		**33000**		**69000**		**99000**		**62000**		**320000**		**59000**		**59000**		**36000**	
Thallium	2	ug/L	0.05	U	0.05	U	0.05	U	**0.098**	**J**	**0.085**	**J**	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Tin		ug/L	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
Vanadium		ug/L	0.5	U	**1.1**	**J**	0.5	U	**0.82**	**J**	**1.1**	**J**	**2.3**	**J**	**0.78**	**J**	0.5	U	**0.74**	**J**	**1.8**	**J**
Zinc	5000	ug/L	10	U	10	U	10	U	**10**	**J+**	10	U	10	U	10	U	10	U	10	U	10	U

Notes:

Highlight indicates values great than the MCL

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CDM Smith

Analyte	USEPA MCL (ug/L)	Area	Cell 1																					
		Well ID	MW-110S		MW-111D		MW-111S		MW-112D		MW-112M		MW-112M		MW-113D		MW-113S		MW-118D		MW-119D		MW-119S	
		Sample Name	MW-110S-20181006		MW-111D-20181004		MW-111S-20181004		MW-112D-20181005		MW-112M-20181005		MW-112MQ-20181005		MW-113D-20181004		MW-113S-20181004		MW-118D-20181003		MW-119D-20181003		MW-119S-20181003	
		Sample Date	10/6/2018		10/4/2018		10/4/2018		10/5/2018		10/5/2018		10/5/2018		10/4/2018		10/4/2018		10/3/2018		10/3/2018		10/3/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Antimony	6	ug/L	0.4	U	**0.77**	J	**1.1**	J	0.4	U	**0.57**	J	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Arsenic	10	ug/L	**0.75**	J	**91**		**120**		**0.93**	J	**0.53**	J	**0.46**	J	**1.2**	J	**1.7**	J	**1.2**	J	**0.51**	J	**0.55**	J
Barium	2000	ug/L	**260**		**3400**		**3600**		**110**		**120**		**110**		**340**		**880**		**440**		**160**		**160**	
Beryllium	4	ug/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U
Cadmium	5	ug/L	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Calcium		ug/L	**150000**		**360000**		**270000**		**87000**		**93000**		**92000**		**120000**		**280000**		**200000**		**100000**		**98000**	
Chromium, Total	100	ug/L	**0.65**	J	**4.4**		**22**		**1**	J	**1.8**	J	**1.7**	J	**1.9**	J	**0.5**	J	**1.3**	J	**0.71**	J	**0.55**	J
Cobalt		ug/L	**0.95**	J	**8.6**		**11**		0.054	U	**0.17**	J	**0.073**	J	**2.7**		**0.33**	J	**1.9**		0.054	U	0.054	U
Copper	1300	ug/L	**0.94**	J	**0.97**	J	**20**		**0.69**	J	**0.94**	J	0.56	U	**1.5**	J	**1.6**	J	**2.2**		0.56	U	**0.8**	J
Iron		ug/L	22	U	**33000**		**28000**		**150**		**480**		**170**		**730**		100	U	22	U	22	U	22	U
Lead	15	ug/L	0.18	U	**0.32**	J	**3**		**0.22**	J	**0.5**	J	**0.21**	J	**2.3**		**0.32**	J	**1.6**		0.18	U	0.18	U
Magnesium		ug/L	**54000**		**270000**		**330000**		**32000**		**38000**		**38000**		**56000**		**100000**		**77000**		**44000**		**43000**	
Manganese		ug/L	**1500**		**2200**		**2100**		**3.6**		**13**		**4.6**		**19**		**8.2**		**170**		**0.43**	J	0.31	U
Mercury	2	ug/L	0.027	U	0.027	U	**0.032**	J	0.027	U	0.027	U	0.027	U	**2.3**		**5.7**		**0.9**		0.027	U	0.027	U
Nickel		ug/L	**6**		**280**		**240**		0.3	U	**0.56**	J	**0.33**	J	**2.1**		**3.3**		**27**		0.3	U	0.3	U
Potassium		ug/L	**4000**		**17000**		**27000**		**2400**	J	**2500**	J	**2400**	J	**3900**		**5600**		**5200**		**3300**		**3600**	
Selenium	50	ug/L	0.7	U	**0.71**	J	**0.76**	J	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	**1.9**	J	0.7	U	0.7	U
Silver		ug/L	0.033	U	0.033	U	0.033	U	0.033	U	**0.095**	J	**0.055**	J	0.033	U	**0.21**	J	0.033	U	0.033	U	0.033	U
Sodium		ug/L	**90000**		**930000**		**1100000**		**41000**		**57000**		**57000**		**44000**		**140000**		**150000**		**65000**		**68000**	
Thallium	2	ug/L	**0.17**	J	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	**0.054**	J
Tin		ug/L	0.77	U	**2.2**	J	**2.7**	J	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
Vanadium		ug/L	0.5	U	**5.6**		**14**		**0.6**	J	**0.73**	J	0.5	U	**0.84**	J	**5.8**		**2.6**	J	**0.74**	J	**0.72**	J
Zinc	5000	ug/L	10	U	10	U	**18**	J+	10	U	10	U	10	U	10	U	10	U	2	U	2	U	10	U

Notes:

Highlight indicates values great than the MCL

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CDM Smith

Analyte	USEPA MCL (ug/L)	Area	Cell 1										Remediation System											
		Well ID	MW-120D		MW-120S		MW-121		MW-4		MW-7		INJ-1R		RW-10		RW-15		RW-17		RW-3		RW-4	
		Sample Name	MW-120D-20181003		MW-120S-20181003		MW-121-20181007		MW-4-20181005		MW-7-20181008		INJ-1R-20181006		RW-10-20181007		RW-15-20181006		RW-17-20181007		RW-3-20181007		RW-4-20181007	
		Sample Date	10/3/2018		10/3/2018		10/7/2018		10/5/2018		10/8/2018		10/6/2018		10/7/2018		10/6/2018		10/7/2018		10/7/2018		10/7/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Antimony	6	ug/L	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Arsenic	10	ug/L	**0.82**	**J**	**0.79**	**J**	**9**		**2.4**	**J**	**0.57**	**J**	**0.59**	**J**	**1.1**	**J**	**0.66**	**J**	**0.57**	**J**	**0.57**	**J**	**0.65**	**J**
Barium	2000	ug/L	**280**		**270**		**1500**		**150**		**360**		**180**		**170**		**210**		**190**		**240**		**250**	
Beryllium	4	ug/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U
Cadmium	5	ug/L	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Calcium		ug/L	**170000**		**160000**		**230000**		**130000**		**73000**		**100000**		**89000**		**120000**		**100000**		**120000**		**150000**	
Chromium, Total	100	ug/L	**0.77**	**J**	**0.71**	**J**	**2.3**		**2.5**		**0.8**	**J**	0.5	U	**1.2**	**J**	0.5	U	**1.2**	**J**	**0.52**	**J**	**2.5**	
Cobalt		ug/L	**0.22**	**J**	**0.18**	**J**	**18**		**2.8**		0.054	U	**0.082**	**J**	**0.8**	**J**	**0.1**	**J**	**0.16**	**J**	**2.7**		**0.13**	**J**
Copper	1300	ug/L	**1**	**J**	**0.94**	**J**	**2.5**		0.56	U	**0.8**	**J**	**8.9**		**30**		**15**		**14**		**3.8**		**13**	
Iron		ug/L	**250**		**120**	**J+**	**2600**		**560**		**22**	**J**	22	U	**1800**		22	U	**180**	**J+**	**75**	**J**	**380**	
Lead	15	ug/L	**0.26**	**J**	0.18	U	**2.1**		**0.2**	**J**	0.18	U	**1.1**		**7.8**		**1.8**		**1.8**		**0.5**	**J**	**2.3**	
Magnesium		ug/L	**60000**		**60000**		**74000**		**51000**		**23000**		**41000**		**38000**		**46000**		**41000**		**47000**		**53000**	
Manganese		ug/L	**37**		**5.4**		**2200**		**280**		**1.7**		**120**		**26**		**200**		**2.6**	**J+**	**1300**		**4.8**	
Mercury	2	ug/L	**0.05**	**J**	**0.35**		0.027	U			0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.032	J
Nickel		ug/L	**3.1**		**2.4**		**60**		**13**		**0.49**	**J**	**3.1**		**4.3**		**5.9**		**2.4**		**15**		**3.7**	
Potassium		ug/L	**4600**		**4300**		**6500**		**3200**		**2500**	**J**	**5000**		**3700**		**3900**		**3700**		**4000**		**4600**	
Selenium	50	ug/L	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Silver		ug/L	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U
Sodium		ug/L	**95000**		**94000**		**190000**		**50000**		**32000**		**64000**		**63000**		**74000**		**63000**		**74000**		**70000**	
Thallium	2	ug/L	**0.076**	**J**	**0.052**	**J**	0.05	U	0.05	U	0.05	U	**0.05**	**J**	0.05	U	**0.074**	**J**	0.05	U	0.05	U	0.05	U
Tin		ug/L	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	**1.2**	**J**	0.77	U	0.77	U	0.77	U	0.77	U
Vanadium		ug/L	**0.95**	**J**	**1.3**	**J**	**2.7**	**J**	**1.2**	**J**	**0.51**	**J**	**0.6**	**J**	**1.8**	**J**	**0.77**	**J**	**0.79**	**J**	0.5	U	**0.61**	**J**
Zinc	5000	ug/L	**24**		10	U	**11**	**J+**	10	U	10	U	**54**		**270**		**58**		**27**	**J+**	**94**		**120**	

Notes:

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CDM Smith

Analyte	USEPA MCL (ug/L)	Area	Remediation		Offsite																Residential Wells			
		Well ID	RW-9R		MW-103D		MW-103S		MW-106D		MW-106S		MW-115D		MW-115S		MW-116D		MW-116S		RW-2140H		RW-7773P	
		Sample Name	RW-9R-20181007		MW-103D-20181009		MW-103S-20181009		MW-106D-20181008		MW-106S-20181007		MW-115D-20181008		MW-115S-20181008		MW-116D-20181019		MW-116S-20181019		RW-2140H-20181019		RW-7773P-20181007	
		Sample Date	10/7/2018		10/9/2018		10/9/2018		10/8/2018		10/7/2018		10/8/2018		10/8/2018		10/19/2018		10/19/2018		10/19/2018		10/7/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Antimony	6	ug/L	0.4	U	0.4	U	0.4	U	0.4	U	**0.45**	**J**	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Arsenic	10	ug/L	**0.94**	**J**	0.33	U	**1.6**	**J**	**1.6**	**J**	**1.6**	**J**	**1.9**	**J**	**2**	**J**	**9.9**		**1.5**	**J**	**1**	**J**	**1.5**	**J**
Barium	2000	ug/L	**51**		**78**		**120**		**110**		**110**		**120**		**140**		**89**		**180**		**170**		**110**	
Beryllium	4	ug/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	**0.083**	**J**	0.08	U	0.08	U	0.08	U
Cadmium	5	ug/L	**1.2**		0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Calcium		ug/L	**170000**		**39000**		**82000**		**74000**		**76000**		**76000**		**73000**		**41000**		**130000**		**130000**		**72000**	
Chromium, Total	100	ug/L	0.5	U	**3.1**		**0.75**	**J**	**0.83**	**J**	**0.92**	**J**	**0.8**	**J**	**1**	**J**	**3.4**		**1.4**	**J**	**0.65**	**J**	**0.7**	**J**
Cobalt		ug/L	**4.8**		**3.4**		0.054	U	0.054	U	0.054	U	0.054	U	0.054	U	**0.65**	**J**	**0.31**	**J**	**0.055**	**J**	0.054	U
Copper	1300	ug/L	**54**		0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	**19**		**1.3**	**J**	**1.4**	**J**	**1.9**	**J**
Iron		ug/L	**920**		**200**		22	U	22	U	22	U	22	U	22	U	**2700**		**450**		22	U	**77**	**J**
Lead	15	ug/L	**6.6**		**0.63**	**J**	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	**2.1**		**0.39**	**J**	**0.37**	**J**	**0.87**	**J**
Magnesium		ug/L	**54000**		**35000**		**30000**		**26000**		**26000**		**28000**		**29000**		**14000**		**45000**		**44000**		**25000**	
Manganese		ug/L	**9400**		**18**		0.31	U	0.31	U	1	U	**0.75**	**J**	0.31	U	**380**		**12**		1	U	**2.6**	
Mercury	2	ug/L	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U
Nickel		ug/L	**25**		**22**		**0.32**	**J**	0.3	U	0.3	U	0.3	U	0.3	U	**2.8**		**1.6**	**J**	**0.93**	**J**	0.3	U
Potassium		ug/L	**5100**		**5100**		**6300**		**6100**		**6300**		**7600**		**7800**		**9200**		**7600**		**7500**		**6100**	
Selenium	50	ug/L	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Silver		ug/L	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U
Sodium		ug/L	**90000**		**59000**		**41000**		**34000**		**35000**		**46000**		**54000**		**13000**		**55000**		**54000**		**33000**	
Thallium	2	ug/L	**0.42**	**J**	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Tin		ug/L	1	J	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	**1.2**	**J**	0.77	U
Vanadium		ug/L	**2.3**	**J**	0.5	U	**0.86**	**J**	**1.1**	**J**	**1.2**	**J**	**1.1**	**J**	**1.5**	**J**	**1.4**	**J**	**0.57**	**J**	0.5	U	**0.81**	**J**
Zinc	5000	ug/L	**210**		10	U	10	U	10	U	10	U	10	U	10	U	**44**		**4.7**	**J**	**26**		**210**	

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CDM Smith

Analyte	USEPA MCL (ug/L)	Area	Cell 2								Cell 4							
		Well ID	MW-12		MW-13		MW-8		MW-9		MW-3A		MW-4A		MW-5A		MW-6A	
		Sample Name	MW-12-20181008		MW-13-20181006		MW-8-20181007		MW-9-20181007		MW-3A-20181008		MW-4A-20181005		MW-5A-20181008		MW-6A-20181005	
		Sample Date	10/8/2018		10/6/2018		10/7/2018		10/7/2018		10/8/2018		10/5/2018		10/8/2018		10/5/2018	
		Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Antimony	6	ug/L	0.4	U	**0.58**	J	0.4	U	0.4	U	0.4	U	0.4	U	**1.1**	J	0.4	U
Arsenic	10	ug/L	**0.49**	J	**4.1**	J	**3.3**	J	**1.3**	J	0.33	U	**1.4**	J	**1.4**	J	**0.48**	J
Barium	2000	ug/L	**54**		**120**		**34**		**28**		**160**		**190**		**54**		**210**	
Beryllium	4	ug/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.17	J	0.08	U
Cadmium	5	ug/L	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Calcium		ug/L	**59000**		**44000**		**57000**		**310000**		**55000**		**87000**		**59000**		**74000**	
Chromium, Total	100	ug/L	**0.93**	J	**1.4**	J	**0.76**	J	0.5	U	**0.53**	J	**0.91**	J	**1.9**	J	**1.1**	J
Cobalt		ug/L	**3.3**		**1.2**	J	**0.14**	J	**3.7**		0.054	U	**0.18**	J	**0.18**	J	**0.15**	J
Copper	1300	ug/L	0.56	U	**0.83**	J	**0.58**	J	**0.95**	J	**0.66**	J	0.56	U	**0.75**	J	**0.68**	J
Iron		ug/L	22	U	**290**	J	**110**	J+	**430**	J+	**63**	J	**210**		**360**	J+	**310**	
Lead	15	ug/L	0.18	U	**0.6**	J	0.18	U	0.18	U	**0.37**	J	**0.24**	J	0.18	U	**0.29**	J
Magnesium		ug/L	**15000**		**38000**		**19000**		**220000**		**28000**		**19000**		**16000**		**42000**	
Manganese		ug/L	1	U	**22**	J	**4**	J+	**2100**		**2.1**		**6.2**		**6**		**8.7**	
Mercury	2	ug/L	0.027	U	0.027	U	0.027	U	0.027	U								
Nickel		ug/L	0.3	U	**0.62**	J	0.3	U	**33**		0.3	U	**0.37**	J	**0.54**	J	**0.62**	J
Potassium		ug/L	**1000**	J	**2900**	J	**620**	J	**5300**		**2600**	J	**3700**		**1300**	J	**2200**	J
Selenium	50	ug/L	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.87	J	0.7	U	0.7	U
Silver		ug/L	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U
Sodium		ug/L	**32000**		**37000**		**46000**		**470000**		**41000**		**63000**		**42000**		**51000**	
Thallium	2	ug/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Tin		ug/L	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
Vanadium		ug/L	0.5	U	**0.91**	J	**0.54**	J	0.5	U	0.5	U	**1**	J	**0.65**	J	0.5	U
Zinc	5000	ug/L	10	U	**6.2**	J	10	U	**1600**		**20**	J+	10	U	10	U	10	U

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CDM Smith

Analyte	Area	Cell 1																			
	Well ID	MW-1		MW-101S		MW-102S		MW-104D		MW-104S		MW-105D		MW-105S		MW-109D		MW-109S		MW-110D	
	Sample Name	MW-1-20181005		MW-101S-20181005		MW-102S-20181006		MW-104D-20181004		MW-104S-20181004		MW-105D-20181004		MW-105S-20181004		MW-109D-20181006		MW-109S-20181006		MW-110D-20181007	
	Sample Date	10/5/2018		10/5/2018		10/6/2018		10/4/2018		10/4/2018		10/4/2018		10/4/2018		10/6/2018		10/6/2018		10/7/2018	
	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Geochemistry																					
Alkalinity, Total (As $CaCO_3$)	mg/L	**53**		**230**		**190**		**500**		**590**		**540**		**910**		**310**		**280**		**240**	
Total Organic Carbon	mg/L	**1.3**		**1**	**J+**	**0.4**	**J**	**2.8**		**3.1**		**2.1**		**12**		**1.1**		**1.1**		**0.85**	**J**
Chloride (As Cl)	mg/L	**130**		**67**		**46**		**190**		**180**		**210**		**560**		**110**		**91**		**110**	
Cyanide	mg/L	0.002	U	0.002	U	0.002	U	0.002	U	**0.0021**	**J**	**0.01**		**0.0041**	**J**	0.002	U	0.002	U	0.002	U
Nitrogen, Nitrate-Nitrite	mg/L	0.019	U	**0.45**		**0.29**		0.019	U	**0.059**	**J**	**0.44**		**0.21**		**1.3**		**0.73**		**0.23**	
Sulfate (As SO_4)	mg/L	**0.52**	**J**	**72**		**73**		**74**		**90**		**60**		**120**		**110**		**110**		**71**	
Sulfide	mg/L																				
Ferrous Iron	mg/L	**0.06**		0		**0.07**		0		0		**0.01**		**3.3**		0		**0.05**		0	
Dissolved Gases																					
Methane	ug/L	**1400**		0.64	U	0.64	U	**140**		**97**		**1.5**	**J**	**27**		0.64	U	0.64	U	0.64	U
Ethane	ug/L	**1.2**	**J**	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U
Ethene	ug/L	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Propane	ug/L	**1.3**	**J**	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U
Field Parameters																					
Specific Conductance	mS/cm	**0.431**		**0.629**		**0.496**		**1.29**		**1.41**		**1.3**		**3.34**		**0.824**		**0.746**		**0.748**	
pH	su	**7.9**		**7.04**		**7.17**		**6.58**		**6.26**		**6.88**		**6.88**		**6.6**		**6.47**		**7.42**	
Temperature	°C	**12.57**		**11.8**		**11.83**		**13.99**		**13.37**		**13.3**		**13.12**		**12.19**		**11.69**		**14.14**	
Turbidity	NTU	**14**		**5.3**		**2.1**		**13.1**		**1**		**0.2**		**11**		**1.8**		**0**		**1.4**	
Dissolved Oxygen	mg/L	**0.51**		**6.38**		**6.06**		**0.39**		**0**		**1.08**		**0.21**		**5.05**		**0.56**		**2.87**	
Oxidation-Reduction Potential	mV	**-15**		**154**		**187**		**98**		**173**		**168**		**-65**		**187**		**161**		**88**	

Notes:

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CDM Smith

Analyte	Area	Cell 1																			
	Well ID	MW-110S		MW-111D		MW-111S		MW-112D		MW-112M		MW-113D		MW-113S		MW-118D		MW-119D		MW-119S	
	Sample Name	MW-110S-20181006		MW-111D-20181004		MW-111S-20181004		MW-112D-20181005		MW-112M-20181005		MW-113D-20181004		MW-113S-20181004		MW-118D-20181003		MW-119D-20181003		MW-119S-20181003	
	Sample Date	10/6/2018		10/4/2018		10/4/2018		10/5/2018		10/5/2018		10/4/2018		10/4/2018		10/3/2018		10/3/2018		10/3/2018	
	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Geochemistry																					
Alkalinity, Total (As $CaCO_3$)	mg/L	**420**		**1300**		**1700**		**260**		**340**		**350**		**720**		**560**		**310**		**300**	
Total Organic Carbon	mg/L	**3.8**		**140**		**180**		**1.2**		**0.74**	**J**	**3.7**	**J+**	**11**		**6.1**		**1.2**		**1.6**	
Chloride (As Cl)	mg/L	**230**		**1900**		**2000**		**82**		**78**		**190**		**400**		**400**		**110**		**110**	
Cyanide	mg/L	0.002	U	**0.0094**	**J**	**0.011**	**J**	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	**0.0048**	**J**	**0.0053**	**J**
Nitrogen, Nitrate-Nitrite	mg/L	0.019	U	0.019	U	0.019	U	**1.1**		**0.77**		**0.41**		**0.19**		**12**		**1.2**		**4.2**	
Sulfate (As SO_4)	mg/L	**96**		**51**		**44**		**81**		**67**		**36**		**66**		**86**		**100**		**110**	
Sulfide	mg/L																				
Ferrous Iron	mg/L	**0.03**		**3.3**		**2.16**		0		**0.02**		**0.19**		**0.05**		0		**0.02**		**0.02**	
Dissolved Gases																					
Methane	ug/L	**85**		**3500**		**3500**		0.64	U	0.64	U	**930**		**3700**		**2.9**	**J**	0.64	U	0.64	U
Ethane	ug/L	0.57	U	**3.4**	**J**	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U	0.57	U
Ethene	ug/L	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	**0.76**	**J**	**6.2**		0.4	U	0.4	U	0.4	U
Propane	ug/L	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	**2**	**J**	0.56	U	0.56	U	0.56	U
Field Parameters																					
Specific Conductance	mS/cm	**1.43**		**0.01**		**7.44**		**0.691**		**0.756**		**0.912**		**2.2**		**2.2**		**0.793**		**0.827**	
pH	su	**6.5**		**6.78**		**6.96**		**7.42**		**6.98**		**6.84**		**6.43**		**6.85**		**6.79**		**6.71**	
Temperature	°C	**13.05**		**15.38**		**14.82**		**12.49**		**13.69**		**13.81**		**13.78**		**13.54**		**16.51**		**13.36**	
Turbidity	NTU	**0**		**1**		**2.55**		**13.3**		**35.7**		**41.1**		**3.1**		**0**		**0**		**0**	
Dissolved Oxygen	mg/L	**0.25**		**0.88**		**2.04**		**6.16**		**5.82**		**0.67**		**0**		**1.16**		**3.86**		**2.72**	
Oxidation-Reduction Potential	mV	**156**		**-65**		**-80**		**134**		**136**		**95**		**64**		**165**		**152**		**143**	

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J = Result is estimated
U = Analyte was not detected at the associated value
UJ =The non-detection at the associated value is an estimate
J+ = Result is estimated and biased high

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Analyte	Area	Cell 1										Remediation System									
	Well ID	MW-120D		MW-120S		MW-121		MW-7		MW-4		INJ-1R		RW-10		RW-15		RW-17		RW-3	
	Sample Name	MW-120D-20181003		MW-120S-20181003		MW-121-20181007		MW-7-20181008		MW-4-20181005		INJ-1R-20181006		RW-10-20181007		RW-15-20181006		RW-17-20181007		RW-3-20181007	
	Sample Date	10/3/2018		10/3/2018		10/7/2018		10/8/2018		10/5/2018		10/6/2018		10/7/2018		10/6/2018		10/7/2018		10/7/2018	
	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Geochemistry																					
Alkalinity, Total (As $CaCO_3$)	mg/L	**480**		**480**		**650**		**210**		**580**		**300**		**290**		**320**		**300**		**360**	
Total Organic Carbon	mg/L	**3.1**		**3.1**		**16**		**0.76**	J			**2.3**		**1.3**		**1.9**		**1.3**		**2.3**	
Chloride (As Cl)	mg/L	**210**		**220**		**460**		**81**		**42**		**130**		**100**		**150**		**120**		**170**	
Cyanide	mg/L	**0.0021**	J	0.002	U	0.004	U	**0.0021**	J			0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Nitrogen, Nitrate-Nitrite	mg/L	**0.76**		**0.78**		**1.4**		**2.3**		0.019	U	**0.65**		**0.93**		**0.39**		**0.73**		**0.43**	
Sulfate (As SO_4)	mg/L	**92**		**94**		**55**		**20**		**18**		**110**		**110**		**110**		**110**		**110**	
Sulfide	mg/L											0.007	U								
Ferrous Iron	mg/L	**0.15**		0		**1.15**		0		**0.6**				0		**0.03**		0		**2.21**	
Dissolved Gases																					
Methane	ug/L	0.64	U	0.64	U	**56**		**6.6**						0.64	U	**43**		**3.9**	J	**1.9**	J
Ethane	ug/L	0.57	U	0.57	U	0.57	U	0.57	U					0.57	U	0.57	U	0.57	U	0.57	U
Ethene	ug/L	0.4	U	0.4	U	0.4	U	0.4	U					0.4	U	0.4	U	0.4	U	0.4	U
Propane	ug/L	0.56	U	0.56	U	0.56	U	0.56	U					0.56	U	0.56	U	0.56	U	0.56	U
Field Parameters																					
Specific Conductance	mS/cm	**1.14**		**1.26**		**2.5**		**0.584**		**0.819**											
pH	su	**6.45**		**6.45**		**6.81**		**6.86**		**6.77**											
Temperature	°C	**16.49**		**18.33**		**13.45**		**14.96**		**13.1**											
Turbidity	NTU	**2.3**		**34.3**		**33.4**		**0**		**5.8**											
Dissolved Oxygen	mg/L	**1.27**		**0.51**		**0.78**		**4.93**		**0.31**											
Oxidation-Reduction Potential	mV	**117**		**115**		**7**		**171**		**-30**											

Notes:

mg/L = milligram per liter
ug/L = microgram per liter
mS/cm = milliSiemers per centimeter
mV = millivolt
NTU = Nephelometric turbidity unit
°C = degrees Celcius
su = standard units

Q = qualifier
J = Result is estimated
U = Analyte was not detected at the associated value
UJ =The non-detection at the associated value is an estimate
J+ = Result is estimated and biased high

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Analyte	Area	Remediation				Offsite Wells															
	Well ID	RW-4		RW-9R		MW-103D		MW-103S		MW-106D		MW-106S		MW-115D		MW-115S		MW-116D		MW-116S	
	Sample Name	RW-4-20181007		RW-9R-20181007		MW-103D-20181009		MW-103S-20181009		MW-106D-20181008		MW-106S-20181007		MW-115D-20181008		MW-115S-20181008		MW-116D-20181019		MW-116S-20181019	
	Sample Date	10/7/2018		10/7/2018		10/9/2018		10/9/2018		10/8/2018		10/7/2018		10/8/2018		10/8/2018		10/19/2018		10/19/2018	
	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Geochemistry																					
Alkalinity, Total (As $CaCO_3$)	mg/L	**400**		**530**		**250**		**280**		**270**		**260**		**300**		**300**		**150**		**330**	
Total Organic Carbon	mg/L	**1.8**		**3**		**0.45**	**J**	**1.1**													
Chloride (As Cl)	mg/L	**160**		**200**		**59**		**63**		**45**		**45**		**48**		**53**		**18**		**130**	**J+**
Cyanide	mg/L	0.002	U	**0.0022**	**J**	**0.086**		**0.006**	**J**	0.002	U	0.002	U	0.002	U	**0.0055**	**J**	0.002	U	**0.0034**	**J**
Nitrogen, Nitrate-Nitrite	mg/L	**0.6**		0.019	U	**0.1**		**1.8**		**1.8**		**1.7**		**2.1**		**2.6**		0.1	U	**1.9**	
Sulfate (As SO_4)	mg/L	**100**		**95**		**32**		**51**		**42**		**41**		**43**		**44**		**0.59**	**J**	**86**	**J+**
Sulfide	mg/L																				
Ferrous Iron	mg/L	**0.68**		**0.26**		**0.15**		**0.01**		**0.04**		**0.02**		0		**0.04**		**1.19**		**0.09**	
Dissolved Gases																					
Methane	ug/L	0.64	U	**3.1**	**J**	0.64	U	0.64	U												
Ethane	ug/L	0.57	U	0.57	U	0.57	U	0.57	U												
Ethene	ug/L	0.4	U	0.4	U	0.4	U	0.4	U												
Propane	ug/L	0.56	U	0.56	U	0.56	U	0.56	U												
Field Parameters																					
Specific Conductance	mS/cm					**0.541**		**0.631**		**0.586**		**0.569**		**0.639**		**0.677**		**0.358**		**1.05**	
pH	su					**7.36**		**6.74**		**7.37**		**7.38**		**7.41**		**7.35**		**7.21**		**7.13**	
Temperature	°C					**9.84**		**10.5**		**12.73**		**12.91**		**14.94**		**14.21**		**10.27**		**12.52**	
Turbidity	NTU					**29.5**		**0**		**0**		**0**		**0**		**0**		**39.4**		**49.3**	
Dissolved Oxygen	mg/L					**1.58**		**6.46**		**6.52**		**6.41**		**7.22**		**7.4**		**0.45**		**5.48**	
Oxidation-Reduction Potential	mV					**129**		**168**		**182**		**144**		**157**		**175**		**-110**		**120**	

Notes:

mg/L = milligram per liter
ug/L = microgram per liter
mS/cm = milliSiemers per centimeter
mV = millivolt
NTU = Nephelometric turbidity unit
°C = degrees Celcius
su = standard units

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J = Result is estimated
U = Analyte was not detected at the associated value
UJ =The non-detection at the associated value is an estimate
J+ = Result is estimated and biased high

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	Area	Residential Wells				Cell 2								Cell 4							
	Well ID	RW-2140H		RW-7773P		MW-12		MW-13		MW-8		MW-9		MW-3A		MW-4A		MW-5A		MW-6A	
	Sample Name	RW-2140H-20181019		RW-7773P-20181007		MW-12-20181008		MW-13-20181006		MW-8-20181007		MW-9-20181007		MW-3A-20181008		MW-4A-20181005		MW-5A-20181008		MW-6A-20181005	
	Sample Date	10/19/2018		10/7/2018		10/8/2018		10/6/2018		10/7/2018		10/7/2018		10/8/2018		10/5/2018		10/8/2018		10/5/2018	
Analyte	Unit	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Geochemistry																					
Alkalinity, Total (As $CaCO_3$)	mg/L					**180**		**210**		**230**		**380**		**230**		**170**				**190**	
Total Organic Carbon	mg/L																				
Chloride (As Cl)	mg/L					**55**		**83**		**33**		**880**		**57**		**140**				**150**	
Cyanide	mg/L	0.002	U	0.002	U	**0.0048**	**J**	0.002	U	0.002	U	0.004	U								
Nitrogen, Nitrate-Nitrite	mg/L					**1.3**		**0.6**		**2.8**		**0.021**		**1**		**2.4**		**0.87**		**4.9**	
Sulfate (As SO_4)	mg/L					**14**		**21**		**31**		**1200**		**30**		**51**				**46**	
Sulfide	mg/L					0.007	U	0.007	U	0.007	U	**0.011**	**J**								
Ferrous Iron	mg/L					0		**0.32**		**0.05**		**0.45**		0		0		**0.02**			
Dissolved Gases																					
Methane	ug/L																				
Ethane	ug/L																				
Ethene	ug/L																				
Propane	ug/L																				
Field Parameters																					
Specific Conductance	mS/cm	**1.07**		**0.55**		**0.461**		**0.543**		**0.497**		**4.94**		**0.51**		**0.671**		**0.469**		**0.584**	
pH	su	**6.82**		**7.16**		**6.88**		**7.44**		**7.1**		**6.67**		**7.2**		**6.9**		**7.15**		**6.86**	
Temperature	°C	**12.22**		**12.69**		**12.2**		**13.34**		**13.03**		**13.61**		**12.97**		**12.12**		**13.21**		**14.96**	
Turbidity	NTU	**0.4**		**0**		**0**		**29.6**		**4.5**		**3.1**		**3.5**		**9.3**		**20.5**		**0**	
Dissolved Oxygen	mg/L	**5.75**		**4.99**		**9.57**		**9.72**		**7.18**		**0.06**		**7.8**		**8.53**		**9.58**		**4.93**	
Oxidation-Reduction Potential	mV	**129**		**84**		**178**		**159**		**177**		**-17**		**139**		**141**		**135**		**171**	

Notes:

mg/L = milligram per liter
ug/L = microgram per liter
mS/cm = milliSiemers per centimeter
mV = millivolt
NTU = Nephelometric turbidity unit
°C = degrees Celcius
su = standard units

Q = qualifier
J = Result is estimated
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UJ =The non-detection at the associated value is an estimate
J+ = Result is estimated and biased high

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Appendix D

Data Usability Assessment Report

Appendix D Data Validation Narrative and Data Validation Summary Reports

This appendix presents the data validation results for the following sampling events/samples collected during 3rd quarter 2018 groundwater monitoring from October 3 through October 23, 2018.

The analytical data for the samples listed above were validated according to requirements in the analytical methods; National Functional Guidelines (NFGs) for Superfund Organic Methods Data Review (United States Environmental Protection Agency [EPA] 2017), NFGs for Inorganic Superfund Methods Data Review (EPA 2017), and NFGs for High Resolution Superfund Methods Data Review (EPA 2016, as applicable.

TestAmerica Denver (TA-Denver) performed the volatile organic compounds (VOCs); semivolatile organic compounds (SVOCs); organochlorine pesticides (OC-Pests), polychlorinated biphenyls (PCBs); organophosphorus pesticides (OP-Pests); herbicides; dissolved methane, ethene, ethene (MEE); total metals; anions, nitrate plus nitrite, alkalinity, total cyanide, and total sulfide; and total organic carbon (TOC) analyses; TestAmerica-Sacramento (TA-Sacramento) performed the dioxin/furan analyses; and the University of Oklahoma, School of Geology and Geophysics is performing the compound specific isotope analyses (CSIA).

The samples were analyzed according to the following methods:

- *Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods (SW-846). Third Edition, Final Update III*
    - 8260B - VOCs by Gas Chromatography/Mass Spectrometry (GC/MS)
    - 8270C – SVOCs by Gas Chromatography/Mass Spectrometry (GC/MS)
    - 8081A – Organochlorine Pesticides by Gas Chromatography
    - 8082A – Polychlorinated Biphenyls (PCBs) by Gas Chromatography
    - 8141A – Organophosphorus Compounds by Gas Chromatography
    - 8151A – Chlorinated Herbicides by Gas Chromatography: Capillary Column Technique
    - 8290A - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High Resolution Gas Chromatography/High Resolution Mass Spectroscopy
    - 6010C – Inductively-Coupled Plasma – Optical Emission Spectrometry
    - 6020B – Inductively-Coupled Plasma – Mass Spectrometry
    - 7470A - Mercury in Liquid Waste (Manual Cold-Vapor Technique)
    - 9056A – Determination of Inorganic Anions by Ion Chromatography

- *Standard Operating Procedure Robert S. Kerr (RSK) 175*
    - Dissolved gases; MEE

- *Standard Methods for the Examination of Water and Wastewater*
    - SM2320B – Alkalinity
    - SM4500 CN E – Total Cyanide
    - SM 4500 S2 D – Total Sulfide

- *Methods for Chemical Analysis of Water and Wastes*
    - 353.2 – Nitrate plus Nitrite as Nitrogen

- *Miscellaneous Methods*

- *CSIA analysis by Gas Chromatography/ Isotope Ratio Mass Spectrometry (GC/IRMS)*

Level 2 and 4 data packages were provided as well as electronic data deliverables (EDDs). All data generated by TestAmerica laboratories were validated manually to the Stage 2A level except for the dioxin/furan data, which was validated to the Stage 2B level.

Cross references of laboratory sample delivery groups (SDGs), data validation reports, and sample identifications (IDs) are provided in **Table D-1**. The data validation reports are included as **Attachment A** of this Appendix, and the complete laboratory data packages for each SDG are provided in **Appendix E.** All samples submitted were analyzed as requested. No data were rejected. All data generated is acceptable, with some qualification as noted in the discussion below.

Sampling Deviations

After sampling was completed, it was discovered that the tubing used for sampling was low density polyethylene (LDPE). Teflon™-lined tubing is recommended for sampling of organics. Studies have been performed to determine the effects of sampling tubing on organics data. It was noted that sorption of organics to sampling tubing materials can occur. The sorptive properties of chlorinated hydrocarbons were studied for five types of tubing: Teflon™-lined, polypropylene, polyethylene, polyvinyl chloride, and silicon. Tetrachloroethene (PCE) showed higher level of sorption to polyethylene, believed to possibly be due to the similarity of the PCE and the ethylene monomer unit that comprise polyethylene. (Barcelona, et al, 1985). No data results were qualified for the use of polyethylene tubing. However, it is possible that there may be some low bias in the volatiles trace-level data due to the use of this tubing.

Research to determine appropriate types of sampling equipment materials for surface water sampling for PCB congeners in 2016 found that very low levels of PCB congeners could be leached from polyethylene (Leidos, 2016). PCBs were not detected in any samples.

The laboratory noted head-space bubbles (greater than 6 millimeters [mm] in diameter) in selected 40-milliliter (ml) vials. For most of these samples there were enough vials without the head-space bubbles to successfully run the volatile analyses. Samples for which there was not a vial without 6 mm or larger heads-space bubble for VOC analyses are listed below:

- MW-6A-20181009
- RW-7773P-20181008

No data results were qualified for the head-space bubble issue, but this is another possible source of loss of low levels of VOCs. The head-space issue was tracked to the types of 40-mL vials being used.

For future sampling, it is recommended that Teflon™-lined tubing be used and 40-mL vials for the VOC analyses will be obtained from a different manufacturer.

1.1 Groundwater Sampling 3rd Quarter 2018

From October 3 through October 23, 2018, 51 primary samples, 3 field duplicates, 6 rinsate blanks, 1 source blank, and 11 trip blanks were collected for analysis of VOCs, SVOCs, OC-Pests, PCBs, OP-Pests, herbicides, dioxins/furans, MEE, total metals, anions, alkalinity, nitrate plus nitrite, total cyanide, total sulfide, and TOC. Data were qualified as estimated (J, J+, UJ) or not detected (U) based on results for one or more of the following criteria: laboratory control sample/laboratory control sample duplicate (LCS/LCSD) percent (%) recoveries, matrix spike/matrix spike duplicate (MS/MSD) % recoveries, field duplicate precision, or method, equipment, and/or trip blank contamination.

Results reported above the method detection limit (MDL) but below the reporting limit (RL) were qualified as estimated (J) by the laboratory.

1.1.1 Holding Times

Holding times for all analyses were met.

1.1.2 Blank Results

Trip, equipment, a source blank, and laboratory method blanks were analyzed. Trip blanks were included with the VOC sample shipments and equipment blanks were submitted for equipment that was used at multiple locations and decontaminated between locations.

When an analyte was detected in a blank below the RL and that analyte was detected in a sample at a concentration less than the RL the result was qualified as not detected at the RL (U). When the sample concentration was above the RL, but less than five times the RL, the analyte result was qualified as estimated with a potential high bias (J+). When associated sample detections were greater than 5 times the RL, the data were not qualified.

Acetone and methylene chloride were detected in the source blank associated with samples collected with sampling equipment that had been used at another location at concentrations less than the RL and acetone and/or methylene chloride results in the following samples were qualified U or J+ in the following samples:

- MW-103S-20181009 (methylene chloride qualified U)
- MW-104D-20181004 (methylene chloride qualified U)
- MW-106S-20181007 (acetone and methylene chloride qualified U)
- MW-111S-20181004 (acetone qualified U)
- MW-121-20181007 (acetone qualified U)

Acetone was detected in trip blanks associated with samples in sample delivery groups (SDGs) 280-115186-1, 280-115218-1 at concentrations below the RLs. Acetone was qualified as not detected (U) at the RL or J+ in the following samples for trip blank contamination:

- MW-111D-20181004 (acetone qualified J+)
- MW-111S-20181004 (acetone qualified U)

Acetone, carbon disulfide, and methylene chloride were detected in equipment blanks associated with samples in SDGs 280-115186-1, 280-115218-1 and 280-115307-1 at concentrations less than the RLs. These analytes were qualified as not as not detected (U) at the RL in the following samples for equipment blank contamination:

- MW-104D-20181004 (methylene qualified U)
- MW-111S-20181004 (acetone qualified U)

Acetone, methylene chloride, isodrin, barium, calcium, iron, manganese, sodium, zinc, nitrate plus nitrite, and TOC were detected in method blanks associated with samples in SDGs 280-115186-1, 280-115218-1 280-115307-1, 280-115369-1and 280-115944-1 at concentrations less than the RLs. These analytes were qualified as not as not detected (U) at the RL or J+ in the following samples:

- INF-COM-20181007(methylene qualified U)
- MW-101S-20181005 (zinc qualified U and TOC qualified J+)

- MW-102S-20181006 (zinc qualified U and iron and manganese qualified J+)
- MW-103D-20181009 (zinc qualified U)
- MW-103S-20181009 (zinc qualified U)
- MW-104D-20181004 (iron and zinc qualified J+)
- MW-104S-20181004 (zinc qualified U)
- MW-105D-20181004 (zinc qualified U)
- MW-105S-20181004 (zinc qualified U)
- MW-106D-20181008 (zinc qualified U)
- MW-106S-20181007 (methylene chloride, manganese, and zinc qualified U)
- MW-109D-20181006 (zinc qualified U)
- MW-109S-20181006 (iron qualified U and zinc qualified U)
- MW-110D-20181007 (iron and zinc qualified U)
- MW-110S-20181006 (zinc qualified U)
- MW-111D-20181004 (manganese and zinc qualified U)
- MW-111S-20181004 (acetone qualified U and zinc qualified J+)
- MW-1-20181005 (zinc qualified U)
- MW-112D-20181005 (zinc qualified U)
- MW-112M-20181005 (zinc qualified U)
- MW-112MQ-20181005 (zinc qualified U)
- MW-113D-20181004 (zinc qualified U and TOC qualified J+)
- MW-113S-20181004 (iron and zinc qualified U)
- MW-115D-20181008 (zinc qualified U)
- MW-115S-20181008 (zinc qualified U)
- MW-116D-20181019 (nitrate plus nitrite qualified U)
- MW-116D-20181019-2 (nitrate plus nitrite qualified U)
- MW-116S-20181019 (nitrate plus nitrite qualified U)
- MW-119S-20181003 (zinc qualified U)
- MW-120S-20181003 (iron qualified J+ and zinc qualified U)
- MW-121-20181007 (zinc qualified J+)
- MW-12-20181008 (manganese and zinc qualified U)
- MW-3A-20181008 (zinc qualified J+)
- MW-4-20181005 (zinc qualified U)
- MW-4A-20181005 (zinc qualified U)
- MW-4AQ-20181005 (zinc qualified U)
- MW-5A-20181008 (iron qualified J+ and zinc qualified U)
- MW-6A-20181005 (zinc qualified U)
- MW-7-20181008 (zinc qualified U)
- MW-8-20181007 (iron and manganese qualified J+ and zinc qualified U)
- MW-9-20181007 (iron qualified J+)
- RW-17-20181007 (iron, manganese, and zinc qualified J+)
- RW-2140H-20181019 (manganese qualified U)

1.1.3 Laboratory Reporting Limits

The reporting levels (method detection limits [MDLs]) achieved by the laboratories either met the project goals or were appropriate for the concentrations and/or matrices of the samples.

1.1.4 Field Duplicate Results

Three field duplicates were collected, which meets the planned frequency. Relative percent differences (RPDs) were calculated when analytes were detected in both the primary sample and its duplicate. The project specific and groundwater RPD control limits for field duplicates is 30% when an analyte is reported in both the primary sample and its field duplicate at concentrations equal to or greater than five times the RL. When either the sample or duplicate concentration is less than five times the RL, the absolute difference between the two concentrations should be less than the RL. The results of the field duplicate RPDs are included in **Table D-2** of this Appendix. All RPDs or absolute differences for the three field duplicates met the control limits except for the following sample/analytes:

- RPDs for iron and manganese in sample MW-112M-20181005 and its field duplicate, MW-112MQ-20181005. Iron and manganese results in sample MW-112M-20181005 and its field duplicate were qualified estimated (J).

- RPDs for iron and manganese in sample MW-13-20181006 and its field duplicate, MW-13Q - 20181006. Iron and manganese results in sample MW-13-20181006 and its field duplicate were qualified estimated (J).

1.5 Laboratory Control Sample Results

All LCS/LCSD % recoveries and RPDs for the groundwater samples met the quality control (QC) limits with the following exceptions:

- Percent recovery in the LCSD for methyl methacrylate in the LCS/LCSD associated with the VOC analyses of samples in SDGs 280-115218-1 and 280-115307-1 was above the control limits. Methyl methacrylate was not detected in any samples associated with this LCS/LCSD and no data were qualified.

- RPD and % recovery of endrin aldehyde in the LCSD associated with the organochlorine pesticide analyses of samples in SDG 280-115262-1. The LCSD % recovery was below the control limits. The endrin aldehyde results were non-detected in the samples and all results were qualified as estimated (UJ)

- Recovery of hexachlorocyclapentadiene in the LCS associated with the SVOC analyses of samples in SDG 280-115262-1. Hexachlorocyclapentadiene was not detected in the samples associated with this LCS and all sample results were qualified estimated (UJ).

- Percent recovery of endosulfan II in the LCS associated with the organochlorine pesticide analyses of samples in SDG 280-115369-1 was above the control limits. Endosulfan II was not detected in any samples associated with this LCS/LCSD and no data were qualified.

1.1.6 Matrix Spike Results

All MS/MSD % recoveries and RPDs met the QC limits except for the following samples/analytes:

- Sample MW-118D-20181003: the RPD for total cyanide was above the control limit. Total cyanide was not detected in the sample and no total cyanide results were qualified.

- Sample MW-105S-201: percent recoveries of trichloroethene were above the control limits in the VOC MS and MSD. The spike level was too small relative to the native concentration in the sample to yield meaningful recovery information and no trichloroethene results were qualified.
- Sample MW-101S-20181005: % recovery of dichlorodifluoromethane in the VOC MSD was above the control limit. Dichlorodifluoromethane was detected in sample MW-101S-20181005 and the result was qualified estimated (J).
- Sample MW-13-20181006: % recovery of P-Phenylene diamine in the SVOC MS. P-Phenylene diamine was not detected in the samples and results for the sample and its field duplicate were qualified estimated (UJ).
- Sample MW-13-20181006: % recoveries of 4,4'-DDD, Dieldrin, Endosulfan Sulfate, Gamma-BHC and Heptachlor Epoxide in the organochlorine pesticide MSD or MS and MSD, which were above the control limits. Sample results for these compounds were not detected, and no data were qualified.
- Sample MW-13-20181006: % recovery of Endrin Aldehyde in the MS and MSD, which were below the control limits. Endrin Aldehyde results in sample MW-13-20181006 and its field duplicate were qualified estimated (UJ).
- Sample MW-13-20181006: % recoveries of 2,4-D and Silvex (2,4,5-TP) in the herbicide MS and MSD, which were above the control limits. Sample results for these compounds were all not detected, and no data were qualified.
- Sample MW-109S-20181006: % recoveries of trichloroethene in the MS and MS, which were below the control limits. The spike level was too small relative to the native concentration in the sample to yield meaningful recovery information and no trichloroethene results were qualified.
- Sample MW-110D-20181007: % recoveries of trichloroethene in the MS and MSD, which were below the control limits. The trichloroethene results for sample MW-110D-20181007 were qualified estimated (J).
- Sample MW-116D-20181019-2: % recoveries of chloride and sulfate in the MS and MSD, which were above the control limits. Chloride and sulfate results for MW-116D-201810019-2 and MW-116D-20181019, were qualified estimated with a potential high bias (J +).

1.1.7 Surrogate Recovery Results

All surrogate recoveries for the VOC, SVOC, OC-pesticides, PCBs, organophosphorus pesticides, herbicides, and dioxins/furans analyses met the control limits for all groundwater analyses except for the following samples/analyses:

- % Recovery of the dibromodifluoromethane surrogate in the analysis of sample MW-115D-20181008, which was above the control limits. No analytes associated with this surrogate were detected and no data were qualified.
- % Recovery of the dibromodifluoromethane and d4-1,2-dichloroethene surrogates in the analysis of sample MW-6A-20181009, which were above the control limits. No analytes associated with these surrogates were detected and no data were qualified.

- % Recovery of the dibromodifluoromethane surrogate in the analysis of sample MW-4AQ-20181005, which was above the control limits. No analytes associated with this surrogate were detected and no data were qualified.

1.1.8 Calibration Results

All calibration results for the dioxins/furans analyses met the control limits.

1.1.9 Completeness

Completeness was evaluated by comparing the number of completed analyses yielding valid data to requested analyses with a criterion of 90%. All analyses requested were successfully performed, yielding a completeness value of 100%.

1.1.10 Assessment of Data Usability

All the groundwater data are suitable for their intended use. No data were rejected. Some of the results should be used with caution as noted by the "J/J+/UJ" qualifiers applied during the data validation process.

2.1 References

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Leidos. 2016. *Technical Memorandum: Potential for PCB Contamination from Sampling Equipment Tubing Materials*. November 23.

United States Environmental Protection Agency, Office of Solid Waste. 1992. *RCRA Ground-Water Monitoring: Draft Technical Guidance*. November.

United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. 2002. Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers. May.

United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. 2009. Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use. January 13.

United States Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. 2016. *National Functional Guidelines for High Resolution Superfund Methods Data Review*. April.

United States Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. 2017. *National Functional Guidelines for Superfund Inorganics Methods Data Review*. January.

United States Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. 2017. *National Functional Guidelines for Superfund Organics Methods Data Review*. January.

TABLE D-1

TABLE D-2

Attachment A

Data Validation Reports

Table D-1
Sample ID, Laboratory SDG, and Data Validation Report References

Analytical Method	SW8260B	A2320B	SW8270C	SW8081A	SW8082	SW8141	SW8151A	RSK175	SW6010C	SW6020B	SW7470A	A4500_CN_E	E353.2	SM4500-S2-D	SW8290	SW9056	SW9060
Sample ID	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG	Lab SDG
EB-0-VOC-20181006	280-115307-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB-1-VOC-20181004	280-115218-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB-2-VOC-20181006	280-115307-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB-3-VOC-100718	280-115307-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB-4-VOC-20181007	280-115369-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB-4-VOC-20181008	280-115307-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB-5-VOC-20181019	280-115944-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
INF-COM-20181007	280-115369-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
INJ-1R-20181006	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115307-1	280-115369-1	280-115369-1
MW-101S-20181005	280-115218-1	280-115218-1	--	--	--	--	--	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	--	--	280-115218-1	280-115218-1
MW-102S-20181006	280-115369-1	280-115369-1	--	--	--	--	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	--	280-115369-1	280-115369-1
MW-103D-20181009	280-115307-1	280-115307-1	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	280-115307-1
MW-103S-20181009	280-115307-1	280-115307-1	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	280-115307-1
MW-104D-20181004	280-115186-1	280-115186-1	--	--	--	--	--	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	--	--	280-115186-1	280-115186-1
MW-104S-20181004	280-115186-1	280-115186-1	--	--	--	--	--	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	--	--	280-115186-1	280-115186-1
MW-105D-20181004	280-115186-1	280-115186-1	--	--	--	--	--	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	--	--	280-115186-1	280-115186-1
MW-105S-20181004	280-115186-1	280-115186-1	--	--	--	--	--	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	--	--	280-115186-1	280-115186-1
MW-106D-20181008	280-115307-1	280-115307-1	--	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	--
MW-106S-20181007	280-115369-1	280-115369-1	--	--	--	--	--	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	--	280-115369-1	--
MW-109D-20181006	280-115307-1	280-115307-1	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	280-115307-1
MW-109S-20181006	280-115307-1	280-115307-1	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	280-115307-1
MW-110D-20181007	280-115369-1	280-115369-1	--	--	--	--	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	--	280-115369-1	280-115369-1
MW-110S-20181006	280-115369-1	280-115369-1	--	--	--	--	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	--	280-115369-1	280-115369-1
MW-111D-20181004	280-115218-1	280-115218-1	--	--	--	--	--	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	--	--	280-115218-1	280-115218-1
MW-111S-20181004	280-115218-1	280-115218-1	--	--	--	--	--	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	--	--	280-115218-1	280-115218-1
MW-112D-20181005	280-115307-1	280-115307-1	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	280-115307-1
MW-112M-20181005	280-115307-1	280-115307-1	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	280-115307-1
MW-112MQ-20181005	280-115307-1	280-115307-1	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	280-115307-1
MW-113D-20181004	280-115218-1	280-115218-1	--	--	--	--	--	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	--	--	280-115218-1	280-115218-1
MW-113S-20181004	280-115218-1	280-115218-1	--	--	--	--	--	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	--	--	280-115218-1	280-115218-1
MW-115D-20181008	280-115307-1	280-115307-1	--	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	--
MW-115S-20181008	280-115369-1	280-115369-1	--	--	--	--	--	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	--	280-115369-1	--
MW-116D-20181019	280-115944-1	280-115944-1	--	--	--	--	--	--	280-115944-1	280-115944-1	280-115944-1	280-115944-1	280-115944-1	--	--	280-115944-1	--
MW-116D-20181019-2	280-115944-1	280-115944-1	--	--	--	--	--	--	280-115944-1	280-115944-1	280-115944-1	280-115944-1	280-115944-1	--	--	280-115944-1	--
MW-116S-20181019	280-115944-1	280-115944-1	--	--	--	--	--	--	280-115944-1	280-115944-1	280-115944-1	280-115944-1	280-115944-1	--	--	280-115944-1	--
MW-118D-20181003	280-115186-1	280-115186-1	--	--	--	--	--	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	--	--	280-115186-1	280-115186-1
MW-119D-20181003	280-115186-1	280-115186-1	--	--	--	--	--	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	--	--	280-115186-1	280-115186-1
MW-119S-20181003	280-115186-1	280-115186-1	--	--	--	--	--	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	--	--	280-115186-1	280-115186-1
MW-1-20181005	280-115218-1	280-115218-1	--	--	--	--	--	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	280-115218-1	--	--	280-115218-1	280-115218-1
MW-120D-20181003	280-115186-1	280-115186-1	--	--	--	--	--	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	--	--	280-115186-1	280-115186-1
MW-120S-20181003	280-115186-1	280-115186-1	--	--	--	--	--	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	280-115186-1	--	--	280-115186-1	280-115186-1
MW-121-20181007	280-115369-1	280-115307-1	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	280-115307-1
MW-12-20181008	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115307-1	280-115369-1	--
MW-13-20181006	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	--	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	--
MW-13Q-20181006	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	--	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	280-115262-1	--
MW-3A-20181008	280-115307-1	280-115307-1	--	--	--	--	--	--	280-115307-1	280-115307-1	--	--	280-115307-1	--	--	280-115307-1	--
MW-4-20181005	280-115307-1	280-115307-1	--	--	--	--	--	--	280-115307-1	280-115307-1	--	--	280-115307-1	--	--	280-115307-1	--
MW-4A-20181005	280-115307-1	280-115307-1	--	--	--	--	--	--	280-115307-1	280-115307-1	--	--	280-115307-1	--	--	280-115307-1	--
MW-4AQ-20181005	280-115307-1	280-115307-1	--	--	--	--	--	--	280-115307-1	280-115307-1	--	--	280-115307-1	--	--	280-115307-1	--
MW-5A-20181008	280-115369-1	--	--	--	--	--	--	--	280-115369-1	280-115369-1	280-115369-1	--	280-115369-1	--	--	--	--
MW-6A-20181005	280-115307-1	280-115307-1	--	--	--	--	--	--	280-115307-1	280-115307-1	--	--	280-115307-1	--	--	280-115307-1	--
MW-7-20181008	280-115307-1	280-115307-1	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	280-115307-1
MW-8-20181007	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115307-1	280-115369-1	--
MW-9-20181007	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115307-1	280-115369-1	--
RW-10-20181007	280-115307-1	280-115369-1	--	--	--	--	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	--	280-115369-1	280-115369-1
RW-15-20181006	280-115369-1	280-115369-1	--	--	--	--	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	--	280-115369-1	280-115369-1
RW-17-20181007	280-115307-1	280-115369-1	--	--	--	--	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	--	280-115369-1	280-115369-1
RW-2140H-20181019	280-115944-1	--	--	--	--	--	--	--	280-115944-1	280-115944-1	280-115944-1	280-115944-1	--	--	--	--	--
RW-3-20181007	280-115307-1	280-115307-1	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	280-115307-1
RW-4-20181007	280-115369-1	280-115307-1	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	280-115307-1	280-115307-1
RW-7773P-20181007	280-115369-1	--	--	--	--	--	--	--	280-115307-1	280-115307-1	280-115307-1	280-115307-1	--	--	--	--	--
RW-9R-20181007	280-115307-1	280-115369-1	--	--	--	--	--	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	280-115369-1	--	--	280-115369-1	280-115369-1
TB_100418 08:45	280-115186-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB_100418 12:50	280-115186-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB_100418 12:55	280-115186-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB_100518 11:35	280-115218-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB_100618 09:30	280-115262-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB_100918 08:30	280-115369-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB_100918 11:15	280-115369-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB_100918 11:30	280-115307-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB_100918 14:38	280-115369-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB_100918 15:00	280-115307-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB_101918 16:00	280-115944-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
ID = identification
SDG = sample delivery group

Table D-2
Field Duplicate Comparisons

		Well Location Sample Type Sample Date	MW-112M N 10/5/2018		MW-112M FD 10/5/2018					MW-4A N 10/5/2018			MW-4A FD 10/5/2018					MW-13 N 10/6/2018		MW-13 FD 10/6/2018				
Method	Analyte	Unit	Result	Q	Result	Q	RL	5x RL	RPD or Absolute Difference	Result	Q	RL	Result	Q	RL	5x RL	RPD or Absolute Difference	Result	Q	Result	Q	RL	5x RL	RPD or Absolute Difference
SW8260B	1,1,1,2-TETRACHLOROETHANE	ug/l	0.84	U	0.84	U	4	20	NA	0.21	U	1	0.21	U	1	5	NA	0.21	U	0.21	U	1	5	NA
	1,1,1-TRICHLOROETHANE	ug/l	0.64	U	0.67	J	4	20	NA	0.16	U	1	0.16	U	1	5	NA	0.16	U	0.16	U	1	5	NA
	1,1,2,2-TETRACHLOROETHANE	ug/l	0.84	U	0.84	U	4	20	NA	0.21	U	1	0.21	U	1	5	NA	0.21	U	0.21	U	1	5	NA
	1,1,2-TRICHLOROETHANE	ug/l	1.1	U	1.1	U	4	20	NA	0.27	U	1	0.27	U	1	5	NA	0.27	U	0.27	U	1	5	NA
	1,1-DICHLOROETHANE	ug/l	0.88	U	0.88	U	4	20	NA	0.22	U	1	0.22	U	1	5	NA	0.22	U	0.22	U	1	5	NA
	1,1-DICHLOROETHENE	ug/l	0.92	U	0.92	U	4	20	NA	0.23	U	1	0.23	U	1	5	NA	0.23	U	0.23	U	1	5	NA
	1,1-DICHLOROPROPENE	ug/l	0.76	U	0.76	U	4	20	NA	0.19	U	1	0.19	U	1	5	NA	0.19	U	0.19	U	1	5	NA
	1,2,3-TRICHLOROPROPANE	ug/l	1.3	U	1.3	U	10	50	NA	0.33	U	2.5	0.33	U	2.5	12.5	NA	0.33	U	0.33	U	2.5	12.5	NA
	1,2,4-TRICHLOROBENZENE	ug/l	0.84	U	0.84	U	4	20	NA	0.21	U	1	0.21	U	1	5	NA	0.21	U	0.21	U	1	5	NA
	1,2-DIBROMO-3-CHLOROPROPANE	ug/l	1.9	U	1.9	U	20	100	NA	0.47	U	5	0.47	U	5	25	NA	0.47	U	0.47	U	5	25	NA
	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	ug/l	0.72	U	0.72	U	4	20	NA	0.18	U	1	0.18	U	1	5	NA	0.18	U	0.18	U	1	5	NA
	1,2-DICHLOROBENZENE	ug/l	0.6	U	0.6	U	4	20	NA	0.15	U	1	0.15	U	1	5	NA	0.15	U	0.15	U	1	5	NA
	1,2-DICHLOROETHANE	ug/l	0.52	U	0.52	U	4	20	NA	0.13	U	1	0.13	U	1	5	NA	0.13	U	0.13	U	1	5	NA
	1,2-DICHLOROPROPANE	ug/l	0.72	U	0.72	U	4	20	NA	0.18	U	1	0.18	U	1	5	NA	0.18	U	0.18	U	1	5	NA
	1,3-DICHLOROBENZENE	ug/l	0.52	U	0.52	U	4	20	NA	0.13	U	1	0.13	U	1	5	NA	0.13	U	0.13	U	1	5	NA
	1,3-DICHLOROPROPANE	ug/l	0.88	U	0.88	U	4	20	NA	0.22	U	1	0.22	U	1	5	NA	0.22	U	0.22	U	1	5	NA
	1,4-DICHLOROBENZENE	ug/l	0.64	U	0.64	U	4	20	NA	0.16	U	1	0.16	U	1	5	NA	0.16	U	0.16	U	1	5	NA
	2,2-DICHLOROPROPANE	ug/l	0.72	U	0.72	U	4	20	NA	0.18	U	1	0.18	U	1	5	NA	0.18	U	0.18	U	1	5	NA
	2-CHLORO-1,3-BUTADIENE	ug/l	0.84	U	0.84	U	4	20	NA	0.21	U	1	0.21	U	1	5	NA	0.21	U	0.21	U	1	5	NA
	2-HEXANONE	ug/l	6.8	U	6.8	U	20	100	NA	1.7	U	5	1.7	U	5	25	NA	1.7	U	1.7	U	5	25	NA
	ACETONE	ug/l	7.6	U	7.6	U	40	200	NA	1.9	U	10	1.9	U	10	50	NA	1.9	U	1.9	U	10	50	NA
	ACETONITRILE	ug/l	38	U	38	U	120	600	NA	9.6	U	30	9.6	U	30	150	NA	9.6	U	9.6	U	30	150	NA
	ACROLEIN	ug/l	11	U	11	U	80	400	NA	2.8	U	20	2.8	U	20	100	NA	2.8	U	2.8	U	20	100	NA
	ACRYLONITRILE	ug/l	5.6	U	5.6	U	80	400	NA	1.4	U	20	1.4	U	20	100	NA	1.4	U	1.4	U	20	100	NA
	ALLYL CHLORIDE (3-CHLOROPROPENE)	ug/l	0.68	U	0.68	U	8	40	NA	0.17	U	2	0.17	U	2	10	NA	0.17	U	0.17	U	2	10	NA
	BENZENE	ug/l	0.64	U	0.64	U	4	20	NA	0.16	U	1	0.16	U	1	5	NA	0.16	U	0.16	U	1	5	NA
	BROMOCHLOROMETHANE	ug/l	0.4	U	0.4	U	4	20	NA	0.1	U	1	0.1	U	1	5	NA	0.1	U	0.1	U	1	5	NA
	BROMODICHLOROMETHANE	ug/l	0.68	U	0.68	U	4	20	NA	0.17	U	1	0.17	U	1	5	NA	0.17	U	0.17	U	1	5	NA
	BROMOFORM	ug/l	0.76	U	0.76	U	4	20	NA	0.19	U	1	0.19	U	1	5	NA	0.19	U	0.19	U	1	5	NA
	BROMOMETHANE	ug/l	0.84	U	0.84	U	8	40	NA	0.21	U	2	0.21	U	2	10	NA	0.21	U	0.21	U	2	10	NA
	CARBON DISULFIDE	ug/l	1.8	U	1.8	U	8	40	NA	0.45	U	2	0.45	U	2	10	NA	0.45	U	0.45	U	2	10	NA
	CARBON TETRACHLORIDE	ug/l	0.76	U	0.76	U	4	20	NA	0.19	U	1	0.19	U	1	5	NA	0.19	U	0.19	U	1	5	NA
	CHLOROBENZENE	ug/l	0.68	U	0.68	U	4	20	NA	0.17	U	1	0.17	U	1	5	NA	0.17	U	0.17	U	1	5	NA
	CHLOROETHANE	ug/l	1.6	U	1.6	U	8	40	NA	0.41	U	2	0.41	U	2	10	NA	0.41	U	0.41	U	2	10	NA
	CHLOROFORM	ug/l	0.66	J	0.72	J	4	20	0.06	0.16	U	1	0.16	U	1	5	NA	0.16	U	0.16	U	1	5	NA
	CHLOROMETHANE	ug/l	1.2	U	1.2	U	8	40	NA	0.3	U	2	0.3	U	2	10	NA	0.3	U	0.3	U	2	10	NA
	CIS-1,2-DICHLOROETHYLENE	ug/l	0.6	U	0.6	U	4	20	NA	0.15	U	1	0.15	U	1	5	NA	0.4	J	0.42	J	1	5	0.02
	CIS-1,3-DICHLOROPROPENE	ug/l	0.64	U	0.64	U	4	20	NA	0.16	U	1	0.16	U	1	5	NA	0.16	U	0.16	U	1	5	NA
	DIBROMOCHLOROMETHANE	ug/l	0.68	U	0.68	U	4	20	NA	0.17	U	1	0.17	U	1	5	NA	0.17	U	0.17	U	1	5	NA
	DIBROMOMETHANE	ug/l	0.68	U	0.68	U	4	20	NA	0.17	U	1	0.17	U	1	5	NA	0.17	U	0.17	U	1	5	NA
	DICHLORODIFLUOROMETHANE	ug/l	1.2	U	1.2	U	8	40	NA	0.31	U	2	0.31	U	2	10	NA	0.39	J	0.42	J	2	10	0.03
	ETHYL METHACRYLATE	ug/l	3.4	U	3.4	U	12	60	NA	0.86	U	3	0.86	U	3	15	NA	0.86	U	0.86	U	3	15	NA
	ETHYLBENZENE	ug/l	0.64	U	0.64	U	4	20	NA	0.16	U	1	0.16	U	1	5	NA	0.16	U	0.16	U	1	5	NA
	IODOMETHANE (METHYL IODIDE)	ug/l	0.92	U	0.92	U	4	20	NA	0.23	U	1	0.23	U	1	5	NA	0.23	U	0.23	U	1	5	NA
	ISOBUTANOL	ug/l	150	U	150	U	440	2200	NA	37	U	110	37	U	110	550	NA	37	U	37	U	110	550	NA
	METHYL ETHYL KETONE (2-BUTANONE)	ug/l	8	U	8	U	24	120	NA	2	U	6	2	U	6	30	NA	2	U	2	U	6	30	NA
	METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/l	3.9	U	3.9	U	20	100	NA	0.98	U	5	0.98	U	5	25	NA	0.98	U	0.98	U	5	25	NA
	METHYL METHACRYLATE	ug/l	4.4	U	4.4	U	16	80	NA	1.1	U	4	1.1	U	4	20	NA	1.1	U	1.1	U	4	20	NA
	METHYLACRYLONITRILE	ug/l	6.4	U	6.4	U	40	200	NA	1.6	U	10	1.6	U	10	50	NA	1.6	U	1.6	U	10	50	NA
	METHYLENE CHLORIDE	ug/l	1.3	U	1.3	U	8	40	NA	0.32	U	2	0.32	U	2	10	NA	0.32	U	0.32	U	2	10	NA
	PROPANE NITRILE (PROPIONITRILE)	ug/l	15	U	15	U	80	400	NA	3.7	U	20	3.7	U	20	100	NA	3.7	U	3.7	U	20	100	NA
	STYRENE	ug/l	0.68	U	0.68	U	4	20	NA	0.17	U	1	0.17	U	1	5	NA	0.17	U	0.17	U	1	5	NA
	TETRACHLOROETHYLENE (PCE)	ug/l	7		8.2		4	20	1.2	0.2	U	1	0.2	U	1	5	NA	0.23	J	0.24	J	1	5	0.01
	TOLUENE	ug/l	0.68	U	0.68	U	4	20	NA	0.17	U	1	0.17	U	1	5	NA	0.17	U	0.17	U	1	5	NA
	TRANS-1,2-DICHLOROETHENE	ug/l	0.6	U	0.6	U	4	20	NA	0.15	U	1	0.15	U	1	5	NA	0.15	U	0.15	U	1	5	NA
	TRANS-1,3-DICHLOROPROPENE	ug/l	0.76	U	0.76	U	12	60	NA	0.19	U	3	0.19	U	3	15	NA	0.19	U	0.19	U	3	15	NA
	TRANS-1,4-DICHLORO-2-BUTENE	ug/l	3.2	U	3.2	U	12	60	NA	0.8	U	3	0.8	U	3	15	NA	0.8	U	0.8	U	3	15	NA
	TRICHLOROETHYLENE (TCE)	ug/l	120		130		4	20	8	0.16	U	1	0.16	U	1	5	NA	0.16	U	0.16	U	1	5	NA
	TRICHLOROFLUOROMETHANE	ug/l	1.2	U	1.2	U	8	40	NA	0.29	U	2	0.29	U	2	10	NA	0.29	U	0.29	U	2	10	NA
	VINYL ACETATE	ug/l	3.8	U	3.8	U	12	60	NA	0.94	U	3	0.94	U	3	15	NA	0.94	U	0.94	U	3	15	NA
	VINYL CHLORIDE	ug/l	0.4	U	0.4	U	4	20	NA	0.1	U	1	0.1	U	1	5	NA	0.1	U	0.1	U	1	5	NA
	XYLENES	ug/l	0.76	U	0.76	U	8	40	NA	0.19	U	2	0.19	U	2	10	NA	0.19	U	0.19	U	2	10	NA
SW8270C	1,2,4,5-TETRACHLOROBENZENE	ug/l	--		--		--	--	--	--			--		--	--	--	1.8	U	1.8	U	10	50	NA
	1,3,5-TRINITROBENZENE	ug/l	--		--		--	--	--	--			--		--	--	--	4.1	U	4.2	U	52	260	NA
	1,3-DINITROBENZENE	ug/l	--		--		--	--	--	--			--		--	--	--	2.1	U	2.1	U	10	50	NA
	1,4-NAPHTHOQUINONE	ug/l	--		--		--	--	--	--			--		--	--	--	14	U	14	U	52	260	NA
	1-NAPHTHYLAMINE	ug/l	--		--		--	--	--	--			--		--	--	--	3.2	U	3.2	U	10	50	NA
	2,3,4,6-TETRACHLOROPHENOL	ug/l	--		--		--	--	--	--			--		--	--	--	2.1	U	2.1	U	52	260	NA
	2,4,5-TRICHLOROPHENOL	ug/l	--		--		--	--	--	--			--		--	--	--	0.46	U	0.47	U	10	50	NA
	2,4,6-TRICHLOROPHENOL	ug/l	--		--		--	--	--	--			--		--	--	--	0.3	U	0.3	U	10	50	NA
	2,4-DICHLOROPHENOL	ug/l	--		--		--	--	--	--			--		--	--	--	0.66	U	0.67	U	10	50	NA

Table D-2
Field Duplicate Comparisons

		Well Location	MW-112M	MW-112M				MW-4A	MW-4A				MW-13	MW-13			
		Sample Type	N	FD				N	FD				N	FD			
		Sample Date	10/5/2018	10/5/2018				10/5/2018	10/5/2018				10/6/2018	10/6/2018			
Method	Analyte	Unit	Result Q	Result Q	RL	5x RL	RPD or Absolute Difference	Result Q	Result Q	RL	5x RL	RPD or Absolute Difference	Result Q	Result Q	RL	5x RL	RPD or Absolute Difference
	2,4-DIMETHYLPHENOL	ug/l	--	--	--	--	--	--	--	--	--	--	0.6 U	0.6 U	10	50	NA
	2,4-DINITROPHENOL	ug/l	--	--	--	--	--	--	--	--	--	--	10 U	10 U	31	155	NA
	2,4-DINITROTOLUENE	ug/l	--	--	--	--	--	--	--	--	--	--	1.7 U	1.7 U	10	50	NA
	2,6-DICHLOROPHENOL	ug/l	--	--	--	--	--	--	--	--	--	--	1.4 U	1.4 U	10	50	NA
	2,6-DINITROTOLUENE	ug/l	--	--	--	--	--	--	--	--	--	--	2 U	2 U	10	50	NA
	2-ACETYLAMINOFLUORENE	ug/l	--	--	--	--	--	--	--	--	--	--	7.2 U	7.3 U	100	500	NA
	2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE)	ug/l	--	--	--	--	--	--	--	--	--	--	3.2 U	3.2 U	10	50	NA
	2-CHLORONAPHTHALENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.27 U	0.27 U	4.2	21	NA
	2-CHLOROPHENOL	ug/l	--	--	--	--	--	--	--	--	--	--	2.1 U	2.1 U	10	50	NA
	2-METHYLNAPHTHALENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.3 U	0.3 U	4.2	21	NA
	2-METHYLPHENOL (O-CRESOL)	ug/l	--	--	--	--	--	--	--	--	--	--	1 U	1 U	10	50	NA
	2-NITROANILINE	ug/l	--	--	--	--	--	--	--	--	--	--	1.8 U	1.8 U	10	50	NA
	2-NITROPHENOL	ug/l	--	--	--	--	--	--	--	--	--	--	0.4 U	0.41 U	10	50	NA
	3- AND 4- METHYLPHENOL (TOTAL)	ug/l	--	--	--	--	--	--	--	--	--	--	0.26 U	0.26 U	10	50	NA
	3,3'-DICHLOROBENZIDINE	ug/l	--	--	--	--	--	--	--	--	--	--	2.1 U	2.1 U	52	260	NA
	3,3'-DIMETHYLBENZIDINE	ug/l	--	--	--	--	--	--	--	--	--	--	4.1 U	4.2 U	21	105	NA
	3-METHYLCHOLANTHRENE	ug/l	--	--	--	--	--	--	--	--	--	--	1.8 U	1.8 U	21	105	NA
	3-NITROANILINE	ug/l	--	--	--	--	--	--	--	--	--	--	2.1 U	2.1 U	10	50	NA
	4,6-DINITRO-2-METHYLPHENOL	ug/l	--	--	--	--	--	--	--	--	--	--	4.1 U	4.2 U	52	260	NA
	4-AMINOBIPHENYL (4-BIPHENYLAMINE)	ug/l	--	--	--	--	--	--	--	--	--	--	4.6 U	4.7 U	52	260	NA
	4-BROMOPHENYL PHENYL ETHER	ug/l	--	--	--	--	--	--	--	--	--	--	0.44 U	0.45 U	10	50	NA
	4-CHLORO-3-METHYLPHENOL	ug/l	--	--	--	--	--	--	--	--	--	--	2.5 U	2.5 U	10	50	NA
	4-CHLOROANILINE	ug/l	--	--	--	--	--	--	--	--	--	--	2.2 U	2.2 U	10	50	NA
	4-CHLOROPHENYL PHENYL ETHER	ug/l	--	--	--	--	--	--	--	--	--	--	1.7 U	1.7 U	10	50	NA
	4-NITROANILINE	ug/l	--	--	--	--	--	--	--	--	--	--	2.1 U	2.1 U	10	50	NA
	4-NITROPHENOL	ug/l	--	--	--	--	--	--	--	--	--	--	1.3 U	1.3 U	10	50	NA
	5-NITRO-O-TOLUIDINE	ug/l	--	--	--	--	--	--	--	--	--	--	1.4 U	1.5 U	21	105	NA
	7,12-DIMETHYLBENZ(A)ANTHRACENE	ug/l	--	--	--	--	--	--	--	--	--	--	1.6 U	1.6 U	21	105	NA
	ACENAPHTHENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.29 U	0.29 U	4.2	21	NA
	ACENAPHTHYLENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.51 U	0.51 U	4.2	21	NA
	ACETOPHENONE	ug/l	--	--	--	--	--	--	--	--	--	--	0.25 U	0.25 U	10	50	NA
	ALPHA, ALPHA DIMETHYLPHENETHYLAMINE	ug/l	--	--	--	--	--	--	--	--	--	--	21 U	21 U	52	260	NA
	ANTHRACENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.43 U	0.44 U	4.2	21	NA
	BENZO(A)ANTHRACENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.36 U	0.36 U	4.2	21	NA
	BENZO(A)PYRENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.32 U	0.32 U	4.2	21	NA
	BENZO(B)FLUORANTHENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.55 U	0.55 U	4.2	21	NA
	BENZO(G,H,I)PERYLENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.52 U	0.52 U	4.2	21	NA
	BENZO(K)FLUORANTHENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.48 U	0.48 U	4.2	21	NA
	BENZYL ALCOHOL	ug/l	--	--	--	--	--	--	--	--	--	--	0.24 U	0.24 U	10	50	NA
	BENZYL BUTYL PHTHALATE	ug/l	--	--	--	--	--	--	--	--	--	--	1 U	1 U	4.2	21	NA
	BIS(2-CHLOROETHOXY) METHANE	ug/l	--	--	--	--	--	--	--	--	--	--	1 U	1 U	10	50	NA
	BIS(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	ug/l	--	--	--	--	--	--	--	--	--	--	0.42 U	0.43 U	10	50	NA
	BIS(2-CHLOROISOPROPYL) ETHER	ug/l	--	--	--	--	--	--	--	--	--	--	0.29 U	0.29 U	10	50	NA
	BIS(2-ETHYLHEXYL) PHTHALATE	ug/l	--	--	--	--	--	--	--	--	--	--	0.58 U	0.58 U	10	50	NA
	CHLOROBENZILATE	ug/l	--	--	--	--	--	--	--	--	--	--	0.68 U	0.68 U	10	50	NA
	CHRYSENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.56 U	0.56 U	4.2	21	NA
	DIALLATE (TOTAL OF CIS AND TRANS ISOMERS)	ug/l	--	--	--	--	--	--	--	--	--	--	0.58 U	0.58 U	5.8	29	NA
	DIBENZ(A,H)ANTHRACENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.53 U	0.53 U	4.2	21	NA
	DIBENZOFURAN	ug/l	--	--	--	--	--	--	--	--	--	--	0.3 U	0.3 U	4.2	21	NA
	DIETHYL PHTHALATE	ug/l	--	--	--	--	--	--	--	--	--	--	0.39 U	0.4 U	4.2	21	NA
	DIMETHYL PHTHALATE	ug/l	--	--	--	--	--	--	--	--	--	--	0.22 U	0.22 U	4.2	21	NA
	DI-N-BUTYL PHTHALATE	ug/l	--	--	--	--	--	--	--	--	--	--	1.2 U	1.2 U	4.2	21	NA
	DI-N-OCTYLPHTHALATE	ug/l	--	--	--	--	--	--	--	--	--	--	0.36 U	0.36 U	4.2	21	NA
	DIPHENYLAMINE	ug/l	--	--	--	--	--	--	--	--	--	--	1.1 U	1.1 U	10	50	NA
	ETHYL METHANESULFONATE	ug/l	--	--	--	--	--	--	--	--	--	--	0.97 U	0.98 U	10	50	NA
	FLUORANTHENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.21 U	0.21 U	4.2	21	NA
	FLUORENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.32 U	0.32 U	4.2	21	NA
	HEXACHLOROBENZENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.68 U	0.69 U	10	50	NA
	HEXACHLOROBUTADIENE	ug/l	--	--	--	--	--	--	--	--	--	--	3.4 U	3.4 U	10	50	NA
	HEXACHLOROCYCLOPENTADIENE	ug/l	--	--	--	--	--	--	--	--	--	--	10 UJ	10 UJ	52	260	NA
	HEXACHLOROETHANE	ug/l	--	--	--	--	--	--	--	--	--	--	2.2 U	2.2 U	10	50	NA
	HEXACHLOROPROPENE	ug/l	--	--	--	--	--	--	--	--	--	--	2.1 U	2.1 U	100	500	NA
	INDENO(1,2,3-C,D)PYRENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.67 U	0.68 U	4.2	21	NA
	ISOPHORONE	ug/l	--	--	--	--	--	--	--	--	--	--	0.22 U	0.22 U	10	50	NA
	ISOSAFROLE	ug/l	--	--	--	--	--	--	--	--	--	--	1 U	1 U	3.6	18	NA
	METHAPYRILENE	ug/l	--	--	--	--	--	--	--	--	--	--	21 U	21 U	52	260	NA
	METHYL METHANESULFONATE	ug/l	--	--	--	--	--	--	--	--	--	--	1 U	1 U	10	50	NA
	NAPHTHALENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.3 U	0.3 U	4.2	21	NA
	NITROBENZENE	ug/l	--	--	--	--	--	--	--	--	--	--	0.84 U	0.84 U	10	50	NA
	NITROSOMETHYLETHYLAMINE	ug/l	--	--	--	--	--	--	--	--	--	--	1.8 U	1.8 U	10	50	NA
	N-NITROSODIETHYLAMINE	ug/l	--	--	--	--	--	--	--	--	--	--	1.8 U	1.8 U	10	50	NA

Table D-2
Field Duplicate Comparisons

		Well Location	MW-112M	MW-112M				MW-4A		MW-4A				MW-13	MW-13			
		Sample Type	N	FD				N		FD				N	FD			
		Sample Date	10/5/2018	10/5/2018				10/5/2018		10/5/2018				10/6/2018	10/6/2018			
Method	Analyte	Unit	Result Q	Result Q	RL	5x RL	RPD or Absolute Difference	Result Q	RL	Result Q	RL	5x RL	RPD or Absolute Difference	Result Q	Result Q	RL	5x RL	RPD or Absolute Difference
	N-NITROSODIMETHYLAMINE	ug/l	--	--	--	--	--	--		--	--	--	--	0.3 U	0.3 U	10	50	NA
	N-NITROSO-DI-N-BUTYLAMINE	ug/l	--	--	--	--	--	--		--	--	--	--	1.3 U	1.3 U	10	50	NA
	N-NITROSODI-N-PROPYLAMINE	ug/l	--	--	--	--	--	--		--	--	--	--	0.36 U	0.36 U	10	50	NA
	N-NITROSODIPHENYLAMINE	ug/l	--	--	--	--	--	--		--	--	--	--	0.45 U	0.46 U	10	50	NA
	N-NITROSOPIPERIDINE	ug/l	--	--	--	--	--	--		--	--	--	--	2.1 U	2.1 U	10	50	NA
	N-NITROSOPYRROLIDINE	ug/l	--	--	--	--	--	--		--	--	--	--	0.83 U	0.84 U	10	50	NA
	O,O,O-TRIETHYL PHOSPHOROTHIOATE	ug/l	--	--	--	--	--	--		--	--	--	--	2.1 U	2.1 U	52	260	NA
	O-TOLUIDINE	ug/l	--	--	--	--	--	--		--	--	--	--	1.4 U	1.5 U	10	50	NA
	P-DIMETHYLAMINOAZOBENZENE	ug/l	--	--	--	--	--	--		--	--	--	--	2.1 U	2.1 U	21	105	NA
	PENTACHLOROBENZENE	ug/l	--	--	--	--	--	--		--	--	--	--	2.1 U	2.1 U	10	50	NA
	PENTACHLORONITROBENZENE	ug/l	--	--	--	--	--	--		--	--	--	--	2.1 U	2.1 U	52	260	NA
	PENTACHLOROPHENOL	ug/l	--	--	--	--	--	--		--	--	--	--	21 U	21 U	52	260	NA
	PHENACETIN	ug/l	--	--	--	--	--	--		--	--	--	--	1.1 U	1.1 U	21	105	NA
	PHENANTHRENE	ug/l	--	--	--	--	--	--		--	--	--	--	0.27 U	0.27 U	4.2	21	NA
	PHENOL	ug/l	--	--	--	--	--	--		--	--	--	--	2.1 U	2.1 U	10	50	NA
	P-PHENYLENEDIAMINE	ug/l	--	--	--	--	--	--		--	--	--	--	5.2 UJ	5.2 UJ	100	500	NA
	PRONAMIDE	ug/l	--	--	--	--	--	--		--	--	--	--	2.1 U	2.1 U	21	105	NA
	PYRENE	ug/l	--	--	--	--	--	--		--	--	--	--	0.38 U	0.39 U	10	50	NA
	SAFROLE	ug/l	--	--	--	--	--	--		--	--	--	--	1.2 U	1.2 U	21	105	NA
	ZINOPHOS	ug/l	--	--	--	--	--	--		--	--	--	--	0.89 U	0.9 U	52	260	NA
SW8081A	ALDRIN	ug/l	--	--	--	--	--	--		--	--	--	--	0.006 U	0.0059 U	0.05	0.25	NA
	ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	ug/l	--	--	--	--	--	--		--	--	--	--	0.0054 U	0.0053 U	0.05	0.25	NA
	ALPHA ENDOSULFAN	ug/l	--	--	--	--	--	--		--	--	--	--	0.0059 U	0.0058 U	0.05	0.25	NA
	BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	ug/l	--	--	--	--	--	--		--	--	--	--	0.0089 U	0.0087 U	0.05	0.25	NA
	BETA ENDOSULFAN	ug/l	--	--	--	--	--	--		--	--	--	--	0.0072 U	0.007 U	0.05	0.25	NA
	Chlordane (Technical)	ug/l	--	--	--	--	--	--		--	--	--	--	0.14 U	0.14 U	0.5	2.5	NA
	DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	ug/l	--	--	--	--	--	--		--	--	--	--	0.0059 U	0.0058 U	0.05	0.25	NA
	DIELDRIN	ug/l	--	--	--	--	--	--		--	--	--	--	0.0065 U	0.0063 U	0.05	0.25	NA
	ENDOSULFAN SULFATE	ug/l	--	--	--	--	--	--		--	--	--	--	0.0058 U	0.0057 U	0.05	0.25	NA
	ENDRIN	ug/l	--	--	--	--	--	--		--	--	--	--	0.0081 U	0.0079 U	0.05	0.25	NA
	ENDRIN ALDEHYDE	ug/l	--	--	--	--	--	--		--	--	--	--	0.009 UJ	0.0088 UJ	0.05	0.25	NA
	GAMMA BHC (LINDANE)	ug/l	--	--	--	--	--	--		--	--	--	--	0.0071 U	0.0069 U	0.05	0.25	NA
	HEPTACHLOR	ug/l	--	--	--	--	--	--		--	--	--	--	0.0079 U	0.0077 U	0.05	0.25	NA
	HEPTACHLOR EPOXIDE	ug/l	--	--	--	--	--	--		--	--	--	--	0.0077 U	0.0075 U	0.05	0.25	NA
	ISODRIN	ug/l	--	--	--	--	--	--		--	--	--	--	0.004 U	0.0039 U	0.1	0.5	NA
	KEPONE	ug/l	--	--	--	--	--	--		--	--	--	--	0.36 U	0.35 U	1	5	NA
	METHOXYCHLOR	ug/l	--	--	--	--	--	--		--	--	--	--	0.013 U	0.013 U	0.1	0.5	NA
	P,P'-DDD	ug/l	--	--	--	--	--	--		--	--	--	--	0.0079 U	0.0077 U	0.05	0.25	NA
	P,P'-DDE	ug/l	--	--	--	--	--	--		--	--	--	--	0.0077 U	0.0075 U	0.05	0.25	NA
	P,P'-DDT	ug/l	--	--	--	--	--	--		--	--	--	--	0.015 U	0.015 U	0.05	0.25	NA
	TOXAPHENE	ug/l	--	--	--	--	--	--		--	--	--	--	0.38 U	0.37 U	2	10	NA
SW8082	PCB-1016 (AROCLOR 1016)	ug/l	--	--	--	--	--	--		--	--	--	--	0.13 U	0.12 U	1	5	NA
	PCB-1221 (AROCLOR 1221)	ug/l	--	--	--	--	--	--		--	--	--	--	0.22 U	0.22 U	1	5	NA
	PCB-1232 (AROCLOR 1232)	ug/l	--	--	--	--	--	--		--	--	--	--	0.17 U	0.17 U	1	5	NA
	PCB-1242 (AROCLOR 1242)	ug/l	--	--	--	--	--	--		--	--	--	--	0.11 U	0.1 U	1	5	NA
	PCB-1248 (AROCLOR 1248)	ug/l	--	--	--	--	--	--		--	--	--	--	0.094 U	0.092 U	1	5	NA
	PCB-1254 (AROCLOR 1254)	ug/l	--	--	--	--	--	--		--	--	--	--	0.12 U	0.11 U	1	5	NA
	PCB-1260 (AROCLOR 1260)	ug/l	--	--	--	--	--	--		--	--	--	--	0.16 U	0.16 U	1	5	NA
	POLYCHLORINATED BIPHENYLS (PCBs)	ug/l	--	--	--	--	--	--		--	--	--	--	0.087 U	0.085 U	1	5	NA
SW8141	DIMETHOATE	ug/l	--	--	--	--	--	--		--	--	--	--	0.45 U	0.47 U	1.6	8	NA
	DISULFOTON	ug/l	--	--	--	--	--	--		--	--	--	--	0.32 U	0.33 U	1	5	NA
	FAMPHUR	ug/l	--	--	--	--	--	--		--	--	--	--	0.18 U	0.19 U	1	5	NA
	PARATHION, ETHYL	ug/l	--	--	--	--	--	--		--	--	--	--	0.14 U	0.15 U	1	5	NA
	PARATHION, METHYL	ug/l	--	--	--	--	--	--		--	--	--	--	0.14 U	0.15 U	4.1	20.5	NA
	PHORATE	ug/l	--	--	--	--	--	--		--	--	--	--	0.15 U	0.16 U	1.2	6	NA
SW8151A	2,4-D (DICHLOROPHENOXYACETIC ACID)	ug/l	--	--	--	--	--	--		--	--	--	--	0.22 U	0.22 U	4.2	21	NA
	ACETIC ACID, (2,4,5-trichlorophenoxy)-	ug/l	--	--	--	--	--	--		--	--	--	--	0.2 U	0.2 U	1	5	NA
	DINOSEB	ug/l	--	--	--	--	--	--		--	--	--	--	0.48 U	0.47 U	1	5	NA
	SILVEX (2,4,5-TP)	ug/l	--	--	--	--	--	--		--	--	--	--	0.18 U	0.18 U	1	5	NA
SW8290	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	pg/l	--	--	--	--	--	--		--	--	--	--	0.36 U	0.29 U	9.9	49.5	NA
RSK175	ACETYLENE	ug/l	0.73 U	0.73 U	5	25	NA	--		--	--	--	--	--	--	--	--	--
	ETHANE	ug/l	0.57 U	0.57 U	5	25	NA	--		--	--	--	--	--	--	--	--	--
	ETHENE	ug/l	0.4 U	0.4 U	5	25	NA	--		--	--	--	--	--	--	--	--	--
	METHANE	ug/l	0.64 U	0.64 U	5	25	NA	--		--	--	--	--	--	--	--	--	--
	PROPANE	ug/l	0.56 U	0.56 U	5	25	NA	--		--	--	--	--	--	--	--	--	--
SW6010C	CALCIUM	ug/l	93000	92000	200	1000	1.08	87000	200	89000	200	1000	2.27	44000	44000	200	1000	0.00
	IRON	ug/l	480	170	100	500	**310**	210	100	240	100	500	13.33	290 J	130 J	100	500	**160**
	MAGNESIUM	ug/l	38000	38000	200	1000	0.00	19000	200	19000	200	1000	0.00	38000	37000	200	1000	2.67
	POTASSIUM	ug/l	2500 J	2400 J	3000	15000	4.08	3700	3000	3800	3000	15000	2.67	2900 J	2700 J	3000	15000	7.14
	SODIUM	ug/l	57000	57000	1000	5000	0.00	63000	1000	63000	1000	5000	0.00	37000	39000	1000	5000	5.26
SW6020B	ANTIMONY	ug/l	0.57 J	0.4 U	2	10	0.17	0.4 U	2	0.4 U	2	10	NA	0.58 J	0.4 U	2	10	NA

Table D-2
Field Duplicate Comparisons

		Well Location	MW-112M	MW-112M				MW-4A		MW-4A				MW-13	MW-13			
		Sample Type	N	FD				N		FD				N	FD			
		Sample Date	10/5/2018	10/5/2018				10/5/2018		10/5/2018				10/6/2018	10/6/2018			
Method	Analyte	Unit	Result Q	Result Q	RL	5x RL	RPD or Absolute Difference	Result Q	RL	Result Q	RL	5x RL	RPD or Absolute Difference	Result Q	Result Q	RL	5x RL	RPD or Absolute Difference
	ARSENIC	ug/l	0.53 J	0.46 J	5	25	0.07	1.4 J	5	1.4 J	5	25	0	4.1 J	3.5 J	5	25	0.6
	BARIUM	ug/l	120	110	1	5	8.70	190	1	190	1	5	0.00	120	110	1	5	8.70
	BERYLLIUM	ug/l	0.08 U	0.08 U	1	5	NA	0.08 U	1	0.08 U	1	5	NA	0.08 U	0.08 U	1	5	NA
	CADMIUM	ug/l	0.27 U	0.27 U	1	5	NA	0.27 U	1	0.27 U	1	5	NA	0.27 U	0.27 U	1	5	NA
	CHROMIUM, TOTAL	ug/l	1.8 J	1.7 J	2	10	0.1	0.91 J	2	0.91 J	2	10	0	1.4 J	1.2 J	2	10	0.2
	COBALT	ug/l	0.17 J	0.073 J	1	5	0.097	0.18 J	1	0.13 J	1	5	0.05	1.2 J	0.18 J	1	5	**1.02**
	COPPER	ug/l	0.94 J	0.56 U	2	10	NA	0.56 U	2	0.57 J	2	10	NA	0.83 J	0.56 U	2	10	NA
	LEAD	ug/l	0.5 J	0.21 J	1	5	0.29	0.24 J	1	0.18 U	1	5	NA	0.6 J	0.18 U	1	5	NA
	MANGANESE	ug/l	13	4.6	1	5	**8.4**	6.2	1	6.1	1	5	1.63	22 J	2.9 J	1	5	**153.41**
	NICKEL	ug/l	0.56 J	0.33 J	2	10	0.23	0.37 J	2	0.45 J	2	10	0.08	0.62 J	0.3 U	2	10	NA
	SELENIUM	ug/l	0.7 U	0.7 U	5	25	NA	0.87 J	5	0.92 J	5	25	0.05	0.7 U	0.7 U	5	25	NA
	SILVER	ug/l	0.095 J	0.055 J	5	25	0.04	0.033 U	5	0.033 U	5	25	NA	0.033 U	0.033 U	5	25	NA
	THALLIUM	ug/l	0.05 U	0.05 U	1	5	NA	0.05 U	1	0.05 U	1	5	NA	0.05 U	0.05 U	1	5	NA
	TIN	ug/l	0.77 U	0.77 U	10	50	NA	0.77 U	10	0.77 U	10	50	NA	0.77 U	0.77 U	10	50	NA
	VANADIUM	ug/l	0.73 J	0.5 U	5	25	NA	1 J	5	1 J	5	25	0	0.91 J	0.76 J	5	25	0.15
	ZINC	ug/l	10 U	10 U	10	50	NA	10 U	10	10 U	10	50	NA	6.2 J	3.7 J	10	50	2.5
SW7470A	MERCURY	ug/l	0.027 U	0.027 U	0.2	1	NA	--	--		--	--	--	0.027 U	0.027 U	0.2	1	NA
A2320B	ALKALINITY, TOTAL (AS CACO3)	mg/l	340	330	5	25	2.99	170	5	180	5	25	5.71	210	210	5	25	0.00
A4500_CN_E	CYANIDE	mg/l	0.002 U	0.002 U	0.01	0.05	NA	--	--		--	--	--	0.002 U	0.002 U	0.01	0.05	NA
E353.2	NITROGEN, NITRATE-NITRITE	mg/l	0.77	0.75	0.1	0.5	0.02	2.4	0.1	2.4	0.1	0.5	0.00	0.6	0.63	0.1	0.5	4.88
SM4500-S2-D	SULFIDE	mg/l	--	--	--	--	--	--	--		--	--	--	0.007 U	0.007 U	0.05	0.25	NA
SW9056	CHLORIDE (AS CL)	mg/l	78	79	3	15	1.27	140	3	140	3	15	0.00	83	83	3	15	0.00
SW9056	SULFATE (AS SO4)	mg/l	67	66	5	25	1.50	51	5	50	5	25	1.98	21	20	5	25	1
SW9060	TOTAL ORGANIC CARBON	mg/l	0.74 J	0.64 J	1	5	0.1	--	--	--	--	--	--	--	--	--	--	--

Notes:
Bold font with blue highlighting indicates a result that exceeded the criteria

Bannock County
Data Validation Report

Laboratory: TestAmerica Denver

Matrix: Groundwater

Sample Delivery Group (SDG) Number and Samples in SDG:
(Validated samples in bold type)

SDG	Samples	
280-115262-1	MW-13-20181006	
	MW-13Q-20181006	Field Duplicate
	TB_100618 09:30	Trip Blank

Collection Dates: October 6, 2018

Validation of the data to the Stage 2A level (Stage 2B for the dioxins/furans) was performed in accordance with the methods, the Final SAP, National Functional Guidelines for Organic Superfund Methods Dara Review (January 2017),National Functional Guidelines for inorganic Superfund Methods Data Review (January 2017), and National Functional Guidelines for High Resolution Superfund Methods Data Review (April 2016).

Volatiles by Method SW8260B

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Were the Matrix Spike Duplicate RPDs (lab specific)?	**Yes**		
Were the Laboratory Control Spike Duplicate RPDs ≤ 30% ?	**Yes**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory control limits)	**Yes**		
Was the Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < RL?	**Yes**		
Were the Equipment Blanks results all < RL?	**N/A**		
Were the Trip Blank results all < RL	**Yes**		
Were the Surrogate % recoveries within laboratory determined control limits?	**Yes**		
Were the Internal Standard areas within ± 50 - 150%?	**Yes**		

Comments (note deviations): For blank detections below the reporting limit (RL), associated sample detections between the RL and the method detection limit (MDL) were changed to a non-detection at the RL. Sample detections at or above the RL and less than 5x RL were qualified as estimated with a high bias (J+) and sample detections greater than or equal to 5x RL were not qualified.

Semivolatiles by Method SW8270B

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Were the Matrix Spike Duplicate RPDs (lab specific)?	**Yes**		
Were the Laboratory Control Spike Duplicate RPDs within the laboratory's control limits ?	**N/A**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory control limits)		**No**	
Was the Laboratory Control Sample criteria met?		**No**	
Were the Laboratory Method Blank results all < RL?	**Yes**		
Were the Surrogate % recoveries within laboratory determined control limits?	**Yes**		
Were the Internal Standard areas within ± 50 - 150%?	**Yes**		

Comments (note deviations): None

LCS/LCSD	Recovery (%)	Limits (%)	Qualifiers	Samples
Hexachlorocyclapentadiene	9	10-109	**UJ**	**All Samples**

MS/MSD	Recovery (%)	Limit (%)	Qualifiers	Samples
p-Phenylene diamine	0 / 27	10-109	**UJ**	**MW-13-20181006 MW-13Q-20181006**

Organochlorine Pesticides by Method SW8081A

Precision:

	Yes	No	NA
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Were the Matrix Spike Duplicate RPDs within limits?		**No**	
Laboratory Control Spike Duplicates RPD within limits?		**No**	

Comments (note deviations): See below

LCS/LCSD	RPD (%)	Limit (%)	Qualifiers	Samples
Endrin Aldehyde	121	50	UJ	All samples

Accuracy:

	Yes	No	NA
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)		**No**	
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**		
Were the surrogate recoveries within control limits?	**Yes**		

Comments (note deviations): See below

MS/MSD	Recovery (%)	Limit (%)	Qualifiers	Samples
4,4'-DDD	115 / 124	73-115	None, sample result is ND.	
Dieldrin	111 / 188	78-116	None, sample result is ND.	
Endosulfan Sulfate	120 / 123	71-116	None, sample result is ND.	**MW-13-20181006 MW-13Q-20181006**
Endrin Aldehyde	0 / 31	47-119	**UJ**	
Gamma-BHC	110 / 113	71-112	None, sample result is ND.	
Heptachlor Epoxide	111 / 118	72-114	None, sample result is ND.	

LCS/LCSD	Recovery (%)	Limit (%)	Qualifiers	Samples
Endrin Aldehyde	49 / 12	47-119	UJ	All samples

Polychlorinated Biphenyls by Method SW8082A

Precision:

	Yes	No	NA
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Were the Matrix Spike Duplicate RPDs within limits?	**Yes**		
Laboratory Control Spike Duplicates RPD within limits?	**Yes**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**NA**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**		
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**		
Were the surrogate recoveries within control limits?			

Comments (note deviations): Both surrogates were recovered high in the LCS. Recoveries of the target compounds were in control and no data were qualified.

Organophophorus Pesticides by Method SW8141A

Precision:	**Yes**	**No**	**NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Were the Matrix Spike Duplicate RPDs within limits?	**Yes**		
Laboratory Control Spike Duplicats RPDs within limits?	**N/A**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**NA**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**		
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**		
Were the surrogate recoveries within control limits?	**Yes**		

Comments (note deviations): None

Herbicides by Method SW8151A

Precision:	**Yes**	**No**	**NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Were the Matrix Spike Duplicate RPDs within limits?	**Yes**		
Laboratory Control Spike Duplicats RPDs within limits?	**N/A**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**NA**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)		**No**	
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**		
Were the surrogate recoveries within control limits?			

MS/MSD	**Recovery (%)**	**Limit (%)**	**Qualifiers**	**Samples**
2,4-D	129 / 130	46 - 126	None, all sample results	All samples
Silvex (2,4,5-TP)	131 / 132	48 - 127		

Dioxins/Furans by Method SW8290

Precision:	**Yes**	**No**	**NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Were the Matrix Spike Duplicate RPDs within limits?	**Yes**		
Laboratory Control Spike Duplicate RPDs within limits?	**Yes**		

Comments (note deviations):None

Accuracy:	Yes	No	NA
Matrix Spike/Matrix Spike Duplicates recoveries met recovery limits of 40-135% for labeled standards and 70-130% for target analytes?	Yes		
Spike Blank recoveries met recovery limits of 40-135% for labeled standards and 70-130% for target analytes?	Yes		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	Yes		
Mass Calibration and Resolution - A static resolving power of ≥ 10,000 was demonstrated for tuning compound PFK required masses at the beginning and end of each 12 hour calibration period. Standards Ion abundance ratios were within criteria.	Yes		
Window defining mixture, containing the first and last isomers of each homologue CDD/CDF, was analyzed with each initial calibration and each continuing calibration?	Yes		
Initial Calibration was performed according to method requirement?	Yes		
Relative retention times of native and labeled CDDs and CDFs are within limits (.005 minute of CCV)?	Yes		
Calibration Verification meets all method requirement?	Yes		
Relative ion abundance ratio in CS3 standard is within criteria?	Yes		
Were the labeled internal standard recoveries within control limits?	Yes		

Comments (note deviations): None

Total Metals by Methods SW6010C/SW6020B/SW7470A

Precision:	Yes	No	NA
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).		No	
Were the Matrix Spike Duplicate RPDs within limits?	Yes		
Laboratory Control Spike Duplicates RPD within limits?	N/A		

Comments (note deviations): See below

Field Duplicate	RPD or Absolute Difference	Limit	Qualifiers	Samples
Iron	160	≤ RL	J	MW-13-20181006
Manganese	153.41	≤ 30%	J	MW-13Q-20181006

Accuracy:	Yes	No	NA
Were the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	Yes		
Laboratory Control Sample criteria met?	Yes		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	Yes		

Method Blank (6010C)	8260B	Result (µg/L)	Qualifiers	Samples
	Sodium	315 J	None	All sample results > 5x RL

Comments (note deviations): None

Nitrogen, Nitrate -Nitrite by Method SM353.2

Precision:	Yes	No	N/A
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	Yes		
Matrix Spike/Matrix Spike Duplicates (MS/MSD) RPD criteria of 20% met?	Yes		
Lab Control Sample/Lab Control Sample Duplicate (LCS/LCSD) RPD criteria of 25% met?	N/A		

Comments (note deviations): None

Accuracy:	**Yes No N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**
Lab Control Sample criteria met?	**Yes**
Were the method blank results < the RL?	**Yes**

Comments (note deviations): None

Anions by Method SM9056A

Precision:	**Yes No N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**
Were the MS/MSD RPDs ≤ 10% ?	**Yes**
Were the laboratory duplicate RPDs ≤ 15% ?	**Yes**
Were the Laboratory Control Spike Duplicate RPDs ≤ 30%?	**Yes**

Comments (note deviations): None

Accuracy:	**Yes No N/A**
Were the Matrix Spike/Matrix Spike Duplicate criteria met ?	**Yes**
Were the Method Reporting Limit criteria met?	**Yes**
Were the Laboratory Control Sample criteria met?	**Yes**
Laboratory Blank results all < the RL?	**Yes**

Comments (note deviations): None

Alkalinity by Method SM2320B

Precision:	**Yes No N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**N/A**
Was the MS/MSD RPD ≤ 15%?	**N/A**
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?	**N/A**

Comments (note deviations): None

Accuracy:	**Yes No N/A**
Was the Matrix Spike criteria met?	**N/A**
Was the Laboratory Control Sample criteria met?	**Yes**
Laboratory Blank results all < the RL?	**Yes**

Comments (note deviations): None

Total Cyanide by Method SM4500 CN-E

Precision:	**Yes No N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**
Was the MS/MSD RPD ≤ 15%?	**Yes**
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?	**N/A**

Comments (note deviations): None

Accuracy:	**Yes No N/A**
Was the Matrix Spike/Matrix Spike Duplicates criteria met (75-125%)?	**Yes**
Was the Low Level Spike recovery criteria met?	**Yes**
Was the High Level Spike recovery criteria met?	**Yes**
Was the Laboratory Control Sample criteria met?	**Yes**
Laboratory Blank results all < the RL?	**Yes**

Comments (note deviations): None

Total Sulfide by Method SM4500 S2 D

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Was the MS/MSD RPD ≤ 15%?	**Yes**		
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?			**N/A**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicates criteria met (75-125%)?	**Yes**		
Was the Laboratory Control Sample criteria met?	**Yes**		
Laboratory Blank results all < the RL?	**Yes**		

Comments (note deviations): None

Representativeness:	**Yes**	**No**	**N/A**
Were sampling procedures and design criteria met?	**Yes**		
Were holding times met?	**Yes**		
Was preservation criteria met? (4° C ± 2° C)	**Yes**		
Were Chain-of-Custody records complete and provided in data package?	**Yes**		

Comments (note deviations): None, cooler temperatures ranged from 0.8 to 2.3 degrees Celsius.

Completeness (90%):	**Yes**	**No**	**N/A**
Are all data in this SDG usable?	**Yes**		

Comments (note deviations): None

Sensitivity:	**Yes**	**No**	**N/A**
Are MDLs present and reported?	**Yes**		

Comments (note deviations): None

Data Validator: Mary Lou Fox Date: 11/14/2018

Data Reviewer: Cherie Zakowski Date: 11/19/2018

Bannock County
Data Validation Report

Laboratory: TestAmerica Denver

Matrix: Groundwater

Sample Delivery Group (SDG) Number and Samples in SDG:
(Validated samples in bold type)

SDG	Samples	
280-115186-1	**MW-104D-20181004**	
	MW-104S-20181004	
	MW-105D-20181004	
	MW-105S-20181004	
	MW-118D-20181003	
	MW-119D-20181003	
	MW-119S-20181003	
	MW-120D-20181003	
	MW-120S-20181003	
	TB_1-100418 08:45	Trip Blank
	TB_2_100418 12:50	Trip Blank
	TB_3_100418 12:55	Trip Blank

Collection Dates: October 3 and 4, 2018

Validation of the data to the Stage 2A level was performed in accordance with the methods, the Final SAP, National Functional Guidelines for Organic Superfund Methods Dara Review (January 2017), and National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2017).

Volatiles by Method SW8260B

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Were the Matrix Spike Duplicate RPDs (lab specific)?	**Yes**		
Were the Laboratory Control Spike Duplicate RPDs ≤ 30% ?	**Yes**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory control limits)		**No**	
Was the Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < RL?	**Yes**		
Were the Equipment Blanks results all < RL?	**Yes**		
Were the Trip Blank results all < RL	**Yes**		
Were the Surrogate % recoveries within laboratory determined control limits?	**Yes**		
Were the Internal Standard areas within ± 50 - 150%?	**Yes**		

Comments (note deviations): For blank detections below the reporting limit (RL), associated sample detections between the RL and the method detection limit (MDL) were changed to a non-detection at the RL. Sample detections at or above the RL and less than 5x RL were qualified as estimated with a high bias (J+) and sample detections greater than or equal to 5x RL were not qualified.

MS/MSD	**8260B**	**%R**	**Limits (%)**	**Qualifiers**	**Samples**

Trichloroethene	201 / 196	65 - 135	None, native concentration too great relative to spike concentration to yield meaningful recovery information	**MW-105S-20181004**

Source Water Blank	**8260B**	**Result (µg/L)**	**Qualifiers**	**Samples**
EB-0-VOC-20181006 (Source Water)	Acetone	5.1 J	None	Sample result is ND
	Methylene Chloride	0.6 J	**8 U**	**MW-104D-20181004**

Trip Blanks				
TB_3_100418	**8260B**	**Result (µg/L)**	**Qualifiers**	**Samples**
	Acetone	2.4 J	None	Associated sample results are ND

Equipment Blanks	**8260B**	**Result (µg/L)**	**Qualifiers**	**Samples**
EB-1-VOC-20181004	Acetone	4.1 J	None	Associated sample result is ND
	Methylene Chloride	0.57 J	**8 U**	**MW-104D-20181004**

Dissolved Gases by Method RSK-175

Precision:	**Yes No NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**N/A**
Were the Sample Duplicate RPDs within limits?	**Yes**
Laboratory Control Spike Duplicates RPD within limits?	**Yes**

Comments (note deviations): See below

Accuracy:	**Yes No NA**
Were the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**N/A**
Laboratory Control Sample criteria met?	**Yes**
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**
Were the Equipment Blanks results all < MRL?	

Comments (note deviations): None

Total Metals by Methods SW6010C/SW6020B/SW7470A

Precision:	**Yes No NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**N/A**
Were the Matrix Spike Duplicate RPDs within limits?	**Yes**
Laboratory Control Spike Duplicates RPD within limits?	**Yes**

Comments (note deviations): See below

Accuracy:	**Yes No NA**
Were the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**
Laboratory Control Sample criteria met?	**Yes**
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**
Were the Equipment Blanks results all < MRL?	

Comments (note deviations): For blank detections below the reporting limit(RL), sample detections between the RL and the method detection limit (MDL) were changed to a non-detection at the RL. Sample detections at or above the RL and less than 5x RL were qualified as estimated with a high bias (J+) and sample detections greater than or equal to 5x RL were not qualified.

Method Blanks

	6010C	Result (µg/L)	Qualifiers	Samples
		36.3 J	170 J+	MW-104D-20181004
280-432500/1-A	Iron		120 J+	MW-120S-20181003
	Sodium	156 J	None	All associated sample results are > 5x RL.

	6020B	Result (µg/L)	Qualifiers	Samples
			10 J+	MW-104D-20181004
			10 U	MW-104S-20181004
	Zinc	2.10 J	10 U	MW-105D-20181004
			10 U	MW-105S-20181004
			10 U	MW-119S-20181003
			10U	MW-120S-20181003

Nitrogen, Nitrate -Nitrite by Method SM353.2

Precision:	Yes	No	N/A
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			N/A
Matrix Spike/Matrix Spike Duplicates (MS/MSD) RPD criteria of 20% met?			Yes
Lab Control Sample/Lab Control Sample Duplicate (LCS/LCSD) RPD criteria of 25% met?			Yes

Comments (note deviations): None

Accuracy:	Yes	No	N/A
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			Yes
Lab Control Sample criteria met?			Yes
Were the method blank results < the RL?			Yes
Were the equipment blank results < the RL?			

Comments (note deviations):

Anions by Method SM9056A

Precision:	Yes	No	N/A
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			N/A
Were the MS/MSD RPDs ≤ 10% ?			N/A
Were the Laboratory Control Spike Duplicate RPDs ≤ 30%?			Yes

Comments (note deviations): None

Accuracy:	Yes	No	N/A
Were the Matrix Spike/Matrix Spike Duplicate criteria met ?			N/A
Were the Method Reporting Limit criteria met?			
Were the Laboratory Control Sample criteria met?			Yes
Were the Equipment Blanks results all < MRL?			No
Laboratory Blank results all < the RL?			Yes

Comments (note deviations): Chloride and sulfate were detected in the method blank below the RL. All sample detections were greater than 5x their respective blank detections.

Total Organic Carbon (TOC) by Method SM9060A

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Was the MS/MSD RPD ≤ 15%?	**Yes**		
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?	**Yes**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Were the Matrix Spike/Matrix Spike Duplicates criteria met?	**Yes**		
Were the			
Was the Laboratory Control Sample criteria met?	**Yes**		
Were the Equipment Blanks results all < MRL?			
Laboratory Blank results all < the RL?	**Yes**		

Comments (note deviations): None

Alkalinity by Method SM2320B

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Was the MS/MSD RPD ≤ 15%?			**N/A**
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?			**N/A**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike criteria met?	**Yes**		
Were the			
Was the Laboratory Control Sample criteria met?	**Yes**		
Were the Equipment Blanks results all < MRL?			
Laboratory Blank results all < the RL?	**Yes**		

Comments (note deviations): None

Total Cyanide by Method SM4500 CN-E

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Was the MS/MSD RPD ≤ 20%?		**No**	
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?	**Yes**		

Comments (note deviations): None

MS/MSD

	RPD	**Limit**	**Qualifiers**	**Samples**
Total cyanide	22	20	None, sample result is ND	MW-118D-20181003

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicates criteria met (75-125%)?	**Yes**		
Was the Low Level Spike recovery criteria met?			
Was the High Level Spike recovery criteria met?			
Was the Laboratory Control Sample criteria met?			
Was the Laboratory Control Sample criteria met?	**Yes**		
Were the Equipment Blanks results all < MRL?			
Laboratory Blank results all < the RL?	**Yes**		

Comments (note deviations): The matrix spike recovery was 78%, which is below the laboratory's in-house limits of 90-110%, but meets the National Functional Guidelines criteria of 75-125%. No cyanide data were qualified.

Representativeness:	**Yes**	**No**	**N/A**
Were sampling procedures and design criteria met?	**Yes**		
Were holding times met?	**Yes**		
Was preservation criteria met? (4° C ± 2° C)	**Yes**		
Were Chain-of-Custody records complete and provided in data package?	**Yes**		

Comments (note deviations): None, cooler temperatures were 1.2, 1.3, 1.5, and 3.6 degrees Celsius.

Completeness (90%):	**Yes**	**No**	**N/A**
Are all data in this SDG usable?	**Yes**		

Comments (note deviations): None

Sensitivity:	**Yes**	**No**	**N/A**
Are MDLs present and reported?	**Yes**		

Comments (note deviations): None

Data Validator: Mary Lou Fox Date: 11/11/2018

Data Reviewer: Cherie Zakowski Date: 11/15/2018

Bannock County
Data Validation Report

Laboratory: TestAmerica Denver

Matrix: Groundwater

Sample Delivery Group (SDG) Number and Samples in SDG:
(Validated samples in bold type)

SDG	Samples	
280-115218-1	EB-1-VOC-20181004	Rinsate Blank
	MW-101S-20181005	
	MW-111D-20181004	
	MW-111S-20181004	
	MW-113D-20181004	
	MW-113S-20181004	
	MW-1-20181005	
	TB-4-VOC-20181005	Trip Blank

Collection Dates: October 3 and 4, 2018

Validation of the data to the Stage 2A level was performed in accordance with the methods, the Final SAP, National Functional Guidelines for Organic Superfund Methods Dara Review (January 2017), and National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2017).

Volatiles by Method SW8260B

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Were the Matrix Spike Duplicate RPDs (lab specific)?	**Yes**		
Were the Laboratory Control Spike Duplicate RPDs ≤ 30% ?			**N/A**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory control limits)		**No**	
Was the Laboratory Control Sample criteria met?		**No**	
Were the Laboratory Method Blank results all < RL?	**Yes**		
Were the Equipment Blanks results all < RL?			
Were the Trip Blank results all < RL	**Yes**		
Were the Surrogate % recoveries within laboratory determined control limits?	**Yes**		
Were the Internal Standard areas within ± 50 - 150%?	**Yes**		

Comments: (note deviations): For blank detections below the reporting limit (RL), associated sample detections between the RL and the method detection limit (MDL) were changed to a non-detection at the RL. Sample detections at or above the RL and less than 5x RL were qualified as estimated with a high bias (J+) and sample detections greater than or equal to 5x RL were not qualified.

LCS/LCSD	8260B	%R	Limits (%)	Qualifiers	Samples
	Methyl Methacrylate	140 / 155	50 - 150	None, all associated sample results are ND	MW-111S-20181004 MW-113D-20181004 MW-113S-20181004

MS/MSD	8260B	%R	Limits (%)	Qualifiers	Samples
MW-101S-20181005	Dichlorodifluoromethane	126 / 144	43 - 142	**0.33 J**	**MW-101S-20181005**

Source Water Blank	8260B	Result (µg/L)	Qualifiers	Samples
EB-0-VOC-20181006 (Source Water)	Acetone	5.1 J	**10 U**	**MW-111S-20181004**
	Methylene Chloride	0.6 J	None	Sample result is ND

Trip Blank	8260B	Result (µg/L)	Qualifiers	Samples
	Acetone	2.6 J	**12 J+** **20 U**	**MW-111D-20181004** **MW-111S-20181004**

Method Blanks	8260B	Result (µg/L)	Qualifiers	Samples
MB-280-433054/8	Acetone	1.99 J	None	Sample results either > 5x blank result or ND

Equipment Blank	8260B	Result (µg/L)	Qualifiers	Samples
EB-2-VOC-20181006	Acetone	4.8 J	None	Associated sample results are ND
	Methylene Chloride	0.46 J	None	
EB-1-VOC-20181004	Acetone	4.1 J	**20 U**	**MW-111S-20181004**
	Methylene Chloride	0.57 J	None	Sample result is ND

Dissolved Gases by Method RSK-175

Precision:	Yes	No	NA
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Matrix Spike/Matrix Spike Duplicates RPDs within limits?			**Yes**
Laboratory Control Spike Duplicates RPDs within limits?			**Yes**
Comments (note deviations): See below			

Accuracy:	Yes	No	NA
Were the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			**Yes**
Laboratory Control Sample criteria met?			**Yes**
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?			**Yes**

Comments (note deviations): None

Total Metals by Methods SW6010C/SW6020B/SW7470A

Precision:	Yes	No	NA
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Were the Matrix Spike Duplicate RPDs within limits?			**Yes**
Laboratory Control Spike Duplicates RPD within limits?			**Yes**
Comments (note deviations): None			

Accuracy:	Yes	No	NA
Were the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**		
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**		

Comments (note deviations): For blank detections below the reporting limit(RL), sample detections between the RL and the method detection limit (MDL) were changed to a non-detection at the RL. Sample detections at or above the RL and less than 5x RL were qualified as estimated with a high bias (J+) and sample detections greater than or equal to 5x RL were not qualified.

Method Blanks

	6010C	**Result (µg/L)**	**Qualifiers**	**Samples**
280-432500/1-A	Iron	36.3 J	**100 U**	**MW-113S-20181004**
	Sodium	156 J	None	All sample detections > 5x the RL

	6020B	**Result (µg/L)**	**Qualifiers**	**Samples**
	Zinc	2.10 J	**10 U**	**MW-101S-20181005**
			10 U	**MW-111D-20181004**
			18 J+	**MW-111S-20181004**
			10 U	**MW-113D-20181004**
			10 U	**MW-113S-20181004**
			10 U	**MW-1-20181005**

Nitrogen, Nitrate -Nitrite by Method SM353.2

Precision:	Yes	No	N/A
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Matrix Spike/Matrix Spike Duplicates (MS/MSD) RPD criteria of 20% met?	**Yes**		
Lab Control Sample/Lab Control Sample Duplicate (LCS/LCSD) RPD criteria of 25% met?			**N/A**

Comments (note deviations): None

Accuracy:	Yes	No	N/A
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**		
Lab Control Sample criteria met?	**Yes**		
Were the method blank results < the RL?	**Yes**		

Comments (note deviations):

Anions by Method SM9056A

Precision:	Yes	No	N/A
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Were the Laboratory Duplicate relative percent differences (RPD) ≤ 15% ?	**Yes**		
Were the MS/MSD RPDs ≤ 10% ?	**Yes**		
Were the Laboratory Control Spike Duplicate RPDs ≤ 30%?	**Yes**		

Comments (note deviations): None

Accuracy:	Yes	No	N/A
Were the Matrix Spike/Matrix Spike Duplicate criteria met ?			**N/A**
Were the Method Reporting Limit criteria met?			
Were the Laboratory Control Sample criteria met?	**Yes**		
Laboratory Blank results all < the RL?	**Yes**		

Comments (note deviations): None

Total Organic Carbon (TOC) by Method SM9060A

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Was the MS/MSD RPD ≤ 15%?			**Yes**
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?			**Yes**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Were the Matrix Spike/Matrix Spike Duplicates criteria met?			**Yes**
Was the Laboratory Control Sample criteria met?			**Yes**
Laboratory Blank results all < the RL?			**Yes**

Comments (note deviations): None

Method Blanks

9060A	**Result (µg/L)**	**Qualifiers**	**Samples**
TOC	0.349 J	**1 J+**	**MW-101S-20181005**
		3.7 J+	**MW-113D-20181004**

Alkalinity by Method SM2320B

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Was the MS/MSD RPD ≤ 15%?			**N/A**
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?			**N/A**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike criteria met?			**N/A**
Was the Laboratory Control Sample criteria met?			**Yes**
Laboratory Blank result < the RL?			**Yes**

Comments (note deviations): None

Total Cyanide by Method SM4500 CN-E

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Was the MS/MSD RPD ≤ 15%?			**Yes**
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?			**N/A**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicates criteria met (75-125%)?	**Yes**		
Was the Low Level Spike recovery criteria met?	**Yes**		
Was the High Level Spike recovery criteria met?	**Yes**		
Was the Laboratory Control Sample criteria met?	**Yes**		
Laboratory Blank result < the RL?	**Yes**		

Comments (note deviations):

Representativeness:	**Yes**	**No**	**N/A**
Were sampling procedures and design criteria met?	**Yes**		
Were holding times met?	**Yes**		
Was preservation criteria met? (4° C ± 2° C)	**Yes**		
Were Chain-of-Custody records complete and provided in data package?	**Yes**		

Comments (note deviations): None, cooler temperatures were 1., and 2.3 degrees Celsius.

Completeness (90%):	**Yes**	**No**	**N/A**
Are all data in this SDG usable?	**Yes**		

Comments (note deviations): None

Sensitivity:	**Yes**	**No**	**N/A**
Are MDLs present and reported?	**Yes**		

Comments (note deviations): None

Data Validator: Mary Lou Fox Date: 11/13/2018

Data Reviewer: Cherie Zakowski Date: 11/15/2018

Bannock County
Data Validation Report

Laboratory: TestAmerica Denver

Matrix: Groundwater

Sample Delivery Group (SDG) Number and Samples in SDG:
(Validated samples in bold type)

SDG	Samples	
280-115307-1	EB-0-VOC-20181006	Source Water Blank
	EB-2-VOC-20181006	Rinsate Blank
	EB-3-VOC-100718	Rinsate Blank
	EB-4-VOC-20181008	Rinsate Blank
	MW-103D-20181009	
	MW-103S-20181009	
	MW-106D-20181008	
	MW-109D-20181006	
	MW-109S-20181006	
	MW-112D-20181005	
	MW-112M-20181005	
	MW-112MQ-20181005	
	MW-115D-20181008	
	MW-3A-20181008	
	MW-4-20181005	
	MW-4A-20181005	
	MW-4AQ-20181005	
	MW-6A-20181009	
	MW-7-20181008	
	RW-10-20181007	
	RW-17-20181007	
	RW-3-20181007	
	RW-9-20181007	
	TB_100918 11:30	Trip Blank
	TB_100918 15:00	Trip Blank

Collection Dates: October 5 to 9, 2018

Validation of the data to the Stage 2A level (Stage 2B for the dioxins/furans) was performed in accordance with the methods, the Final SAP, National Functional Guidelines for Organic Superfund Methods Dara Review (January 2017),National Functional Guidelines for inorganic Superfund Methods Data Review (January 2017), and National Functional Guidelines for High Resolution Superfund Methods Data Review (April 2016).

Volatiles by Method SW8260B

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Were the Matrix Spike Duplicate RPDs (lab specific)?			**N/A**
Were the Laboratory Control Spike Duplicate RPDs ≤ 30% ?	**Yes**		

Comments (note deviations): None

Accuracy:	**Yes No N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory control limits)	**N/A**
Was the Laboratory Control Sample criteria met?	**No**
Were the Laboratory Method Blank results all < RL?	**Yes**
Were the Equipment Blanks results all < RL?	**Yes**
Were the Trip Blank results all < RL	**Yes**
Were the Surrogate % recoveries within laboratory determined control limits?	**No**
Were the Internal Standard areas within ± 50 - 150%?	**Yes**

Comments (note deviations): For blank detections below the reporting limit (RL), associated sample detections between the RL and the method detection limit (MDL) were changed to a non-detection at the RL. Sample detections at or above the RL and less than 5x RL were qualified as estimated with a high bias (J+) and sample detections greater than or equal to 5x RL were not qualified.

LCS/LCSD	**8260B**	**%R**	**Limits (%)**	**Qualifiers**	**Samples**
433054	Methyl Methacrylate	140 / 155	50 - 150	None	All samples are ND

Method Blanks	**8260B**	**Result (µg/L)**	**Qualifiers**	**Samples**
MB 280-4330548	Acetone	1.99 J	None	All samples are ND
MB 280-4335426	Methylene Chloride	0.433 J	None	All samples are ND
MB 280-4340308	Methylene Chloride	0.933 J	None	All samples are ND

Source Water Blank	**8260B**	**Result (µg/L)**	**Qualifiers**	**Samples**
EB-0-VOC-20181006 (Source Water)	Acetone	5.1 J	None	All samples are ND
	Methylene Chloride	0.6 J	**2 U**	**MW-103S-20181009**

Equipment Blanks	**8260B**	**Result (µg/L)**	**Qualifiers**	**Samples**
EB-2-VOC-20181006	Acetone	4.8 J	None	Associated sample not in the SDG
	Methylene Chloride	0.46 J	None	
EB-3-VOC-100718	Acetone	3.5 J	None	All samples are ND
	Carbon Disulfide	0.7 J		
	Methylene Chloride	0.51 J		
EB-4-VOC-20181008	Acetone	4.7 J	None	Associated samples are ND
	Methylene Chloride	0.43 J		

Surrogates	**8260B**	**Recovery (%)**	**Recovery Limits (%)**		
MW-115D-20181008	Dibromofluoromethane	123	77 - 120	None	Analytes associated with this surrogate were all ND
MW-6A-20181009	Dibromofluoromethane	124	77 - 120	None	Analytes associated with these surrogate were all ND
	d4-1,2-Dichloroethene	128	77 - 127		
MW-4AQ-20181005	Dibromofluoromethane	124	77 - 120	None	Analytes associated with this surrogate were all ND

Dissolved Gases by Method RSK-175

Precision:	Yes	No	NA
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	Yes		
Were the Sample Duplicate RPDs within limits?	Yes		
Laboratory Control Spike Duplicates RPD within limits?	Yes		

Comments (note deviations):None

Accuracy:	Yes	No	NA
Were the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			N/A
Laboratory Control Sample criteria met?	Yes		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	Yes		

Comments (note deviations): None

Dioxins/Furans by Method SW8290

Precision:	Yes	No	NA
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			N/A
Were the Matrix Spike Duplicate RPDs within limits?	Yes		
Laboratory Control Spike Duplicate RPDs within limits?	Yes		

Comments (note deviations):None

Accuracy:	Yes	No	NA
Matrix Spike/Matrix Spike Duplicates recoveries met recovery limits of 40-135% for labeled standards and 70-130% for target analytes?	Yes		
Spike Blank recoveries met recovery limits of 40-135% for labeled standards and 70-130% for target analytes?	Yes		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	Yes		
Mass Calibration and Resolution - A static resolving power of ≥ 10,000 was demonstrated for tuning compound PFK required masses at the beginning and end of each 12 hour calibration period. Standards Ion abundance ratios were within criteria.	Yes		
Window defining mixture, containing the first and last isomers of each homologue CDD/CDF, was analyzed with each initial calibration and each continuing calibration?	Yes		
Initial Calibration was performed according to method requirement?	Yes		
Relative retention times of native and labeled CDDs and CDFs are within limits (.005 minute of CCV)?	Yes		
Calibration Verification meets all method requirement?	Yes		
Relative ion abundance ratio in CS3 standard is within criteria?	Yes		
Were the labeled internal standard recoveries within control limits?	Yes		

Comments (note deviations): None

Total Metals by Methods SW6010C/SW6020B/SW7470A

Precision:	Yes	No	NA
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).		No	
Were the Matrix Spike Duplicate RPDs within limits?	Yes		
Laboratory Control Spike Duplicates RPD within limits?	Yes		

Comments (note deviations): See below

Field Duplicates

MW-112M-20181005	Sample Result	Field Duplicate Result	RPD or Absolute Difference	Limit	Qualifiers	Samples
Iron	480	170	310	100	J	MW-112M-20181005 MW-112MQ-20181005
Manganese	13	4.6	8.4	1	J	MW-112M-20181005 MW-112MQ-20181005

Accuracy:

	Yes	No	NA
Were the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	Yes		
Laboratory Control Sample criteria met?	Yes		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	Yes		

Comments (note deviations): For blank detections below the reporting limit(RL), sample detections between the RL and the method detection limit (MDL) were changed to a non-detection at the RL. Sample detections at or above the RL and less than 5x RL were qualified as estimated with a high bias (J+) and sample detections greater than or equal to 5x RL were not qualified.

Method Blanks

	6010C	Result (µg/L)	Qualifiers	Samples
280-432959/1-A	Sodium	208 J	None	All sample results > 5x RL

	6020B	Result (µg/L)	Qualifiers	Samples
			10 U	MW-103D-20181009
			10 U	MW-103S-20181009
			10 U	MW-106D-20181008
			10 U	MW-109D-20181006
			10 U	MW-109S-20181006
			10 U	MW-112D-20181005
			10 U	MW-112M-20181005
	Zinc	2.41 J	10 U	MW-112MQ-20181005
			10 U	MW-115D-20181008
			11 J+	MW-121-20181007
			20 J+	MW-3A-20181008
			10 U	MW-4-20181005
			10 U	MW-4AQ-20181005
			10 U	MW-6A-20181009
			10 U	MW-7-20181008
			10 U	

Nitrogen, Nitrate -Nitrite by Method SM353.2

Precision:

	Yes	No	N/A
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	Yes		
Matrix Spike/Matrix Spike Duplicates (MS/MSD) RPD criteria of 20% met?	Yes		
Lab Control Sample/Lab Control Sample Duplicate (LCS/LCSD) RPD criteria of 25% met?			N/A

Comments (note deviations): None

Accuracy:

	Yes	No	N/A
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	Yes		
Lab Control Sample criteria met?	Yes		
Were the method blank results < the RL?	Yes		

Comments (note deviations): None

Anions by Method SM9056A

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent differences (RPD) ≤ 30% ?	**Yes**		
Were the MS/MSD RPDs ≤ 10% ?	**Yes**		
Were the Laboratory Sample Duplicate RPDs ≤ 10% ?	**Yes**		
Were the Laboratory Control Spike Duplicate RPDs ≤ 30%?			

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Were the Matrix Spike/Matrix Spike Duplicate criteria met ?	**Yes**		
Were the Method Reporting Limit criteria met?	**Yes**		
Were the Laboratory Control Sample criteria met?	**Yes**		
Laboratory Blank results all < the RL?			

Comments (note deviations): None

Total Organic Carbon (TOC) by Method SM9060A

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Was the MS/MSD RPD ≤ 15%?	**Yes**		
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?	**N/A**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Were the Matrix Spike/Matrix Spike Duplicates criteria met?	**Yes**		
Was the Laboratory Control Sample criteria met?	**Yes**		
Laboratory Blank results all < the RL?	**Yes**		

Comments (note deviations): None

Alkalinity by Method SM2320B

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Was the MS/MSD RPD ≤ 15%?	**N/A**		
Was the Laboratory Sample Duplicate RPD ≤ 10%	**Yes**		
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?	**N/A**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike criteria met?	**N/A**		
Was the Laboratory Control Sample criteria met?	**Yes**		
Laboratory Blank results all < the RL?	**Yes**		

Comments (note deviations): None

Total Cyanide by Method SM4500 CN-E

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**Yes**		
Was the MS/MSD RPD ≤ 15%?	**Yes**		
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?			**N/A**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicates criteria met (75-125%)?	**Yes**		
Was the Low Level Spike recovery criteria met?	**Yes**		
Was the High Level Spike recovery criteria met?	**Yes**		
Was the Laboratory Control Sample criteria met?	**Yes**		
Laboratory Blank results all < the RL?	**Yes**		

Comments (note deviations): None

Representativeness:	**Yes**	**No**	**N/A**
Were sampling procedures and design criteria met?	**Yes**		
Were holding times met?	**Yes**		
Was preservation criteria met? (4° C ± 2° C)	**Yes**		
Were Chain-of-Custody records complete and provided in data package?			

Comments (note deviations): None, cooler temperatures ranged from 1.5 to 5.6 degrees Celsius.

Completeness (90%):	**Yes**	**No**	**N/A**
Are all data in this SDG usable?	**Yes**		

Comments (note deviations): None

Sensitivity:	**Yes**	**No**	**N/A**
Are MDLs present and reported?	**Yes**		

Comments (note deviations): None

Data Validator: Mary Lou Fox Date: 11/15/2018

Data Reviewer: Cherie Zakowski Date: 11/15/2018

Bannock County
Data Validation Report

Laboratory: TestAmerica Denver

Matrix: Groundwater

Sample Delivery Group (SDG) Number and Samples in SDG:
(Validated samples in bold type)

SDG	Samples	
280-115369	EB-4-VOC-20181007	Equipment Blank
	INF-COM-20181007	
	INJ-1R-20181006	
	MW-102S-20181006	
	MW-106S-20181007	
	MW-109S-20181006	
	MW-110D-20181007	
	MW-110S-20181006	
	MW-115S-20181008	
	MW-121-20181007	
	MW-12-20181008	
	MW-5A-20181008	
	MW-8-20181007	
	MW-9-20181007	
	RW-15-20181006	
	RW-4-20181007	
	RW-7773P-20181007	
	TB_100918 08:30	Trip Blank
	TB_100918 11:30	Trip Blank
	TB_100918 15:00	Trip Blank

Collection Dates: October 6 to 9, 2018

Validation of the data to the Stage 2A level was performed in accordance with the methods, the Final SAP, National Functional Guidelines for Organic Superfund Methods Dara Review (January 2017), and National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2017).

Volatiles by Method SW8260B

Precision:	**Yes No N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**N/A**
Were the Matrix Spike Duplicate RPDs (lab specific)?	**Yes**
Were the Laboratory Control Spike Duplicate RPDs ≤ 30% ?	**Yes**

Comments (note deviations): None

Accuracy:	**Yes No N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory control limits)	**No**
Was the Laboratory Control Sample criteria met?	**Yes**
Were the Laboratory Method Blank results all < RL?	**Yes**
Were the Equipment Blanks results all < RL?	**Yes**
Were the Trip Blank results all < RL	**Yes**
Were the Surrogate % recoveries within laboratory determined control limits?	**Yes**
Were the Internal Standard areas within ± 50 - 150%?	**Yes**

Comments (note deviations): For blank detections below the reporting limit (RL), associated sample detections between the RL and the method detection limit (MDL) were changed to a non-detection at the RL. Sample detections at or above the RL and less than 5x RL were qualified as estimated with a high bias (J+) and sample detections greater than or equal to 5x RL were not qualified.

MS/MSD	8260B	%R	Limits (%)	Qualifiers	Samples
MW-109S-20181006	Trichloroethene	-229 / -228	65-135	None, native concentration too great relative to spike concentration to yield meaningful recovery information	MW-109S-20181006
MW-110D-20181007	Trichloroethene	49 / 37	65 - 135	**J**	**MW-110D-20181007**

Source Water Blank	8260B	Result (µg/L)	Qualifiers	Samples
EB-0-VOC-20181006 (Source Water)	Acetone	5.1 J	**10 U**	**MW-106S-20181007**
			10 U	**MW-121-20181007**
	Methylene Chloride	0.6 J	**2 U**	**MW-106S-20181007**

Method Blanks	8260B	Result (µg/L)	Qualifiers	Samples
MB 280-43354	Methylene Chloride	0.433 J	None	Sample results are ND
MB 280-43403	Methylene Chloride	0.933 J	**2 U**	**INF-COM-20181007**
MB 280-43421	Methylene Chloride	0.51 J	**2 U**	**MW-106S-20181007**

Semivolatiles by Method SW8270B

Precision:	**Yes No N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**N/A**
Were the Matrix Spike Duplicate RPDs (lab specific)?	**N/A**
Were the Laboratory Control Spike Duplicate RPDs within the laboratory's control limits ?	**Yes**

Comments (note deviations): None

Accuracy:	**Yes No N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory control limits)	**N/A**
Was the Laboratory Control Sample criteria met?	**Yes**
Were the Laboratory Method Blank results all < RL?	**Yes**
Were the Surrogate % recoveries within laboratory determined control limits?	**Yes**
Were the Internal Standard areas within ± 50 - 150%?	**Yes**

Comments (note deviations): None

Dissolved Gases by Method RSK-175

Precision:	**Yes No NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**N/A**
Were the Sample Duplicate RPDs within limits?	**Yes**
Laboratory Control Spike Duplicates RPD within limits?	**Yes**

Comments (note deviations): None

Accuracy:	**Yes No NA**

Were the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**
Laboratory Control Sample criteria met?	**Yes**
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**

Comments (note deviations): None

Organochlorine Pesticides by Method SW8081A

Precision:	**Yes**	**No**	**NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Were the Matrix Spike Duplicate RPDs within limits?			**N/A**
Laboratory Control Spike Duplicates RPD within limits?	**Yes**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**NA**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			**N/A**
Laboratory Control Sample criteria met?		**No**	
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**		
Were the surrogate recoveries within control limits?	**Yes**		

Comments (note deviations): The laboratory noted that samples MW-9-20181007, MW-8-20181007, and INJ-1R-20181006 required mercuric cleanup for matrix interferences from sulfur.

Method Blank	**8081A**	**Result (µg/L)**	**Qualifiers**	**Samples**
	Isodrin	0.004745 J	None	All sample results are ND

LCS/LSCD	**Recovery (%)**	**Limit (%)**	**Qualifiers**	**Samples**
Endosulfan II	110 / 99	69-109	None	All sample results are ND

Polychlorinated Biphenyls by Method SW8082A

Precision:	**Yes**	**No**	**NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Were the Matrix Spike Duplicate RPDs within limits?			**N/A**
Laboratory Control Spike Duplicates RPD within limits?			**N/A**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**NA**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			**N/A**
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**		
Were the surrogate recoveries within control limits?			

Comments (note deviation): The laboratory noted that samples MW-9-20181007, MW-8-20181007, and INJ-1R-20181006 required sulfuric acid cleanup for matrix interferences.

Organophosphorus Pesticides by Method SW8141A

Precision:	**Yes**	**No**	**NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Were the Matrix Spike Duplicate RPDs within limits?			**N/A**
Laboratory Control Spike Duplicates RPDs within limits?	**Yes**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**NA**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			**N/A**
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**		
Were the surrogate recoveries within control limits?			

Comments (note deviations): One surrogate was recovered below the control limits in the method blank. No target analytes were detected in any of the sample and all surrogates were recovered within the control limits and no data were qualified for the low surrogate recovery.

Herbicides by Method SW8151A

Precision:	**Yes**	**No**	**NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Were the Matrix Spike Duplicate RPDs within limits?			**N/A**
Laboratory Control Spike Duplicates RPDs within limits?	**Yes**		

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**NA**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			**N/A**
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**		
Were the surrogate recoveries within control limits?			

Comments (note deviations): The laboratory noted that sample MW-9-20181007 formed an emulsion during the extraction procedure. The emulsion was broken up using a pour back for the third methylene chloride rinse only. No data were qualified.

Total Metals by Methods SW6010C/SW6020B/SW7470A

Precision:	**Yes**	**No**	**NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Were the Matrix Spike Duplicate RPDs within limits?	**Yes**		
Laboratory Control Spike Duplicates RPD within limits?			**N/A**

Comments (note deviations): See below

Accuracy:	**Yes**	**No**	**NA**
Were the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**		
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?	**Yes**		

Comments (note deviations): For blank detections below the reporting limit(RL), sample detections between the RL and the method detection limit (MDL) were changed to a non-detection at the RL. Sample detections at or above the RL and less than 5x RL were qualified as estimated with a high bias (J+) and sample detections greater than or equal to 5x RL were not qualified.

Method Blanks				
280-432061/3-A	**6010C**	**Result (µg/L)**	**Qualifiers**	**Samples**
	Calcium	63.8 J	None	All sample results > 5x RL
			150 J+	**MW-102S-20181006**
			100 U	**MW-109S-20181006**
			100 U	**MW-110D-20181007**
	Iron	31.7 J	**360 J+**	**MW-5A-20181008**
			110 J+	**MW-8-20181007**
			430 J+	**MW-9-20181007**
			180 J+	**RW-17-20181007**

280-432968/1-A	**6020B**	**Result (µg/L)**	**Qualifiers**	**Samples**
	Barium	0.417 J	None	All sample results are > 5x RL
	Manganese	0.581 J	**1 U**	**MW-106S-20181007**
			1 U	**MW-12-20181008**
	Zinc	3.49 J	**10 U**	**MW-102S-20181006**
			10 U	**MW-106S-20181007**
			10 U	**MW-109S-20181006**
			10 U	**MW-110D-20181007**
			10 U	**MW-110S-20181006**
			10 U	**MW-115S-20181008**
			10 U	**MW-12-20181008**
			10 U	**MW-5A-20181008**
			10 U	**MW-8-20181007**
			27 J+	**RW-17-20181007**
280-434398/1-A	Manganese	0.489 J	**1.7 J+**	**MW-102S-20181006**
			4 J+	**MW-8-20181007**
			2.6 J+	**RW-17-20181007**

Nitrogen, Nitrate -Nitrite by Method SM353.2

Precision:	**Yes No N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**N/A**
Matrix Spike/Matrix Spike Duplicates (MS/MSD) RPD criteria of 20% met?	**Yes**
Lab Control Sample/Lab Control Sample Duplicate (LCS/LCSD) RPD criteria of 25% met?	**N/A**

Comments (note deviations): None

Accuracy:	**Yes No N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**
Lab Control Sample criteria met?	**Yes**
Were the method blank results < the RL?	**Yes**

Comments (note deviations): None

Anions by Method SM9056A

Precision:	**Yes No N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**N/A**
Were the MS/MSD RPDs ≤ 10% ?	**N/A**
Laboratory duplicate RPDs met criteria?	**Yes**
Were the Laboratory Control Spike Duplicate RPDs ≤ 30%?	**Yes**

Comments (note deviations): None

Accuracy:	**Yes No N/A**
Were the Matrix Spike/Matrix Spike Duplicate criteria met ?	**N/A**
Were the Method Reporting Limit criteria met?	
Were the Laboratory Control Sample criteria met?	**Yes**
Were the Equipment Blanks results all < MRL?	**No**
Laboratory Blank results all < the RL?	**Yes**

Comments (note deviations): None

Total Organic Carbon (TOC) by Method SM9060A

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Was the MS/MSD RPD ≤ 15%?			**Yes**
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?			**Yes**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Were the Matrix Spike/Matrix Spike Duplicates criteria met?			**Yes**
Was the Laboratory Control Sample criteria met?			**Yes**
Laboratory Blank results all < the RL?			**Yes**

Comments (note deviations): None

Alkalinity by Method SM2320B

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Was the MS/MSD RPD ≤ 15%?			**N/A**
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?			**N/A**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike criteria met?			**N/A**
Was the Laboratory Control Sample criteria met?			**Yes**
Laboratory Blank results all < the RL?			**Yes**

Comments (note deviations): None

Total Cyanide by Method SM4500 CN-E

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Was the MS/MSD RPD ≤ 15%?			**Yes**
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?			**N/A**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicates criteria met (75-125%)?			**Yes**
Was the Low Level Spike recovery criteria met?			**Yes**
Was the High Level Spike recovery criteria met?			**Yes**
Was the Laboratory Control Sample criteria met?			**Yes**
Laboratory Blank results all < the RL?			**Yes**

Comments (note deviations): Recoveries of cyanide in the total cyanide matrix spike and matrix spike duplicate were below the laboratory's in house limits, but met the 75-125% limits in National Functional Guidelines. No cyanide data were qualified

---

Total Sulfide by Method SM4500 S2 D

Precision:	**Yes**	**No**	**N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Was the MS/MSD RPD ≤ 15%?			**N/A**
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?			**N/A**

Comments (note deviations): None

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicates criteria met (75-125%)?			**N/A**
Was the Laboratory Control Sample criteria met?	**Yes**		
Laboratory Blank results all < the RL?	**Yes**		

Comments (note deviations): None

Representativeness:	**Yes**	**No**	**N/A**
Were sampling procedures and design criteria met?	**Yes**		
Were holding times met?	**Yes**		
Was preservation criteria met? (4° C ± 2° C)	**Yes**		
Were Chain-of-Custody records complete and provided in data package?	**Yes**		

Comments (note deviations): None, cooler temperatures ranged from 0.8 to 4 degrees Celsius.

Completeness (90%):	**Yes**	**No**	**N/A**
Are all data in this SDG usable?	**Yes**		

Comments (note deviations): None

Sensitivity:	**Yes**	**No**	**N/A**
Are MDLs present and reported?	**Yes**		

Comments (note deviations): None

Data Validator: Mary Lou Fox Date: 11/14/2018

Data Reviewer: Cherie Zakowski Date: 11/19/2018

Bannock County
Data Validation Report

Laboratory: TestAmerica Denver

Matrix: Groundwater

Sample Delivery Group (SDG) Number and Samples in SDG: (Validated samples in bold type)	**SDG**	**Samples**
	280-115944-1	EB-5-VOC-20181019 Rinsate Blank MW-116D-20181019 MW-116D-20181019-2 MW-116S-20181019 RW-2140H-20181019 TB_101918 16:00 Trip Blank

Collection Dates: October 23, 2018

Validation of the data to the Stage 2A level was performed in accordance with the methods, the Final SAP, National Functional Guidelines for Organic Superfund Methods Dara Review (January 2017), and National Functional Guidelines for inorganic Superfund Methods Data Review (January 2017).

Volatiles by Method SW8260B

Precision:	**Yes No N/A**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**N/A**
Were the Matrix Spike Duplicate RPDs (lab specific)?	**N/A**
Were the Laboratory Control Spike Duplicate RPDs ≤ 30% ?	**Yes**

Comments (note deviations): None

Accuracy:	**Yes No N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory control limits)	**N/A**
Was the Laboratory Control Sample criteria met?	**Yes**
Were the Laboratory Method Blank results all < RL?	**Yes**
Were the Equipment Blanks results all < RL?	**Yes**
Were the Trip Blank results all < RL	**Yes**
Were the Surrogate % recoveries within laboratory determined control limits?	**Yes**
Were the Internal Standard areas within ± 50 - 150%?	**Yes**

Comments: (note deviations): None

Total Metals by Methods SW6010C/SW6020B/SW7470A

Precision:	**Yes No NA**
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).	**N/A**
Were the Matrix Spike Duplicate RPDs within limits?	**N/A**
Laboratory Control Spike Duplicates RPD within limits?	**Yes**

Comments (note deviations): None

Accuracy:	Yes	No	NA
Were the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			**N/A**
Laboratory Control Sample criteria met?			**Yes**
Were the Laboratory Method Blank results all < Method Reporting Limit (MRL)?			**Yes**

Comments (note deviations): For blank detections below the reporting limit(RL), sample detections between the RL and the method detection limit (MDL) were changed to a non-detection at the RL. Sample detections at or above the RL and less than 5x RL were qualified as estimated with a high bias (J+) and sample detections greater than or equal to 5x RL were not qualified.

Method Blanks

	6020B	Result (µg/L)	Qualifiers	Samples
280-435480/1-A	Manganese	0.428 J	**1 U**	**RW-2140H-20181019**

Nitrogen, Nitrate-Nitrite by Method SM353.2

Precision:	Yes	No	N/A
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Matrix Spike/Matrix Spike Duplicates (MS/MSD) RPD criteria of 20% met?			**N/A**
Lab Control Sample/Lab Control Sample Duplicate (LCS/LCSD) RPD criteria of 25% met?			**N/A**

Comments (note deviations): None

Accuracy:	Yes	No	N/A
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			**N/A**
Lab Control Sample criteria met?			**Yes**
Were the method blank results < the RL?			**Yes**
Comments (note deviations):			**Yes**

Method Blanks

	353.2	Result (mg/L)	Qualifiers	Samples
			0.1 U	**MW-116D-20181019**
280-435969/22	Nitrate Nitrite as N	0.0256 J	**0.1 U**	**MW-116D-20181019-2**
			0.1 U	**MW-116S-20181019**

Anions by Method SM9056A

Precision:	Yes	No	N/A
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			**N/A**
Were the Laboratory Duplicate relative percent differences (RPD) ≤ 15% ?			**N/A**
Were the MS/MSD RPDs ≤ 10% ?			**Yes**
Were the Laboratory Sample Duplicate RPDs ≤ 15% ?			**Yes**
Were the Laboratory Control Spike Duplicate RPDs ≤ 30%?			**Yes**

Comments (note deviations): None

Accuracy:	Yes	No	N/A
Were the Matrix Spike/Matrix Spike Duplicate criteria met ?			**No**
Were the Method Reporting Limit criteria met?			**Yes**
Were the Laboratory Control Sample criteria met?			**Yes**
Laboratory Blank results all < the RL?			

Comments (note deviations): None

MS/MSD MW-116D-20181019-2	9056A	Recoveries (%)	Limits (%)	Qualifiers	Samples
	Chloride	130 / 128	80-120	J+	MW-116D-20181019-2 MW-116S-20181019
	Sulfate	128 / 126	80-120	J+	MW-116D-20181019-2 MW-116S-20181019

Alkalinity by Method SM2320B

Precision:	Yes	No	N/A
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			N/A
Was the MS/MSD RPD ≤ 15%?			N/A
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?			N/A

Comments (note deviations): None

Accuracy:	Yes	No	N/A
Was the Matrix Spike criteria met?			N/A
Was the Laboratory Control Sample criteria met?	Yes		
Laboratory Blank result < the RL?	Yes		

Comments (note deviations): None

Total Cyanide by Method SM4500 CN-E

Precision:	Yes	No	N/A
Were the Field Duplicate relative percent difference (RPD) criteria met ? (control limits RPD ≤ 30% or an absolute difference of the quantitation limit if either detection is less than 5x the quantitation limit).			N/A
Was the MS/MSD RPD ≤ 15%?	Yes		
Was the Laboratory Control Spike Duplicate RPD ≤ 15%?	Yes		

Comments (note deviations): None

Accuracy:	Yes	No	N/A
Was the Matrix Spike/Matrix Spike Duplicates criteria met (75-125%)?	Yes		
Was the Low Level Spike recovery criteria met?	Yes		
Was the High Level Spike recovery criteria met?	Yes		
Was the Laboratory Control Sample criteria met?	Yes		
Laboratory Blank result < the RL?	Yes		

Comments (note deviations):

Representativeness:	Yes	No	N/A
Were sampling procedures and design criteria met?	Yes		
Were holding times met?	Yes		
Was preservation criteria met? (4° C ± 2° C)	Yes		
Were Chain-of-Custody records complete and provided in data package?	Yes		

Comments (note deviations): None, cooler temperature was 1.9 degrees Celsius.

Completeness (90%):

	Yes	No	N/A
Are all data in this SDG usable?	Yes		

Comments (note deviations): None

Sensitivity:

	Yes	No	N/A
Are MDLs present and reported?	Yes		

Comments (note deviations): None

Data Validator: Mary Lou Fox Date: 11/15/2018

Data Reviewer: Cherie Zakowski Date: 11/19/2018

Appendix E

Data Packages

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115186-1
Client Project/Site: Bannock Ft. Hall Mine LF, Idaho

For:
CDM Smith, Inc.
14432 S.E. Eastgate Way
Suite 100
Bellevue, Washington 98007-6493

Attn: Mary Lou Fox

Authorized for release by:
10/26/2018 3:56:17 PM

Dylan Bieniulis, Project Manager I
(303)736-0100
dylan.bieniulis@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions 3
Case Narrative 4
Detection Summary 7
Method Summary 13
Sample Summary 14
Client Sample Results 15
Surrogate Summary 43
QC Sample Results 44
QC Association 61
Chronicle 68
Certification Summary 74
Chain of Custody 76
Receipt Checklists 80

Definitions/Glossary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115186-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115186-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: CDM Smith, Inc.

Project: Bannock Ft. Hall Mine LF, Idaho

Report Number: 280-115186-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/5/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 1.2º C, 1.3º C, 1.5º C and 3.6º C.

The client sample ID on one of three HCl preserved VOA vials received for the requested 8260B VOCs analysis for MW-120S-20181003 (280-115186-11) did not match the chain of custody. The container label lists a sample ID of MW-120D-20181003 while the chain of custody lists a sample ID of MW-120S-20181003. The container was matched to the chain of custody by the collection date/time and the sample ID was logged per the chain of custody. The client was notified on 10/8/2018.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples MW-105D-20181004 (280-115186-4), MW-105S-20181004 (280-115186-5), TB-2-VOC-20181004 (280-115186-6), MW-104S-20181004 (280-115186-7), MW-104D-20181004 (280-115186-8), TB-3-VOC-20181004 (280-115186-9), MW-120D-20181003 (280-115186-10), MW-120S-20181003 (280-115186-11), MW-119S-20181003 (280-115186-12), MW-119D-20181003 (280-115186-13), MW-118D-20181003 (280-115186-14) and TB-1-VOC-20181003 (280-115186-15) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/10/2018.

Method(s) 8260B: In batch 432690, the following volatile samples were analyzed with significant headspace in the sample container(s): (280-115186-G-5 MS) and (280-115186-G-5 MSD). Significant headspace is defined as a bubble greater than 6 mm in diameter.

Trichloroethene failed the recovery criteria high for the MS of sample MW-105S-20181004MS (280-115186-5) in batch 280-432690. Trichloroethene failed the recovery criteria high for the MSD of sample MW-105S-20181004MSD (280-115186-5) in batch 280-432690. The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Refer to the QC report for details.

Samples MW-105D-20181004 (280-115186-4)[5X], MW-105S-20181004 (280-115186-5)[2X], MW-104S-20181004 (280-115186-7)[20X], MW-104D-20181004 (280-115186-8)[4X], MW-120D-20181003 (280-115186-10)[4X], MW-120S-20181003 (280-115186-11)[4X], MW-119S-20181003 (280-115186-12)[4X], MW-119D-20181003 (280-115186-13)[4X] and MW-118D-20181003 (280-115186-14)[4X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DISSOLVED GASES

Job ID: 280-115186-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples MW-119S-20181003 (280-115186-1), MW-119D-20181003 (280-115186-2), MW-118D-20181003 (280-115186-3), MW-105D-20181004 (280-115186-4), MW-105S-20181004 (280-115186-5), MW-104S-20181004 (280-115186-7), MW-104D-20181004 (280-115186-8), MW-120D-20181003 (280-115186-10) and MW-120S-20181003 (280-115186-11) were analyzed for dissolved gases in accordance with RSK_175. The samples were analyzed on 10/12/2018.

Analytes Acetylene/Ethane co-elute on one of the columns used for this analysis. As a result, there are no results reported for the %Difference in the concentration on the Form X.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP)

Samples MW-119S-20181003 (280-115186-1), MW-119D-20181003 (280-115186-2), MW-118D-20181003 (280-115186-3), MW-105D-20181004 (280-115186-4), MW-105S-20181004 (280-115186-5), MW-104S-20181004 (280-115186-7), MW-104D-20181004 (280-115186-8), MW-120D-20181003 (280-115186-10) and MW-120S-20181003 (280-115186-11) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 10/09/2018 and analyzed on 10/10/2018.

Iron and Sodium was detected in method blank MB 280-432500/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP/MS)

Samples MW-119S-20181003 (280-115186-1), MW-119D-20181003 (280-115186-2), MW-118D-20181003 (280-115186-3), MW-105D-20181004 (280-115186-4), MW-105S-20181004 (280-115186-5), MW-104S-20181004 (280-115186-7), MW-104D-20181004 (280-115186-8), MW-120D-20181003 (280-115186-10) and MW-120S-20181003 (280-115186-11) were analyzed for Total Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 10/10/2018 and 10/12/2018 and analyzed on 10/11/2018, 10/13/2018 and 10/14/2018.

Zinc was detected in method blank MB 280-432502/1-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY

Samples MW-119S-20181003 (280-115186-1), MW-119D-20181003 (280-115186-2), MW-118D-20181003 (280-115186-3), MW-105D-20181004 (280-115186-4), MW-105S-20181004 (280-115186-5), MW-104S-20181004 (280-115186-7), MW-104D-20181004 (280-115186-8), MW-120D-20181003 (280-115186-10) and MW-120S-20181003 (280-115186-11) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 10/11/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ALKALINITY

Samples MW-119S-20181003 (280-115186-1), MW-119D-20181003 (280-115186-2), MW-118D-20181003 (280-115186-3), MW-105D-20181004 (280-115186-4), MW-105S-20181004 (280-115186-5), MW-104S-20181004 (280-115186-7), MW-104D-20181004 (280-115186-8), MW-120D-20181003 (280-115186-10) and MW-120S-20181003 (280-115186-11) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 10/09/2018 and 10/10/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

NITRATE-NITRITE AS NITROGEN

Samples MW-119S-20181003 (280-115186-1), MW-119D-20181003 (280-115186-2), MW-118D-20181003 (280-115186-3), MW-105D-20181004 (280-115186-4), MW-105S-20181004 (280-115186-5), MW-104S-20181004 (280-115186-7), MW-104D-20181004 (280-115186-8), MW-120D-20181003 (280-115186-10) and MW-120S-20181003 (280-115186-11) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 10/11/2018.

Job ID: 280-115186-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples MW-119S-20181003 (280-115186-1)[2X] and MW-118D-20181003 (280-115186-3)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL AND AMENABLE CYANIDE

Samples MW-119S-20181003 (280-115186-1), MW-119D-20181003 (280-115186-2), MW-118D-20181003 (280-115186-3), MW-105D-20181004 (280-115186-4), MW-105S-20181004 (280-115186-5), MW-104S-20181004 (280-115186-7), MW-104D-20181004 (280-115186-8), MW-120D-20181003 (280-115186-10) and MW-120S-20181003 (280-115186-11) were analyzed for total and amenable cyanide in accordance with SM20 4500 CN E. The samples were prepared and analyzed on 10/15/2018, 10/16/2018 and 10/17/2018.

Cyanide, Total failed the recovery criteria low for the MS of sample MW-118D-20181003MS (280-115186-3) in batch 280-433668. Cyanide, Total exceeded the RPD limit for the MSD of sample MW-118D-20181003MSD (280-115186-3) in batch 280-433668. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS

Samples MW-119S-20181003 (280-115186-1), MW-119D-20181003 (280-115186-2), MW-118D-20181003 (280-115186-3), MW-105D-20181004 (280-115186-4), MW-105S-20181004 (280-115186-5), MW-104S-20181004 (280-115186-7), MW-104D-20181004 (280-115186-8), MW-120D-20181003 (280-115186-10) and MW-120S-20181003 (280-115186-11) were analyzed for anions in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 10/10/2018 and 10/11/2018.

Chloride and Sulfate were detected in method blank MB 280-432556/6 at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Samples MW-118D-20181003 (280-115186-3)[10X], MW-105D-20181004 (280-115186-4)[5X], MW-105S-20181004 (280-115186-5)[10X], MW-104S-20181004 (280-115186-7)[5X], MW-104D-20181004 (280-115186-8)[5X], MW-120D-20181003 (280-115186-10)[5X] and MW-120S-20181003 (280-115186-11)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL ORGANIC CARBON

Samples MW-119S-20181003 (280-115186-1), MW-119D-20181003 (280-115186-2), MW-118D-20181003 (280-115186-3), MW-105D-20181004 (280-115186-4), MW-105S-20181004 (280-115186-5), MW-104S-20181004 (280-115186-7), MW-104D-20181004 (280-115186-8), MW-120D-20181003 (280-115186-10) and MW-120S-20181003 (280-115186-11) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060A. The samples were analyzed on 10/08/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115186-1

Client Sample ID: MW-119S-20181003 — Lab Sample ID: 280-115186-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	98000		200	35	ug/L	1		6010C	Total/NA
Magnesium	43000		200	11	ug/L	1		6010C	Total/NA
Potassium	3600		3000	240	ug/L	1		6010C	Total/NA
Sodium	68000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.55	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	160		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.55	J	2.0	0.50	ug/L	1		6020B	Total/NA
Copper	0.80	J	2.0	0.56	ug/L	1		6020B	Total/NA
Thallium	0.054	J	1.0	0.050	ug/L	1		6020B	Total/NA
Vanadium	0.72	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	3.7	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	4.2		0.20	0.038	mg/L	2		353.2	Total/NA
Chloride	110	B	3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	110	B	5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.6		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	300		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0053	J	0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: MW-119D-20181003 — Lab Sample ID: 280-115186-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	100000		200	35	ug/L	1		6010C	Total/NA
Magnesium	44000		200	11	ug/L	1		6010C	Total/NA
Potassium	3300		3000	240	ug/L	1		6010C	Total/NA
Sodium	65000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.51	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	160		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.71	J	2.0	0.50	ug/L	1		6020B	Total/NA
Manganese	0.43	J	1.0	0.31	ug/L	1		6020B	Total/NA
Vanadium	0.74	J	5.0	0.50	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	1.2		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	110	B	3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	100	B	5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.2		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	310		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0048	J	0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: MW-118D-20181003 — Lab Sample ID: 280-115186-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	2.9	J	5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	200000		200	35	ug/L	1		6010C	Total/NA
Magnesium	77000		200	11	ug/L	1		6010C	Total/NA
Potassium	5200		3000	240	ug/L	1		6010C	Total/NA
Sodium	150000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.2	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	440		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.3	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	1.9		1.0	0.054	ug/L	1		6020B	Total/NA
Copper	2.2		2.0	0.56	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115186-1

Client Sample ID: MW-118D-20181003 (Continued) — Lab Sample ID: 280-115186-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	1.6		1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	170		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	27		2.0	0.30	ug/L	1		6020B	Total/NA
Selenium	1.9	J	5.0	0.70	ug/L	1		6020B	Total/NA
Vanadium	2.6	J	5.0	0.50	ug/L	1		6020B	Total/NA
Mercury	0.90		0.20	0.027	ug/L	1		7470A	Total/NA
Nitrate Nitrite as N	12		0.50	0.095	mg/L	5		353.2	Total/NA
Chloride	400	B	30	2.5	mg/L	10		9056A	Total/NA
Sulfate	86	B	5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	6.1		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	560		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-105D-20181004 — Lab Sample ID: 280-115186-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	1.5	J	5.0	0.80	ug/L	5		8260B	Total/NA
Dichlorodifluoromethane	3.3	J	10	1.6	ug/L	5		8260B	Total/NA
1,1-Dichloroethane	3.3	J	5.0	1.1	ug/L	5		8260B	Total/NA
cis-1,2-Dichloroethene	12		5.0	0.75	ug/L	5		8260B	Total/NA
Methylene Chloride	2.6	J	10	1.6	ug/L	5		8260B	Total/NA
Tetrachloroethene	30		5.0	1.0	ug/L	5		8260B	Total/NA
Trichloroethene	240		5.0	0.80	ug/L	5		8260B	Total/NA
Vinyl chloride	1.1	J	5.0	0.50	ug/L	5		8260B	Total/NA
Methane	1.5	J	5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	200000		200	35	ug/L	1		6010C	Total/NA
Magnesium	64000		200	11	ug/L	1		6010C	Total/NA
Potassium	4100		3000	240	ug/L	1		6010C	Total/NA
Sodium	62000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.97	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	270		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.73	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.082	J	1.0	0.054	ug/L	1		6020B	Total/NA
Manganese	4.7		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	1.7	J	2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	2.3	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	2.2	J B	10	2.0	ug/L	1		6020B	Total/NA
Mercury	0.085	J	0.20	0.027	ug/L	1		7470A	Total/NA
Nitrate Nitrite as N	0.44		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	210		15	1.3	mg/L	5		9056A	Total/NA
Sulfate	60		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	2.1		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	540		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.010		0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: MW-105S-20181004 — Lab Sample ID: 280-115186-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	1.4	J	2.0	0.32	ug/L	2		8260B	Total/NA
1,2-Dichlorobenzene	0.34	J	2.0	0.30	ug/L	2		8260B	Total/NA
1,1-Dichloroethane	0.75	J	2.0	0.44	ug/L	2		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample ID: MW-105S-20181004 (Continued) — Lab Sample ID: 280-115186-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichloroethane	0.28	J	2.0	0.26	ug/L	2		8260B	Total/NA
cis-1,2-Dichloroethene	22		2.0	0.30	ug/L	2		8260B	Total/NA
1,2-Dichloropropane	0.38	J	2.0	0.36	ug/L	2		8260B	Total/NA
Methylene Chloride	0.71	J	4.0	0.64	ug/L	2		8260B	Total/NA
Tetrachloroethene	3.5		2.0	0.40	ug/L	2		8260B	Total/NA
Trichloroethene	51		2.0	0.32	ug/L	2		8260B	Total/NA
Vinyl chloride	3.1		2.0	0.20	ug/L	2		8260B	Total/NA
Methane	27		5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	270000		200	35	ug/L	1		6010C	Total/NA
Iron	7400	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	110000		200	11	ug/L	1		6010C	Total/NA
Potassium	5400		3000	240	ug/L	1		6010C	Total/NA
Sodium	320000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	8.6		5.0	0.33	ug/L	1		6020B	Total/NA
Barium	690		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	2.6		2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.95	J	1.0	0.054	ug/L	1		6020B	Total/NA
Manganese	9100		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	11		2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	0.78	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	2.2	J B	10	2.0	ug/L	1		6020B	Total/NA
Mercury	0.075	J	0.20	0.027	ug/L	1		7470A	Total/NA
Nitrate Nitrite as N	0.21		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	560		30	2.5	mg/L	10		9056A	Total/NA
Sulfate	120		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	12		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	910		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0041	J	0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: TB-2-VOC-20181004 — Lab Sample ID: 280-115186-6

No Detections.

Client Sample ID: MW-104S-20181004 — Lab Sample ID: 280-115186-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	12	J	20	3.0	ug/L	20		8260B	Total/NA
Methylene Chloride	8.3	J	40	6.4	ug/L	20		8260B	Total/NA
Tetrachloroethene	86		20	4.0	ug/L	20		8260B	Total/NA
Trichloroethene	750		20	3.2	ug/L	20		8260B	Total/NA
Vinyl chloride	3.3	J	20	2.0	ug/L	20		8260B	Total/NA
Methane	97		5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	190000		200	35	ug/L	1		6010C	Total/NA
Magnesium	60000		200	11	ug/L	1		6010C	Total/NA
Potassium	5800		3000	240	ug/L	1		6010C	Total/NA
Sodium	99000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.77	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	270		1.0	0.29	ug/L	1		6020B	Total/NA
Co	0.16	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.58	J	2.0	0.56	ug/L	1		6020B	Total/NA
Manganese	52		1.0	0.31	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-104S-20181004 (Continued) — Lab Sample ID: 280-115186-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nickel	2.9		2.0	0.30	ug/L	1		6020B	Total/NA
Thallium	0.085	J	1.0	0.050	ug/L	1		6020B	Total/NA
Vanadium	1.1	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	3.1	J B	10	2.0	ug/L	1		6020B	Total/NA
Mercury	0.027	J	0.20	0.027	ug/L	1		7470A	Total/NA
Nitrate Nitrite as N	0.059	J	0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	180		15	1.3	mg/L	5		9056A	Total/NA
Sulfate	90		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	3.1		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	590		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0021	J	0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: MW-104D-20181004 — Lab Sample ID: 280-115186-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dichlorodifluoromethane	1.6	J	8.0	1.2	ug/L	4		8260B	Total/NA
1,1-Dichloroethane	1.8	J	4.0	0.88	ug/L	4		8260B	Total/NA
cis-1,2-Dichloroethene	16		4.0	0.60	ug/L	4		8260B	Total/NA
Methylene Chloride	2.0	J	8.0	1.3	ug/L	4		8260B	Total/NA
Tetrachloroethene	9.3		4.0	0.80	ug/L	4		8260B	Total/NA
Trichloroethene	140		4.0	0.64	ug/L	4		8260B	Total/NA
Vinyl chloride	9.0		4.0	0.40	ug/L	4		8260B	Total/NA
Methane	140		5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	180000		200	35	ug/L	1		6010C	Total/NA
Iron	170	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	62000		200	11	ug/L	1		6010C	Total/NA
Potassium	4900		3000	240	ug/L	1		6010C	Total/NA
Sodium	69000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.75	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	310		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.84	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	2.1		1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.90	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.27	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	180		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	3.5		2.0	0.30	ug/L	1		6020B	Total/NA
Thallium	0.098	J	1.0	0.050	ug/L	1		6020B	Total/NA
Vanadium	0.82	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	10	B	10	2.0	ug/L	1		6020B	Total/NA
Chloride	190		15	1.3	mg/L	5		9056A	Total/NA
Sulfate	74		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	2.8		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	500		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: TB-3-VOC-20181004 — Lab Sample ID: 280-115186-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.4	J	10	1.9	ug/L	1		8260B	Total/NA

Client Sample ID: MW-120D-20181003 — Lab Sample ID: 280-115186-10

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-120D-20181003 (Continued)

Lab Sample ID: 280-115186-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichlorobenzene	0.92	J	4.0	0.60	ug/L	4		8260B	Total/NA
1,1-Dichloroethane	1.1	J	4.0	0.88	ug/L	4		8260B	Total/NA
cis-1,2-Dichloroethene	15		4.0	0.60	ug/L	4		8260B	Total/NA
Methylene Chloride	1.7	J	8.0	1.3	ug/L	4		8260B	Total/NA
Tetrachloroethene	15		4.0	0.80	ug/L	4		8260B	Total/NA
Trichloroethene	160		4.0	0.64	ug/L	4		8260B	Total/NA
Vinyl chloride	2.7	J	4.0	0.40	ug/L	4		8260B	Total/NA
Calcium	170000		200	35	ug/L	1		6010C	Total/NA
Iron	250	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	60000		200	11	ug/L	1		6010C	Total/NA
Potassium	4600		3000	240	ug/L	1		6010C	Total/NA
Sodium	95000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.82	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	280		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.77	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.22	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	1.0	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.26	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	37		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	3.1		2.0	0.30	ug/L	1		6020B	Total/NA
Thallium	0.076	J	1.0	0.050	ug/L	1		6020B	Total/NA
Vanadium	0.95	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	24	B	10	2.0	ug/L	1		6020B	Total/NA
Mercury	0.050	J	0.20	0.027	ug/L	1		7470A	Total/NA
Nitrate Nitrite as N	0.76		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	210	B	15	1.3	mg/L	5		9056A	Total/NA
Sulfate	92	B	5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	3.1		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	480		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0021	J	0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: MW-120S-20181003

Lab Sample ID: 280-115186-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichlorobenzene	0.89	J	4.0	0.60	ug/L	4		8260B	Total/NA
1,1-Dichloroethane	1.1	J	4.0	0.88	ug/L	4		8260B	Total/NA
cis-1,2-Dichloroethene	16		4.0	0.60	ug/L	4		8260B	Total/NA
Methylene Chloride	1.7	J	8.0	1.3	ug/L	4		8260B	Total/NA
Tetrachloroethene	16		4.0	0.80	ug/L	4		8260B	Total/NA
Trichloroethene	150		4.0	0.64	ug/L	4		8260B	Total/NA
Vinyl chloride	2.9	J	4.0	0.40	ug/L	4		8260B	Total/NA
Calcium	160000		200	35	ug/L	1		6010C	Total/NA
Iron	120	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	60000		200	11	ug/L	1		6010C	Total/NA
Potassium	4300		3000	240	ug/L	1		6010C	Total/NA
Sodium	94000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.79	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	270		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.71	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.18	J	1.0	0.054	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-120S-20181003 (Continued) — Lab Sample ID: 280-115186-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	0.94	J	2.0	0.56	ug/L	1		6020B	Total/NA
Manganese	5.4		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	2.4		2.0	0.30	ug/L	1		6020B	Total/NA
Thallium	0.052	J	1.0	0.050	ug/L	1		6020B	Total/NA
Vanadium	1.3	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	2.1	J B	10	2.0	ug/L	1		6020B	Total/NA
Mercury	0.35		0.20	0.027	ug/L	1		7470A	Total/NA
Nitrate Nitrite as N	0.78		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	220	B	15	1.3	mg/L	5		9056A	Total/NA
Sulfate	94	B	5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	3.1		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	480		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-119S-20181003 — Lab Sample ID: 280-115186-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.3	J	4.0	0.60	ug/L	4		8260B	Total/NA
Methylene Chloride	1.4	J	8.0	1.3	ug/L	4		8260B	Total/NA
Tetrachloroethene	9.3		4.0	0.80	ug/L	4		8260B	Total/NA
Trichloroethene	53		4.0	0.64	ug/L	4		8260B	Total/NA

Client Sample ID: MW-119D-20181003 — Lab Sample ID: 280-115186-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.3	J	4.0	0.60	ug/L	4		8260B	Total/NA
Tetrachloroethene	9.0		4.0	0.80	ug/L	4		8260B	Total/NA
Trichloroethene	65		4.0	0.64	ug/L	4		8260B	Total/NA

Client Sample ID: MW-118D-20181003 — Lab Sample ID: 280-115186-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.96	J	4.0	0.64	ug/L	4		8260B	Total/NA
Dichlorodifluoromethane	3.9	J	8.0	1.2	ug/L	4		8260B	Total/NA
1,1-Dichloroethane	6.2		4.0	0.88	ug/L	4		8260B	Total/NA
cis-1,2-Dichloroethene	9.0		4.0	0.60	ug/L	4		8260B	Total/NA
1,1-Dichloroethene	0.99	J	4.0	0.92	ug/L	4		8260B	Total/NA
Methylene Chloride	1.8	J	8.0	1.3	ug/L	4		8260B	Total/NA
Tetrachloroethene	19		4.0	0.80	ug/L	4		8260B	Total/NA
Trichloroethene	170		4.0	0.64	ug/L	4		8260B	Total/NA
Vinyl chloride	0.85	J	4.0	0.40	ug/L	4		8260B	Total/NA

Client Sample ID: TB-1-VOC-20181003 — Lab Sample ID: 280-115186-15

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115186-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
RSK-175	Dissolved Gases (GC)	RSK	TAL DEN
6010C	Metals (ICP)	SW846	TAL DEN
6020B	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
9060A	Organic Carbon, Total (TOC)	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 4500 CN E	Cyanide, Total	SM	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
SM 4500 CN C	Cyanide, Distillation	SM	TAL DEN

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115186-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115186-1	MW-119S-20181003	Water	10/03/18 14:50	10/05/18 09:30
280-115186-2	MW-119D-20181003	Water	10/03/18 16:10	10/05/18 09:30
280-115186-3	MW-118D-20181003	Water	10/03/18 17:35	10/05/18 09:30
280-115186-4	MW-105D-20181004	Water	10/04/18 10:00	10/05/18 09:30
280-115186-5	MW-105S-20181004	Water	10/04/18 11:30	10/05/18 09:30
280-115186-6	TB-2-VOC-20181004	Water	10/04/18 12:50	10/05/18 09:30
280-115186-7	MW-104S-20181004	Water	10/04/18 09:25	10/05/18 09:30
280-115186-8	MW-104D-20181004	Water	10/04/18 10:35	10/05/18 09:30
280-115186-9	TB-3-VOC-20181004	Water	10/04/18 12:55	10/05/18 09:30
280-115186-10	MW-120D-20181003	Water	10/03/18 15:40	10/05/18 09:30
280-115186-11	MW-120S-20181003	Water	10/03/18 17:00	10/05/18 09:30
280-115186-12	MW-119S-20181003	Water	10/03/18 14:50	10/05/18 09:30
280-115186-13	MW-119D-20181003	Water	10/03/18 16:10	10/05/18 09:30
280-115186-14	MW-118D-20181003	Water	10/03/18 17:35	10/05/18 09:30
280-115186-15	TB-1-VOC-20181003	Water	10/04/18 08:45	10/05/18 09:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: MW-105D-20181004
Date Collected: 10/04/18 10:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		50	9.5	ug/L			10/10/18 14:46	5
Acetonitrile	ND		150	48	ug/L			10/10/18 14:46	5
Acrolein	ND		100	14	ug/L			10/10/18 14:46	5
Acrylonitrile	ND		100	7.0	ug/L			10/10/18 14:46	5
Benzene	ND		5.0	0.80	ug/L			10/10/18 14:46	5
Chlorobromomethane	ND		5.0	0.50	ug/L			10/10/18 14:46	5
Dichlorobromomethane	ND		5.0	0.85	ug/L			10/10/18 14:46	5
Bromoform	ND		5.0	0.95	ug/L			10/10/18 14:46	5
Bromomethane	ND		10	1.1	ug/L			10/10/18 14:46	5
2-Butanone (MEK)	ND		30	10	ug/L			10/10/18 14:46	5
Carbon disulfide	ND		10	2.3	ug/L			10/10/18 14:46	5
Carbon tetrachloride	ND		5.0	0.95	ug/L			10/10/18 14:46	5
Chlorobenzene	ND		5.0	0.85	ug/L			10/10/18 14:46	5
Chloroprene	ND		5.0	1.1	ug/L			10/10/18 14:46	5
Chlorodibromomethane	ND		5.0	0.85	ug/L			10/10/18 14:46	5
Chloroethane	ND		10	2.1	ug/L			10/10/18 14:46	5
Chloroform	**1.5**	**J**	5.0	0.80	ug/L			10/10/18 14:46	5
Chloromethane	ND		10	1.5	ug/L			10/10/18 14:46	5
Allyl chloride	ND		10	0.85	ug/L			10/10/18 14:46	5
1,2-Dibromo-3-Chloropropane	ND		25	2.4	ug/L			10/10/18 14:46	5
Dibromomethane	ND		5.0	0.85	ug/L			10/10/18 14:46	5
1,2-Dichlorobenzene	ND		5.0	0.75	ug/L			10/10/18 14:46	5
1,3-Dichlorobenzene	ND		5.0	0.65	ug/L			10/10/18 14:46	5
1,4-Dichlorobenzene	ND		5.0	0.80	ug/L			10/10/18 14:46	5
trans-1,4-Dichloro-2-butene	ND		15	4.0	ug/L			10/10/18 14:46	5
Dichlorodifluoromethane	**3.3**	**J**	10	1.6	ug/L			10/10/18 14:46	5
1,1-Dichloroethane	**3.3**	**J**	5.0	1.1	ug/L			10/10/18 14:46	5
1,2-Dichloroethane	ND		5.0	0.65	ug/L			10/10/18 14:46	5
cis-1,2-Dichloroethene	**12**		5.0	0.75	ug/L			10/10/18 14:46	5
trans-1,2-Dichloroethene	ND		5.0	0.75	ug/L			10/10/18 14:46	5
1,1-Dichloroethene	ND		5.0	1.2	ug/L			10/10/18 14:46	5
1,2-Dichloropropane	ND		5.0	0.90	ug/L			10/10/18 14:46	5
1,3-Dichloropropane	ND		5.0	1.1	ug/L			10/10/18 14:46	5
2,2-Dichloropropane	ND		5.0	0.90	ug/L			10/10/18 14:46	5
cis-1,3-Dichloropropene	ND		5.0	0.80	ug/L			10/10/18 14:46	5
trans-1,3-Dichloropropene	ND		15	0.95	ug/L			10/10/18 14:46	5
1,1-Dichloropropene	ND		5.0	0.95	ug/L			10/10/18 14:46	5
Ethylbenzene	ND		5.0	0.80	ug/L			10/10/18 14:46	5
Ethyl methacrylate	ND		15	4.3	ug/L			10/10/18 14:46	5
2-Hexanone	ND		25	8.5	ug/L			10/10/18 14:46	5
Iodomethane	ND		5.0	1.2	ug/L			10/10/18 14:46	5
Isobutyl alcohol	ND		550	180	ug/L			10/10/18 14:46	5
Methacrylonitrile	ND		50	8.0	ug/L			10/10/18 14:46	5
Methylene Chloride	**2.6**	**J**	10	1.6	ug/L			10/10/18 14:46	5
Methyl methacrylate	ND		20	5.6	ug/L			10/10/18 14:46	5
4-Methyl-2-pentanone (MIBK)	ND		25	4.9	ug/L			10/10/18 14:46	5
Propionitrile	ND		100	19	ug/L			10/10/18 14:46	5
Styrene	ND		5.0	0.85	ug/L			10/10/18 14:46	5
1,1,1,2-Tetrachloroethane	ND		5.0	1.1	ug/L			10/10/18 14:46	5

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-105D-20181004
Date Collected: 10/04/18 10:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		5.0	1.1	ug/L			10/10/18 14:46	5
Tetrachloroethene	**30**		5.0	1.0	ug/L			10/10/18 14:46	5
Toluene	ND		5.0	0.85	ug/L			10/10/18 14:46	5
1,2,4-Trichlorobenzene	ND		5.0	1.1	ug/L			10/10/18 14:46	5
1,1,1-Trichloroethane	ND		5.0	0.80	ug/L			10/10/18 14:46	5
1,1,2-Trichloroethane	ND		5.0	1.4	ug/L			10/10/18 14:46	5
Trichloroethene	**240**		5.0	0.80	ug/L			10/10/18 14:46	5
Trichlorofluoromethane	ND		10	1.5	ug/L			10/10/18 14:46	5
1,2,3-Trichloropropane	ND		13	1.7	ug/L			10/10/18 14:46	5
Vinyl acetate	ND		15	4.7	ug/L			10/10/18 14:46	5
Vinyl chloride	**1.1**	**J**	5.0	0.50	ug/L			10/10/18 14:46	5
Xylenes, Total	ND		10	0.95	ug/L			10/10/18 14:46	5
1,2-Dibromoethane	ND		5.0	0.90	ug/L			10/10/18 14:46	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*104*		*77 - 120*		*10/10/18 14:46*	*5*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*		*10/10/18 14:46*	*5*
4-Bromofluorobenzene (Surr)	*91*		*78 - 120*		*10/10/18 14:46*	*5*
Toluene-d8 (Surr)	*92*		*80 - 125*		*10/10/18 14:46*	*5*

Client Sample ID: MW-105S-20181004
Date Collected: 10/04/18 11:30
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	3.8	ug/L			10/10/18 13:09	2
Acetonitrile	ND		60	19	ug/L			10/10/18 13:09	2
Acrolein	ND		40	5.6	ug/L			10/10/18 13:09	2
Acrylonitrile	ND		40	2.8	ug/L			10/10/18 13:09	2
Benzene	ND		2.0	0.32	ug/L			10/10/18 13:09	2
Chlorobromomethane	ND		2.0	0.20	ug/L			10/10/18 13:09	2
Dichlorobromomethane	ND		2.0	0.34	ug/L			10/10/18 13:09	2
Bromoform	ND		2.0	0.38	ug/L			10/10/18 13:09	2
Bromomethane	ND		4.0	0.42	ug/L			10/10/18 13:09	2
2-Butanone (MEK)	ND		12	4.0	ug/L			10/10/18 13:09	2
Carbon disulfide	ND		4.0	0.90	ug/L			10/10/18 13:09	2
Carbon tetrachloride	ND		2.0	0.38	ug/L			10/10/18 13:09	2
Chlorobenzene	ND		2.0	0.34	ug/L			10/10/18 13:09	2
Chloroprene	ND		2.0	0.42	ug/L			10/10/18 13:09	2
Chlorodibromomethane	ND		2.0	0.34	ug/L			10/10/18 13:09	2
Chloroethane	ND		4.0	0.82	ug/L			10/10/18 13:09	2
Chloroform	**1.4**	**J**	2.0	0.32	ug/L			10/10/18 13:09	2
Chloromethane	ND		4.0	0.60	ug/L			10/10/18 13:09	2
Allyl chloride	ND		4.0	0.34	ug/L			10/10/18 13:09	2
1,2-Dibromo-3-Chloropropane	ND		10	0.94	ug/L			10/10/18 13:09	2
Dibromomethane	ND		2.0	0.34	ug/L			10/10/18 13:09	2
1,2-Dichlorobenzene	**0.34**	**J**	2.0	0.30	ug/L			10/10/18 13:09	2
1,3-Dichlorobenzene	ND		2.0	0.26	ug/L			10/10/18 13:09	2
1,4-Dichlorobenzene	ND		2.0	0.32	ug/L			10/10/18 13:09	2
trans-1,4-Dichloro-2-butene	ND		6.0	1.6	ug/L			10/10/18 13:09	2
Dichlorodifluoromethane	ND		4.0	0.62	ug/L			10/10/18 13:09	2

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-105S-20181004
Date Collected: 10/04/18 11:30
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	**0.75**	**J**	2.0	0.44	ug/L			10/10/18 13:09	2
1,2-Dichloroethane	**0.28**	**J**	2.0	0.26	ug/L			10/10/18 13:09	2
cis-1,2-Dichloroethene	**22**		2.0	0.30	ug/L			10/10/18 13:09	2
trans-1,2-Dichloroethene	ND		2.0	0.30	ug/L			10/10/18 13:09	2
1,1-Dichloroethene	ND		2.0	0.46	ug/L			10/10/18 13:09	2
1,2-Dichloropropane	**0.38**	**J**	2.0	0.36	ug/L			10/10/18 13:09	2
1,3-Dichloropropane	ND		2.0	0.44	ug/L			10/10/18 13:09	2
2,2-Dichloropropane	ND		2.0	0.36	ug/L			10/10/18 13:09	2
cis-1,3-Dichloropropene	ND		2.0	0.32	ug/L			10/10/18 13:09	2
trans-1,3-Dichloropropene	ND		6.0	0.38	ug/L			10/10/18 13:09	2
1,1-Dichloropropene	ND		2.0	0.38	ug/L			10/10/18 13:09	2
Ethylbenzene	ND		2.0	0.32	ug/L			10/10/18 13:09	2
Ethyl methacrylate	ND		6.0	1.7	ug/L			10/10/18 13:09	2
2-Hexanone	ND		10	3.4	ug/L			10/10/18 13:09	2
Iodomethane	ND		2.0	0.46	ug/L			10/10/18 13:09	2
Isobutyl alcohol	ND		220	73	ug/L			10/10/18 13:09	2
Methacrylonitrile	ND		20	3.2	ug/L			10/10/18 13:09	2
Methylene Chloride	**0.71**	**J**	4.0	0.64	ug/L			10/10/18 13:09	2
Methyl methacrylate	ND		8.0	2.2	ug/L			10/10/18 13:09	2
4-Methyl-2-pentanone (MIBK)	ND		10	2.0	ug/L			10/10/18 13:09	2
Propionitrile	ND		40	7.4	ug/L			10/10/18 13:09	2
Styrene	ND		2.0	0.34	ug/L			10/10/18 13:09	2
1,1,1,2-Tetrachloroethane	ND		2.0	0.42	ug/L			10/10/18 13:09	2
1,1,2,2-Tetrachloroethane	ND		2.0	0.42	ug/L			10/10/18 13:09	2
Tetrachloroethene	**3.5**		2.0	0.40	ug/L			10/10/18 13:09	2
Toluene	ND		2.0	0.34	ug/L			10/10/18 13:09	2
1,2,4-Trichlorobenzene	ND		2.0	0.42	ug/L			10/10/18 13:09	2
1,1,1-Trichloroethane	ND		2.0	0.32	ug/L			10/10/18 13:09	2
1,1,2-Trichloroethane	ND		2.0	0.54	ug/L			10/10/18 13:09	2
Trichloroethene	**51**		2.0	0.32	ug/L			10/10/18 13:09	2
Trichlorofluoromethane	ND		4.0	0.58	ug/L			10/10/18 13:09	2
1,2,3-Trichloropropane	ND		5.0	0.66	ug/L			10/10/18 13:09	2
Vinyl acetate	ND		6.0	1.9	ug/L			10/10/18 13:09	2
Vinyl chloride	**3.1**		2.0	0.20	ug/L			10/10/18 13:09	2
Xylenes, Total	ND		4.0	0.38	ug/L			10/10/18 13:09	2
1,2-Dibromoethane	ND		2.0	0.36	ug/L			10/10/18 13:09	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*10/10/18 13:09*	*2*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 127*		*10/10/18 13:09*	*2*
4-Bromofluorobenzene (Surr)	*92*		*78 - 120*		*10/10/18 13:09*	*2*
Toluene-d8 (Surr)	*99*		*80 - 125*		*10/10/18 13:09*	*2*

Client Sample ID: TB-2-VOC-20181004
Date Collected: 10/04/18 12:50
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/10/18 16:24	1
Acetonitrile	ND		30	9.6	ug/L			10/10/18 16:24	1
Acrolein	ND		20	2.8	ug/L			10/10/18 16:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-2-VOC-20181004
Date Collected: 10/04/18 12:50
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrylonitrile	ND		20	1.4	ug/L			10/10/18 16:24	1
Benzene	ND		1.0	0.16	ug/L			10/10/18 16:24	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/10/18 16:24	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/10/18 16:24	1
Bromoform	ND		1.0	0.19	ug/L			10/10/18 16:24	1
Bromomethane	ND		2.0	0.21	ug/L			10/10/18 16:24	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/10/18 16:24	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/10/18 16:24	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/10/18 16:24	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/10/18 16:24	1
Chloroprene	ND		1.0	0.21	ug/L			10/10/18 16:24	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/10/18 16:24	1
Chloroethane	ND		2.0	0.41	ug/L			10/10/18 16:24	1
Chloroform	ND		1.0	0.16	ug/L			10/10/18 16:24	1
Chloromethane	ND		2.0	0.30	ug/L			10/10/18 16:24	1
Allyl chloride	ND		2.0	0.17	ug/L			10/10/18 16:24	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/10/18 16:24	1
Dibromomethane	ND		1.0	0.17	ug/L			10/10/18 16:24	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/10/18 16:24	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/10/18 16:24	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/10/18 16:24	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/10/18 16:24	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/10/18 16:24	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/10/18 16:24	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/10/18 16:24	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/10/18 16:24	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/10/18 16:24	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/10/18 16:24	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/10/18 16:24	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/10/18 16:24	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/10/18 16:24	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/10/18 16:24	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/10/18 16:24	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/10/18 16:24	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/10/18 16:24	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/10/18 16:24	1
2-Hexanone	ND		5.0	1.7	ug/L			10/10/18 16:24	1
Iodomethane	ND		1.0	0.23	ug/L			10/10/18 16:24	1
Isobutyl alcohol	ND		110	37	ug/L			10/10/18 16:24	1
Methacrylonitrile	ND		10	1.6	ug/L			10/10/18 16:24	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/10/18 16:24	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/10/18 16:24	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/10/18 16:24	1
Propionitrile	ND		20	3.7	ug/L			10/10/18 16:24	1
Styrene	ND		1.0	0.17	ug/L			10/10/18 16:24	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/10/18 16:24	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/10/18 16:24	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/10/18 16:24	1
Toluene	ND		1.0	0.17	ug/L			10/10/18 16:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-2-VOC-20181004
Date Collected: 10/04/18 12:50
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/10/18 16:24	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/10/18 16:24	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/10/18 16:24	1
Trichloroethene	ND		1.0	0.16	ug/L			10/10/18 16:24	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/10/18 16:24	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/10/18 16:24	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/10/18 16:24	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/10/18 16:24	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/10/18 16:24	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/10/18 16:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*10/10/18 16:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 127*		*10/10/18 16:24*	*1*
4-Bromofluorobenzene (Surr)	*103*		*78 - 120*		*10/10/18 16:24*	*1*
Toluene-d8 (Surr)	*99*		*80 - 125*		*10/10/18 16:24*	*1*

Client Sample ID: MW-104S-20181004
Date Collected: 10/04/18 09:25
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		200	38	ug/L			10/10/18 12:28	20
Acetonitrile	ND		600	190	ug/L			10/10/18 12:28	20
Acrolein	ND		400	56	ug/L			10/10/18 12:28	20
Acrylonitrile	ND		400	28	ug/L			10/10/18 12:28	20
Benzene	ND		20	3.2	ug/L			10/10/18 12:28	20
Chlorobromomethane	ND		20	2.0	ug/L			10/10/18 12:28	20
Dichlorobromomethane	ND		20	3.4	ug/L			10/10/18 12:28	20
Bromoform	ND		20	3.8	ug/L			10/10/18 12:28	20
Bromomethane	ND		40	4.2	ug/L			10/10/18 12:28	20
2-Butanone (MEK)	ND		120	40	ug/L			10/10/18 12:28	20
Carbon disulfide	ND		40	9.0	ug/L			10/10/18 12:28	20
Carbon tetrachloride	ND		20	3.8	ug/L			10/10/18 12:28	20
Chlorobenzene	ND		20	3.4	ug/L			10/10/18 12:28	20
Chloroprene	ND		20	4.2	ug/L			10/10/18 12:28	20
Chlorodibromomethane	ND		20	3.4	ug/L			10/10/18 12:28	20
Chloroethane	ND		40	8.2	ug/L			10/10/18 12:28	20
Chloroform	ND		20	3.2	ug/L			10/10/18 12:28	20
Chloromethane	ND		40	6.0	ug/L			10/10/18 12:28	20
Allyl chloride	ND		40	3.4	ug/L			10/10/18 12:28	20
1,2-Dibromo-3-Chloropropane	ND		100	9.4	ug/L			10/10/18 12:28	20
Dibromomethane	ND		20	3.4	ug/L			10/10/18 12:28	20
1,2-Dichlorobenzene	ND		20	3.0	ug/L			10/10/18 12:28	20
1,3-Dichlorobenzene	ND		20	2.6	ug/L			10/10/18 12:28	20
1,4-Dichlorobenzene	ND		20	3.2	ug/L			10/10/18 12:28	20
trans-1,4-Dichloro-2-butene	ND		60	16	ug/L			10/10/18 12:28	20
Dichlorodifluoromethane	ND		40	6.2	ug/L			10/10/18 12:28	20
1,1-Dichloroethane	ND		20	4.4	ug/L			10/10/18 12:28	20
1,2-Dichloroethane	ND		20	2.6	ug/L			10/10/18 12:28	20
cis-1,2-Dichloroethene	**12**	**J**	20	3.0	ug/L			10/10/18 12:28	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-104S-20181004
Date Collected: 10/04/18 09:25
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	ND		20	3.0	ug/L			10/10/18 12:28	20
1,1-Dichloroethene	ND		20	4.6	ug/L			10/10/18 12:28	20
1,2-Dichloropropane	ND		20	3.6	ug/L			10/10/18 12:28	20
1,3-Dichloropropane	ND		20	4.4	ug/L			10/10/18 12:28	20
2,2-Dichloropropane	ND		20	3.6	ug/L			10/10/18 12:28	20
cis-1,3-Dichloropropene	ND		20	3.2	ug/L			10/10/18 12:28	20
trans-1,3-Dichloropropene	ND		60	3.8	ug/L			10/10/18 12:28	20
1,1-Dichloropropene	ND		20	3.8	ug/L			10/10/18 12:28	20
Ethylbenzene	ND		20	3.2	ug/L			10/10/18 12:28	20
Ethyl methacrylate	ND		60	17	ug/L			10/10/18 12:28	20
2-Hexanone	ND		100	34	ug/L			10/10/18 12:28	20
Iodomethane	ND		20	4.6	ug/L			10/10/18 12:28	20
Isobutyl alcohol	ND		2200	730	ug/L			10/10/18 12:28	20
Methacrylonitrile	ND		200	32	ug/L			10/10/18 12:28	20
Methylene Chloride	**8.3**	**J**	40	6.4	ug/L			10/10/18 12:28	20
Methyl methacrylate	ND		80	22	ug/L			10/10/18 12:28	20
4-Methyl-2-pentanone (MIBK)	ND		100	20	ug/L			10/10/18 12:28	20
Propionitrile	ND		400	74	ug/L			10/10/18 12:28	20
Styrene	ND		20	3.4	ug/L			10/10/18 12:28	20
1,1,1,2-Tetrachloroethane	ND		20	4.2	ug/L			10/10/18 12:28	20
1,1,2,2-Tetrachloroethane	ND		20	4.2	ug/L			10/10/18 12:28	20
Tetrachloroethene	**86**		20	4.0	ug/L			10/10/18 12:28	20
Toluene	ND		20	3.4	ug/L			10/10/18 12:28	20
1,2,4-Trichlorobenzene	ND		20	4.2	ug/L			10/10/18 12:28	20
1,1,1-Trichloroethane	ND		20	3.2	ug/L			10/10/18 12:28	20
1,1,2-Trichloroethane	ND		20	5.4	ug/L			10/10/18 12:28	20
Trichloroethene	**750**		20	3.2	ug/L			10/10/18 12:28	20
Trichlorofluoromethane	ND		40	5.8	ug/L			10/10/18 12:28	20
1,2,3-Trichloropropane	ND		50	6.6	ug/L			10/10/18 12:28	20
Vinyl acetate	ND		60	19	ug/L			10/10/18 12:28	20
Vinyl chloride	**3.3**	**J**	20	2.0	ug/L			10/10/18 12:28	20
Xylenes, Total	ND		40	3.8	ug/L			10/10/18 12:28	20
1,2-Dibromoethane	ND		20	3.6	ug/L			10/10/18 12:28	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*10/10/18 12:28*	*20*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 127*		*10/10/18 12:28*	*20*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*		*10/10/18 12:28*	*20*
Toluene-d8 (Surr)	*98*		*80 - 125*		*10/10/18 12:28*	*20*

Client Sample ID: MW-104D-20181004
Date Collected: 10/04/18 10:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		40	7.6	ug/L			10/10/18 13:28	4
Acetonitrile	ND		120	38	ug/L			10/10/18 13:28	4
Acrolein	ND		80	11	ug/L			10/10/18 13:28	4
Acrylonitrile	ND		80	5.6	ug/L			10/10/18 13:28	4
Benzene	ND		4.0	0.64	ug/L			10/10/18 13:28	4
Chlorobromomethane	ND		4.0	0.40	ug/L			10/10/18 13:28	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-104D-20181004
Date Collected: 10/04/18 10:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorobromomethane	ND		4.0	0.68	ug/L			10/10/18 13:28	4
Bromoform	ND		4.0	0.76	ug/L			10/10/18 13:28	4
Bromomethane	ND		8.0	0.84	ug/L			10/10/18 13:28	4
2-Butanone (MEK)	ND		24	8.0	ug/L			10/10/18 13:28	4
Carbon disulfide	ND		8.0	1.8	ug/L			10/10/18 13:28	4
Carbon tetrachloride	ND		4.0	0.76	ug/L			10/10/18 13:28	4
Chlorobenzene	ND		4.0	0.68	ug/L			10/10/18 13:28	4
Chloroprene	ND		4.0	0.84	ug/L			10/10/18 13:28	4
Chlorodibromomethane	ND		4.0	0.68	ug/L			10/10/18 13:28	4
Chloroethane	ND		8.0	1.6	ug/L			10/10/18 13:28	4
Chloroform	ND		4.0	0.64	ug/L			10/10/18 13:28	4
Chloromethane	ND		8.0	1.2	ug/L			10/10/18 13:28	4
Allyl chloride	ND		8.0	0.68	ug/L			10/10/18 13:28	4
1,2-Dibromo-3-Chloropropane	ND		20	1.9	ug/L			10/10/18 13:28	4
Dibromomethane	ND		4.0	0.68	ug/L			10/10/18 13:28	4
1,2-Dichlorobenzene	ND		4.0	0.60	ug/L			10/10/18 13:28	4
1,3-Dichlorobenzene	ND		4.0	0.52	ug/L			10/10/18 13:28	4
1,4-Dichlorobenzene	ND		4.0	0.64	ug/L			10/10/18 13:28	4
trans-1,4-Dichloro-2-butene	ND		12	3.2	ug/L			10/10/18 13:28	4
Dichlorodifluoromethane	**1.6**	**J**	8.0	1.2	ug/L			10/10/18 13:28	4
1,1-Dichloroethane	**1.8**	**J**	4.0	0.88	ug/L			10/10/18 13:28	4
1,2-Dichloroethane	ND		4.0	0.52	ug/L			10/10/18 13:28	4
cis-1,2-Dichloroethene	**16**		4.0	0.60	ug/L			10/10/18 13:28	4
trans-1,2-Dichloroethene	ND		4.0	0.60	ug/L			10/10/18 13:28	4
1,1-Dichloroethene	ND		4.0	0.92	ug/L			10/10/18 13:28	4
1,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 13:28	4
1,3-Dichloropropane	ND		4.0	0.88	ug/L			10/10/18 13:28	4
2,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 13:28	4
cis-1,3-Dichloropropene	ND		4.0	0.64	ug/L			10/10/18 13:28	4
trans-1,3-Dichloropropene	ND		12	0.76	ug/L			10/10/18 13:28	4
1,1-Dichloropropene	ND		4.0	0.76	ug/L			10/10/18 13:28	4
Ethylbenzene	ND		4.0	0.64	ug/L			10/10/18 13:28	4
Ethyl methacrylate	ND		12	3.4	ug/L			10/10/18 13:28	4
2-Hexanone	ND		20	6.8	ug/L			10/10/18 13:28	4
Iodomethane	ND		4.0	0.92	ug/L			10/10/18 13:28	4
Isobutyl alcohol	ND		440	150	ug/L			10/10/18 13:28	4
Methacrylonitrile	ND		40	6.4	ug/L			10/10/18 13:28	4
Methylene Chloride	**2.0**	**J**	8.0	1.3	ug/L			10/10/18 13:28	4
Methyl methacrylate	ND		16	4.4	ug/L			10/10/18 13:28	4
4-Methyl-2-pentanone (MIBK)	ND		20	3.9	ug/L			10/10/18 13:28	4
Propionitrile	ND		80	15	ug/L			10/10/18 13:28	4
Styrene	ND		4.0	0.68	ug/L			10/10/18 13:28	4
1,1,1,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 13:28	4
1,1,2,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 13:28	4
Tetrachloroethene	**9.3**		4.0	0.80	ug/L			10/10/18 13:28	4
Toluene	ND		4.0	0.68	ug/L			10/10/18 13:28	4
1,2,4-Trichlorobenzene	ND		4.0	0.84	ug/L			10/10/18 13:28	4
1,1,1-Trichloroethane	ND		4.0	0.64	ug/L			10/10/18 13:28	4
1,1,2-Trichloroethane	ND		4.0	1.1	ug/L			10/10/18 13:28	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-104D-20181004
Date Collected: 10/04/18 10:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**140**		4.0	0.64	ug/L			10/10/18 13:28	4
Trichlorofluoromethane	ND		8.0	1.2	ug/L			10/10/18 13:28	4
1,2,3-Trichloropropane	ND		10	1.3	ug/L			10/10/18 13:28	4
Vinyl acetate	ND		12	3.8	ug/L			10/10/18 13:28	4
Vinyl chloride	**9.0**		4.0	0.40	ug/L			10/10/18 13:28	4
Xylenes, Total	ND		8.0	0.76	ug/L			10/10/18 13:28	4
1,2-Dibromoethane	ND		4.0	0.72	ug/L			10/10/18 13:28	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*104*		*77 - 120*		*10/10/18 13:28*	*4*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 127*		*10/10/18 13:28*	*4*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*		*10/10/18 13:28*	*4*
Toluene-d8 (Surr)	*103*		*80 - 125*		*10/10/18 13:28*	*4*

Client Sample ID: TB-3-VOC-20181004
Date Collected: 10/04/18 12:55
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**2.4**	**J**	10	1.9	ug/L			10/10/18 10:30	1
Acetonitrile	ND		30	9.6	ug/L			10/10/18 10:30	1
Acrolein	ND		20	2.8	ug/L			10/10/18 10:30	1
Acrylonitrile	ND		20	1.4	ug/L			10/10/18 10:30	1
Benzene	ND		1.0	0.16	ug/L			10/10/18 10:30	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/10/18 10:30	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/10/18 10:30	1
Bromoform	ND		1.0	0.19	ug/L			10/10/18 10:30	1
Bromomethane	ND		2.0	0.21	ug/L			10/10/18 10:30	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/10/18 10:30	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/10/18 10:30	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/10/18 10:30	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/10/18 10:30	1
Chloroprene	ND		1.0	0.21	ug/L			10/10/18 10:30	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/10/18 10:30	1
Chloroethane	ND		2.0	0.41	ug/L			10/10/18 10:30	1
Chloroform	ND		1.0	0.16	ug/L			10/10/18 10:30	1
Chloromethane	ND		2.0	0.30	ug/L			10/10/18 10:30	1
Allyl chloride	ND		2.0	0.17	ug/L			10/10/18 10:30	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/10/18 10:30	1
Dibromomethane	ND		1.0	0.17	ug/L			10/10/18 10:30	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/10/18 10:30	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/10/18 10:30	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/10/18 10:30	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/10/18 10:30	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/10/18 10:30	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/10/18 10:30	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/10/18 10:30	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/10/18 10:30	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/10/18 10:30	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/10/18 10:30	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/10/18 10:30	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-3-VOC-20181004
Date Collected: 10/04/18 12:55
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/10/18 10:30	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/10/18 10:30	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/10/18 10:30	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/10/18 10:30	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/10/18 10:30	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/10/18 10:30	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/10/18 10:30	1
2-Hexanone	ND		5.0	1.7	ug/L			10/10/18 10:30	1
Iodomethane	ND		1.0	0.23	ug/L			10/10/18 10:30	1
Isobutyl alcohol	ND		110	37	ug/L			10/10/18 10:30	1
Methacrylonitrile	ND		10	1.6	ug/L			10/10/18 10:30	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/10/18 10:30	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/10/18 10:30	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/10/18 10:30	1
Propionitrile	ND		20	3.7	ug/L			10/10/18 10:30	1
Styrene	ND		1.0	0.17	ug/L			10/10/18 10:30	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/10/18 10:30	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/10/18 10:30	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/10/18 10:30	1
Toluene	ND		1.0	0.17	ug/L			10/10/18 10:30	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/10/18 10:30	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/10/18 10:30	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/10/18 10:30	1
Trichloroethene	ND		1.0	0.16	ug/L			10/10/18 10:30	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/10/18 10:30	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/10/18 10:30	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/10/18 10:30	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/10/18 10:30	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/10/18 10:30	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/10/18 10:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*10/10/18 10:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 127*		*10/10/18 10:30*	*1*
4-Bromofluorobenzene (Surr)	*96*		*78 - 120*		*10/10/18 10:30*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*10/10/18 10:30*	*1*

Client Sample ID: MW-120D-20181003
Date Collected: 10/03/18 15:40
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		40	7.6	ug/L			10/10/18 13:48	4
Acetonitrile	ND		120	38	ug/L			10/10/18 13:48	4
Acrolein	ND		80	11	ug/L			10/10/18 13:48	4
Acrylonitrile	ND		80	5.6	ug/L			10/10/18 13:48	4
Benzene	ND		4.0	0.64	ug/L			10/10/18 13:48	4
Chlorobromomethane	ND		4.0	0.40	ug/L			10/10/18 13:48	4
Dichlorobromomethane	ND		4.0	0.68	ug/L			10/10/18 13:48	4
Bromoform	ND		4.0	0.76	ug/L			10/10/18 13:48	4
Bromomethane	ND		8.0	0.84	ug/L			10/10/18 13:48	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-120D-20181003
Date Collected: 10/03/18 15:40
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	ND		24	8.0	ug/L			10/10/18 13:48	4
Carbon disulfide	ND		8.0	1.8	ug/L			10/10/18 13:48	4
Carbon tetrachloride	ND		4.0	0.76	ug/L			10/10/18 13:48	4
Chlorobenzene	ND		4.0	0.68	ug/L			10/10/18 13:48	4
Chloroprene	ND		4.0	0.84	ug/L			10/10/18 13:48	4
Chlorodibromomethane	ND		4.0	0.68	ug/L			10/10/18 13:48	4
Chloroethane	ND		8.0	1.6	ug/L			10/10/18 13:48	4
Chloroform	ND		4.0	0.64	ug/L			10/10/18 13:48	4
Chloromethane	ND		8.0	1.2	ug/L			10/10/18 13:48	4
Allyl chloride	ND		8.0	0.68	ug/L			10/10/18 13:48	4
1,2-Dibromo-3-Chloropropane	ND		20	1.9	ug/L			10/10/18 13:48	4
Dibromomethane	ND		4.0	0.68	ug/L			10/10/18 13:48	4
1,2-Dichlorobenzene	**0.92**	**J**	4.0	0.60	ug/L			10/10/18 13:48	4
1,3-Dichlorobenzene	ND		4.0	0.52	ug/L			10/10/18 13:48	4
1,4-Dichlorobenzene	ND		4.0	0.64	ug/L			10/10/18 13:48	4
trans-1,4-Dichloro-2-butene	ND		12	3.2	ug/L			10/10/18 13:48	4
Dichlorodifluoromethane	ND		8.0	1.2	ug/L			10/10/18 13:48	4
1,1-Dichloroethane	**1.1**	**J**	4.0	0.88	ug/L			10/10/18 13:48	4
1,2-Dichloroethane	ND		4.0	0.52	ug/L			10/10/18 13:48	4
cis-1,2-Dichloroethene	**15**		4.0	0.60	ug/L			10/10/18 13:48	4
trans-1,2-Dichloroethene	ND		4.0	0.60	ug/L			10/10/18 13:48	4
1,1-Dichloroethene	ND		4.0	0.92	ug/L			10/10/18 13:48	4
1,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 13:48	4
1,3-Dichloropropane	ND		4.0	0.88	ug/L			10/10/18 13:48	4
2,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 13:48	4
cis-1,3-Dichloropropene	ND		4.0	0.64	ug/L			10/10/18 13:48	4
trans-1,3-Dichloropropene	ND		12	0.76	ug/L			10/10/18 13:48	4
1,1-Dichloropropene	ND		4.0	0.76	ug/L			10/10/18 13:48	4
Ethylbenzene	ND		4.0	0.64	ug/L			10/10/18 13:48	4
Ethyl methacrylate	ND		12	3.4	ug/L			10/10/18 13:48	4
2-Hexanone	ND		20	6.8	ug/L			10/10/18 13:48	4
Iodomethane	ND		4.0	0.92	ug/L			10/10/18 13:48	4
Isobutyl alcohol	ND		440	150	ug/L			10/10/18 13:48	4
Methacrylonitrile	ND		40	6.4	ug/L			10/10/18 13:48	4
Methylene Chloride	**1.7**	**J**	8.0	1.3	ug/L			10/10/18 13:48	4
Methyl methacrylate	ND		16	4.4	ug/L			10/10/18 13:48	4
4-Methyl-2-pentanone (MIBK)	ND		20	3.9	ug/L			10/10/18 13:48	4
Propionitrile	ND		80	15	ug/L			10/10/18 13:48	4
Styrene	ND		4.0	0.68	ug/L			10/10/18 13:48	4
1,1,1,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 13:48	4
1,1,2,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 13:48	4
Tetrachloroethene	**15**		4.0	0.80	ug/L			10/10/18 13:48	4
Toluene	ND		4.0	0.68	ug/L			10/10/18 13:48	4
1,2,4-Trichlorobenzene	ND		4.0	0.84	ug/L			10/10/18 13:48	4
1,1,1-Trichloroethane	ND		4.0	0.64	ug/L			10/10/18 13:48	4
1,1,2-Trichloroethane	ND		4.0	1.1	ug/L			10/10/18 13:48	4
Trichloroethene	**160**		4.0	0.64	ug/L			10/10/18 13:48	4
Trichlorofluoromethane	ND		8.0	1.2	ug/L			10/10/18 13:48	4
1,2,3-Trichloropropane	ND		10	1.3	ug/L			10/10/18 13:48	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-120D-20181003
Date Collected: 10/03/18 15:40
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl acetate	ND		12	3.8	ug/L			10/10/18 13:48	4
Vinyl chloride	**2.7**	**J**	4.0	0.40	ug/L			10/10/18 13:48	4
Xylenes, Total	ND		8.0	0.76	ug/L			10/10/18 13:48	4
1,2-Dibromoethane	ND		4.0	0.72	ug/L			10/10/18 13:48	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*106*		*77 - 120*		*10/10/18 13:48*	*4*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*		*10/10/18 13:48*	*4*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*		*10/10/18 13:48*	*4*
Toluene-d8 (Surr)	*100*		*80 - 125*		*10/10/18 13:48*	*4*

Client Sample ID: MW-120S-20181003
Date Collected: 10/03/18 17:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		40	7.6	ug/L			10/10/18 14:07	4
Acetonitrile	ND		120	38	ug/L			10/10/18 14:07	4
Acrolein	ND		80	11	ug/L			10/10/18 14:07	4
Acrylonitrile	ND		80	5.6	ug/L			10/10/18 14:07	4
Benzene	ND		4.0	0.64	ug/L			10/10/18 14:07	4
Chlorobromomethane	ND		4.0	0.40	ug/L			10/10/18 14:07	4
Dichlorobromomethane	ND		4.0	0.68	ug/L			10/10/18 14:07	4
Bromoform	ND		4.0	0.76	ug/L			10/10/18 14:07	4
Bromomethane	ND		8.0	0.84	ug/L			10/10/18 14:07	4
2-Butanone (MEK)	ND		24	8.0	ug/L			10/10/18 14:07	4
Carbon disulfide	ND		8.0	1.8	ug/L			10/10/18 14:07	4
Carbon tetrachloride	ND		4.0	0.76	ug/L			10/10/18 14:07	4
Chlorobenzene	ND		4.0	0.68	ug/L			10/10/18 14:07	4
Chloroprene	ND		4.0	0.84	ug/L			10/10/18 14:07	4
Chlorodibromomethane	ND		4.0	0.68	ug/L			10/10/18 14:07	4
Chloroethane	ND		8.0	1.6	ug/L			10/10/18 14:07	4
Chloroform	ND		4.0	0.64	ug/L			10/10/18 14:07	4
Chloromethane	ND		8.0	1.2	ug/L			10/10/18 14:07	4
Allyl chloride	ND		8.0	0.68	ug/L			10/10/18 14:07	4
1,2-Dibromo-3-Chloropropane	ND		20	1.9	ug/L			10/10/18 14:07	4
Dibromomethane	ND		4.0	0.68	ug/L			10/10/18 14:07	4
1,2-Dichlorobenzene	**0.89**	**J**	4.0	0.60	ug/L			10/10/18 14:07	4
1,3-Dichlorobenzene	ND		4.0	0.52	ug/L			10/10/18 14:07	4
1,4-Dichlorobenzene	ND		4.0	0.64	ug/L			10/10/18 14:07	4
trans-1,4-Dichloro-2-butene	ND		12	3.2	ug/L			10/10/18 14:07	4
Dichlorodifluoromethane	ND		8.0	1.2	ug/L			10/10/18 14:07	4
1,1-Dichloroethane	**1.1**	**J**	4.0	0.88	ug/L			10/10/18 14:07	4
1,2-Dichloroethane	ND		4.0	0.52	ug/L			10/10/18 14:07	4
cis-1,2-Dichloroethene	**16**		4.0	0.60	ug/L			10/10/18 14:07	4
trans-1,2-Dichloroethene	ND		4.0	0.60	ug/L			10/10/18 14:07	4
1,1-Dichloroethene	ND		4.0	0.92	ug/L			10/10/18 14:07	4
1,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 14:07	4
1,3-Dichloropropane	ND		4.0	0.88	ug/L			10/10/18 14:07	4
2,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 14:07	4
cis-1,3-Dichloropropene	ND		4.0	0.64	ug/L			10/10/18 14:07	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-120S-20181003
Date Collected: 10/03/18 17:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,3-Dichloropropene	ND		12	0.76	ug/L			10/10/18 14:07	4
1,1-Dichloropropene	ND		4.0	0.76	ug/L			10/10/18 14:07	4
Ethylbenzene	ND		4.0	0.64	ug/L			10/10/18 14:07	4
Ethyl methacrylate	ND		12	3.4	ug/L			10/10/18 14:07	4
2-Hexanone	ND		20	6.8	ug/L			10/10/18 14:07	4
Iodomethane	ND		4.0	0.92	ug/L			10/10/18 14:07	4
Isobutyl alcohol	ND		440	150	ug/L			10/10/18 14:07	4
Methacrylonitrile	ND		40	6.4	ug/L			10/10/18 14:07	4
Methylene Chloride	**1.7**	**J**	8.0	1.3	ug/L			10/10/18 14:07	4
Methyl methacrylate	ND		16	4.4	ug/L			10/10/18 14:07	4
4-Methyl-2-pentanone (MIBK)	ND		20	3.9	ug/L			10/10/18 14:07	4
Propionitrile	ND		80	15	ug/L			10/10/18 14:07	4
Styrene	ND		4.0	0.68	ug/L			10/10/18 14:07	4
1,1,1,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 14:07	4
1,1,2,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 14:07	4
Tetrachloroethene	**16**		4.0	0.80	ug/L			10/10/18 14:07	4
Toluene	ND		4.0	0.68	ug/L			10/10/18 14:07	4
1,2,4-Trichlorobenzene	ND		4.0	0.84	ug/L			10/10/18 14:07	4
1,1,1-Trichloroethane	ND		4.0	0.64	ug/L			10/10/18 14:07	4
1,1,2-Trichloroethane	ND		4.0	1.1	ug/L			10/10/18 14:07	4
Trichloroethene	**150**		4.0	0.64	ug/L			10/10/18 14:07	4
Trichlorofluoromethane	ND		8.0	1.2	ug/L			10/10/18 14:07	4
1,2,3-Trichloropropane	ND		10	1.3	ug/L			10/10/18 14:07	4
Vinyl acetate	ND		12	3.8	ug/L			10/10/18 14:07	4
Vinyl chloride	**2.9**	**J**	4.0	0.40	ug/L			10/10/18 14:07	4
Xylenes, Total	ND		8.0	0.76	ug/L			10/10/18 14:07	4
1,2-Dibromoethane	ND		4.0	0.72	ug/L			10/10/18 14:07	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*107*		*77 - 120*		*10/10/18 14:07*	*4*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*		*10/10/18 14:07*	*4*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*		*10/10/18 14:07*	*4*
Toluene-d8 (Surr)	*102*		*80 - 125*		*10/10/18 14:07*	*4*

Client Sample ID: MW-119S-20181003
Date Collected: 10/03/18 14:50
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		40	7.6	ug/L			10/10/18 15:45	4
Acetonitrile	ND		120	38	ug/L			10/10/18 15:45	4
Acrolein	ND		80	11	ug/L			10/10/18 15:45	4
Acrylonitrile	ND		80	5.6	ug/L			10/10/18 15:45	4
Benzene	ND		4.0	0.64	ug/L			10/10/18 15:45	4
Chlorobromomethane	ND		4.0	0.40	ug/L			10/10/18 15:45	4
Dichlorobromomethane	ND		4.0	0.68	ug/L			10/10/18 15:45	4
Bromoform	ND		4.0	0.76	ug/L			10/10/18 15:45	4
Bromomethane	ND		8.0	0.84	ug/L			10/10/18 15:45	4
2-Butanone (MEK)	ND		24	8.0	ug/L			10/10/18 15:45	4
Carbon disulfide	ND		8.0	1.8	ug/L			10/10/18 15:45	4
Carbon tetrachloride	ND		4.0	0.76	ug/L			10/10/18 15:45	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-119S-20181003
Date Collected: 10/03/18 14:50
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		4.0	0.68	ug/L			10/10/18 15:45	4
Chloroprene	ND		4.0	0.84	ug/L			10/10/18 15:45	4
Chlorodibromomethane	ND		4.0	0.68	ug/L			10/10/18 15:45	4
Chloroethane	ND		8.0	1.6	ug/L			10/10/18 15:45	4
Chloroform	ND		4.0	0.64	ug/L			10/10/18 15:45	4
Chloromethane	ND		8.0	1.2	ug/L			10/10/18 15:45	4
Allyl chloride	ND		8.0	0.68	ug/L			10/10/18 15:45	4
1,2-Dibromo-3-Chloropropane	ND		20	1.9	ug/L			10/10/18 15:45	4
Dibromomethane	ND		4.0	0.68	ug/L			10/10/18 15:45	4
1,2-Dichlorobenzene	ND		4.0	0.60	ug/L			10/10/18 15:45	4
1,3-Dichlorobenzene	ND		4.0	0.52	ug/L			10/10/18 15:45	4
1,4-Dichlorobenzene	ND		4.0	0.64	ug/L			10/10/18 15:45	4
trans-1,4-Dichloro-2-butene	ND		12	3.2	ug/L			10/10/18 15:45	4
Dichlorodifluoromethane	ND		8.0	1.2	ug/L			10/10/18 15:45	4
1,1-Dichloroethane	ND		4.0	0.88	ug/L			10/10/18 15:45	4
1,2-Dichloroethane	ND		4.0	0.52	ug/L			10/10/18 15:45	4
cis-1,2-Dichloroethene	**1.3**	**J**	4.0	0.60	ug/L			10/10/18 15:45	4
trans-1,2-Dichloroethene	ND		4.0	0.60	ug/L			10/10/18 15:45	4
1,1-Dichloroethene	ND		4.0	0.92	ug/L			10/10/18 15:45	4
1,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 15:45	4
1,3-Dichloropropane	ND		4.0	0.88	ug/L			10/10/18 15:45	4
2,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 15:45	4
cis-1,3-Dichloropropene	ND		4.0	0.64	ug/L			10/10/18 15:45	4
trans-1,3-Dichloropropene	ND		12	0.76	ug/L			10/10/18 15:45	4
1,1-Dichloropropene	ND		4.0	0.76	ug/L			10/10/18 15:45	4
Ethylbenzene	ND		4.0	0.64	ug/L			10/10/18 15:45	4
Ethyl methacrylate	ND		12	3.4	ug/L			10/10/18 15:45	4
2-Hexanone	ND		20	6.8	ug/L			10/10/18 15:45	4
Iodomethane	ND		4.0	0.92	ug/L			10/10/18 15:45	4
Isobutyl alcohol	ND		440	150	ug/L			10/10/18 15:45	4
Methacrylonitrile	ND		40	6.4	ug/L			10/10/18 15:45	4
Methylene Chloride	**1.4**	**J**	8.0	1.3	ug/L			10/10/18 15:45	4
Methyl methacrylate	ND		16	4.4	ug/L			10/10/18 15:45	4
4-Methyl-2-pentanone (MIBK)	ND		20	3.9	ug/L			10/10/18 15:45	4
Propionitrile	ND		80	15	ug/L			10/10/18 15:45	4
Styrene	ND		4.0	0.68	ug/L			10/10/18 15:45	4
1,1,1,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 15:45	4
1,1,2,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 15:45	4
Tetrachloroethene	**9.3**		4.0	0.80	ug/L			10/10/18 15:45	4
Toluene	ND		4.0	0.68	ug/L			10/10/18 15:45	4
1,2,4-Trichlorobenzene	ND		4.0	0.84	ug/L			10/10/18 15:45	4
1,1,1-Trichloroethane	ND		4.0	0.64	ug/L			10/10/18 15:45	4
1,1,2-Trichloroethane	ND		4.0	1.1	ug/L			10/10/18 15:45	4
Trichloroethene	**53**		4.0	0.64	ug/L			10/10/18 15:45	4
Trichlorofluoromethane	ND		8.0	1.2	ug/L			10/10/18 15:45	4
1,2,3-Trichloropropane	ND		10	1.3	ug/L			10/10/18 15:45	4
Vinyl acetate	ND		12	3.8	ug/L			10/10/18 15:45	4
Vinyl chloride	ND		4.0	0.40	ug/L			10/10/18 15:45	4
Xylenes, Total	ND		8.0	0.76	ug/L			10/10/18 15:45	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-119S-20181003
Date Collected: 10/03/18 14:50
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		4.0	0.72	ug/L			10/10/18 15:45	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*10/10/18 15:45*	*4*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 127*		*10/10/18 15:45*	*4*
4-Bromofluorobenzene (Surr)	*91*		*78 - 120*		*10/10/18 15:45*	*4*
Toluene-d8 (Surr)	*98*		*80 - 125*		*10/10/18 15:45*	*4*

Client Sample ID: MW-119D-20181003
Date Collected: 10/03/18 16:10
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		40	7.6	ug/L			10/10/18 16:05	4
Acetonitrile	ND		120	38	ug/L			10/10/18 16:05	4
Acrolein	ND		80	11	ug/L			10/10/18 16:05	4
Acrylonitrile	ND		80	5.6	ug/L			10/10/18 16:05	4
Benzene	ND		4.0	0.64	ug/L			10/10/18 16:05	4
Chlorobromomethane	ND		4.0	0.40	ug/L			10/10/18 16:05	4
Dichlorobromomethane	ND		4.0	0.68	ug/L			10/10/18 16:05	4
Bromoform	ND		4.0	0.76	ug/L			10/10/18 16:05	4
Bromomethane	ND		8.0	0.84	ug/L			10/10/18 16:05	4
2-Butanone (MEK)	ND		24	8.0	ug/L			10/10/18 16:05	4
Carbon disulfide	ND		8.0	1.8	ug/L			10/10/18 16:05	4
Carbon tetrachloride	ND		4.0	0.76	ug/L			10/10/18 16:05	4
Chlorobenzene	ND		4.0	0.68	ug/L			10/10/18 16:05	4
Chloroprene	ND		4.0	0.84	ug/L			10/10/18 16:05	4
Chlorodibromomethane	ND		4.0	0.68	ug/L			10/10/18 16:05	4
Chloroethane	ND		8.0	1.6	ug/L			10/10/18 16:05	4
Chloroform	ND		4.0	0.64	ug/L			10/10/18 16:05	4
Chloromethane	ND		8.0	1.2	ug/L			10/10/18 16:05	4
Allyl chloride	ND		8.0	0.68	ug/L			10/10/18 16:05	4
1,2-Dibromo-3-Chloropropane	ND		20	1.9	ug/L			10/10/18 16:05	4
Dibromomethane	ND		4.0	0.68	ug/L			10/10/18 16:05	4
1,2-Dichlorobenzene	ND		4.0	0.60	ug/L			10/10/18 16:05	4
1,3-Dichlorobenzene	ND		4.0	0.52	ug/L			10/10/18 16:05	4
1,4-Dichlorobenzene	ND		4.0	0.64	ug/L			10/10/18 16:05	4
trans-1,4-Dichloro-2-butene	ND		12	3.2	ug/L			10/10/18 16:05	4
Dichlorodifluoromethane	ND		8.0	1.2	ug/L			10/10/18 16:05	4
1,1-Dichloroethane	ND		4.0	0.88	ug/L			10/10/18 16:05	4
1,2-Dichloroethane	ND		4.0	0.52	ug/L			10/10/18 16:05	4
cis-1,2-Dichloroethene	**1.3**	**J**	4.0	0.60	ug/L			10/10/18 16:05	4
trans-1,2-Dichloroethene	ND		4.0	0.60	ug/L			10/10/18 16:05	4
1,1-Dichloroethene	ND		4.0	0.92	ug/L			10/10/18 16:05	4
1,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 16:05	4
1,3-Dichloropropane	ND		4.0	0.88	ug/L			10/10/18 16:05	4
2,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 16:05	4
cis-1,3-Dichloropropene	ND		4.0	0.64	ug/L			10/10/18 16:05	4
trans-1,3-Dichloropropene	ND		12	0.76	ug/L			10/10/18 16:05	4
1,1-Dichloropropene	ND		4.0	0.76	ug/L			10/10/18 16:05	4
Ethylbenzene	ND		4.0	0.64	ug/L			10/10/18 16:05	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-119D-20181003
Date Collected: 10/03/18 16:10
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl methacrylate	ND		12	3.4	ug/L			10/10/18 16:05	4
2-Hexanone	ND		20	6.8	ug/L			10/10/18 16:05	4
Iodomethane	ND		4.0	0.92	ug/L			10/10/18 16:05	4
Isobutyl alcohol	ND		440	150	ug/L			10/10/18 16:05	4
Methacrylonitrile	ND		40	6.4	ug/L			10/10/18 16:05	4
Methylene Chloride	ND		8.0	1.3	ug/L			10/10/18 16:05	4
Methyl methacrylate	ND		16	4.4	ug/L			10/10/18 16:05	4
4-Methyl-2-pentanone (MIBK)	ND		20	3.9	ug/L			10/10/18 16:05	4
Propionitrile	ND		80	15	ug/L			10/10/18 16:05	4
Styrene	ND		4.0	0.68	ug/L			10/10/18 16:05	4
1,1,1,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 16:05	4
1,1,2,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 16:05	4
Tetrachloroethene	**9.0**		4.0	0.80	ug/L			10/10/18 16:05	4
Toluene	ND		4.0	0.68	ug/L			10/10/18 16:05	4
1,2,4-Trichlorobenzene	ND		4.0	0.84	ug/L			10/10/18 16:05	4
1,1,1-Trichloroethane	ND		4.0	0.64	ug/L			10/10/18 16:05	4
1,1,2-Trichloroethane	ND		4.0	1.1	ug/L			10/10/18 16:05	4
Trichloroethene	**65**		4.0	0.64	ug/L			10/10/18 16:05	4
Trichlorofluoromethane	ND		8.0	1.2	ug/L			10/10/18 16:05	4
1,2,3-Trichloropropane	ND		10	1.3	ug/L			10/10/18 16:05	4
Vinyl acetate	ND		12	3.8	ug/L			10/10/18 16:05	4
Vinyl chloride	ND		4.0	0.40	ug/L			10/10/18 16:05	4
Xylenes, Total	ND		8.0	0.76	ug/L			10/10/18 16:05	4
1,2-Dibromoethane	ND		4.0	0.72	ug/L			10/10/18 16:05	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*10/10/18 16:05*	*4*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 127*		*10/10/18 16:05*	*4*
4-Bromofluorobenzene (Surr)	*93*		*78 - 120*		*10/10/18 16:05*	*4*
Toluene-d8 (Surr)	*103*		*80 - 125*		*10/10/18 16:05*	*4*

Client Sample ID: MW-118D-20181003
Date Collected: 10/03/18 17:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		40	7.6	ug/L			10/10/18 14:27	4
Acetonitrile	ND		120	38	ug/L			10/10/18 14:27	4
Acrolein	ND		80	11	ug/L			10/10/18 14:27	4
Acrylonitrile	ND		80	5.6	ug/L			10/10/18 14:27	4
Benzene	ND		4.0	0.64	ug/L			10/10/18 14:27	4
Chlorobromomethane	ND		4.0	0.40	ug/L			10/10/18 14:27	4
Dichlorobromomethane	ND		4.0	0.68	ug/L			10/10/18 14:27	4
Bromoform	ND		4.0	0.76	ug/L			10/10/18 14:27	4
Bromomethane	ND		8.0	0.84	ug/L			10/10/18 14:27	4
2-Butanone (MEK)	ND		24	8.0	ug/L			10/10/18 14:27	4
Carbon disulfide	ND		8.0	1.8	ug/L			10/10/18 14:27	4
Carbon tetrachloride	ND		4.0	0.76	ug/L			10/10/18 14:27	4
Chlorobenzene	ND		4.0	0.68	ug/L			10/10/18 14:27	4
Chloroprene	ND		4.0	0.84	ug/L			10/10/18 14:27	4
Chlorodibromomethane	ND		4.0	0.68	ug/L			10/10/18 14:27	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-118D-20181003
Date Collected: 10/03/18 17:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		8.0	1.6	ug/L			10/10/18 14:27	4
Chloroform	**0.96**	**J**	4.0	0.64	ug/L			10/10/18 14:27	4
Chloromethane	ND		8.0	1.2	ug/L			10/10/18 14:27	4
Allyl chloride	ND		8.0	0.68	ug/L			10/10/18 14:27	4
1,2-Dibromo-3-Chloropropane	ND		20	1.9	ug/L			10/10/18 14:27	4
Dibromomethane	ND		4.0	0.68	ug/L			10/10/18 14:27	4
1,2-Dichlorobenzene	ND		4.0	0.60	ug/L			10/10/18 14:27	4
1,3-Dichlorobenzene	ND		4.0	0.52	ug/L			10/10/18 14:27	4
1,4-Dichlorobenzene	ND		4.0	0.64	ug/L			10/10/18 14:27	4
trans-1,4-Dichloro-2-butene	ND		12	3.2	ug/L			10/10/18 14:27	4
Dichlorodifluoromethane	**3.9**	**J**	8.0	1.2	ug/L			10/10/18 14:27	4
1,1-Dichloroethane	**6.2**		4.0	0.88	ug/L			10/10/18 14:27	4
1,2-Dichloroethane	ND		4.0	0.52	ug/L			10/10/18 14:27	4
cis-1,2-Dichloroethene	**9.0**		4.0	0.60	ug/L			10/10/18 14:27	4
trans-1,2-Dichloroethene	ND		4.0	0.60	ug/L			10/10/18 14:27	4
1,1-Dichloroethene	**0.99**	**J**	4.0	0.92	ug/L			10/10/18 14:27	4
1,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 14:27	4
1,3-Dichloropropane	ND		4.0	0.88	ug/L			10/10/18 14:27	4
2,2-Dichloropropane	ND		4.0	0.72	ug/L			10/10/18 14:27	4
cis-1,3-Dichloropropene	ND		4.0	0.64	ug/L			10/10/18 14:27	4
trans-1,3-Dichloropropene	ND		12	0.76	ug/L			10/10/18 14:27	4
1,1-Dichloropropene	ND		4.0	0.76	ug/L			10/10/18 14:27	4
Ethylbenzene	ND		4.0	0.64	ug/L			10/10/18 14:27	4
Ethyl methacrylate	ND		12	3.4	ug/L			10/10/18 14:27	4
2-Hexanone	ND		20	6.8	ug/L			10/10/18 14:27	4
Iodomethane	ND		4.0	0.92	ug/L			10/10/18 14:27	4
Isobutyl alcohol	ND		440	150	ug/L			10/10/18 14:27	4
Methacrylonitrile	ND		40	6.4	ug/L			10/10/18 14:27	4
Methylene Chloride	**1.8**	**J**	8.0	1.3	ug/L			10/10/18 14:27	4
Methyl methacrylate	ND		16	4.4	ug/L			10/10/18 14:27	4
4-Methyl-2-pentanone (MIBK)	ND		20	3.9	ug/L			10/10/18 14:27	4
Propionitrile	ND		80	15	ug/L			10/10/18 14:27	4
Styrene	ND		4.0	0.68	ug/L			10/10/18 14:27	4
1,1,1,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 14:27	4
1,1,2,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/10/18 14:27	4
Tetrachloroethene	**19**		4.0	0.80	ug/L			10/10/18 14:27	4
Toluene	ND		4.0	0.68	ug/L			10/10/18 14:27	4
1,2,4-Trichlorobenzene	ND		4.0	0.84	ug/L			10/10/18 14:27	4
1,1,1-Trichloroethane	ND		4.0	0.64	ug/L			10/10/18 14:27	4
1,1,2-Trichloroethane	ND		4.0	1.1	ug/L			10/10/18 14:27	4
Trichloroethene	**170**		4.0	0.64	ug/L			10/10/18 14:27	4
Trichlorofluoromethane	ND		8.0	1.2	ug/L			10/10/18 14:27	4
1,2,3-Trichloropropane	ND		10	1.3	ug/L			10/10/18 14:27	4
Vinyl acetate	ND		12	3.8	ug/L			10/10/18 14:27	4
Vinyl chloride	**0.85**	**J**	4.0	0.40	ug/L			10/10/18 14:27	4
Xylenes, Total	ND		8.0	0.76	ug/L			10/10/18 14:27	4
1,2-Dibromoethane	ND		4.0	0.72	ug/L			10/10/18 14:27	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*10/10/18 14:27*	*4*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-118D-20181003
Date Collected: 10/03/18 17:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-14
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 127*		*10/10/18 14:27*	*4*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*		*10/10/18 14:27*	*4*
Toluene-d8 (Surr)	*97*		*80 - 125*		*10/10/18 14:27*	*4*

Client Sample ID: TB-1-VOC-20181003
Date Collected: 10/04/18 08:45
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/10/18 16:44	1
Acetonitrile	ND		30	9.6	ug/L			10/10/18 16:44	1
Acrolein	ND		20	2.8	ug/L			10/10/18 16:44	1
Acrylonitrile	ND		20	1.4	ug/L			10/10/18 16:44	1
Benzene	ND		1.0	0.16	ug/L			10/10/18 16:44	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/10/18 16:44	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/10/18 16:44	1
Bromoform	ND		1.0	0.19	ug/L			10/10/18 16:44	1
Bromomethane	ND		2.0	0.21	ug/L			10/10/18 16:44	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/10/18 16:44	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/10/18 16:44	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/10/18 16:44	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/10/18 16:44	1
Chloroprene	ND		1.0	0.21	ug/L			10/10/18 16:44	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/10/18 16:44	1
Chloroethane	ND		2.0	0.41	ug/L			10/10/18 16:44	1
Chloroform	ND		1.0	0.16	ug/L			10/10/18 16:44	1
Chloromethane	ND		2.0	0.30	ug/L			10/10/18 16:44	1
Allyl chloride	ND		2.0	0.17	ug/L			10/10/18 16:44	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/10/18 16:44	1
Dibromomethane	ND		1.0	0.17	ug/L			10/10/18 16:44	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/10/18 16:44	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/10/18 16:44	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/10/18 16:44	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/10/18 16:44	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/10/18 16:44	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/10/18 16:44	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/10/18 16:44	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/10/18 16:44	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/10/18 16:44	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/10/18 16:44	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/10/18 16:44	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/10/18 16:44	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/10/18 16:44	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/10/18 16:44	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/10/18 16:44	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/10/18 16:44	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/10/18 16:44	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/10/18 16:44	1
2-Hexanone	ND		5.0	1.7	ug/L			10/10/18 16:44	1
Iodomethane	ND		1.0	0.23	ug/L			10/10/18 16:44	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-1-VOC-20181003
Date Collected: 10/04/18 08:45
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isobutyl alcohol	ND		110	37	ug/L			10/10/18 16:44	1
Methacrylonitrile	ND		10	1.6	ug/L			10/10/18 16:44	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/10/18 16:44	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/10/18 16:44	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/10/18 16:44	1
Propionitrile	ND		20	3.7	ug/L			10/10/18 16:44	1
Styrene	ND		1.0	0.17	ug/L			10/10/18 16:44	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/10/18 16:44	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/10/18 16:44	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/10/18 16:44	1
Toluene	ND		1.0	0.17	ug/L			10/10/18 16:44	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/10/18 16:44	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/10/18 16:44	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/10/18 16:44	1
Trichloroethene	ND		1.0	0.16	ug/L			10/10/18 16:44	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/10/18 16:44	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/10/18 16:44	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/10/18 16:44	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/10/18 16:44	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/10/18 16:44	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/10/18 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*10/10/18 16:44*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 127*		*10/10/18 16:44*	*1*
4-Bromofluorobenzene (Surr)	*101*		*78 - 120*		*10/10/18 16:44*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*10/10/18 16:44*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Client Sample ID: MW-119S-20181003
Date Collected: 10/03/18 14:50
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/12/18 11:52	1
Ethene	ND		5.0	0.40	ug/L			10/12/18 11:52	1
Ethane	ND		5.0	0.57	ug/L			10/12/18 11:52	1
Acetylene	ND		5.0	0.73	ug/L			10/12/18 11:52	1
Propane	ND		5.0	0.56	ug/L			10/12/18 11:52	1

Client Sample ID: MW-119D-20181003
Date Collected: 10/03/18 16:10
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/12/18 12:19	1
Ethene	ND		5.0	0.40	ug/L			10/12/18 12:19	1
Ethane	ND		5.0	0.57	ug/L			10/12/18 12:19	1
Acetylene	ND		5.0	0.73	ug/L			10/12/18 12:19	1
Propane	ND		5.0	0.56	ug/L			10/12/18 12:19	1

Method: RSK-175 - Dissolved Gases (GC)

Client Sample ID: MW-118D-20181003
Date Collected: 10/03/18 17:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**2.9**	**J**	5.0	0.64	ug/L			10/12/18 12:33	1
Ethene	ND		5.0	0.40	ug/L			10/12/18 12:33	1
Ethane	ND		5.0	0.57	ug/L			10/12/18 12:33	1
Acetylene	ND		5.0	0.73	ug/L			10/12/18 12:33	1
Propane	ND		5.0	0.56	ug/L			10/12/18 12:33	1

Client Sample ID: MW-105D-20181004
Date Collected: 10/04/18 10:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**1.5**	**J**	5.0	0.64	ug/L			10/12/18 20:20	1
Ethene	ND		5.0	0.40	ug/L			10/12/18 20:20	1
Ethane	ND		5.0	0.57	ug/L			10/12/18 20:20	1
Acetylene	ND		5.0	0.73	ug/L			10/12/18 20:20	1
Propane	ND		5.0	0.56	ug/L			10/12/18 20:20	1

Client Sample ID: MW-105S-20181004
Date Collected: 10/04/18 11:30
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**27**		5.0	0.64	ug/L			10/12/18 20:34	1
Ethene	ND		5.0	0.40	ug/L			10/12/18 20:34	1
Ethane	ND		5.0	0.57	ug/L			10/12/18 20:34	1
Acetylene	ND		5.0	0.73	ug/L			10/12/18 20:34	1
Propane	ND		5.0	0.56	ug/L			10/12/18 20:34	1

Client Sample ID: MW-104S-20181004
Date Collected: 10/04/18 09:25
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**97**		5.0	0.64	ug/L			10/12/18 20:47	1
Ethene	ND		5.0	0.40	ug/L			10/12/18 20:47	1
Ethane	ND		5.0	0.57	ug/L			10/12/18 20:47	1
Acetylene	ND		5.0	0.73	ug/L			10/12/18 20:47	1
Propane	ND		5.0	0.56	ug/L			10/12/18 20:47	1

Client Sample ID: MW-104D-20181004
Date Collected: 10/04/18 10:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**140**		5.0	0.64	ug/L			10/12/18 21:01	1
Ethene	ND		5.0	0.40	ug/L			10/12/18 21:01	1
Ethane	ND		5.0	0.57	ug/L			10/12/18 21:01	1
Acetylene	ND		5.0	0.73	ug/L			10/12/18 21:01	1
Propane	ND		5.0	0.56	ug/L			10/12/18 21:01	1

Client Sample ID: MW-120D-20181003
Date Collected: 10/03/18 15:40
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/12/18 12:47	1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Client Sample ID: MW-120D-20181003
Date Collected: 10/03/18 15:40
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethene	ND		5.0	0.40	ug/L			10/12/18 12:47	1
Ethane	ND		5.0	0.57	ug/L			10/12/18 12:47	1
Acetylene	ND		5.0	0.73	ug/L			10/12/18 12:47	1
Propane	ND		5.0	0.56	ug/L			10/12/18 12:47	1

Client Sample ID: MW-120S-20181003
Date Collected: 10/03/18 17:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/12/18 21:14	1
Ethene	ND		5.0	0.40	ug/L			10/12/18 21:14	1
Ethane	ND		5.0	0.57	ug/L			10/12/18 21:14	1
Acetylene	ND		5.0	0.73	ug/L			10/12/18 21:14	1
Propane	ND		5.0	0.56	ug/L			10/12/18 21:14	1

Method: 6010C - Metals (ICP)

Client Sample ID: MW-119S-20181003
Date Collected: 10/03/18 14:50
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**98000**		200	35	ug/L		10/09/18 17:30	10/10/18 03:18	1
Iron	ND		100	22	ug/L		10/09/18 17:30	10/10/18 03:18	1
Magnesium	**43000**		200	11	ug/L		10/09/18 17:30	10/10/18 03:18	1
Potassium	**3600**		3000	240	ug/L		10/09/18 17:30	10/10/18 03:18	1
Sodium	**68000**	**B**	1000	120	ug/L		10/09/18 17:30	10/10/18 03:18	1

Client Sample ID: MW-119D-20181003
Date Collected: 10/03/18 16:10
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**100000**		200	35	ug/L		10/09/18 17:30	10/10/18 03:21	1
Iron	ND		100	22	ug/L		10/09/18 17:30	10/10/18 03:21	1
Magnesium	**44000**		200	11	ug/L		10/09/18 17:30	10/10/18 03:21	1
Potassium	**3300**		3000	240	ug/L		10/09/18 17:30	10/10/18 03:21	1
Sodium	**65000**	**B**	1000	120	ug/L		10/09/18 17:30	10/10/18 03:21	1

Client Sample ID: MW-118D-20181003
Date Collected: 10/03/18 17:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**200000**		200	35	ug/L		10/09/18 17:30	10/10/18 03:39	1
Iron	ND		100	22	ug/L		10/09/18 17:30	10/10/18 03:39	1
Magnesium	**77000**		200	11	ug/L		10/09/18 17:30	10/10/18 03:39	1
Potassium	**5200**		3000	240	ug/L		10/09/18 17:30	10/10/18 03:39	1
Sodium	**150000**	**B**	1000	120	ug/L		10/09/18 17:30	10/10/18 03:39	1

Method: 6010C - Metals (ICP)

Client Sample ID: MW-105D-20181004
Date Collected: 10/04/18 10:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	200000		200	35	ug/L		10/09/18 17:30	10/10/18 03:42	1
Iron	ND		100	22	ug/L		10/09/18 17:30	10/10/18 03:42	1
Magnesium	64000		200	11	ug/L		10/09/18 17:30	10/10/18 03:42	1
Potassium	4100		3000	240	ug/L		10/09/18 17:30	10/10/18 03:42	1
Sodium	62000	B	1000	120	ug/L		10/09/18 17:30	10/10/18 03:42	1

Client Sample ID: MW-105S-20181004
Date Collected: 10/04/18 11:30
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	270000		200	35	ug/L		10/09/18 17:30	10/10/18 03:46	1
Iron	7400	B	100	22	ug/L		10/09/18 17:30	10/10/18 03:46	1
Magnesium	110000		200	11	ug/L		10/09/18 17:30	10/10/18 03:46	1
Potassium	5400		3000	240	ug/L		10/09/18 17:30	10/10/18 03:46	1
Sodium	320000	B	1000	120	ug/L		10/09/18 17:30	10/10/18 03:46	1

Client Sample ID: MW-104S-20181004
Date Collected: 10/04/18 09:25
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	190000		200	35	ug/L		10/09/18 17:30	10/10/18 03:50	1
Iron	ND		100	22	ug/L		10/09/18 17:30	10/10/18 03:50	1
Magnesium	60000		200	11	ug/L		10/09/18 17:30	10/10/18 03:50	1
Potassium	5800		3000	240	ug/L		10/09/18 17:30	10/10/18 03:50	1
Sodium	99000	B	1000	120	ug/L		10/09/18 17:30	10/10/18 03:50	1

Client Sample ID: MW-104D-20181004
Date Collected: 10/04/18 10:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	180000		200	35	ug/L		10/09/18 17:30	10/10/18 03:53	1
Iron	170	B	100	22	ug/L		10/09/18 17:30	10/10/18 03:53	1
Magnesium	62000		200	11	ug/L		10/09/18 17:30	10/10/18 03:53	1
Potassium	4900		3000	240	ug/L		10/09/18 17:30	10/10/18 03:53	1
Sodium	69000	B	1000	120	ug/L		10/09/18 17:30	10/10/18 03:53	1

Client Sample ID: MW-120D-20181003
Date Collected: 10/03/18 15:40
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	170000		200	35	ug/L		10/09/18 17:30	10/10/18 03:57	1
Iron	250	B	100	22	ug/L		10/09/18 17:30	10/10/18 03:57	1
Magnesium	60000		200	11	ug/L		10/09/18 17:30	10/10/18 03:57	1
Potassium	4600		3000	240	ug/L		10/09/18 17:30	10/10/18 03:57	1
Sodium	95000	B	1000	120	ug/L		10/09/18 17:30	10/10/18 03:57	1

Client Sample ID: MW-120S-20181003
Date Collected: 10/03/18 17:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	160000		200	35	ug/L		10/09/18 17:30	10/10/18 04:00	1

Method: 6010C - Metals (ICP) (Continued)

Client Sample ID: MW-120S-20181003
Date Collected: 10/03/18 17:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**120**	**B**	100	22	ug/L		10/09/18 17:30	10/10/18 04:00	1
Magnesium	**60000**		200	11	ug/L		10/09/18 17:30	10/10/18 04:00	1
Potassium	**4300**		3000	240	ug/L		10/09/18 17:30	10/10/18 04:00	1
Sodium	**94000**	**B**	1000	120	ug/L		10/09/18 17:30	10/10/18 04:00	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: MW-119S-20181003
Date Collected: 10/03/18 14:50
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 01:41	1
Arsenic	**0.55**	**J**	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 15:31	1
Barium	**160**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 01:41	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 01:41	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 01:41	1
Chromium	**0.55**	**J**	2.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:41	1
Co	ND		1.0	0.054	ug/L		10/10/18 06:30	10/11/18 01:41	1
Copper	**0.80**	**J**	2.0	0.56	ug/L		10/10/18 06:30	10/11/18 01:41	1
Lead	ND		1.0	0.18	ug/L		10/10/18 06:30	10/11/18 01:41	1
Manganese	ND		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 01:33	1
Nickel	ND		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 01:41	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 15:31	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 01:41	1
Thallium	**0.054**	**J**	1.0	0.050	ug/L		10/10/18 06:30	10/11/18 01:41	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 01:41	1
Vanadium	**0.72**	**J**	5.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:41	1
Zinc	**3.7**	**J B**	10	2.0	ug/L		10/10/18 06:30	10/11/18 01:41	1

Client Sample ID: MW-119D-20181003
Date Collected: 10/03/18 16:10
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 01:44	1
Arsenic	**0.51**	**J**	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 15:35	1
Barium	**160**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 01:44	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 01:44	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 01:44	1
Chromium	**0.71**	**J**	2.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:44	1
Co	ND		1.0	0.054	ug/L		10/10/18 06:30	10/11/18 01:44	1
Copper	ND		2.0	0.56	ug/L		10/10/18 06:30	10/11/18 01:44	1
Lead	ND		1.0	0.18	ug/L		10/10/18 06:30	10/11/18 01:44	1
Manganese	**0.43**	**J**	1.0	0.31	ug/L		10/12/18 14:21	10/13/18 01:36	1
Nickel	ND		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 01:44	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 15:35	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 01:44	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 01:44	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 01:44	1
Vanadium	**0.74**	**J**	5.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:44	1
Zinc	ND		10	2.0	ug/L		10/10/18 06:30	10/11/18 01:44	1

Client Sample ID: MW-118D-20181003
Date Collected: 10/03/18 17:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 01:47	1
Arsenic	**1.2**	**J**	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 15:39	1
Barium	**440**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 01:47	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 01:47	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 01:47	1
Chromium	**1.3**	**J**	2.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:47	1
Co	**1.9**		1.0	0.054	ug/L		10/10/18 06:30	10/11/18 01:47	1
Copper	**2.2**		2.0	0.56	ug/L		10/10/18 06:30	10/11/18 01:47	1
Lead	**1.6**		1.0	0.18	ug/L		10/10/18 06:30	10/11/18 01:47	1
Manganese	**170**		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 01:40	1
Nickel	**27**		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 01:47	1
Selenium	**1.9**	**J**	5.0	0.70	ug/L		10/12/18 14:21	10/14/18 15:39	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 01:47	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 01:47	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 01:47	1
Vanadium	**2.6**	**J**	5.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:47	1
Zinc	ND		10	2.0	ug/L		10/10/18 06:30	10/11/18 01:47	1

Client Sample ID: MW-105D-20181004
Date Collected: 10/04/18 10:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 01:51	1
Arsenic	**0.97**	**J**	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 15:43	1
Barium	**270**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 01:51	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 01:51	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 01:51	1
Chromium	**0.73**	**J**	2.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:51	1
Co	**0.082**	**J**	1.0	0.054	ug/L		10/10/18 06:30	10/11/18 01:51	1
Copper	ND		2.0	0.56	ug/L		10/10/18 06:30	10/11/18 01:51	1
Lead	ND		1.0	0.18	ug/L		10/10/18 06:30	10/11/18 01:51	1
Manganese	**4.7**		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 01:43	1
Nickel	**1.7**	**J**	2.0	0.30	ug/L		10/10/18 06:30	10/11/18 01:51	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 15:43	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 01:51	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 01:51	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 01:51	1
Vanadium	**2.3**	**J**	5.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:51	1
Zinc	**2.2**	**J B**	10	2.0	ug/L		10/10/18 06:30	10/11/18 01:51	1

Client Sample ID: MW-105S-20181004
Date Collected: 10/04/18 11:30
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 01:54	1
Arsenic	**8.6**		5.0	0.33	ug/L		10/12/18 14:21	10/14/18 15:47	1
Barium	**690**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 01:54	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 01:54	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 01:54	1
Chromium	**2.6**		2.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:54	1
Co	**0.95**	**J**	1.0	0.054	ug/L		10/10/18 06:30	10/11/18 01:54	1
Copper	ND		2.0	0.56	ug/L		10/10/18 06:30	10/11/18 01:54	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-105S-20181004
Date Collected: 10/04/18 11:30
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.0	0.18	ug/L		10/10/18 06:30	10/11/18 01:54	1
Manganese	**9100**		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 01:47	1
Nickel	**11**		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 01:54	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 15:47	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 01:54	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 01:54	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 01:54	1
Vanadium	**0.78**	**J**	5.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:54	1
Zinc	**2.2**	**J B**	10	2.0	ug/L		10/10/18 06:30	10/11/18 01:54	1

Client Sample ID: MW-104S-20181004
Date Collected: 10/04/18 09:25
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 01:58	1
Arsenic	**0.77**	**J**	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 15:51	1
Barium	**270**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 01:58	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 01:58	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 01:58	1
Chromium	ND		2.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:58	1
Co	**0.16**	**J**	1.0	0.054	ug/L		10/10/18 06:30	10/11/18 01:58	1
Copper	**0.58**	**J**	2.0	0.56	ug/L		10/10/18 06:30	10/11/18 01:58	1
Lead	ND		1.0	0.18	ug/L		10/10/18 06:30	10/11/18 01:58	1
Manganese	**52**		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 01:50	1
Nickel	**2.9**		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 01:58	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 15:51	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 01:58	1
Thallium	**0.085**	**J**	1.0	0.050	ug/L		10/10/18 06:30	10/11/18 01:58	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 01:58	1
Vanadium	**1.1**	**J**	5.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:58	1
Zinc	**3.1**	**J B**	10	2.0	ug/L		10/10/18 06:30	10/11/18 01:58	1

Client Sample ID: MW-104D-20181004
Date Collected: 10/04/18 10:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 02:01	1
Arsenic	**0.75**	**J**	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 15:55	1
Barium	**310**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 02:01	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 02:01	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 02:01	1
Chromium	**0.84**	**J**	2.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:01	1
Co	**2.1**		1.0	0.054	ug/L		10/10/18 06:30	10/11/18 02:01	1
Copper	**0.90**	**J**	2.0	0.56	ug/L		10/10/18 06:30	10/11/18 02:01	1
Lead	**0.27**	**J**	1.0	0.18	ug/L		10/10/18 06:30	10/11/18 02:01	1
Manganese	**180**		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 02:04	1
Nickel	**3.5**		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 02:01	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 15:55	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 02:01	1
Thallium	**0.098**	**J**	1.0	0.050	ug/L		10/10/18 06:30	10/11/18 02:01	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-104D-20181004
Date Collected: 10/04/18 10:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 02:01	1
Vanadium	**0.82**	**J**	5.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:01	1
Zinc	**10**	**B**	10	2.0	ug/L		10/10/18 06:30	10/11/18 02:01	1

Client Sample ID: MW-120D-20181003
Date Collected: 10/03/18 15:40
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 02:15	1
Arsenic	**0.82**	**J**	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 16:06	1
Barium	**280**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 02:15	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 02:15	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 02:15	1
Chromium	**0.77**	**J**	2.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:15	1
Co	**0.22**	**J**	1.0	0.054	ug/L		10/10/18 06:30	10/11/18 02:15	1
Copper	**1.0**	**J**	2.0	0.56	ug/L		10/10/18 06:30	10/11/18 02:15	1
Lead	**0.26**	**J**	1.0	0.18	ug/L		10/10/18 06:30	10/11/18 02:15	1
Manganese	**37**		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 02:07	1
Nickel	**3.1**		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 02:15	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 16:06	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 02:15	1
Thallium	**0.076**	**J**	1.0	0.050	ug/L		10/10/18 06:30	10/11/18 02:15	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 02:15	1
Vanadium	**0.95**	**J**	5.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:15	1
Zinc	**24**	**B**	10	2.0	ug/L		10/10/18 06:30	10/11/18 02:15	1

Client Sample ID: MW-120S-20181003
Date Collected: 10/03/18 17:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 02:18	1
Arsenic	**0.79**	**J**	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 16:10	1
Barium	**270**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 02:18	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 02:18	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 02:18	1
Chromium	**0.71**	**J**	2.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:18	1
Co	**0.18**	**J**	1.0	0.054	ug/L		10/10/18 06:30	10/11/18 02:18	1
Copper	**0.94**	**J**	2.0	0.56	ug/L		10/10/18 06:30	10/11/18 02:18	1
Lead	ND		1.0	0.18	ug/L		10/10/18 06:30	10/11/18 02:18	1
Manganese	**5.4**		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 02:11	1
Nickel	**2.4**		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 02:18	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 16:10	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 02:18	1
Thallium	**0.052**	**J**	1.0	0.050	ug/L		10/10/18 06:30	10/11/18 02:18	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 02:18	1
Vanadium	**1.3**	**J**	5.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:18	1
Zinc	**2.1**	**J B**	10	2.0	ug/L		10/10/18 06:30	10/11/18 02:18	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-119S-20181003
Date Collected: 10/03/18 14:50
Date Received: 10/05/18 09:30
Lab Sample ID: 280-115186-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 22:09	1

Client Sample ID: MW-119D-20181003
Date Collected: 10/03/18 16:10
Date Received: 10/05/18 09:30
Lab Sample ID: 280-115186-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 22:16	1

Client Sample ID: MW-118D-20181003
Date Collected: 10/03/18 17:35
Date Received: 10/05/18 09:30
Lab Sample ID: 280-115186-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.90**		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 22:23	1

Client Sample ID: MW-105D-20181004
Date Collected: 10/04/18 10:00
Date Received: 10/05/18 09:30
Lab Sample ID: 280-115186-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.085**	**J**	0.20	0.027	ug/L		10/11/18 12:23	10/11/18 22:25	1

Client Sample ID: MW-105S-20181004
Date Collected: 10/04/18 11:30
Date Received: 10/05/18 09:30
Lab Sample ID: 280-115186-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.075**	**J**	0.20	0.027	ug/L		10/11/18 12:23	10/11/18 22:27	1

Client Sample ID: MW-104S-20181004
Date Collected: 10/04/18 09:25
Date Received: 10/05/18 09:30
Lab Sample ID: 280-115186-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.027**	**J**	0.20	0.027	ug/L		10/11/18 12:23	10/11/18 22:29	1

Client Sample ID: MW-104D-20181004
Date Collected: 10/04/18 10:35
Date Received: 10/05/18 09:30
Lab Sample ID: 280-115186-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 22:31	1

Client Sample ID: MW-120D-20181003
Date Collected: 10/03/18 15:40
Date Received: 10/05/18 09:30
Lab Sample ID: 280-115186-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.050**	**J**	0.20	0.027	ug/L		10/11/18 12:23	10/11/18 22:34	1

Client Sample ID: MW-120S-20181003
Date Collected: 10/03/18 17:00
Date Received: 10/05/18 09:30
Lab Sample ID: 280-115186-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.35**		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 22:36	1

General Chemistry

Client Sample ID: MW-119S-20181003
Date Collected: 10/03/18 14:50
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	4.2		0.20	0.038	mg/L			10/11/18 19:58	2
Chloride	110	B	3.0	0.25	mg/L			10/10/18 23:29	1
Sulfate	110	B	5.0	0.23	mg/L			10/10/18 23:29	1
Total Organic Carbon - Duplicates	1.6		1.0	0.16	mg/L			10/08/18 13:58	1
Alkalinity, Total	300		5.0	1.1	mg/L			10/10/18 20:01	1
Cyanide, Total	0.0053	J	0.010	0.0020	mg/L		10/15/18 10:48	10/15/18 17:05	1

Client Sample ID: MW-119D-20181003
Date Collected: 10/03/18 16:10
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.2		0.10	0.019	mg/L			10/11/18 20:00	1
Chloride	110	B	3.0	0.25	mg/L			10/11/18 00:04	1
Sulfate	100	B	5.0	0.23	mg/L			10/11/18 00:04	1
Total Organic Carbon - Duplicates	1.2		1.0	0.16	mg/L			10/08/18 14:19	1
Alkalinity, Total	310		5.0	1.1	mg/L			10/10/18 21:46	1
Cyanide, Total	0.0048	J	0.010	0.0020	mg/L		10/15/18 10:48	10/15/18 17:06	1

Client Sample ID: MW-118D-20181003
Date Collected: 10/03/18 17:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	12		0.50	0.095	mg/L			10/11/18 21:28	5
Chloride	400	B	30	2.5	mg/L			10/11/18 01:32	10
Sulfate	86	B	5.0	0.23	mg/L			10/11/18 00:39	1
Total Organic Carbon - Duplicates	6.1		1.0	0.16	mg/L			10/08/18 14:37	1
Alkalinity, Total	560		5.0	1.1	mg/L			10/10/18 21:36	1
Cyanide, Total	ND	F1 F2	0.010	0.0020	mg/L		10/16/18 07:43	10/16/18 14:24	1

Client Sample ID: MW-105D-20181004
Date Collected: 10/04/18 10:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.44		0.10	0.019	mg/L			10/11/18 21:30	1
Chloride	210		15	1.3	mg/L			10/10/18 03:40	5
Sulfate	60		5.0	0.23	mg/L			10/10/18 03:24	1
Total Organic Carbon - Duplicates	2.1		1.0	0.16	mg/L			10/08/18 14:52	1
Alkalinity, Total	540		5.0	1.1	mg/L			10/09/18 19:49	1
Cyanide, Total	0.010		0.010	0.0020	mg/L		10/17/18 07:31	10/17/18 13:29	1

Client Sample ID: MW-105S-20181004
Date Collected: 10/04/18 11:30
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.21		0.10	0.019	mg/L			10/11/18 20:22	1
Chloride	560		30	2.5	mg/L			10/10/18 04:13	10
Sulfate	120		5.0	0.23	mg/L			10/10/18 03:57	1
Total Organic Carbon - Duplicates	12		1.0	0.16	mg/L			10/08/18 15:44	1
Alkalinity, Total	910		5.0	1.1	mg/L			10/09/18 19:25	1
Cyanide, Total	0.0041	J	0.010	0.0020	mg/L		10/17/18 07:31	10/17/18 13:30	1

General Chemistry

Client Sample ID: MW-104S-20181004
Date Collected: 10/04/18 09:25
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.059	J	0.10	0.019	mg/L			10/11/18 20:24	1
Chloride	180		15	1.3	mg/L			10/10/18 04:46	5
Sulfate	90		5.0	0.23	mg/L			10/10/18 04:29	1
Total Organic Carbon - Duplicates	3.1		1.0	0.16	mg/L			10/08/18 15:59	1
Alkalinity, Total	590		5.0	1.1	mg/L			10/09/18 19:08	1
Cyanide, Total	0.0021	J	0.010	0.0020	mg/L		10/17/18 07:31	10/17/18 13:32	1

Client Sample ID: MW-104D-20181004
Date Collected: 10/04/18 10:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/11/18 20:26	1
Chloride	190		15	1.3	mg/L			10/10/18 05:19	5
Sulfate	74		5.0	0.23	mg/L			10/10/18 05:02	1
Total Organic Carbon - Duplicates	2.8		1.0	0.16	mg/L			10/08/18 12:40	1
Alkalinity, Total	500		5.0	1.1	mg/L			10/09/18 19:37	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/17/18 07:31	10/17/18 13:33	1

Client Sample ID: MW-120D-20181003
Date Collected: 10/03/18 15:40
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.76		0.10	0.019	mg/L			10/11/18 20:28	1
Chloride	210	B	15	1.3	mg/L			10/11/18 02:07	5
Sulfate	92	B	5.0	0.23	mg/L			10/11/18 01:49	1
Total Organic Carbon - Duplicates	3.1		1.0	0.16	mg/L			10/08/18 16:18	1
Alkalinity, Total	480		5.0	1.1	mg/L			10/10/18 21:57	1
Cyanide, Total	0.0021	J	0.010	0.0020	mg/L		10/16/18 07:43	10/16/18 14:28	1

Client Sample ID: MW-120S-20181003
Date Collected: 10/03/18 17:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.78		0.10	0.019	mg/L			10/11/18 20:30	1
Chloride	220	B	15	1.3	mg/L			10/11/18 02:42	5
Sulfate	94	B	5.0	0.23	mg/L			10/11/18 02:24	1
Total Organic Carbon - Duplicates	3.1		1.0	0.16	mg/L			10/08/18 17:25	1
Alkalinity, Total	480		5.0	1.1	mg/L			10/10/18 22:08	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/16/18 07:43	10/16/18 14:37	1

Surrogate Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115186-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DBFM	DCA	BFB	TOL
Lab Sample ID	Client Sample ID	(77-120)	(70-127)	(78-120)	(80-125)
280-115186-4	MW-105D-20181004	104	104	91	92
280-115186-5	MW-105S-20181004	103	100	92	99
280-115186-5 MS	MW-105S-20181004	100	98	89	99
280-115186-5 MSD	MW-105S-20181004	97	95	88	101
280-115186-6	TB-2-VOC-20181004	105	103	103	99
280-115186-7	MW-104S-20181004	103	98	98	98
280-115186-8	MW-104D-20181004	104	100	99	103
280-115186-9	TB-3-VOC-20181004	100	98	96	97
280-115186-10	MW-120D-20181003	106	104	98	100
280-115186-11	MW-120S-20181003	107	104	99	102
280-115186-12	MW-119S-20181003	103	99	91	98
280-115186-13	MW-119D-20181003	105	102	93	103
280-115186-14	MW-118D-20181003	105	101	97	97
280-115186-15	TB-1-VOC-20181003	105	103	101	100
LCS 280-432690/10	Lab Control Sample	98	93	99	97
LCS 280-432690/4	Lab Control Sample	101	98	98	105
LCSD 280-432690/11	Lab Control Sample Dup	100	96	99	94
MB 280-432690/6	Method Blank	113	110	114	111

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-432690/6
Matrix: Water
Analysis Batch: 432690

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/10/18 08:29	1
Acetonitrile	ND		30	9.6	ug/L			10/10/18 08:29	1
Acrolein	ND		20	2.8	ug/L			10/10/18 08:29	1
Acrylonitrile	ND		20	1.4	ug/L			10/10/18 08:29	1
Benzene	ND		1.0	0.16	ug/L			10/10/18 08:29	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/10/18 08:29	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/10/18 08:29	1
Bromoform	ND		1.0	0.19	ug/L			10/10/18 08:29	1
Bromomethane	ND		2.0	0.21	ug/L			10/10/18 08:29	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/10/18 08:29	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/10/18 08:29	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/10/18 08:29	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/10/18 08:29	1
Chloroprene	ND		1.0	0.21	ug/L			10/10/18 08:29	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/10/18 08:29	1
Chloroethane	ND		2.0	0.41	ug/L			10/10/18 08:29	1
Chloroform	ND		1.0	0.16	ug/L			10/10/18 08:29	1
Chloromethane	ND		2.0	0.30	ug/L			10/10/18 08:29	1
Allyl chloride	ND		2.0	0.17	ug/L			10/10/18 08:29	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/10/18 08:29	1
Dibromomethane	ND		1.0	0.17	ug/L			10/10/18 08:29	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/10/18 08:29	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/10/18 08:29	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/10/18 08:29	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/10/18 08:29	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/10/18 08:29	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/10/18 08:29	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/10/18 08:29	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/10/18 08:29	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/10/18 08:29	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/10/18 08:29	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/10/18 08:29	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/10/18 08:29	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/10/18 08:29	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/10/18 08:29	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/10/18 08:29	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/10/18 08:29	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/10/18 08:29	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/10/18 08:29	1
2-Hexanone	ND		5.0	1.7	ug/L			10/10/18 08:29	1
Iodomethane	ND		1.0	0.23	ug/L			10/10/18 08:29	1
Isobutyl alcohol	ND		110	37	ug/L			10/10/18 08:29	1
Methacrylonitrile	ND		10	1.6	ug/L			10/10/18 08:29	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/10/18 08:29	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/10/18 08:29	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/10/18 08:29	1
Propionitrile	ND		20	3.7	ug/L			10/10/18 08:29	1
Styrene	ND		1.0	0.17	ug/L			10/10/18 08:29	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-432690/6
Matrix: Water
Analysis Batch: 432690

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/10/18 08:29	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/10/18 08:29	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/10/18 08:29	1
Toluene	ND		1.0	0.17	ug/L			10/10/18 08:29	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/10/18 08:29	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/10/18 08:29	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/10/18 08:29	1
Trichloroethene	ND		1.0	0.16	ug/L			10/10/18 08:29	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/10/18 08:29	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/10/18 08:29	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/10/18 08:29	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/10/18 08:29	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/10/18 08:29	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/10/18 08:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*113*		*77 - 120*		*10/10/18 08:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 127*		*10/10/18 08:29*	*1*
4-Bromofluorobenzene (Surr)	*114*		*78 - 120*		*10/10/18 08:29*	*1*
Toluene-d8 (Surr)	*111*		*80 - 125*		*10/10/18 08:29*	*1*

Lab Sample ID: LCS 280-432690/10
Matrix: Water
Analysis Batch: 432690

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	50.0	50.1		ug/L		100	50 - 150
Chloroprene	5.00	4.79		ug/L		96	50 - 150
Methacrylonitrile	50.0	50.0		ug/L		100	50 - 150
Methyl methacrylate	10.0	8.56		ug/L		86	50 - 150
Propionitrile	50.0	46.7		ug/L		93	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 127*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*
Toluene-d8 (Surr)	*97*		*80 - 125*

Lab Sample ID: LCS 280-432690/4
Matrix: Water
Analysis Batch: 432690

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	23.8		ug/L		119	39 - 156
Acrolein	50.0	65.2		ug/L		130	36 - 147
Acrylonitrile	50.0	53.1		ug/L		106	56 - 135
Benzene	5.00	4.77		ug/L		95	65 - 135
Chlorobromomethane	5.00	5.34		ug/L		107	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-432690/4
Matrix: Water
Analysis Batch: 432690

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorobromomethane	5.00	5.19		ug/L		104	65 - 135
Bromoform	5.00	4.85		ug/L		97	62 - 135
Bromomethane	5.00	6.09		ug/L		122	45 - 135
2-Butanone (MEK)	20.0	22.5		ug/L		113	44 - 177
Carbon disulfide	5.00	4.97		ug/L		99	55 - 143
Carbon tetrachloride	5.00	5.03		ug/L		101	65 - 135
Chlorobenzene	5.00	4.78		ug/L		96	65 - 135
Chlorodibromomethane	5.00	5.31		ug/L		106	65 - 135
Chloroethane	5.00	5.37		ug/L		107	46 - 136
Chloroform	5.00	5.05		ug/L		101	65 - 135
Chloromethane	5.00	4.96		ug/L		99	34 - 145
Allyl chloride	5.00	5.04		ug/L		101	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	4.91	J	ug/L		98	57 - 135
Dibromomethane	5.00	5.17		ug/L		103	65 - 135
1,2-Dichlorobenzene	5.00	4.78		ug/L		96	65 - 135
1,3-Dichlorobenzene	5.00	4.67		ug/L		93	65 - 135
1,4-Dichlorobenzene	5.00	4.74		ug/L		95	65 - 135
trans-1,4-Dichloro-2-butene	5.00	5.01		ug/L		100	53 - 135
Dichlorodifluoromethane	5.00	5.37		ug/L		107	43 - 142
1,1-Dichloroethane	5.00	4.88		ug/L		98	65 - 135
1,2-Dichloroethane	5.00	5.15		ug/L		103	65 - 135
cis-1,2-Dichloroethene	5.00	4.89		ug/L		98	65 - 135
trans-1,2-Dichloroethene	5.00	5.15		ug/L		103	65 - 135
1,1-Dichloroethene	5.00	5.55		ug/L		111	65 - 136
1,2-Dichloropropane	5.00	4.95		ug/L		99	64 - 135
1,3-Dichloropropane	5.00	5.02		ug/L		100	64 - 135
2,2-Dichloropropane	5.00	4.57		ug/L		91	65 - 135
cis-1,3-Dichloropropene	5.00	4.56		ug/L		91	65 - 135
trans-1,3-Dichloropropene	5.00	4.79		ug/L		96	65 - 135
1,1-Dichloropropene	5.00	5.01		ug/L		100	65 - 135
Ethylbenzene	5.00	4.86		ug/L		97	65 - 135
Ethyl methacrylate	5.00	4.42		ug/L		88	50 - 135
2-Hexanone	20.0	19.6		ug/L		98	57 - 139
Iodomethane	5.00	5.11		ug/L		102	65 - 142
Isobutyl alcohol	125	133		ug/L		106	55 - 135
Methylene Chloride	5.00	5.06		ug/L		101	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	21.0		ug/L		105	60 - 150
Styrene	5.00	4.72		ug/L		94	65 - 135
1,1,1,2-Tetrachloroethane	5.00	5.05		ug/L		101	65 - 135
1,1,2,2-Tetrachloroethane	5.00	5.02		ug/L		100	58 - 135
Tetrachloroethene	5.00	5.03		ug/L		101	65 - 135
Toluene	5.00	5.10		ug/L		102	65 - 135
1,2,4-Trichlorobenzene	5.00	4.47		ug/L		89	58 - 135
1,1,1-Trichloroethane	5.00	4.97		ug/L		99	65 - 135
1,1,2-Trichloroethane	5.00	5.41		ug/L		108	64 - 135
Trichloroethene	5.00	4.69		ug/L		94	65 - 135
Trichlorofluoromethane	5.00	6.16		ug/L		123	53 - 137
1,2,3-Trichloropropane	5.00	5.11		ug/L		102	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-432690/4
Matrix: Water
Analysis Batch: 432690

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Vinyl acetate			10.0	10.5		ug/L		105	11 - 187		
Vinyl chloride			5.00	5.31		ug/L		106	40 - 137		
Xylenes, Total			10.0	9.92		ug/L		99	65 - 135		
1,2-Dibromoethane			5.00	5.01		ug/L		100	65 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 127*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*
Toluene-d8 (Surr)	*105*		*80 - 125*

Lab Sample ID: LCSD 280-432690/11
Matrix: Water
Analysis Batch: 432690

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetonitrile			50.0	56.5		ug/L		113	50 - 150	12	30
Chloroprene			5.00	4.73		ug/L		95	50 - 150	1	30
Methacrylonitrile			50.0	52.0		ug/L		104	50 - 150	4	30
Methyl methacrylate			10.0	8.48		ug/L		85	50 - 150	1	30
Propionitrile			50.0	47.0		ug/L		94	50 - 150	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 127*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*
Toluene-d8 (Surr)	*94*		*80 - 125*

Lab Sample ID: 280-115186-5 MS
Matrix: Water
Analysis Batch: 432690

Client Sample ID: MW-105S-20181004
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acetone	ND		40.0	46.7		ug/L		117	39 - 156		
Acrolein	ND		100	123		ug/L		123	36 - 147		
Acrylonitrile	ND		100	107		ug/L		107	56 - 135		
Benzene	ND		10.0	9.59		ug/L		96	65 - 135		
Chlorobromomethane	ND		10.0	10.4		ug/L		104	65 - 135		
Dichlorobromomethane	ND		10.0	10.7		ug/L		107	65 - 135		
Bromoform	ND		10.0	9.61		ug/L		96	62 - 135		
Bromomethane	ND		10.0	13.5		ug/L		135	45 - 135		
2-Butanone (MEK)	ND		40.0	42.7		ug/L		107	44 - 177		
Carbon disulfide	ND		10.0	10.0		ug/L		100	55 - 143		
Carbon tetrachloride	ND		10.0	10.2		ug/L		102	65 - 135		
Chlorobenzene	ND		10.0	9.58		ug/L		96	65 - 135		
Chlorodibromomethane	ND		10.0	10.6		ug/L		106	65 - 135		
Chloroethane	ND		10.0	11.6		ug/L		116	46 - 136		
Chloroform	1.4	J	10.0	12.0		ug/L		107	65 - 135		

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115186-5 MS
Matrix: Water
Analysis Batch: 432690

Client Sample ID: MW-105S-20181004
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	ND		10.0	11.0		ug/L		110	34 - 145
Allyl chloride	ND		10.0	10.3		ug/L		103	50 - 135
1,2-Dibromo-3-Chloropropane	ND		10.0	9.47	J	ug/L		95	57 - 135
Dibromomethane	ND		10.0	10.6		ug/L		106	65 - 135
1,2-Dichlorobenzene	0.34	J	10.0	9.90		ug/L		96	65 - 135
1,3-Dichlorobenzene	ND		10.0	9.25		ug/L		92	65 - 135
1,4-Dichlorobenzene	ND		10.0	9.60		ug/L		96	65 - 135
trans-1,4-Dichloro-2-butene	ND		10.0	9.16		ug/L		92	53 - 135
Dichlorodifluoromethane	ND		10.0	11.4		ug/L		114	43 - 142
1,1-Dichloroethane	0.75	J	10.0	10.9		ug/L		101	65 - 135
1,2-Dichloroethane	0.28	J	10.0	11.1		ug/L		108	65 - 135
cis-1,2-Dichloroethene	22		10.0	35.1		ug/L		126	65 - 135
trans-1,2-Dichloroethene	ND		10.0	10.4		ug/L		104	65 - 135
1,1-Dichloroethene	ND		10.0	10.1		ug/L		101	65 - 136
1,2-Dichloropropane	0.38	J	10.0	10.3		ug/L		100	64 - 135
1,3-Dichloropropane	ND		10.0	10.2		ug/L		102	64 - 135
2,2-Dichloropropane	ND		10.0	8.96		ug/L		90	65 - 135
cis-1,3-Dichloropropene	ND		10.0	8.32		ug/L		83	65 - 135
trans-1,3-Dichloropropene	ND		10.0	9.85		ug/L		99	65 - 135
1,1-Dichloropropene	ND		10.0	10.0		ug/L		100	65 - 135
Ethylbenzene	ND		10.0	9.42		ug/L		94	65 - 135
Ethyl methacrylate	ND		10.0	8.29		ug/L		83	50 - 135
2-Hexanone	ND		40.0	36.3		ug/L		91	57 - 139
Iodomethane	ND		10.0	9.85		ug/L		98	65 - 142
Isobutyl alcohol	ND		250	236		ug/L		94	55 - 135
Methylene Chloride	0.71	J	10.0	10.5		ug/L		98	54 - 141
4-Methyl-2-pentanone (MIBK)	ND		40.0	40.6		ug/L		101	60 - 150
Styrene	ND		10.0	9.14		ug/L		91	65 - 135
1,1,1,2-Tetrachloroethane	ND		10.0	10.3		ug/L		103	65 - 135
1,1,2,2-Tetrachloroethane	ND		10.0	9.51		ug/L		95	58 - 135
Tetrachloroethene	3.5		10.0	15.1		ug/L		116	65 - 135
Toluene	ND		10.0	10.1		ug/L		101	65 - 135
1,2,4-Trichlorobenzene	ND		10.0	8.30		ug/L		83	58 - 135
1,1,1-Trichloroethane	ND		10.0	10.4		ug/L		104	65 - 135
1,1,2-Trichloroethane	ND		10.0	11.0		ug/L		110	64 - 135
Trichloroethene	51		10.0	71.5	4	ug/L		201	65 - 135
Trichlorofluoromethane	ND		10.0	13.5		ug/L		135	53 - 137
1,2,3-Trichloropropane	ND		10.0	10.3		ug/L		103	65 - 135
Vinyl acetate	ND		20.0	20.2		ug/L		101	11 - 187
Vinyl chloride	3.1		10.0	16.1		ug/L		131	40 - 137
Xylenes, Total	ND		20.0	19.6		ug/L		98	65 - 135
1,2-Dibromoethane	ND		10.0	9.96		ug/L		100	65 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 127*
4-Bromofluorobenzene (Surr)	*89*		*78 - 120*
Toluene-d8 (Surr)	*99*		*80 - 125*

Lab Sample ID: 280-115186-5 MSD
Matrix: Water
Analysis Batch: 432690

Client Sample ID: MW-105S-20181004
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	ND		40.0	50.6		ug/L		126	39 - 156	8	23
Acrolein	ND		100	145		ug/L		145	36 - 147	16	30
Acrylonitrile	ND		100	106		ug/L		106	56 - 135	0	30
Benzene	ND		10.0	9.61		ug/L		96	65 - 135	0	20
Chlorobromomethane	ND		10.0	10.7		ug/L		107	65 - 135	3	29
Dichlorobromomethane	ND		10.0	10.6		ug/L		106	65 - 135	1	20
Bromoform	ND		10.0	9.21		ug/L		92	62 - 135	4	27
Bromomethane	ND		10.0	13.2		ug/L		132	45 - 135	2	33
2-Butanone (MEK)	ND		40.0	43.4		ug/L		108	44 - 177	2	32
Carbon disulfide	ND		10.0	9.87		ug/L		99	55 - 143	1	20
Carbon tetrachloride	ND		10.0	10.0		ug/L		100	65 - 135	2	21
Chlorobenzene	ND		10.0	9.63		ug/L		96	65 - 135	0	20
Chlorodibromomethane	ND		10.0	10.6		ug/L		106	65 - 135	0	20
Chloroethane	ND		10.0	11.3		ug/L		113	46 - 136	3	25
Chloroform	1.4	J	10.0	11.9		ug/L		105	65 - 135	1	20
Chloromethane	ND		10.0	10.6		ug/L		106	34 - 145	3	24
Allyl chloride	ND		10.0	10.0		ug/L		100	50 - 135	3	30
1,2-Dibromo-3-Chloropropane	ND		10.0	9.29	J	ug/L		93	57 - 135	2	22
Dibromomethane	ND		10.0	10.4		ug/L		104	65 - 135	2	26
1,2-Dichlorobenzene	0.34	J	10.0	9.63		ug/L		93	65 - 135	3	20
1,3-Dichlorobenzene	ND		10.0	9.00		ug/L		90	65 - 135	3	20
1,4-Dichlorobenzene	ND		10.0	9.24		ug/L		92	65 - 135	4	23
trans-1,4-Dichloro-2-butene	ND		10.0	9.20		ug/L		92	53 - 135	0	25
Dichlorodifluoromethane	ND		10.0	12.4		ug/L		124	43 - 142	8	30
1,1-Dichloroethane	0.75	J	10.0	10.9		ug/L		101	65 - 135	0	21
1,2-Dichloroethane	0.28	J	10.0	10.9		ug/L		106	65 - 135	2	20
cis-1,2-Dichloroethene	22		10.0	34.8		ug/L		124	65 - 135	1	20
trans-1,2-Dichloroethene	ND		10.0	10.3		ug/L		103	65 - 135	1	24
1,1-Dichloroethene	ND		10.0	11.0		ug/L		110	65 - 136	9	20
1,2-Dichloropropane	0.38	J	10.0	10.3		ug/L		99	64 - 135	1	20
1,3-Dichloropropane	ND		10.0	10.3		ug/L		103	64 - 135	0	20
2,2-Dichloropropane	ND		10.0	8.82		ug/L		88	65 - 135	2	20
cis-1,3-Dichloropropene	ND		10.0	8.38		ug/L		84	65 - 135	1	26
trans-1,3-Dichloropropene	ND		10.0	9.49		ug/L		95	65 - 135	4	26
1,1-Dichloropropene	ND		10.0	9.89		ug/L		99	65 - 135	1	21
Ethylbenzene	ND		10.0	9.54		ug/L		95	65 - 135	1	20
Ethyl methacrylate	ND		10.0	8.44		ug/L		84	50 - 135	2	30
2-Hexanone	ND		40.0	37.9		ug/L		95	57 - 139	4	25
Iodomethane	ND		10.0	10.1		ug/L		101	65 - 142	3	25
Isobutyl alcohol	ND		250	249		ug/L		100	55 - 135	6	30
Methylene Chloride	0.71	J	10.0	10.4		ug/L		97	54 - 141	1	26
4-Methyl-2-pentanone (MIBK)	ND		40.0	41.1		ug/L		103	60 - 150	1	22
Styrene	ND		10.0	9.06		ug/L		91	65 - 135	1	26
1,1,1,2-Tetrachloroethane	ND		10.0	10.3		ug/L		103	65 - 135	0	20
1,1,2,2-Tetrachloroethane	ND		10.0	9.71		ug/L		97	58 - 135	2	20
Tetrachloroethene	3.5		10.0	15.1		ug/L		117	65 - 135	0	20
Toluene	ND		10.0	10.1		ug/L		101	65 - 135	0	20
1,2,4-Trichlorobenzene	ND		10.0	8.09		ug/L		81	58 - 135	3	25
1,1,1-Trichloroethane	ND		10.0	10.3		ug/L		103	65 - 135	1	20
1,1,2-Trichloroethane	ND		10.0	10.9		ug/L		109	64 - 135	0	27

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115186-5 MSD
Matrix: Water
Analysis Batch: 432690

Client Sample ID: MW-105S-20181004
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethene	51		10.0	71.0	4	ug/L		196	65 - 135	1	20
Trichlorofluoromethane	ND		10.0	13.3		ug/L		133	53 - 137	2	27
1,2,3-Trichloropropane	ND		10.0	10.1		ug/L		101	65 - 135	2	23
Vinyl acetate	ND		20.0	20.7		ug/L		103	11 - 187	2	24
Vinyl chloride	3.1		10.0	15.7		ug/L		126	40 - 137	3	24
Xylenes, Total	ND		20.0	19.3		ug/L		96	65 - 135	2	20
1,2-Dibromoethane	ND		10.0	10.2		ug/L		102	65 - 135	2	27

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 127*
4-Bromofluorobenzene (Surr)	*88*		*78 - 120*
Toluene-d8 (Surr)	*101*		*80 - 125*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 280-433116/4
Matrix: Water
Analysis Batch: 433116

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/12/18 11:21	1
Ethene	ND		5.0	0.40	ug/L			10/12/18 11:21	1
Ethane	ND		5.0	0.57	ug/L			10/12/18 11:21	1
Acetylene	ND		5.0	0.73	ug/L			10/12/18 11:21	1
Propane	ND		5.0	0.56	ug/L			10/12/18 11:21	1

Lab Sample ID: LCS 280-433116/2
Matrix: Water
Analysis Batch: 433116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	73.0	68.2		ug/L		93	75 - 125
Ethene	128	134		ug/L		105	75 - 125
Ethane	137	149		ug/L		109	75 - 125
Acetylene	119	118		ug/L		99	75 - 125
Propane	201	209		ug/L		104	75 - 125

Lab Sample ID: LCSD 280-433116/3
Matrix: Water
Analysis Batch: 433116

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	73.0	64.9		ug/L		89	75 - 125	5	20
Ethene	128	128		ug/L		100	75 - 125	5	20
Ethane	137	142		ug/L		103	75 - 125	5	20
Acetylene	119	118		ug/L		99	75 - 125	0	20
Propane	201	200		ug/L		100	75 - 125	5	20

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: 280-115186-1 DU
Matrix: Water
Analysis Batch: 433116

Client Sample ID: MW-119S-20181003
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Methane	ND		ND		ug/L		NC	20
Ethene	ND		ND		ug/L		NC	20
Ethane	ND		ND		ug/L		NC	20
Acetylene	ND		ND		ug/L		NC	20
Propane	ND		ND		ug/L		NC	20

Lab Sample ID: MB 280-433166/4
Matrix: Water
Analysis Batch: 433166

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/12/18 19:25	1
Ethene	ND		5.0	0.40	ug/L			10/12/18 19:25	1
Ethane	ND		5.0	0.57	ug/L			10/12/18 19:25	1
Acetylene	ND		5.0	0.73	ug/L			10/12/18 19:25	1
Propane	ND		5.0	0.56	ug/L			10/12/18 19:25	1

Lab Sample ID: LCS 280-433166/2
Matrix: Water
Analysis Batch: 433166

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	73.0	62.3		ug/L		85	75 - 125
Ethene	128	124		ug/L		97	75 - 125
Ethane	137	134		ug/L		98	75 - 125
Acetylene	119	111		ug/L		94	75 - 125
Propane	201	184		ug/L		92	75 - 125

Lab Sample ID: LCSD 280-433166/3
Matrix: Water
Analysis Batch: 433166

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	73.0	66.7		ug/L		91	75 - 125	7	20
Ethene	128	131		ug/L		103	75 - 125	6	20
Ethane	137	143		ug/L		104	75 - 125	6	20
Acetylene	119	117		ug/L		99	75 - 125	5	20
Propane	201	195		ug/L		97	75 - 125	6	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-432500/1-A
Matrix: Water
Analysis Batch: 432701

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432500

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		200	35	ug/L		10/09/18 17:30	10/10/18 03:11	1
Iron	36.3	J	100	22	ug/L		10/09/18 17:30	10/10/18 03:11	1
Magnesium	ND		200	11	ug/L		10/09/18 17:30	10/10/18 03:11	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 280-432500/1-A
Matrix: Water
Analysis Batch: 432701

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432500

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND		3000	240	ug/L		10/09/18 17:30	10/10/18 03:11	1
Sodium	156	J	1000	120	ug/L		10/09/18 17:30	10/10/18 03:11	1

Lab Sample ID: LCS 280-432500/2-A
Matrix: Water
Analysis Batch: 432701

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432500

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	52100		ug/L		104	90 - 111
Iron	10000	10300		ug/L		103	89 - 115
Magnesium	50000	51400		ug/L		103	90 - 113
Potassium	50000	52800		ug/L		106	89 - 114
Sodium	50000	52000		ug/L		104	90 - 115

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-432502/1-A
Matrix: Water
Analysis Batch: 432910

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432502

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 01:34	1
Barium	ND		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 01:34	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 01:34	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 01:34	1
Chromium	ND		2.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:34	1
Co	ND		1.0	0.054	ug/L		10/10/18 06:30	10/11/18 01:34	1
Copper	ND		2.0	0.56	ug/L		10/10/18 06:30	10/11/18 01:34	1
Lead	ND		1.0	0.18	ug/L		10/10/18 06:30	10/11/18 01:34	1
Nickel	ND		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 01:34	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 01:34	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 01:34	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 01:34	1
Vanadium	ND		5.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:34	1
Zinc	2.10	J	10	2.0	ug/L		10/10/18 06:30	10/11/18 01:34	1

Lab Sample ID: LCS 280-432502/2-A
Matrix: Water
Analysis Batch: 432910

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432502

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	38.6		ug/L		97	79 - 111
Barium	40.0	40.9		ug/L		102	92 - 117
Beryllium	40.0	39.6		ug/L		99	87 - 118
Cadmium	40.0	37.0		ug/L		93	91 - 114
Chromium	40.0	41.0		ug/L		102	91 - 114
Co	40.0	39.9		ug/L		100	94 - 115
Copper	40.0	41.7		ug/L		104	89 - 116
Lead	40.0	40.1		ug/L		100	95 - 116

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 280-432502/2-A
Matrix: Water
Analysis Batch: 432910

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432502

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	40.0	44.2		ug/L		111	92 - 116
Silver	40.0	41.4		ug/L		104	93 - 118
Thallium	40.0	39.9		ug/L		100	94 - 115
Tin	40.0	40.5		ug/L		101	89 - 119
Vanadium	40.0	39.6		ug/L		99	91 - 114
Zinc	40.0	39.5		ug/L		99	86 - 123

Lab Sample ID: MB 280-433161/1-A
Matrix: Water
Analysis Batch: 433339

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 01:26	1

Lab Sample ID: MB 280-433161/1-A
Matrix: Water
Analysis Batch: 433400

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	0.33	ug/L		10/12/18 14:21	10/14/18 15:24	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 15:24	1

Lab Sample ID: LCS 280-433161/2-A
Matrix: Water
Analysis Batch: 433339

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433161

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	40.0	42.1		ug/L		105	89 - 119

Lab Sample ID: LCS 280-433161/2-A
Matrix: Water
Analysis Batch: 433400

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433161

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	40.0	36.6		ug/L		92	92 - 112
Selenium	40.0	36.0		ug/L		90	90 - 115

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-432904/1-A
Matrix: Water
Analysis Batch: 433070

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432904

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 22:02	1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 280-432904/2-A
Matrix: Water
Analysis Batch: 433070

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432904

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			5.00	4.88		ug/L		98	84 - 120		

Lab Sample ID: LCSD 280-432904/3-A
Matrix: Water
Analysis Batch: 433070

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 432904

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury			5.00	4.70		ug/L		94	84 - 120	4	15

Lab Sample ID: 280-115186-1 MS
Matrix: Water
Analysis Batch: 433070

Client Sample ID: MW-119S-20181003
Prep Type: Total/NA
Prep Batch: 432904

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		5.00	5.04		ug/L		101	75 - 125		

Lab Sample ID: 280-115186-1 MSD
Matrix: Water
Analysis Batch: 433070

Client Sample ID: MW-119S-20181003
Prep Type: Total/NA
Prep Batch: 432904

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		5.00	5.06		ug/L		101	75 - 125	0	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 280-433188/105
Matrix: Water
Analysis Batch: 433188

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/11/18 20:50	1

Lab Sample ID: MB 280-433188/61
Matrix: Water
Analysis Batch: 433188

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/11/18 19:22	1

Lab Sample ID: LCS 280-433188/104
Matrix: Water
Analysis Batch: 433188

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N			5.00	5.09		mg/L		102	90 - 110		

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 280-433188/21
Matrix: Water
Analysis Batch: 433188

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	5.00	5.02		mg/L		100	90 - 110

Lab Sample ID: LCS 280-433188/60
Matrix: Water
Analysis Batch: 433188

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	5.00	5.13		mg/L		103	90 - 110

Lab Sample ID: LCSD 280-433188/22
Matrix: Water
Analysis Batch: 433188

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	5.00	5.03		mg/L		101	90 - 110	2	10

Lab Sample ID: 280-115186-2 MS
Matrix: Water
Analysis Batch: 433188

Client Sample ID: MW-119D-20181003
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	1.2		4.00	5.13		mg/L		98	90 - 110

Lab Sample ID: 280-115186-2 MSD
Matrix: Water
Analysis Batch: 433188

Client Sample ID: MW-119D-20181003
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	1.2		4.00	5.09		mg/L		97	90 - 110	1	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-432541/13
Matrix: Water
Analysis Batch: 432541

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	0.25	mg/L			10/09/18 19:11	1
Sulfate	ND		5.0	0.23	mg/L			10/09/18 19:11	1

Lab Sample ID: LCS 280-432541/11
Matrix: Water
Analysis Batch: 432541

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	95.3		mg/L		95	90 - 110
Sulfate	100	93.3		mg/L		93	90 - 110

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 280-432541/12
Matrix: Water
Analysis Batch: 432541

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	95.2		mg/L		95	90 - 110	0	10
Sulfate	100	93.3		mg/L		93	90 - 110	0	10

Lab Sample ID: MRL 280-432541/10
Matrix: Water
Analysis Batch: 432541

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.34	J	mg/L		94	50 - 150
Sulfate	2.50	2.46	J	mg/L		98	50 - 150

Lab Sample ID: MB 280-432556/6
Matrix: Water
Analysis Batch: 432556

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.567	J	3.0	0.25	mg/L			10/10/18 11:36	1
Sulfate	1.26	J	5.0	0.23	mg/L			10/10/18 11:36	1

Lab Sample ID: LCS 280-432556/4
Matrix: Water
Analysis Batch: 432556

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	99.5		mg/L		99	90 - 110
Sulfate	100	99.2		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-432556/5
Matrix: Water
Analysis Batch: 432556

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	99.5		mg/L		99	90 - 110	0	10
Sulfate	100	99.1		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-432556/3
Matrix: Water
Analysis Batch: 432556

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.43	J	mg/L		97	50 - 150
Sulfate	2.50	2.39	J	mg/L		95	50 - 150

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-432524/5
Matrix: Water
Analysis Batch: 432524

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.16	mg/L			10/08/18 12:02	1

Lab Sample ID: LCS 280-432524/3
Matrix: Water
Analysis Batch: 432524

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	25.0	25.1		mg/L		101	88 - 112
TOC Result 2	25.0	25.2		mg/L		101	88 - 112
TOC Result 1	25.0	25.1		mg/L		100	88 - 112

Lab Sample ID: LCSD 280-432524/4
Matrix: Water
Analysis Batch: 432524

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	25.0	25.2		mg/L		101	88 - 112	0	15
TOC Result 2	25.0	25.4		mg/L		101	88 - 112	1	15
TOC Result 1	25.0	25.1		mg/L		101	88 - 112	0	15

Lab Sample ID: 280-115186-8 MS
Matrix: Water
Analysis Batch: 432524

Client Sample ID: MW-104D-20181004
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	2.8		25.0	27.3		mg/L		98	88 - 112
TOC Result 2	2.7		25.0	27.2		mg/L		98	88 - 112
TOC Result 1	2.9		25.0	27.3		mg/L		98	88 - 112

Lab Sample ID: 280-115186-8 MSD
Matrix: Water
Analysis Batch: 432524

Client Sample ID: MW-104D-20181004
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	2.8		25.0	27.1		mg/L		97	88 - 112	1	15
TOC Result 2	2.7		25.0	27.1		mg/L		98	88 - 112	0	15
TOC Result 1	2.9		25.0	27.0		mg/L		97	88 - 112	1	15

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-432743/5
Matrix: Water
Analysis Batch: 432743

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/09/18 18:08	1

Lab Sample ID: LCS 280-432743/4
Matrix: Water
Analysis Batch: 432743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	200	208		mg/L		104	90 - 110

Lab Sample ID: MB 280-432941/33
Matrix: Water
Analysis Batch: 432941

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/10/18 20:44	1

Lab Sample ID: MB 280-432941/6
Matrix: Water
Analysis Batch: 432941

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/10/18 16:35	1

Lab Sample ID: LCS 280-432941/31
Matrix: Water
Analysis Batch: 432941

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	200	211		mg/L		106	90 - 110

Lab Sample ID: LCS 280-432941/4
Matrix: Water
Analysis Batch: 432941

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	200	214		mg/L		107	90 - 110

Lab Sample ID: LCSD 280-432941/32
Matrix: Water
Analysis Batch: 432941

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity, Total	200	211		mg/L		106	90 - 110	0	10

Lab Sample ID: LCSD 280-432941/5
Matrix: Water
Analysis Batch: 432941

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity, Total	200	211		mg/L		105	90 - 110	2	10

Method: SM 4500 CN E - Cyanide, Total

Lab Sample ID: MB 280-433440/4-A
Matrix: Water
Analysis Batch: 433502

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433440

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/15/18 10:48	10/15/18 16:45	1

Lab Sample ID: HLCS 280-433440/1-A
Matrix: Water
Analysis Batch: 433502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433440

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.336		mg/L		96	90 - 110

Lab Sample ID: LCS 280-433440/3-A
Matrix: Water
Analysis Batch: 433502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433440

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0970		mg/L		97	90 - 110

Lab Sample ID: LLCS 280-433440/2-A
Matrix: Water
Analysis Batch: 433502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433440

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0925		mg/L		93	90 - 110

Lab Sample ID: MB 280-433546/4-A
Matrix: Water
Analysis Batch: 433668

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433546

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/16/18 07:43	10/16/18 14:19	1

Lab Sample ID: HLCS 280-433546/1-A
Matrix: Water
Analysis Batch: 433668

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433546

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.349		mg/L		100	90 - 110

Lab Sample ID: LCS 280-433546/3-A
Matrix: Water
Analysis Batch: 433668

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433546

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.102		mg/L		102	90 - 110

Lab Sample ID: LLCS 280-433546/2-A
Matrix: Water
Analysis Batch: 433668

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433546

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0945		mg/L		95	90 - 110

Lab Sample ID: 280-115186-3 MS
Matrix: Water
Analysis Batch: 433668

Client Sample ID: MW-118D-20181003
Prep Type: Total/NA
Prep Batch: 433546

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND	F1 F2	0.100	0.0782	F1	mg/L		78	90 - 110

Method: SM 4500 CN E - Cyanide, Total (Continued)

Lab Sample ID: 280-115186-3 MSD — **Client Sample ID: MW-118D-20181003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433668 — **Prep Batch: 433546**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND	F1 F2	0.100	0.0976	F2	mg/L		98	90 - 110	22	20

Lab Sample ID: MB 280-433721/4-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433835 — **Prep Batch: 433721**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/17/18 07:31	10/17/18 13:05	1

Lab Sample ID: HLCS 280-433721/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433835 — **Prep Batch: 433721**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.355		mg/L		101	90 - 110

Lab Sample ID: LCS 280-433721/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433835 — **Prep Batch: 433721**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.102		mg/L		102	90 - 110

Lab Sample ID: LLCS 280-433721/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433835 — **Prep Batch: 433721**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0983		mg/L		98	90 - 110

Lab Sample ID: 280-115186-8 MS — **Client Sample ID: MW-104D-20181004**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433835 — **Prep Batch: 433721**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		0.100	0.0908		mg/L		91	90 - 110

Lab Sample ID: 280-115186-8 MSD — **Client Sample ID: MW-104D-20181004**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433835 — **Prep Batch: 433721**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		0.100	0.0912		mg/L		91	90 - 110	0	20

QC Association Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115186-1

GC/MS VOA

Analysis Batch: 432690

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-4	MW-105D-20181004	Total/NA	Water	8260B	
280-115186-5	MW-105S-20181004	Total/NA	Water	8260B	
280-115186-6	TB-2-VOC-20181004	Total/NA	Water	8260B	
280-115186-7	MW-104S-20181004	Total/NA	Water	8260B	
280-115186-8	MW-104D-20181004	Total/NA	Water	8260B	
280-115186-9	TB-3-VOC-20181004	Total/NA	Water	8260B	
280-115186-10	MW-120D-20181003	Total/NA	Water	8260B	
280-115186-11	MW-120S-20181003	Total/NA	Water	8260B	
280-115186-12	MW-119S-20181003	Total/NA	Water	8260B	
280-115186-13	MW-119D-20181003	Total/NA	Water	8260B	
280-115186-14	MW-118D-20181003	Total/NA	Water	8260B	
280-115186-15	TB-1-VOC-20181003	Total/NA	Water	8260B	
MB 280-432690/6	Method Blank	Total/NA	Water	8260B	
LCS 280-432690/10	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-432690/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-432690/11	Lab Control Sample Dup	Total/NA	Water	8260B	
280-115186-5 MS	MW-105S-20181004	Total/NA	Water	8260B	
280-115186-5 MSD	MW-105S-20181004	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 433116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	RSK-175	
280-115186-2	MW-119D-20181003	Total/NA	Water	RSK-175	
280-115186-3	MW-118D-20181003	Total/NA	Water	RSK-175	
280-115186-10	MW-120D-20181003	Total/NA	Water	RSK-175	
MB 280-433116/4	Method Blank	Total/NA	Water	RSK-175	
LCS 280-433116/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 280-433116/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	
280-115186-1 DU	MW-119S-20181003	Total/NA	Water	RSK-175	

Analysis Batch: 433166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-4	MW-105D-20181004	Total/NA	Water	RSK-175	
280-115186-5	MW-105S-20181004	Total/NA	Water	RSK-175	
280-115186-7	MW-104S-20181004	Total/NA	Water	RSK-175	
280-115186-8	MW-104D-20181004	Total/NA	Water	RSK-175	
280-115186-11	MW-120S-20181003	Total/NA	Water	RSK-175	
MB 280-433166/4	Method Blank	Total/NA	Water	RSK-175	
LCS 280-433166/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 280-433166/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Metals

Prep Batch: 432500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	3010A	
280-115186-2	MW-119D-20181003	Total/NA	Water	3010A	
280-115186-3	MW-118D-20181003	Total/NA	Water	3010A	

Metals (Continued)

Prep Batch: 432500 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-4	MW-105D-20181004	Total/NA	Water	3010A	
280-115186-5	MW-105S-20181004	Total/NA	Water	3010A	
280-115186-7	MW-104S-20181004	Total/NA	Water	3010A	
280-115186-8	MW-104D-20181004	Total/NA	Water	3010A	
280-115186-10	MW-120D-20181003	Total/NA	Water	3010A	
280-115186-11	MW-120S-20181003	Total/NA	Water	3010A	
MB 280-432500/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-432500/2-A	Lab Control Sample	Total/NA	Water	3010A	

Prep Batch: 432502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	3020A	
280-115186-2	MW-119D-20181003	Total/NA	Water	3020A	
280-115186-3	MW-118D-20181003	Total/NA	Water	3020A	
280-115186-4	MW-105D-20181004	Total/NA	Water	3020A	
280-115186-5	MW-105S-20181004	Total/NA	Water	3020A	
280-115186-7	MW-104S-20181004	Total/NA	Water	3020A	
280-115186-8	MW-104D-20181004	Total/NA	Water	3020A	
280-115186-10	MW-120D-20181003	Total/NA	Water	3020A	
280-115186-11	MW-120S-20181003	Total/NA	Water	3020A	
MB 280-432502/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-432502/2-A	Lab Control Sample	Total/NA	Water	3020A	

Analysis Batch: 432701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	6010C	432500
280-115186-2	MW-119D-20181003	Total/NA	Water	6010C	432500
280-115186-3	MW-118D-20181003	Total/NA	Water	6010C	432500
280-115186-4	MW-105D-20181004	Total/NA	Water	6010C	432500
280-115186-5	MW-105S-20181004	Total/NA	Water	6010C	432500
280-115186-7	MW-104S-20181004	Total/NA	Water	6010C	432500
280-115186-8	MW-104D-20181004	Total/NA	Water	6010C	432500
280-115186-10	MW-120D-20181003	Total/NA	Water	6010C	432500
280-115186-11	MW-120S-20181003	Total/NA	Water	6010C	432500
MB 280-432500/1-A	Method Blank	Total/NA	Water	6010C	432500
LCS 280-432500/2-A	Lab Control Sample	Total/NA	Water	6010C	432500

Prep Batch: 432904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	7470A	
280-115186-2	MW-119D-20181003	Total/NA	Water	7470A	
280-115186-3	MW-118D-20181003	Total/NA	Water	7470A	
280-115186-4	MW-105D-20181004	Total/NA	Water	7470A	
280-115186-5	MW-105S-20181004	Total/NA	Water	7470A	
280-115186-7	MW-104S-20181004	Total/NA	Water	7470A	
280-115186-8	MW-104D-20181004	Total/NA	Water	7470A	
280-115186-10	MW-120D-20181003	Total/NA	Water	7470A	
280-115186-11	MW-120S-20181003	Total/NA	Water	7470A	
MB 280-432904/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-432904/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-432904/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 432904 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1 MS	MW-119S-20181003	Total/NA	Water	7470A	
280-115186-1 MSD	MW-119S-20181003	Total/NA	Water	7470A	

Analysis Batch: 432910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	6020B	432502
280-115186-2	MW-119D-20181003	Total/NA	Water	6020B	432502
280-115186-3	MW-118D-20181003	Total/NA	Water	6020B	432502
280-115186-4	MW-105D-20181004	Total/NA	Water	6020B	432502
280-115186-5	MW-105S-20181004	Total/NA	Water	6020B	432502
280-115186-7	MW-104S-20181004	Total/NA	Water	6020B	432502
280-115186-8	MW-104D-20181004	Total/NA	Water	6020B	432502
280-115186-10	MW-120D-20181003	Total/NA	Water	6020B	432502
280-115186-11	MW-120S-20181003	Total/NA	Water	6020B	432502
MB 280-432502/1-A	Method Blank	Total/NA	Water	6020B	432502
LCS 280-432502/2-A	Lab Control Sample	Total/NA	Water	6020B	432502

Analysis Batch: 433070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	7470A	432904
280-115186-2	MW-119D-20181003	Total/NA	Water	7470A	432904
280-115186-3	MW-118D-20181003	Total/NA	Water	7470A	432904
280-115186-4	MW-105D-20181004	Total/NA	Water	7470A	432904
280-115186-5	MW-105S-20181004	Total/NA	Water	7470A	432904
280-115186-7	MW-104S-20181004	Total/NA	Water	7470A	432904
280-115186-8	MW-104D-20181004	Total/NA	Water	7470A	432904
280-115186-10	MW-120D-20181003	Total/NA	Water	7470A	432904
280-115186-11	MW-120S-20181003	Total/NA	Water	7470A	432904
MB 280-432904/1-A	Method Blank	Total/NA	Water	7470A	432904
LCS 280-432904/2-A	Lab Control Sample	Total/NA	Water	7470A	432904
LCSD 280-432904/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	432904
280-115186-1 MS	MW-119S-20181003	Total/NA	Water	7470A	432904
280-115186-1 MSD	MW-119S-20181003	Total/NA	Water	7470A	432904

Prep Batch: 433161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	3020A	
280-115186-2	MW-119D-20181003	Total/NA	Water	3020A	
280-115186-3	MW-118D-20181003	Total/NA	Water	3020A	
280-115186-4	MW-105D-20181004	Total/NA	Water	3020A	
280-115186-5	MW-105S-20181004	Total/NA	Water	3020A	
280-115186-7	MW-104S-20181004	Total/NA	Water	3020A	
280-115186-8	MW-104D-20181004	Total/NA	Water	3020A	
280-115186-10	MW-120D-20181003	Total/NA	Water	3020A	
280-115186-11	MW-120S-20181003	Total/NA	Water	3020A	
MB 280-433161/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-433161/2-A	Lab Control Sample	Total/NA	Water	3020A	

Analysis Batch: 433339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	6020B	433161

Metals (Continued)

Analysis Batch: 433339 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-2	MW-119D-20181003	Total/NA	Water	6020B	433161
280-115186-3	MW-118D-20181003	Total/NA	Water	6020B	433161
280-115186-4	MW-105D-20181004	Total/NA	Water	6020B	433161
280-115186-5	MW-105S-20181004	Total/NA	Water	6020B	433161
280-115186-7	MW-104S-20181004	Total/NA	Water	6020B	433161
280-115186-8	MW-104D-20181004	Total/NA	Water	6020B	433161
280-115186-10	MW-120D-20181003	Total/NA	Water	6020B	433161
280-115186-11	MW-120S-20181003	Total/NA	Water	6020B	433161
MB 280-433161/1-A	Method Blank	Total/NA	Water	6020B	433161
LCS 280-433161/2-A	Lab Control Sample	Total/NA	Water	6020B	433161

Analysis Batch: 433400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	6020B	433161
280-115186-2	MW-119D-20181003	Total/NA	Water	6020B	433161
280-115186-3	MW-118D-20181003	Total/NA	Water	6020B	433161
280-115186-4	MW-105D-20181004	Total/NA	Water	6020B	433161
280-115186-5	MW-105S-20181004	Total/NA	Water	6020B	433161
280-115186-7	MW-104S-20181004	Total/NA	Water	6020B	433161
280-115186-8	MW-104D-20181004	Total/NA	Water	6020B	433161
280-115186-10	MW-120D-20181003	Total/NA	Water	6020B	433161
280-115186-11	MW-120S-20181003	Total/NA	Water	6020B	433161
MB 280-433161/1-A	Method Blank	Total/NA	Water	6020B	433161
LCS 280-433161/2-A	Lab Control Sample	Total/NA	Water	6020B	433161

General Chemistry

Analysis Batch: 432524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	9060A	
280-115186-2	MW-119D-20181003	Total/NA	Water	9060A	
280-115186-3	MW-118D-20181003	Total/NA	Water	9060A	
280-115186-4	MW-105D-20181004	Total/NA	Water	9060A	
280-115186-5	MW-105S-20181004	Total/NA	Water	9060A	
280-115186-7	MW-104S-20181004	Total/NA	Water	9060A	
280-115186-8	MW-104D-20181004	Total/NA	Water	9060A	
280-115186-10	MW-120D-20181003	Total/NA	Water	9060A	
280-115186-11	MW-120S-20181003	Total/NA	Water	9060A	
MB 280-432524/5	Method Blank	Total/NA	Water	9060A	
LCS 280-432524/3	Lab Control Sample	Total/NA	Water	9060A	
LCSD 280-432524/4	Lab Control Sample Dup	Total/NA	Water	9060A	
280-115186-8 MS	MW-104D-20181004	Total/NA	Water	9060A	
280-115186-8 MSD	MW-104D-20181004	Total/NA	Water	9060A	

Analysis Batch: 432541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-4	MW-105D-20181004	Total/NA	Water	9056A	
280-115186-4	MW-105D-20181004	Total/NA	Water	9056A	
280-115186-5	MW-105S-20181004	Total/NA	Water	9056A	
280-115186-5	MW-105S-20181004	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 432541 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-7	MW-104S-20181004	Total/NA	Water	9056A	
280-115186-7	MW-104S-20181004	Total/NA	Water	9056A	
280-115186-8	MW-104D-20181004	Total/NA	Water	9056A	
280-115186-8	MW-104D-20181004	Total/NA	Water	9056A	
MB 280-432541/13	Method Blank	Total/NA	Water	9056A	
LCS 280-432541/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-432541/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-432541/10	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 432556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	9056A	
280-115186-2	MW-119D-20181003	Total/NA	Water	9056A	
280-115186-3	MW-118D-20181003	Total/NA	Water	9056A	
280-115186-3	MW-118D-20181003	Total/NA	Water	9056A	
280-115186-10	MW-120D-20181003	Total/NA	Water	9056A	
280-115186-10	MW-120D-20181003	Total/NA	Water	9056A	
280-115186-11	MW-120S-20181003	Total/NA	Water	9056A	
280-115186-11	MW-120S-20181003	Total/NA	Water	9056A	
MB 280-432556/6	Method Blank	Total/NA	Water	9056A	
LCS 280-432556/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-432556/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-432556/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 432743

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-4	MW-105D-20181004	Total/NA	Water	SM 2320B	
280-115186-5	MW-105S-20181004	Total/NA	Water	SM 2320B	
280-115186-7	MW-104S-20181004	Total/NA	Water	SM 2320B	
280-115186-8	MW-104D-20181004	Total/NA	Water	SM 2320B	
MB 280-432743/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-432743/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 432941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	SM 2320B	
280-115186-2	MW-119D-20181003	Total/NA	Water	SM 2320B	
280-115186-3	MW-118D-20181003	Total/NA	Water	SM 2320B	
280-115186-10	MW-120D-20181003	Total/NA	Water	SM 2320B	
280-115186-11	MW-120S-20181003	Total/NA	Water	SM 2320B	
MB 280-432941/33	Method Blank	Total/NA	Water	SM 2320B	
MB 280-432941/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-432941/31	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 280-432941/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-432941/32	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
LCSD 280-432941/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

Analysis Batch: 433188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	353.2	
280-115186-2	MW-119D-20181003	Total/NA	Water	353.2	

General Chemistry (Continued)

Analysis Batch: 433188 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-3	MW-118D-20181003	Total/NA	Water	353.2	
280-115186-4	MW-105D-20181004	Total/NA	Water	353.2	
280-115186-5	MW-105S-20181004	Total/NA	Water	353.2	
280-115186-7	MW-104S-20181004	Total/NA	Water	353.2	
280-115186-8	MW-104D-20181004	Total/NA	Water	353.2	
280-115186-10	MW-120D-20181003	Total/NA	Water	353.2	
280-115186-11	MW-120S-20181003	Total/NA	Water	353.2	
MB 280-433188/105	Method Blank	Total/NA	Water	353.2	
MB 280-433188/61	Method Blank	Total/NA	Water	353.2	
LCS 280-433188/104	Lab Control Sample	Total/NA	Water	353.2	
LCS 280-433188/21	Lab Control Sample	Total/NA	Water	353.2	
LCS 280-433188/60	Lab Control Sample	Total/NA	Water	353.2	
LCSD 280-433188/22	Lab Control Sample Dup	Total/NA	Water	353.2	
280-115186-2 MS	MW-119D-20181003	Total/NA	Water	353.2	
280-115186-2 MSD	MW-119D-20181003	Total/NA	Water	353.2	

Prep Batch: 433440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	SM 4500 CN C	
280-115186-2	MW-119D-20181003	Total/NA	Water	SM 4500 CN C	
MB 280-433440/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-433440/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-433440/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-433440/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 433502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-1	MW-119S-20181003	Total/NA	Water	SM 4500 CN E	433440
280-115186-2	MW-119D-20181003	Total/NA	Water	SM 4500 CN E	433440
MB 280-433440/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	433440
HLCS 280-433440/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433440
LCS 280-433440/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433440
LLCS 280-433440/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433440

Prep Batch: 433546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-3	MW-118D-20181003	Total/NA	Water	SM 4500 CN C	
280-115186-10	MW-120D-20181003	Total/NA	Water	SM 4500 CN C	
280-115186-11	MW-120S-20181003	Total/NA	Water	SM 4500 CN C	
MB 280-433546/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-433546/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-433546/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-433546/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
280-115186-3 MS	MW-118D-20181003	Total/NA	Water	SM 4500 CN C	
280-115186-3 MSD	MW-118D-20181003	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 433668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-3	MW-118D-20181003	Total/NA	Water	SM 4500 CN E	433546
280-115186-10	MW-120D-20181003	Total/NA	Water	SM 4500 CN E	433546
280-115186-11	MW-120S-20181003	Total/NA	Water	SM 4500 CN E	433546

General Chemistry (Continued)

Analysis Batch: 433668 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-433546/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	433546
HLCS 280-433546/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433546
LCS 280-433546/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433546
LLCS 280-433546/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433546
280-115186-3 MS	MW-118D-20181003	Total/NA	Water	SM 4500 CN E	433546
280-115186-3 MSD	MW-118D-20181003	Total/NA	Water	SM 4500 CN E	433546

Prep Batch: 433721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-4	MW-105D-20181004	Total/NA	Water	SM 4500 CN C	
280-115186-5	MW-105S-20181004	Total/NA	Water	SM 4500 CN C	
280-115186-7	MW-104S-20181004	Total/NA	Water	SM 4500 CN C	
280-115186-8	MW-104D-20181004	Total/NA	Water	SM 4500 CN C	
MB 280-433721/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-433721/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-433721/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-433721/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
280-115186-8 MS	MW-104D-20181004	Total/NA	Water	SM 4500 CN C	
280-115186-8 MSD	MW-104D-20181004	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 433835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115186-4	MW-105D-20181004	Total/NA	Water	SM 4500 CN E	433721
280-115186-5	MW-105S-20181004	Total/NA	Water	SM 4500 CN E	433721
280-115186-7	MW-104S-20181004	Total/NA	Water	SM 4500 CN E	433721
280-115186-8	MW-104D-20181004	Total/NA	Water	SM 4500 CN E	433721
MB 280-433721/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	433721
HLCS 280-433721/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433721
LCS 280-433721/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433721
LLCS 280-433721/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433721
280-115186-8 MS	MW-104D-20181004	Total/NA	Water	SM 4500 CN E	433721
280-115186-8 MSD	MW-104D-20181004	Total/NA	Water	SM 4500 CN E	433721

Client Sample ID: MW-119S-20181003

Lab Sample ID: 280-115186-1

Date Collected: 10/03/18 14:50

Matrix: Water

Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433116	10/12/18 11:52	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 03:18	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 15:31	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 01:41	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 01:33	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432904	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 22:09	MRJ	TAL DEN
Total/NA	Analysis	353.2		2	100 mL	100 mL	433188	10/11/18 19:58	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	432556	10/10/18 23:29	A1D	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/08/18 13:58	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432941	10/10/18 20:01	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433440	10/15/18 10:48	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433502	10/15/18 17:05	RK	TAL DEN

Client Sample ID: MW-119D-20181003

Lab Sample ID: 280-115186-2

Date Collected: 10/03/18 16:10

Matrix: Water

Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433116	10/12/18 12:19	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 03:21	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 15:35	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 01:44	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 01:36	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432904	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 22:16	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433188	10/11/18 20:00	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	432556	10/11/18 00:04	A1D	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/08/18 14:19	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432941	10/10/18 21:46	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433440	10/15/18 10:48	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433502	10/15/18 17:06	RK	TAL DEN

Client Sample ID: MW-118D-20181003

Lab Sample ID: 280-115186-3

Date Collected: 10/03/18 17:35

Matrix: Water

Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433116	10/12/18 12:33	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 03:39	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 15:39	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 01:47	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 01:40	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432904	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 22:23	MRJ	TAL DEN
Total/NA	Analysis	353.2		5	100 mL	100 mL	433188	10/11/18 21:28	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	432556	10/11/18 00:39	A1D	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	432556	10/11/18 01:32	A1D	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/08/18 14:37	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432941	10/10/18 21:36	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433546	10/16/18 07:43	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433668	10/16/18 14:24	RK	TAL DEN

Client Sample ID: MW-105D-20181004

Lab Sample ID: 280-115186-4

Date Collected: 10/04/18 10:00

Matrix: Water

Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	20 mL	20 mL	432690	10/10/18 14:46	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433166	10/12/18 20:20	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 03:42	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 15:43	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 01:51	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 01:43	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432904	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 22:25	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433188	10/11/18 21:30	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	432541	10/10/18 03:24	A1D	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	432541	10/10/18 03:40	A1D	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/08/18 14:52	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432743	10/09/18 19:49	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433721	10/17/18 07:31	RK	TAL DEN

Client Sample ID: MW-105D-20181004

Lab Sample ID: 280-115186-4

Date Collected: 10/04/18 10:00
Matrix: Water
Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433835	10/17/18 13:29	RK	TAL DEN

Client Sample ID: MW-105S-20181004

Lab Sample ID: 280-115186-5

Date Collected: 10/04/18 11:30
Matrix: Water
Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	20 mL	20 mL	432690	10/10/18 13:09	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433166	10/12/18 20:34	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 03:46	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 15:47	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 01:54	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 01:47	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432904	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 22:27	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433188	10/11/18 20:22	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	432541	10/10/18 03:57	A1D	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	432541	10/10/18 04:13	A1D	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/08/18 15:44	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432743	10/09/18 19:25	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433721	10/17/18 07:31	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433835	10/17/18 13:30	RK	TAL DEN

Client Sample ID: TB-2-VOC-20181004

Lab Sample ID: 280-115186-6

Date Collected: 10/04/18 12:50
Matrix: Water
Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	432690	10/10/18 16:24	MD	TAL DEN

Client Sample ID: MW-104S-20181004

Lab Sample ID: 280-115186-7

Date Collected: 10/04/18 09:25
Matrix: Water
Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	20 mL	20 mL	432690	10/10/18 12:28	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433166	10/12/18 20:47	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115186-1

Client Sample ID: MW-104S-20181004

Date Collected: 10/04/18 09:25
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1			432701	10/10/18 03:50	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 15:51	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 01:58	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 01:50	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432904	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 22:29	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433188	10/11/18 20:24	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	432541	10/10/18 04:29	A1D	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	432541	10/10/18 04:46	A1D	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/08/18 15:59	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432743	10/09/18 19:08	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433721	10/17/18 07:31	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433835	10/17/18 13:32	RK	TAL DEN

Client Sample ID: MW-104D-20181004

Date Collected: 10/04/18 10:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		4	20 mL	20 mL	432690	10/10/18 13:28	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433166	10/12/18 21:01	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 03:53	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 15:55	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 02:01	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 02:04	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432904	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 22:31	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433188	10/11/18 20:26	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	432541	10/10/18 05:02	A1D	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	432541	10/10/18 05:19	A1D	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/08/18 12:40	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432743	10/09/18 19:37	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433721	10/17/18 07:31	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433835	10/17/18 13:33	RK	TAL DEN

Client Sample ID: TB-3-VOC-20181004

Lab Sample ID: 280-115186-9

Date Collected: 10/04/18 12:55
Matrix: Water
Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	432690	10/10/18 10:30	MD	TAL DEN

Client Sample ID: MW-120D-20181003

Lab Sample ID: 280-115186-10

Date Collected: 10/03/18 15:40
Matrix: Water
Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		4	20 mL	20 mL	432690	10/10/18 13:48	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433116	10/12/18 12:47	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 03:57	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 16:06	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 02:15	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 02:07	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432904	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 22:34	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433188	10/11/18 20:28	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	432556	10/11/18 01:49	A1D	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	432556	10/11/18 02:07	A1D	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/08/18 16:18	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432941	10/10/18 21:57	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433546	10/16/18 07:43	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433668	10/16/18 14:28	RK	TAL DEN

Client Sample ID: MW-120S-20181003

Lab Sample ID: 280-115186-11

Date Collected: 10/03/18 17:00
Matrix: Water
Date Received: 10/05/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		4	20 mL	20 mL	432690	10/10/18 14:07	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433166	10/12/18 21:14	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 04:00	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 16:10	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 02:18	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 02:11	LMT	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115186-1

Client Sample ID: MW-120S-20181003
Date Collected: 10/03/18 17:00
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			30 mL	50 mL	432904	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 22:36	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433188	10/11/18 20:30	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	432556	10/11/18 02:24	A1D	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	432556	10/11/18 02:42	A1D	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/08/18 17:25	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432941	10/10/18 22:08	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433546	10/16/18 07:43	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433668	10/16/18 14:37	RK	TAL DEN

Client Sample ID: MW-119S-20181003
Date Collected: 10/03/18 14:50
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		4	20 mL	20 mL	432690	10/10/18 15:45	MD	TAL DEN

Client Sample ID: MW-119D-20181003
Date Collected: 10/03/18 16:10
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		4	20 mL	20 mL	432690	10/10/18 16:05	MD	TAL DEN

Client Sample ID: MW-118D-20181003
Date Collected: 10/03/18 17:35
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		4	20 mL	20 mL	432690	10/10/18 14:27	MD	TAL DEN

Client Sample ID: TB-1-VOC-20181003
Date Collected: 10/04/18 08:45
Date Received: 10/05/18 09:30

Lab Sample ID: 280-115186-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	432690	10/10/18 16:44	MD	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: CDM Smith, Inc. TestAmerica Job ID: 280-115186-1
Project/Site: Bannock Ft. Hall Mine LF, Idaho

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010C	3010A	Water	Calcium
6010C	3010A	Water	Iron
6010C	3010A	Water	Magnesium
6010C	3010A	Water	Potassium
6010C	3010A	Water	Sodium
6020B	3020A	Water	Antimony
6020B	3020A	Water	Arsenic
6020B	3020A	Water	Barium
6020B	3020A	Water	Beryllium
6020B	3020A	Water	Cadmium
6020B	3020A	Water	Chromium
6020B	3020A	Water	Co
6020B	3020A	Water	Copper
6020B	3020A	Water	Lead
6020B	3020A	Water	Manganese
6020B	3020A	Water	Nickel
6020B	3020A	Water	Selenium
6020B	3020A	Water	Silver
6020B	3020A	Water	Thallium
6020B	3020A	Water	Tin
6020B	3020A	Water	Vanadium
6020B	3020A	Water	Zinc
7470A	7470A	Water	Mercury
8260B		Water	1,1,1,2-Tetrachloroethane
8260B		Water	1,1,1-Trichloroethane
8260B		Water	1,1,2,2-Tetrachloroethane
8260B		Water	1,1,2-Trichloroethane
8260B		Water	1,1-Dichloroethane
8260B		Water	1,1-Dichloroethene
8260B		Water	1,1-Dichloropropene
8260B		Water	1,2,3-Trichloropropane
8260B		Water	1,2,4-Trichlorobenzene
8260B		Water	1,2-Dibromo-3-Chloropropane
8260B		Water	1,2-Dibromoethane
8260B		Water	1,2-Dichlorobenzene
8260B		Water	1,2-Dichloroethane
8260B		Water	1,2-Dichloropropane
8260B		Water	1,3-Dichlorobenzene
8260B		Water	1,3-Dichloropropane
8260B		Water	1,4-Dichlorobenzene
8260B		Water	2,2-Dichloropropane
8260B		Water	2-Butanone (MEK)
8260B		Water	2-Hexanone
8260B		Water	4-Methyl-2-pentanone (MIBK)
8260B		Water	Acetone

Laboratory: TestAmerica Denver (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

8260B		Water	Acetonitrile
8260B		Water	Acrolein
8260B		Water	Acrylonitrile
8260B		Water	Allyl chloride
8260B		Water	Benzene
8260B		Water	Bromoform
8260B		Water	Bromomethane
8260B		Water	Carbon disulfide
8260B		Water	Carbon tetrachloride
8260B		Water	Chlorobenzene
8260B		Water	Chlorobromomethane
8260B		Water	Chlorodibromomethane
8260B		Water	Chloroethane
8260B		Water	Chloroform
8260B		Water	Chloromethane
8260B		Water	Chloroprene
8260B		Water	cis-1,2-Dichloroethene
8260B		Water	cis-1,3-Dichloropropene
8260B		Water	Dibromomethane
8260B		Water	Dichlorobromomethane
8260B		Water	Dichlorodifluoromethane
8260B		Water	Ethyl methacrylate
8260B		Water	Ethylbenzene
8260B		Water	Iodomethane
8260B		Water	Isobutyl alcohol
8260B		Water	Methacrylonitrile
8260B		Water	Methyl methacrylate
8260B		Water	Methylene Chloride
8260B		Water	Propionitrile
8260B		Water	Styrene
8260B		Water	Tetrachloroethene
8260B		Water	Toluene
8260B		Water	trans-1,2-Dichloroethene
8260B		Water	trans-1,3-Dichloropropene
8260B		Water	trans-1,4-Dichloro-2-butene
8260B		Water	Trichloroethene
8260B		Water	Trichlorofluoromethane
8260B		Water	Vinyl acetate
8260B		Water	Vinyl chloride
8260B		Water	Xylenes, Total
9056A		Water	Chloride
9056A		Water	Sulfate
RSK-175		Water	Acetylene
RSK-175		Water	Ethane
RSK-175		Water	Ethene
RSK-175		Water	Methane
RSK-175		Water	Propane
SM 4500 CN E	SM 4500 CN C	Water	Cyanide, Total

TestAmerica Denver
4955 Yarrow Street
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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kama Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270D - SVOCs	8081A - Organochlorine Pesticides	8141A - Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8000 - Dioxins/Furans (ITA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-119S-20181003	10/3/18	14:50	G	W				1							1	1		1	1	1	3	1		
MW-119D-20181003	10/3/18	16:10	G	W				1							1	1		1	1	1	3	1		
MW-118D-20181003	10/3/18	17:35	G	W				1							1	1		1	1	1	3	1		

280-115186 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/4/18 16:00	CDMSmith		10/5/18 0930	TADEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 2.9 +0.7 tmoist JDC

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kaila Cosine	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA-SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-105D-20181004	10/4/18	10:00	G	W			3	1							1	1	D	1	1	1	3	1		
MW-105S-20181004	10/4/18	11:30	G	W			3	1							1	1	D	1	1	1	3	1		
TB-2-WA-20181004	10/4/18	12:50	G	W			2																	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/4/18 1600			10/5/18 0930	TAOEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.5°C, Transfer UAE

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Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kalkoski	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 385-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-104S-20181004	10/4/18	0925	G	W			3	1							1	1		1	1	1	3	1		
MW-104D-20181004	10/4/18	1035	G	W			3	1							1	1		1	1	1	3	1		
TB-3-WC-20181004	10/4/18	1155	G	W			2																	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/4/18 1600			10/5/18 0930	TADEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.6 to 0.7 Frankfurt JAQ

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Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kara Losing	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A - Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-120D-20181003	10/3/18	15:40	G	W			3	1							1	1		1	1	1	1	1		
MW-120S-20181003	10/3/18	17:00	G	W			3	1							1	1		1	1	1	1	1		
MW-119S-20181003	10/3/18	14:50	G	W			3																	
MW-119D-20181003	10/3/18	16:10	G	W			3																	
MW-118D-20181003	10/3/18	17:35	G	W			3																	
TB-1-VOC-20181003	10/4/18	845	G	W			2																	

Sou bottle

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/4/18 16:00	CDM Smith	[signature]	10/5/18 0930	TAOEW
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.8 to 0.7 Inserted [signature]

Login Sample Receipt Checklist

Client: CDM Smith, Inc.

Job Number: 280-115186-1

Login Number: 115186
List Number: 1
Creator: Quint, Jessica A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115218-1
Client Project/Site: Bannock Ft. Hall Mine LF, Idaho

For:
CDM Smith, Inc.
14432 S.E. Eastgate Way
Suite 100
Bellevue, Washington 98007-6493

Attn: Mary Lou Fox

Authorized for release by:
10/29/2018 4:57:02 PM

Dylan Bieniulis, Project Manager I
(303)736-0100
dylan.bieniulis@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions 3
Case Narrative 4
Detection Summary 8
Method Summary 13
Sample Summary 14
Client Sample Results 15
Surrogate Summary 34
QC Sample Results 35
QC Association 57
Chronicle 63
Certification Summary 67
Chain of Custody 69
Receipt Checklists 72

Definitions/Glossary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115218-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
*	LCS or LCSD is outside acceptance limits.
F1	MS and/or MSD Recovery is outside acceptance limits.

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115218-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: CDM Smith, Inc.

Project: Bannock Ft. Hall Mine LF, Idaho

Report Number: 280-115218-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/6/2018 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.8º C, 1.4º C and 2.3º C.

Two of three HCl preserved VOA vials for the requested 8260B VOCs analysis and two of three HCl preserved VOA vials for the requested RSK-175 dissolved gases analysis for MW-111D-20181004 (280-115218-5) were received with a headspace bubble greater than 6 mm in diameter. Sufficient sample volume without headspace was received to perform the requested analysis. However, analytical results may be biased low due to headspace if re-analysis is requested or required. The client was notified on 10/8/2018.

Two of three HCl preserved VOA vials for the requested 8260B VOCs analysis and three of three HCl preserved VOA vials for the requested RSK-175 dissolved gases analysis for MW-113S-20181004 (280-115218-7) were received with a headspace bubble greater than 6 mm in diameter. Sufficient sample volume without headspace was received to perform the requested 8260B VOCs analysis. However, analytical results may be biased low due to headspace for the requested RSK-175 dissolved gases analysis and/or the requested 8260B VOCs analysis if re-analysis is requested or required. The client was notified on 10/8/2018.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples MW-111S-20181004 (280-115218-1), MW-1-20181005 (280-115218-2), EB-1-VOC-20181004 (280-115218-3), TB-4-VOC-20181005 (280-115218-4), MW-111D-20181004 (280-115218-5), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7) and MW-101S-20181005 (280-115218-8) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/11/2018 and 10/12/2018.

Method(s) 8260B: The continuing calibration verification (CCV) associated with batch 280-432884 recovered above the upper control limit for 2-Butanone (50%) at 58.5% and Methyl methacrylate (35%) at 40.3%. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MW-111S-20181004 (280-115218-1), MW-1-20181005 (280-115218-2), EB-1-VOC-20181004 (280-115218-3), TB-4-VOC-20181005 (280-115218-4), MW-111D-20181004 (280-115218-5), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7), MW-101S-20181005 (280-115218-8), (CCV 280-432884/2) and (CCV 280-432884/3).

Method(s) 8260B: In batch 432884, the following volatile sample was analyzed with significant headspace in the sample container(s): MW-111D-20181004 (280-115218-5). Significant headspace is defined as a bubble greater than 6 mm in diameter.

Method(s) 8260B: The continuing calibration verification (CCV) associated with batch 280-433054 recovered above the upper control limit

Job ID: 280-115218-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

for 2-Butanone (50%) at 56.7%. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MW-111S-20181004 (280-115218-1), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7) and (CCV 280-433054/2).

Method(s) 8260B: The laboratory control sample duplicate (LCSD) for analytical batch 280-433054 recovered outside control limits for the following analytes: Methyl Methacrylate (50%-150%) at 155%. These analytes were biased high in the LCSD and were not detected in the associated samples; therefore, the data have been reported.

Acetone was detected in method blank MB 280-433054/8 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Dichlorodifluoromethane failed the recovery criteria high for the MSD of sample MW-101S-20181005MSD (280-115218-8) in batch 280-432884. Refer to the QC report for details.

Samples MW-111S-20181004 (280-115218-1)[2X], MW-113D-20181004 (280-115218-6)[2X] and MW-113S-20181004 (280-115218-7) [4X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Method(s) 8260B: In batch 433054, the container used for reanalysis of the following samples due to required dilution contained headspace: MW-111S-20181004 (280-115218-1), MW-113D-20181004 (280-115218-6) and MW-113S-20181004 (280-115218-7) The method used for analysis requires that the sample does not contain headspace.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DISSOLVED GASES

Samples MW-111S-20181004 (280-115218-1), MW-1-20181005 (280-115218-2), MW-111D-20181004 (280-115218-5), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7) and MW-101S-20181005 (280-115218-8) were analyzed for dissolved gases in accordance with RSK_175. The samples were analyzed on 10/13/2018 and 10/15/2018.

Method(s) RSK-175: The following volatile samples were analyzed with significant headspace in the sample container(s): MW-111S-20181004 (280-115218-1) and MW-113S-20181004 (280-115218-7). Significant headspace is defined as a bubble greater than 6 mm in diameter.

Analytes Acetylene/Ethane co-elute on one of the columns used for this analysis. As a result, there are no results reported for the %Difference in the concentration on the Form X.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP)

Samples MW-111S-20181004 (280-115218-1), MW-1-20181005 (280-115218-2), MW-111D-20181004 (280-115218-5), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7) and MW-101S-20181005 (280-115218-8) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 10/09/2018 and analyzed on 10/10/2018.

Iron was detected in method blank MB 280-432500/1-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Sodium was detected in method blank MB 280-432500/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP/MS)

Samples MW-111S-20181004 (280-115218-1), MW-1-20181005 (280-115218-2), MW-111D-20181004 (280-115218-5), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7) and MW-101S-20181005 (280-115218-8) were analyzed for Total Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 10/10/2018 and 10/12/2018 and analyzed on

Job ID: 280-115218-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

10/11/2018, 10/13/2018 and 10/14/2018.

Zinc was detected in method blank MB 280-432502/1-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY

Samples MW-111S-20181004 (280-115218-1), MW-1-20181005 (280-115218-2), MW-111D-20181004 (280-115218-5), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7) and MW-101S-20181005 (280-115218-8) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 10/11/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ALKALINITY

Samples MW-111S-20181004 (280-115218-1), MW-1-20181005 (280-115218-2), MW-111D-20181004 (280-115218-5), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7) and MW-101S-20181005 (280-115218-8) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 10/10/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

NITRATE-NITRITE AS NITROGEN

Samples MW-111S-20181004 (280-115218-1), MW-1-20181005 (280-115218-2), MW-111D-20181004 (280-115218-5), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7) and MW-101S-20181005 (280-115218-8) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 10/12/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL AND AMENABLE CYANIDE

Samples MW-111S-20181004 (280-115218-1), MW-1-20181005 (280-115218-2), MW-111D-20181004 (280-115218-5), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7) and MW-101S-20181005 (280-115218-8) were analyzed for total and amenable cyanide in accordance with SM20 4500 CN E. The samples were prepared and analyzed on 10/17/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS (28 DAYS)

Samples MW-111S-20181004 (280-115218-1), MW-1-20181005 (280-115218-2), MW-111D-20181004 (280-115218-5), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7) and MW-101S-20181005 (280-115218-8) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 10/14/2018 and 10/15/2018.

Samples MW-111S-20181004 (280-115218-1)[20X], MW-111S-20181004 (280-115218-1)[5X], MW-111D-20181004 (280-115218-5)[20X], MW-111D-20181004 (280-115218-5)[5X] and MW-113S-20181004 (280-115218-7)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL ORGANIC CARBON

Samples MW-111S-20181004 (280-115218-1), MW-1-20181005 (280-115218-2), MW-111D-20181004 (280-115218-5), MW-113D-20181004 (280-115218-6), MW-113S-20181004 (280-115218-7) and MW-101S-20181005 (280-115218-8) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060A. The samples were analyzed on 10/08/2018 and 10/09/2018.

TOC Result 1, TOC Result 2 and Total Organic Carbon - Duplicates were detected in method blank MB 280-432524/37 at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Job ID: 280-115218-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples MW-111S-20181004 (280-115218-1)[5X] and MW-111D-20181004 (280-115218-5)[3.57X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115218-1

Client Sample ID: MW-111S-20181004 — Lab Sample ID: 280-115218-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	10	J B	20	3.8	ug/L	2		8260B	Total/NA
Benzene	28		2.0	0.32	ug/L	2		8260B	Total/NA
Chlorobenzene	2.0		2.0	0.34	ug/L	2		8260B	Total/NA
Chloroethane	1.2	J	4.0	0.82	ug/L	2		8260B	Total/NA
1,2-Dichlorobenzene	14		2.0	0.30	ug/L	2		8260B	Total/NA
1,4-Dichlorobenzene	4.8		2.0	0.32	ug/L	2		8260B	Total/NA
Dichlorodifluoromethane	0.66	J	4.0	0.62	ug/L	2		8260B	Total/NA
1,1-Dichloroethane	1.2	J	2.0	0.44	ug/L	2		8260B	Total/NA
cis-1,2-Dichloroethene	0.61	J	2.0	0.30	ug/L	2		8260B	Total/NA
trans-1,2-Dichloroethene	0.34	J	2.0	0.30	ug/L	2		8260B	Total/NA
1,2-Dichloropropane	2.2		2.0	0.36	ug/L	2		8260B	Total/NA
Ethylbenzene	14		2.0	0.32	ug/L	2		8260B	Total/NA
Xylenes, Total	1.9	J	4.0	0.38	ug/L	2		8260B	Total/NA
Methane	3500		5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	270000		200	35	ug/L	1		6010C	Total/NA
Iron	28000	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	330000		200	11	ug/L	1		6010C	Total/NA
Potassium	27000		3000	240	ug/L	1		6010C	Total/NA
Sodium	1100000	B	1000	120	ug/L	1		6010C	Total/NA
Antimony	1.1	J	2.0	0.40	ug/L	1		6020B	Total/NA
Arsenic	120		5.0	0.33	ug/L	1		6020B	Total/NA
Barium	3600		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	22		2.0	0.50	ug/L	1		6020B	Total/NA
Co	11		1.0	0.054	ug/L	1		6020B	Total/NA
Copper	20		2.0	0.56	ug/L	1		6020B	Total/NA
Lead	3.0		1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	2100		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	240		2.0	0.30	ug/L	1		6020B	Total/NA
Selenium	0.76	J	5.0	0.70	ug/L	1		6020B	Total/NA
Tin	2.7	J	10	0.77	ug/L	1		6020B	Total/NA
Vanadium	14		5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	18	B	10	2.0	ug/L	1		6020B	Total/NA
Mercury	0.032	J	0.20	0.027	ug/L	1		7470A	Total/NA
Chloride	2000		60	5.1	mg/L	20		9056A	Total/NA
Sulfate	44		25	1.2	mg/L	5		9056A	Total/NA
Total Organic Carbon - Duplicates	180		5.0	0.78	mg/L	5		9060A	Total/NA
Alkalinity, Total	1700		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.011	J	0.020	0.0040	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: MW-1-20181005 — Lab Sample ID: 280-115218-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.23	J	1.0	0.22	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	3.4		1.0	0.15	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.39	J	1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.29	J	1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	13		1.0	0.16	ug/L	1		8260B	Total/NA
Methane	1400		5.0	0.64	ug/L	1		RSK-175	Total/NA
Ethane	1.2	J	5.0	0.57	ug/L	1		RSK-175	Total/NA
Propane	1.3	J	5.0	0.56	ug/L	1		RSK-175	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115218-1

Client Sample ID: MW-1-20181005 (Continued) — Lab Sample ID: 280-115218-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	27000		200	35	ug/L	1		6010C	Total/NA
Iron	2700	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	18000		200	11	ug/L	1		6010C	Total/NA
Potassium	2700	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	40000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.90	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	58		1.0	0.29	ug/L	1		6020B	Total/NA
Lead	0.69	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	230		1.0	0.31	ug/L	1		6020B	Total/NA
Zinc	2.6	J B	10	2.0	ug/L	1		6020B	Total/NA
Chloride	130		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	0.52	J	5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.3		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	53		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: EB-1-VOC-20181004 — Lab Sample ID: 280-115218-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.1	J	10	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.57	J	2.0	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: TB-4-VOC-20181005 — Lab Sample ID: 280-115218-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.6	J	10	1.9	ug/L	1		8260B	Total/NA

Client Sample ID: MW-111D-20181004 — Lab Sample ID: 280-115218-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	12		10	1.9	ug/L	1		8260B	Total/NA
Benzene	17		1.0	0.16	ug/L	1		8260B	Total/NA
Chlorobenzene	1.1		1.0	0.17	ug/L	1		8260B	Total/NA
Chloroethane	1.2	J	2.0	0.41	ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	16		1.0	0.15	ug/L	1		8260B	Total/NA
1,3-Dichlorobenzene	0.24	J	1.0	0.13	ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	5.8		1.0	0.16	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	1.7		1.0	0.22	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.1		1.0	0.15	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.27	J	1.0	0.15	ug/L	1		8260B	Total/NA
1,2-Dichloropropane	1.7		1.0	0.18	ug/L	1		8260B	Total/NA
Ethylbenzene	9.0		1.0	0.16	ug/L	1		8260B	Total/NA
Methylene Chloride	0.37	J	2.0	0.32	ug/L	1		8260B	Total/NA
Tetrachloroethene	1.1		1.0	0.20	ug/L	1		8260B	Total/NA
Toluene	0.25	J	1.0	0.17	ug/L	1		8260B	Total/NA
Trichloroethene	12		1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.46	J	1.0	0.10	ug/L	1		8260B	Total/NA
Xylenes, Total	1.1	J	2.0	0.19	ug/L	1		8260B	Total/NA
Methane	3500		5.0	0.64	ug/L	1		RSK-175	Total/NA
Ethane	3.4	J	5.0	0.57	ug/L	1		RSK-175	Total/NA
Calcium	360000		200	35	ug/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-111D-20181004 (Continued)

Lab Sample ID: 280-115218-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	33000	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	270000		200	11	ug/L	1		6010C	Total/NA
Potassium	17000		3000	240	ug/L	1		6010C	Total/NA
Sodium	930000	B	1000	120	ug/L	1		6010C	Total/NA
Antimony	0.77	J	2.0	0.40	ug/L	1		6020B	Total/NA
Arsenic	91		5.0	0.33	ug/L	1		6020B	Total/NA
Barium	3400		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	4.4		2.0	0.50	ug/L	1		6020B	Total/NA
Co	8.6		1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.97	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.32	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	2200		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	280		2.0	0.30	ug/L	1		6020B	Total/NA
Selenium	0.71	J	5.0	0.70	ug/L	1		6020B	Total/NA
Tin	2.2	J	10	0.77	ug/L	1		6020B	Total/NA
Vanadium	5.6		5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	9.7	J B	10	2.0	ug/L	1		6020B	Total/NA
Chloride	1900		60	5.1	mg/L	20		9056A	Total/NA
Sulfate	51		25	1.2	mg/L	5		9056A	Total/NA
Total Organic Carbon - Duplicates	140	B	3.6	0.55	mg/L	3.57		9060A	Total/NA
Alkalinity, Total	1300		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0094	J	0.020	0.0040	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: MW-113D-20181004

Lab Sample ID: 280-115218-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.2		2.0	0.32	ug/L	2		8260B	Total/NA
Chloroform	1.9	J	2.0	0.32	ug/L	2		8260B	Total/NA
Dichlorodifluoromethane	25		4.0	0.62	ug/L	2		8260B	Total/NA
1,1-Dichloroethane	11		2.0	0.44	ug/L	2		8260B	Total/NA
1,2-Dichloroethane	3.4		2.0	0.26	ug/L	2		8260B	Total/NA
cis-1,2-Dichloroethene	17		2.0	0.30	ug/L	2		8260B	Total/NA
trans-1,2-Dichloroethene	0.60	J	2.0	0.30	ug/L	2		8260B	Total/NA
1,1-Dichloroethene	0.64	J	2.0	0.46	ug/L	2		8260B	Total/NA
1,2-Dichloropropane	2.3		2.0	0.36	ug/L	2		8260B	Total/NA
Methylene Chloride	4.8		4.0	0.64	ug/L	2		8260B	Total/NA
Tetrachloroethene	5.0		2.0	0.40	ug/L	2		8260B	Total/NA
Trichloroethene	5.5		2.0	0.32	ug/L	2		8260B	Total/NA
Trichlorofluoromethane	3.1	J	4.0	0.58	ug/L	2		8260B	Total/NA
Vinyl chloride	27		2.0	0.20	ug/L	2		8260B	Total/NA
Methane	930		5.0	0.64	ug/L	1		RSK-175	Total/NA
Ethene	0.76	J	5.0	0.40	ug/L	1		RSK-175	Total/NA
Calcium	120000		200	35	ug/L	1		6010C	Total/NA
Iron	730	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	56000		200	11	ug/L	1		6010C	Total/NA
Potassium	3900		3000	240	ug/L	1		6010C	Total/NA
Sodium	44000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.2	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	340		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.9	J	2.0	0.50	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-113D-20181004 (Continued)

Lab Sample ID: 280-115218-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Co	2.7		1.0	0.054	ug/L	1		6020B	Total/NA
Copper	1.5	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	2.3		1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	19		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	2.1		2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	0.84	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	4.8	J B	10	2.0	ug/L	1		6020B	Total/NA
Mercury	2.3		0.20	0.027	ug/L	1		7470A	Total/NA
Nitrate Nitrite as N	0.41		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	190		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	36		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	3.7	B	1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	350		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-113S-20181004

Lab Sample ID: 280-115218-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	7.8		4.0	0.64	ug/L	4		8260B	Total/NA
Chloroform	3.3	J	4.0	0.64	ug/L	4		8260B	Total/NA
1,2-Dichlorobenzene	8.3		4.0	0.60	ug/L	4		8260B	Total/NA
1,4-Dichlorobenzene	5.0		4.0	0.64	ug/L	4		8260B	Total/NA
Dichlorodifluoromethane	35		8.0	1.2	ug/L	4		8260B	Total/NA
1,1-Dichloroethane	25		4.0	0.88	ug/L	4		8260B	Total/NA
1,2-Dichloroethane	4.1		4.0	0.52	ug/L	4		8260B	Total/NA
cis-1,2-Dichloroethene	38		4.0	0.60	ug/L	4		8260B	Total/NA
trans-1,2-Dichloroethene	1.8	J	4.0	0.60	ug/L	4		8260B	Total/NA
1,1-Dichloroethene	1.3	J	4.0	0.92	ug/L	4		8260B	Total/NA
1,2-Dichloropropane	4.4		4.0	0.72	ug/L	4		8260B	Total/NA
Methylene Chloride	4.9	J	8.0	1.3	ug/L	4		8260B	Total/NA
Tetrachloroethene	31		4.0	0.80	ug/L	4		8260B	Total/NA
Trichloroethene	23		4.0	0.64	ug/L	4		8260B	Total/NA
Trichlorofluoromethane	4.0	J	8.0	1.2	ug/L	4		8260B	Total/NA
Vinyl chloride	96		4.0	0.40	ug/L	4		8260B	Total/NA
Xylenes, Total	1.4	J	8.0	0.76	ug/L	4		8260B	Total/NA
Methane	3700		5.0	0.64	ug/L	1		RSK-175	Total/NA
Ethene	6.2		5.0	0.40	ug/L	1		RSK-175	Total/NA
Propane	2.0	J	5.0	0.56	ug/L	1		RSK-175	Total/NA
Calcium	280000		200	35	ug/L	1		6010C	Total/NA
Iron	36	J B	100	22	ug/L	1		6010C	Total/NA
Magnesium	100000		200	11	ug/L	1		6010C	Total/NA
Potassium	5600		3000	240	ug/L	1		6010C	Total/NA
Sodium	140000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.7	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	880		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.50	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.33	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	1.6	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.32	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	8.2		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	3.3		2.0	0.30	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-113S-20181004 (Continued)

Lab Sample ID: 280-115218-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Silver	0.21	J	5.0	0.033	ug/L	1		6020B	Total/NA
Vanadium	5.8		5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	7.3	J B	10	2.0	ug/L	1		6020B	Total/NA
Mercury	5.7		0.20	0.027	ug/L	1		7470A	Total/NA
Nitrate Nitrite as N	0.19		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	400		30	2.5	mg/L	10		9056A	Total/NA
Sulfate	66		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	11	B	1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	720		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-101S-20181005

Lab Sample ID: 280-115218-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.16	J	1.0	0.16	ug/L	1		8260B	Total/NA
Dichlorodifluoromethane	0.33	J F1	2.0	0.31	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.28	J	1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	6.3		1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	16		1.0	0.16	ug/L	1		8260B	Total/NA
Calcium	80000		200	35	ug/L	1		6010C	Total/NA
Iron	330	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	29000		200	11	ug/L	1		6010C	Total/NA
Potassium	5000		3000	240	ug/L	1		6010C	Total/NA
Sodium	33000	B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	2.3	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	120		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.1	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.31	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.57	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.25	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	71		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	1.3	J	2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	1.1	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	2.7	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.45		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	67		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	72		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.0	B	1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	230		5.0	1.1	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115218-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
RSK-175	Dissolved Gases (GC)	RSK	TAL DEN
6010C	Metals (ICP)	SW846	TAL DEN
6020B	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
9060A	Organic Carbon, Total (TOC)	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 4500 CN E	Cyanide, Total	SM	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
SM 4500 CN C	Cyanide, Distillation	SM	TAL DEN

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115218-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115218-1	MW-111S-20181004	Water	10/04/18 16:30	10/06/18 09:05
280-115218-2	MW-1-20181005	Water	10/05/18 11:00	10/06/18 09:05
280-115218-3	EB-1-VOC-20181004	Water	10/04/18 16:55	10/06/18 09:05
280-115218-4	TB-4-VOC-20181005	Water	10/05/18 11:35	10/06/18 09:05
280-115218-5	MW-111D-20181004	Water	10/04/18 14:25	10/06/18 09:05
280-115218-6	MW-113D-20181004	Water	10/04/18 17:15	10/06/18 09:05
280-115218-7	MW-113S-20181004	Water	10/04/18 14:45	10/06/18 09:05
280-115218-8	MW-101S-20181005	Water	10/05/18 09:00	10/06/18 09:05

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: MW-111S-20181004
Date Collected: 10/04/18 16:30
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**10**	**J B**	20	3.8	ug/L			10/12/18 12:43	2
Acetonitrile	ND		60	19	ug/L			10/12/18 12:43	2
Acrolein	ND		40	5.6	ug/L			10/12/18 12:43	2
Acrylonitrile	ND		40	2.8	ug/L			10/12/18 12:43	2
Benzene	**28**		2.0	0.32	ug/L			10/12/18 12:43	2
Chlorobromomethane	ND		2.0	0.20	ug/L			10/12/18 12:43	2
Dichlorobromomethane	ND		2.0	0.34	ug/L			10/12/18 12:43	2
Bromoform	ND		2.0	0.38	ug/L			10/12/18 12:43	2
Bromomethane	ND		4.0	0.42	ug/L			10/12/18 12:43	2
2-Butanone (MEK)	ND		12	4.0	ug/L			10/12/18 12:43	2
Carbon disulfide	ND		4.0	0.90	ug/L			10/12/18 12:43	2
Carbon tetrachloride	ND		2.0	0.38	ug/L			10/12/18 12:43	2
Chlorobenzene	**2.0**		2.0	0.34	ug/L			10/12/18 12:43	2
Chloroprene	ND		2.0	0.42	ug/L			10/12/18 12:43	2
Chlorodibromomethane	ND		2.0	0.34	ug/L			10/12/18 12:43	2
Chloroethane	**1.2**	**J**	4.0	0.82	ug/L			10/12/18 12:43	2
Chloroform	ND		2.0	0.32	ug/L			10/12/18 12:43	2
Chloromethane	ND		4.0	0.60	ug/L			10/12/18 12:43	2
Allyl chloride	ND		4.0	0.34	ug/L			10/12/18 12:43	2
1,2-Dibromo-3-Chloropropane	ND		10	0.94	ug/L			10/12/18 12:43	2
Dibromomethane	ND		2.0	0.34	ug/L			10/12/18 12:43	2
1,2-Dichlorobenzene	**14**		2.0	0.30	ug/L			10/12/18 12:43	2
1,3-Dichlorobenzene	ND		2.0	0.26	ug/L			10/12/18 12:43	2
1,4-Dichlorobenzene	**4.8**		2.0	0.32	ug/L			10/12/18 12:43	2
trans-1,4-Dichloro-2-butene	ND		6.0	1.6	ug/L			10/12/18 12:43	2
Dichlorodifluoromethane	**0.66**	**J**	4.0	0.62	ug/L			10/12/18 12:43	2
1,1-Dichloroethane	**1.2**	**J**	2.0	0.44	ug/L			10/12/18 12:43	2
1,2-Dichloroethane	ND		2.0	0.26	ug/L			10/12/18 12:43	2
cis-1,2-Dichloroethene	**0.61**	**J**	2.0	0.30	ug/L			10/12/18 12:43	2
trans-1,2-Dichloroethene	**0.34**	**J**	2.0	0.30	ug/L			10/12/18 12:43	2
1,1-Dichloroethene	ND		2.0	0.46	ug/L			10/12/18 12:43	2
1,2-Dichloropropane	**2.2**		2.0	0.36	ug/L			10/12/18 12:43	2
1,3-Dichloropropane	ND		2.0	0.44	ug/L			10/12/18 12:43	2
2,2-Dichloropropane	ND		2.0	0.36	ug/L			10/12/18 12:43	2
cis-1,3-Dichloropropene	ND		2.0	0.32	ug/L			10/12/18 12:43	2
trans-1,3-Dichloropropene	ND		6.0	0.38	ug/L			10/12/18 12:43	2
1,1-Dichloropropene	ND		2.0	0.38	ug/L			10/12/18 12:43	2
Ethylbenzene	**14**		2.0	0.32	ug/L			10/12/18 12:43	2
Ethyl methacrylate	ND		6.0	1.7	ug/L			10/12/18 12:43	2
2-Hexanone	ND		10	3.4	ug/L			10/12/18 12:43	2
Iodomethane	ND		2.0	0.46	ug/L			10/12/18 12:43	2
Isobutyl alcohol	ND		220	73	ug/L			10/12/18 12:43	2
Methacrylonitrile	ND		20	3.2	ug/L			10/12/18 12:43	2
Methylene Chloride	ND		4.0	0.64	ug/L			10/12/18 12:43	2
Methyl methacrylate	ND	*	8.0	2.2	ug/L			10/12/18 12:43	2
4-Methyl-2-pentanone (MIBK)	ND		10	2.0	ug/L			10/12/18 12:43	2
Propionitrile	ND		40	7.4	ug/L			10/12/18 12:43	2
Styrene	ND		2.0	0.34	ug/L			10/12/18 12:43	2
1,1,1,2-Tetrachloroethane	ND		2.0	0.42	ug/L			10/12/18 12:43	2

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-111S-20181004
Date Collected: 10/04/18 16:30
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		2.0	0.42	ug/L			10/12/18 12:43	2
Tetrachloroethene	ND		2.0	0.40	ug/L			10/12/18 12:43	2
Toluene	ND		2.0	0.34	ug/L			10/12/18 12:43	2
1,2,4-Trichlorobenzene	ND		2.0	0.42	ug/L			10/12/18 12:43	2
1,1,1-Trichloroethane	ND		2.0	0.32	ug/L			10/12/18 12:43	2
1,1,2-Trichloroethane	ND		2.0	0.54	ug/L			10/12/18 12:43	2
Trichloroethene	ND		2.0	0.32	ug/L			10/12/18 12:43	2
Trichlorofluoromethane	ND		4.0	0.58	ug/L			10/12/18 12:43	2
1,2,3-Trichloropropane	ND		5.0	0.66	ug/L			10/12/18 12:43	2
Vinyl acetate	ND		6.0	1.9	ug/L			10/12/18 12:43	2
Vinyl chloride	ND		2.0	0.20	ug/L			10/12/18 12:43	2
Xylenes, Total	**1.9**	**J**	4.0	0.38	ug/L			10/12/18 12:43	2
1,2-Dibromoethane	ND		2.0	0.36	ug/L			10/12/18 12:43	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*10/12/18 12:43*	*2*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 127*		*10/12/18 12:43*	*2*
4-Bromofluorobenzene (Surr)	*100*		*78 - 120*		*10/12/18 12:43*	*2*
Toluene-d8 (Surr)	*99*		*80 - 125*		*10/12/18 12:43*	*2*

Client Sample ID: MW-1-20181005
Date Collected: 10/05/18 11:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/11/18 13:12	1
Acetonitrile	ND		30	9.6	ug/L			10/11/18 13:12	1
Acrolein	ND		20	2.8	ug/L			10/11/18 13:12	1
Acrylonitrile	ND		20	1.4	ug/L			10/11/18 13:12	1
Benzene	ND		1.0	0.16	ug/L			10/11/18 13:12	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/11/18 13:12	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/11/18 13:12	1
Bromoform	ND		1.0	0.19	ug/L			10/11/18 13:12	1
Bromomethane	ND		2.0	0.21	ug/L			10/11/18 13:12	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/11/18 13:12	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/11/18 13:12	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/11/18 13:12	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/11/18 13:12	1
Chloroprene	ND		1.0	0.21	ug/L			10/11/18 13:12	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/11/18 13:12	1
Chloroethane	ND		2.0	0.41	ug/L			10/11/18 13:12	1
Chloroform	ND		1.0	0.16	ug/L			10/11/18 13:12	1
Chloromethane	ND		2.0	0.30	ug/L			10/11/18 13:12	1
Allyl chloride	ND		2.0	0.17	ug/L			10/11/18 13:12	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/11/18 13:12	1
Dibromomethane	ND		1.0	0.17	ug/L			10/11/18 13:12	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/11/18 13:12	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/11/18 13:12	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/11/18 13:12	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/11/18 13:12	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/11/18 13:12	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-1-20181005
Date Collected: 10/05/18 11:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	**0.23**	**J**	1.0	0.22	ug/L			10/11/18 13:12	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/11/18 13:12	1
cis-1,2-Dichloroethene	**3.4**		1.0	0.15	ug/L			10/11/18 13:12	1
trans-1,2-Dichloroethene	**0.39**	**J**	1.0	0.15	ug/L			10/11/18 13:12	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/11/18 13:12	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/11/18 13:12	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/11/18 13:12	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/11/18 13:12	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/11/18 13:12	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/11/18 13:12	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/11/18 13:12	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/11/18 13:12	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/11/18 13:12	1
2-Hexanone	ND		5.0	1.7	ug/L			10/11/18 13:12	1
Iodomethane	ND		1.0	0.23	ug/L			10/11/18 13:12	1
Isobutyl alcohol	ND		110	37	ug/L			10/11/18 13:12	1
Methacrylonitrile	ND		10	1.6	ug/L			10/11/18 13:12	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/11/18 13:12	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/11/18 13:12	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/11/18 13:12	1
Propionitrile	ND		20	3.7	ug/L			10/11/18 13:12	1
Styrene	ND		1.0	0.17	ug/L			10/11/18 13:12	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 13:12	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 13:12	1
Tetrachloroethene	**0.29**	**J**	1.0	0.20	ug/L			10/11/18 13:12	1
Toluene	ND		1.0	0.17	ug/L			10/11/18 13:12	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/11/18 13:12	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/11/18 13:12	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/11/18 13:12	1
Trichloroethene	**13**		1.0	0.16	ug/L			10/11/18 13:12	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/11/18 13:12	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/11/18 13:12	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/11/18 13:12	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/11/18 13:12	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/11/18 13:12	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/11/18 13:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*77 - 120*		*10/11/18 13:12*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 127*		*10/11/18 13:12*	*1*
4-Bromofluorobenzene (Surr)	*110*		*78 - 120*		*10/11/18 13:12*	*1*
Toluene-d8 (Surr)	*91*		*80 - 125*		*10/11/18 13:12*	*1*

Client Sample ID: EB-1-VOC-20181004
Date Collected: 10/04/18 16:55
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**4.1**	**J**	10	1.9	ug/L			10/11/18 13:33	1
Acetonitrile	ND		30	9.6	ug/L			10/11/18 13:33	1
Acrolein	ND		20	2.8	ug/L			10/11/18 13:33	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-1-VOC-20181004
Date Collected: 10/04/18 16:55
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrylonitrile	ND		20	1.4	ug/L			10/11/18 13:33	1
Benzene	ND		1.0	0.16	ug/L			10/11/18 13:33	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/11/18 13:33	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/11/18 13:33	1
Bromoform	ND		1.0	0.19	ug/L			10/11/18 13:33	1
Bromomethane	ND		2.0	0.21	ug/L			10/11/18 13:33	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/11/18 13:33	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/11/18 13:33	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/11/18 13:33	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/11/18 13:33	1
Chloroprene	ND		1.0	0.21	ug/L			10/11/18 13:33	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/11/18 13:33	1
Chloroethane	ND		2.0	0.41	ug/L			10/11/18 13:33	1
Chloroform	ND		1.0	0.16	ug/L			10/11/18 13:33	1
Chloromethane	ND		2.0	0.30	ug/L			10/11/18 13:33	1
Allyl chloride	ND		2.0	0.17	ug/L			10/11/18 13:33	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/11/18 13:33	1
Dibromomethane	ND		1.0	0.17	ug/L			10/11/18 13:33	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/11/18 13:33	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/11/18 13:33	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/11/18 13:33	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/11/18 13:33	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/11/18 13:33	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/11/18 13:33	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/11/18 13:33	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/11/18 13:33	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/11/18 13:33	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/11/18 13:33	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/11/18 13:33	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/11/18 13:33	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/11/18 13:33	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/11/18 13:33	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/11/18 13:33	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/11/18 13:33	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/11/18 13:33	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/11/18 13:33	1
2-Hexanone	ND		5.0	1.7	ug/L			10/11/18 13:33	1
Iodomethane	ND		1.0	0.23	ug/L			10/11/18 13:33	1
Isobutyl alcohol	ND		110	37	ug/L			10/11/18 13:33	1
Methacrylonitrile	ND		10	1.6	ug/L			10/11/18 13:33	1
Methylene Chloride	**0.57**	**J**	2.0	0.32	ug/L			10/11/18 13:33	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/11/18 13:33	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/11/18 13:33	1
Propionitrile	ND		20	3.7	ug/L			10/11/18 13:33	1
Styrene	ND		1.0	0.17	ug/L			10/11/18 13:33	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 13:33	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 13:33	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/11/18 13:33	1
Toluene	ND		1.0	0.17	ug/L			10/11/18 13:33	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-1-VOC-20181004
Date Collected: 10/04/18 16:55
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/11/18 13:33	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/11/18 13:33	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/11/18 13:33	1
Trichloroethene	ND		1.0	0.16	ug/L			10/11/18 13:33	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/11/18 13:33	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/11/18 13:33	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/11/18 13:33	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/11/18 13:33	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/11/18 13:33	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/11/18 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*77 - 120*		*10/11/18 13:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 127*		*10/11/18 13:33*	*1*
4-Bromofluorobenzene (Surr)	*111*		*78 - 120*		*10/11/18 13:33*	*1*
Toluene-d8 (Surr)	*98*		*80 - 125*		*10/11/18 13:33*	*1*

Client Sample ID: TB-4-VOC-20181005
Date Collected: 10/05/18 11:35
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**2.6**	**J**	10	1.9	ug/L			10/11/18 13:55	1
Acetonitrile	ND		30	9.6	ug/L			10/11/18 13:55	1
Acrolein	ND		20	2.8	ug/L			10/11/18 13:55	1
Acrylonitrile	ND		20	1.4	ug/L			10/11/18 13:55	1
Benzene	ND		1.0	0.16	ug/L			10/11/18 13:55	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/11/18 13:55	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/11/18 13:55	1
Bromoform	ND		1.0	0.19	ug/L			10/11/18 13:55	1
Bromomethane	ND		2.0	0.21	ug/L			10/11/18 13:55	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/11/18 13:55	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/11/18 13:55	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/11/18 13:55	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/11/18 13:55	1
Chloroprene	ND		1.0	0.21	ug/L			10/11/18 13:55	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/11/18 13:55	1
Chloroethane	ND		2.0	0.41	ug/L			10/11/18 13:55	1
Chloroform	ND		1.0	0.16	ug/L			10/11/18 13:55	1
Chloromethane	ND		2.0	0.30	ug/L			10/11/18 13:55	1
Allyl chloride	ND		2.0	0.17	ug/L			10/11/18 13:55	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/11/18 13:55	1
Dibromomethane	ND		1.0	0.17	ug/L			10/11/18 13:55	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/11/18 13:55	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/11/18 13:55	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/11/18 13:55	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/11/18 13:55	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/11/18 13:55	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/11/18 13:55	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/11/18 13:55	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/11/18 13:55	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-4-VOC-20181005
Date Collected: 10/05/18 11:35
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/11/18 13:55	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/11/18 13:55	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/11/18 13:55	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/11/18 13:55	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/11/18 13:55	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/11/18 13:55	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/11/18 13:55	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/11/18 13:55	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/11/18 13:55	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/11/18 13:55	1
2-Hexanone	ND		5.0	1.7	ug/L			10/11/18 13:55	1
Iodomethane	ND		1.0	0.23	ug/L			10/11/18 13:55	1
Isobutyl alcohol	ND		110	37	ug/L			10/11/18 13:55	1
Methacrylonitrile	ND		10	1.6	ug/L			10/11/18 13:55	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/11/18 13:55	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/11/18 13:55	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/11/18 13:55	1
Propionitrile	ND		20	3.7	ug/L			10/11/18 13:55	1
Styrene	ND		1.0	0.17	ug/L			10/11/18 13:55	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 13:55	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 13:55	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/11/18 13:55	1
Toluene	ND		1.0	0.17	ug/L			10/11/18 13:55	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/11/18 13:55	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/11/18 13:55	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/11/18 13:55	1
Trichloroethene	ND		1.0	0.16	ug/L			10/11/18 13:55	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/11/18 13:55	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/11/18 13:55	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/11/18 13:55	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/11/18 13:55	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/11/18 13:55	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/11/18 13:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*96*		*77 - 120*		*10/11/18 13:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 127*		*10/11/18 13:55*	*1*
4-Bromofluorobenzene (Surr)	*115*		*78 - 120*		*10/11/18 13:55*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*10/11/18 13:55*	*1*

Client Sample ID: MW-111D-20181004
Date Collected: 10/04/18 14:25
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**12**		10	1.9	ug/L			10/11/18 14:17	1
Acetonitrile	ND		30	9.6	ug/L			10/11/18 14:17	1
Acrolein	ND		20	2.8	ug/L			10/11/18 14:17	1
Acrylonitrile	ND		20	1.4	ug/L			10/11/18 14:17	1
Benzene	**17**		1.0	0.16	ug/L			10/11/18 14:17	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/11/18 14:17	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-111D-20181004
Date Collected: 10/04/18 14:25
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/11/18 14:17	1
Bromoform	ND		1.0	0.19	ug/L			10/11/18 14:17	1
Bromomethane	ND		2.0	0.21	ug/L			10/11/18 14:17	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/11/18 14:17	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/11/18 14:17	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/11/18 14:17	1
Chlorobenzene	**1.1**		1.0	0.17	ug/L			10/11/18 14:17	1
Chloroprene	ND		1.0	0.21	ug/L			10/11/18 14:17	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/11/18 14:17	1
Chloroethane	**1.2**	**J**	2.0	0.41	ug/L			10/11/18 14:17	1
Chloroform	ND		1.0	0.16	ug/L			10/11/18 14:17	1
Chloromethane	ND		2.0	0.30	ug/L			10/11/18 14:17	1
Allyl chloride	ND		2.0	0.17	ug/L			10/11/18 14:17	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/11/18 14:17	1
Dibromomethane	ND		1.0	0.17	ug/L			10/11/18 14:17	1
1,2-Dichlorobenzene	**16**		1.0	0.15	ug/L			10/11/18 14:17	1
1,3-Dichlorobenzene	**0.24**	**J**	1.0	0.13	ug/L			10/11/18 14:17	1
1,4-Dichlorobenzene	**5.8**		1.0	0.16	ug/L			10/11/18 14:17	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/11/18 14:17	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/11/18 14:17	1
1,1-Dichloroethane	**1.7**		1.0	0.22	ug/L			10/11/18 14:17	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/11/18 14:17	1
cis-1,2-Dichloroethene	**1.1**		1.0	0.15	ug/L			10/11/18 14:17	1
trans-1,2-Dichloroethene	**0.27**	**J**	1.0	0.15	ug/L			10/11/18 14:17	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/11/18 14:17	1
1,2-Dichloropropane	**1.7**		1.0	0.18	ug/L			10/11/18 14:17	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/11/18 14:17	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/11/18 14:17	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/11/18 14:17	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/11/18 14:17	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/11/18 14:17	1
Ethylbenzene	**9.0**		1.0	0.16	ug/L			10/11/18 14:17	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/11/18 14:17	1
2-Hexanone	ND		5.0	1.7	ug/L			10/11/18 14:17	1
Iodomethane	ND		1.0	0.23	ug/L			10/11/18 14:17	1
Isobutyl alcohol	ND		110	37	ug/L			10/11/18 14:17	1
Methacrylonitrile	ND		10	1.6	ug/L			10/11/18 14:17	1
Methylene Chloride	**0.37**	**J**	2.0	0.32	ug/L			10/11/18 14:17	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/11/18 14:17	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/11/18 14:17	1
Propionitrile	ND		20	3.7	ug/L			10/11/18 14:17	1
Styrene	ND		1.0	0.17	ug/L			10/11/18 14:17	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 14:17	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 14:17	1
Tetrachloroethene	**1.1**		1.0	0.20	ug/L			10/11/18 14:17	1
Toluene	**0.25**	**J**	1.0	0.17	ug/L			10/11/18 14:17	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/11/18 14:17	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/11/18 14:17	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/11/18 14:17	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-111D-20181004
Date Collected: 10/04/18 14:25
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**12**		1.0	0.16	ug/L			10/11/18 14:17	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/11/18 14:17	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/11/18 14:17	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/11/18 14:17	1
Vinyl chloride	**0.46**	**J**	1.0	0.10	ug/L			10/11/18 14:17	1
Xylenes, Total	**1.1**	**J**	2.0	0.19	ug/L			10/11/18 14:17	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/11/18 14:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*93*		*77 - 120*		*10/11/18 14:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*		*10/11/18 14:17*	*1*
4-Bromofluorobenzene (Surr)	*108*		*78 - 120*		*10/11/18 14:17*	*1*
Toluene-d8 (Surr)	*95*		*80 - 125*		*10/11/18 14:17*	*1*

Client Sample ID: MW-113D-20181004
Date Collected: 10/04/18 17:15
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	3.8	ug/L			10/12/18 12:21	2
Acetonitrile	ND		60	19	ug/L			10/12/18 12:21	2
Acrolein	ND		40	5.6	ug/L			10/12/18 12:21	2
Acrylonitrile	ND		40	2.8	ug/L			10/12/18 12:21	2
Benzene	**2.2**		2.0	0.32	ug/L			10/12/18 12:21	2
Chlorobromomethane	ND		2.0	0.20	ug/L			10/12/18 12:21	2
Dichlorobromomethane	ND		2.0	0.34	ug/L			10/12/18 12:21	2
Bromoform	ND		2.0	0.38	ug/L			10/12/18 12:21	2
Bromomethane	ND		4.0	0.42	ug/L			10/12/18 12:21	2
2-Butanone (MEK)	ND		12	4.0	ug/L			10/12/18 12:21	2
Carbon disulfide	ND		4.0	0.90	ug/L			10/12/18 12:21	2
Carbon tetrachloride	ND		2.0	0.38	ug/L			10/12/18 12:21	2
Chlorobenzene	ND		2.0	0.34	ug/L			10/12/18 12:21	2
Chloroprene	ND		2.0	0.42	ug/L			10/12/18 12:21	2
Chlorodibromomethane	ND		2.0	0.34	ug/L			10/12/18 12:21	2
Chloroethane	ND		4.0	0.82	ug/L			10/12/18 12:21	2
Chloroform	**1.9**	**J**	2.0	0.32	ug/L			10/12/18 12:21	2
Chloromethane	ND		4.0	0.60	ug/L			10/12/18 12:21	2
Allyl chloride	ND		4.0	0.34	ug/L			10/12/18 12:21	2
1,2-Dibromo-3-Chloropropane	ND		10	0.94	ug/L			10/12/18 12:21	2
Dibromomethane	ND		2.0	0.34	ug/L			10/12/18 12:21	2
1,2-Dichlorobenzene	ND		2.0	0.30	ug/L			10/12/18 12:21	2
1,3-Dichlorobenzene	ND		2.0	0.26	ug/L			10/12/18 12:21	2
1,4-Dichlorobenzene	ND		2.0	0.32	ug/L			10/12/18 12:21	2
trans-1,4-Dichloro-2-butene	ND		6.0	1.6	ug/L			10/12/18 12:21	2
Dichlorodifluoromethane	**25**		4.0	0.62	ug/L			10/12/18 12:21	2
1,1-Dichloroethane	**11**		2.0	0.44	ug/L			10/12/18 12:21	2
1,2-Dichloroethane	**3.4**		2.0	0.26	ug/L			10/12/18 12:21	2
cis-1,2-Dichloroethene	**17**		2.0	0.30	ug/L			10/12/18 12:21	2
trans-1,2-Dichloroethene	**0.60**	**J**	2.0	0.30	ug/L			10/12/18 12:21	2
1,1-Dichloroethene	**0.64**	**J**	2.0	0.46	ug/L			10/12/18 12:21	2
1,2-Dichloropropane	**2.3**		2.0	0.36	ug/L			10/12/18 12:21	2

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-113D-20181004
Date Collected: 10/04/18 17:15
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	ND		2.0	0.44	ug/L			10/12/18 12:21	2
2,2-Dichloropropane	ND		2.0	0.36	ug/L			10/12/18 12:21	2
cis-1,3-Dichloropropene	ND		2.0	0.32	ug/L			10/12/18 12:21	2
trans-1,3-Dichloropropene	ND		6.0	0.38	ug/L			10/12/18 12:21	2
1,1-Dichloropropene	ND		2.0	0.38	ug/L			10/12/18 12:21	2
Ethylbenzene	ND		2.0	0.32	ug/L			10/12/18 12:21	2
Ethyl methacrylate	ND		6.0	1.7	ug/L			10/12/18 12:21	2
2-Hexanone	ND		10	3.4	ug/L			10/12/18 12:21	2
Iodomethane	ND		2.0	0.46	ug/L			10/12/18 12:21	2
Isobutyl alcohol	ND		220	73	ug/L			10/12/18 12:21	2
Methacrylonitrile	ND		20	3.2	ug/L			10/12/18 12:21	2
Methylene Chloride	**4.8**		4.0	0.64	ug/L			10/12/18 12:21	2
Methyl methacrylate	ND	*	8.0	2.2	ug/L			10/12/18 12:21	2
4-Methyl-2-pentanone (MIBK)	ND		10	2.0	ug/L			10/12/18 12:21	2
Propionitrile	ND		40	7.4	ug/L			10/12/18 12:21	2
Styrene	ND		2.0	0.34	ug/L			10/12/18 12:21	2
1,1,1,2-Tetrachloroethane	ND		2.0	0.42	ug/L			10/12/18 12:21	2
1,1,2,2-Tetrachloroethane	ND		2.0	0.42	ug/L			10/12/18 12:21	2
Tetrachloroethene	**5.0**		2.0	0.40	ug/L			10/12/18 12:21	2
Toluene	ND		2.0	0.34	ug/L			10/12/18 12:21	2
1,2,4-Trichlorobenzene	ND		2.0	0.42	ug/L			10/12/18 12:21	2
1,1,1-Trichloroethane	ND		2.0	0.32	ug/L			10/12/18 12:21	2
1,1,2-Trichloroethane	ND		2.0	0.54	ug/L			10/12/18 12:21	2
Trichloroethene	**5.5**		2.0	0.32	ug/L			10/12/18 12:21	2
Trichlorofluoromethane	**3.1**	**J**	4.0	0.58	ug/L			10/12/18 12:21	2
1,2,3-Trichloropropane	ND		5.0	0.66	ug/L			10/12/18 12:21	2
Vinyl acetate	ND		6.0	1.9	ug/L			10/12/18 12:21	2
Vinyl chloride	**27**		2.0	0.20	ug/L			10/12/18 12:21	2
Xylenes, Total	ND		4.0	0.38	ug/L			10/12/18 12:21	2
1,2-Dibromoethane	ND		2.0	0.36	ug/L			10/12/18 12:21	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*10/12/18 12:21*	*2*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 127*		*10/12/18 12:21*	*2*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*		*10/12/18 12:21*	*2*
Toluene-d8 (Surr)	*98*		*80 - 125*		*10/12/18 12:21*	*2*

Client Sample ID: MW-113S-20181004
Date Collected: 10/04/18 14:45
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		40	7.6	ug/L			10/12/18 11:59	4
Acetonitrile	ND		120	38	ug/L			10/12/18 11:59	4
Acrolein	ND		80	11	ug/L			10/12/18 11:59	4
Acrylonitrile	ND		80	5.6	ug/L			10/12/18 11:59	4
Benzene	**7.8**		4.0	0.64	ug/L			10/12/18 11:59	4
Chlorobromomethane	ND		4.0	0.40	ug/L			10/12/18 11:59	4
Dichlorobromomethane	ND		4.0	0.68	ug/L			10/12/18 11:59	4
Bromoform	ND		4.0	0.76	ug/L			10/12/18 11:59	4
Bromomethane	ND		8.0	0.84	ug/L			10/12/18 11:59	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-113S-20181004
Date Collected: 10/04/18 14:45
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	ND		24	8.0	ug/L			10/12/18 11:59	4
Carbon disulfide	ND		8.0	1.8	ug/L			10/12/18 11:59	4
Carbon tetrachloride	ND		4.0	0.76	ug/L			10/12/18 11:59	4
Chlorobenzene	ND		4.0	0.68	ug/L			10/12/18 11:59	4
Chloroprene	ND		4.0	0.84	ug/L			10/12/18 11:59	4
Chlorodibromomethane	ND		4.0	0.68	ug/L			10/12/18 11:59	4
Chloroethane	ND		8.0	1.6	ug/L			10/12/18 11:59	4
Chloroform	**3.3**	**J**	4.0	0.64	ug/L			10/12/18 11:59	4
Chloromethane	ND		8.0	1.2	ug/L			10/12/18 11:59	4
Allyl chloride	ND		8.0	0.68	ug/L			10/12/18 11:59	4
1,2-Dibromo-3-Chloropropane	ND		20	1.9	ug/L			10/12/18 11:59	4
Dibromomethane	ND		4.0	0.68	ug/L			10/12/18 11:59	4
1,2-Dichlorobenzene	**8.3**		4.0	0.60	ug/L			10/12/18 11:59	4
1,3-Dichlorobenzene	ND		4.0	0.52	ug/L			10/12/18 11:59	4
1,4-Dichlorobenzene	**5.0**		4.0	0.64	ug/L			10/12/18 11:59	4
trans-1,4-Dichloro-2-butene	ND		12	3.2	ug/L			10/12/18 11:59	4
Dichlorodifluoromethane	**35**		8.0	1.2	ug/L			10/12/18 11:59	4
1,1-Dichloroethane	**25**		4.0	0.88	ug/L			10/12/18 11:59	4
1,2-Dichloroethane	**4.1**		4.0	0.52	ug/L			10/12/18 11:59	4
cis-1,2-Dichloroethene	**38**		4.0	0.60	ug/L			10/12/18 11:59	4
trans-1,2-Dichloroethene	**1.8**	**J**	4.0	0.60	ug/L			10/12/18 11:59	4
1,1-Dichloroethene	**1.3**	**J**	4.0	0.92	ug/L			10/12/18 11:59	4
1,2-Dichloropropane	**4.4**		4.0	0.72	ug/L			10/12/18 11:59	4
1,3-Dichloropropane	ND		4.0	0.88	ug/L			10/12/18 11:59	4
2,2-Dichloropropane	ND		4.0	0.72	ug/L			10/12/18 11:59	4
cis-1,3-Dichloropropene	ND		4.0	0.64	ug/L			10/12/18 11:59	4
trans-1,3-Dichloropropene	ND		12	0.76	ug/L			10/12/18 11:59	4
1,1-Dichloropropene	ND		4.0	0.76	ug/L			10/12/18 11:59	4
Ethylbenzene	ND		4.0	0.64	ug/L			10/12/18 11:59	4
Ethyl methacrylate	ND		12	3.4	ug/L			10/12/18 11:59	4
2-Hexanone	ND		20	6.8	ug/L			10/12/18 11:59	4
Iodomethane	ND		4.0	0.92	ug/L			10/12/18 11:59	4
Isobutyl alcohol	ND		440	150	ug/L			10/12/18 11:59	4
Methacrylonitrile	ND		40	6.4	ug/L			10/12/18 11:59	4
Methylene Chloride	**4.9**	**J**	8.0	1.3	ug/L			10/12/18 11:59	4
Methyl methacrylate	ND	*	16	4.4	ug/L			10/12/18 11:59	4
4-Methyl-2-pentanone (MIBK)	ND		20	3.9	ug/L			10/12/18 11:59	4
Propionitrile	ND		80	15	ug/L			10/12/18 11:59	4
Styrene	ND		4.0	0.68	ug/L			10/12/18 11:59	4
1,1,1,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/12/18 11:59	4
1,1,2,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/12/18 11:59	4
Tetrachloroethene	**31**		4.0	0.80	ug/L			10/12/18 11:59	4
Toluene	ND		4.0	0.68	ug/L			10/12/18 11:59	4
1,2,4-Trichlorobenzene	ND		4.0	0.84	ug/L			10/12/18 11:59	4
1,1,1-Trichloroethane	ND		4.0	0.64	ug/L			10/12/18 11:59	4
1,1,2-Trichloroethane	ND		4.0	1.1	ug/L			10/12/18 11:59	4
Trichloroethene	**23**		4.0	0.64	ug/L			10/12/18 11:59	4
Trichlorofluoromethane	**4.0**	**J**	8.0	1.2	ug/L			10/12/18 11:59	4
1,2,3-Trichloropropane	ND		10	1.3	ug/L			10/12/18 11:59	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-113S-20181004
Date Collected: 10/04/18 14:45
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl acetate	ND		12	3.8	ug/L			10/12/18 11:59	4
Vinyl chloride	**96**		4.0	0.40	ug/L			10/12/18 11:59	4
Xylenes, Total	**1.4**	**J**	8.0	0.76	ug/L			10/12/18 11:59	4
1,2-Dibromoethane	ND		4.0	0.72	ug/L			10/12/18 11:59	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*10/12/18 11:59*	*4*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 127*		*10/12/18 11:59*	*4*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*		*10/12/18 11:59*	*4*
Toluene-d8 (Surr)	*100*		*80 - 125*		*10/12/18 11:59*	*4*

Client Sample ID: MW-101S-20181005
Date Collected: 10/05/18 09:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/11/18 10:13	1
Acetonitrile	ND		30	9.6	ug/L			10/11/18 10:13	1
Acrolein	ND		20	2.8	ug/L			10/11/18 10:13	1
Acrylonitrile	ND		20	1.4	ug/L			10/11/18 10:13	1
Benzene	ND		1.0	0.16	ug/L			10/11/18 10:13	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/11/18 10:13	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/11/18 10:13	1
Bromoform	ND		1.0	0.19	ug/L			10/11/18 10:13	1
Bromomethane	ND		2.0	0.21	ug/L			10/11/18 10:13	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/11/18 10:13	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/11/18 10:13	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/11/18 10:13	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/11/18 10:13	1
Chloroprene	ND		1.0	0.21	ug/L			10/11/18 10:13	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/11/18 10:13	1
Chloroethane	ND		2.0	0.41	ug/L			10/11/18 10:13	1
Chloroform	**0.16**	**J**	1.0	0.16	ug/L			10/11/18 10:13	1
Chloromethane	ND		2.0	0.30	ug/L			10/11/18 10:13	1
Allyl chloride	ND		2.0	0.17	ug/L			10/11/18 10:13	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/11/18 10:13	1
Dibromomethane	ND		1.0	0.17	ug/L			10/11/18 10:13	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/11/18 10:13	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/11/18 10:13	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/11/18 10:13	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/11/18 10:13	1
Dichlorodifluoromethane	**0.33**	**J F1**	2.0	0.31	ug/L			10/11/18 10:13	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/11/18 10:13	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/11/18 10:13	1
cis-1,2-Dichloroethene	**0.28**	**J**	1.0	0.15	ug/L			10/11/18 10:13	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/11/18 10:13	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/11/18 10:13	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/11/18 10:13	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/11/18 10:13	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/11/18 10:13	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/11/18 10:13	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-101S-20181005
Date Collected: 10/05/18 09:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/11/18 10:13	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/11/18 10:13	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/11/18 10:13	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/11/18 10:13	1
2-Hexanone	ND		5.0	1.7	ug/L			10/11/18 10:13	1
Iodomethane	ND		1.0	0.23	ug/L			10/11/18 10:13	1
Isobutyl alcohol	ND		110	37	ug/L			10/11/18 10:13	1
Methacrylonitrile	ND		10	1.6	ug/L			10/11/18 10:13	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/11/18 10:13	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/11/18 10:13	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/11/18 10:13	1
Propionitrile	ND		20	3.7	ug/L			10/11/18 10:13	1
Styrene	ND		1.0	0.17	ug/L			10/11/18 10:13	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 10:13	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 10:13	1
Tetrachloroethene	**6.3**		1.0	0.20	ug/L			10/11/18 10:13	1
Toluene	ND		1.0	0.17	ug/L			10/11/18 10:13	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/11/18 10:13	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/11/18 10:13	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/11/18 10:13	1
Trichloroethene	**16**		1.0	0.16	ug/L			10/11/18 10:13	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/11/18 10:13	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/11/18 10:13	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/11/18 10:13	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/11/18 10:13	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/11/18 10:13	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/11/18 10:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*93*		*77 - 120*		*10/11/18 10:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 127*		*10/11/18 10:13*	*1*
4-Bromofluorobenzene (Surr)	*114*		*78 - 120*		*10/11/18 10:13*	*1*
Toluene-d8 (Surr)	*98*		*80 - 125*		*10/11/18 10:13*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Client Sample ID: MW-111S-20181004
Date Collected: 10/04/18 16:30
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**3500**		5.0	0.64	ug/L			10/13/18 16:12	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 16:12	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 16:12	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 16:12	1
Propane	ND		5.0	0.56	ug/L			10/13/18 16:12	1

Method: RSK-175 - Dissolved Gases (GC)

Client Sample ID: MW-1-20181005
Date Collected: 10/05/18 11:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**1400**		5.0	0.64	ug/L			10/13/18 16:25	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 16:25	1
Ethane	**1.2**	**J**	5.0	0.57	ug/L			10/13/18 16:25	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 16:25	1
Propane	**1.3**	**J**	5.0	0.56	ug/L			10/13/18 16:25	1

Client Sample ID: MW-111D-20181004
Date Collected: 10/04/18 14:25
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**3500**		5.0	0.64	ug/L			10/13/18 16:38	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 16:38	1
Ethane	**3.4**	**J**	5.0	0.57	ug/L			10/13/18 16:38	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 16:38	1
Propane	ND		5.0	0.56	ug/L			10/13/18 16:38	1

Client Sample ID: MW-113D-20181004
Date Collected: 10/04/18 17:15
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**930**		5.0	0.64	ug/L			10/13/18 16:52	1
Ethene	**0.76**	**J**	5.0	0.40	ug/L			10/13/18 16:52	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 16:52	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 16:52	1
Propane	ND		5.0	0.56	ug/L			10/13/18 16:52	1

Client Sample ID: MW-113S-20181004
Date Collected: 10/04/18 14:45
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**3700**		5.0	0.64	ug/L			10/13/18 17:05	1
Ethene	**6.2**		5.0	0.40	ug/L			10/13/18 17:05	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 17:05	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 17:05	1
Propane	**2.0**	**J**	5.0	0.56	ug/L			10/13/18 17:05	1

Client Sample ID: MW-101S-20181005
Date Collected: 10/05/18 09:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/15/18 20:57	1
Ethene	ND		5.0	0.40	ug/L			10/15/18 20:57	1
Ethane	ND		5.0	0.57	ug/L			10/15/18 20:57	1
Acetylene	ND		5.0	0.73	ug/L			10/15/18 20:57	1
Propane	ND		5.0	0.56	ug/L			10/15/18 20:57	1

Method: 6010C - Metals (ICP)

Client Sample ID: MW-111S-20181004
Date Collected: 10/04/18 16:30
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	270000		200	35	ug/L		10/09/18 17:30	10/10/18 04:04	1
Iron	28000	B	100	22	ug/L		10/09/18 17:30	10/10/18 04:04	1
Magnesium	330000		200	11	ug/L		10/09/18 17:30	10/10/18 04:04	1
Potassium	27000		3000	240	ug/L		10/09/18 17:30	10/10/18 04:04	1
Sodium	1100000	B	1000	120	ug/L		10/09/18 17:30	10/10/18 04:04	1

Client Sample ID: MW-1-20181005
Date Collected: 10/05/18 11:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	27000		200	35	ug/L		10/09/18 17:30	10/10/18 04:08	1
Iron	2700	B	100	22	ug/L		10/09/18 17:30	10/10/18 04:08	1
Magnesium	18000		200	11	ug/L		10/09/18 17:30	10/10/18 04:08	1
Potassium	2700	J	3000	240	ug/L		10/09/18 17:30	10/10/18 04:08	1
Sodium	40000	B	1000	120	ug/L		10/09/18 17:30	10/10/18 04:08	1

Client Sample ID: MW-111D-20181004
Date Collected: 10/04/18 14:25
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	360000		200	35	ug/L		10/09/18 17:30	10/10/18 04:12	1
Iron	33000	B	100	22	ug/L		10/09/18 17:30	10/10/18 04:12	1
Magnesium	270000		200	11	ug/L		10/09/18 17:30	10/10/18 04:12	1
Potassium	17000		3000	240	ug/L		10/09/18 17:30	10/10/18 04:12	1
Sodium	930000	B	1000	120	ug/L		10/09/18 17:30	10/10/18 04:12	1

Client Sample ID: MW-113D-20181004
Date Collected: 10/04/18 17:15
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	120000		200	35	ug/L		10/09/18 17:30	10/10/18 04:29	1
Iron	730	B	100	22	ug/L		10/09/18 17:30	10/10/18 04:29	1
Magnesium	56000		200	11	ug/L		10/09/18 17:30	10/10/18 04:29	1
Potassium	3900		3000	240	ug/L		10/09/18 17:30	10/10/18 04:29	1
Sodium	44000	B	1000	120	ug/L		10/09/18 17:30	10/10/18 04:29	1

Client Sample ID: MW-113S-20181004
Date Collected: 10/04/18 14:45
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	280000		200	35	ug/L		10/09/18 17:30	10/10/18 04:33	1
Iron	36	J B	100	22	ug/L		10/09/18 17:30	10/10/18 04:33	1
Magnesium	100000		200	11	ug/L		10/09/18 17:30	10/10/18 04:33	1
Potassium	5600		3000	240	ug/L		10/09/18 17:30	10/10/18 04:33	1
Sodium	140000	B	1000	120	ug/L		10/09/18 17:30	10/10/18 04:33	1

Client Sample ID: MW-101S-20181005
Date Collected: 10/05/18 09:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	80000		200	35	ug/L		10/09/18 17:30	10/10/18 04:36	1

Method: 6010C - Metals (ICP) (Continued)

Client Sample ID: MW-101S-20181005
Date Collected: 10/05/18 09:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**330**	**B**	100	22	ug/L		10/09/18 17:30	10/10/18 04:36	1
Magnesium	**29000**		200	11	ug/L		10/09/18 17:30	10/10/18 04:36	1
Potassium	**5000**		3000	240	ug/L		10/09/18 17:30	10/10/18 04:36	1
Sodium	**33000**	**B**	1000	120	ug/L		10/09/18 17:30	10/10/18 04:36	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: MW-111S-20181004
Date Collected: 10/04/18 16:30
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**1.1**	**J**	2.0	0.40	ug/L		10/10/18 06:30	10/11/18 02:22	1
Arsenic	**120**		5.0	0.33	ug/L		10/12/18 14:21	10/14/18 16:14	1
Barium	**3600**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 02:22	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 02:22	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 02:22	1
Chromium	**22**		2.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:22	1
Co	**11**		1.0	0.054	ug/L		10/10/18 06:30	10/11/18 02:22	1
Copper	**20**		2.0	0.56	ug/L		10/10/18 06:30	10/11/18 02:22	1
Lead	**3.0**		1.0	0.18	ug/L		10/10/18 06:30	10/11/18 02:22	1
Manganese	**2100**		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 02:14	1
Nickel	**240**		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 02:22	1
Selenium	**0.76**	**J**	5.0	0.70	ug/L		10/12/18 14:21	10/14/18 16:14	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 02:22	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 02:22	1
Tin	**2.7**	**J**	10	0.77	ug/L		10/10/18 06:30	10/11/18 02:22	1
Vanadium	**14**		5.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:22	1
Zinc	**18**	**B**	10	2.0	ug/L		10/10/18 06:30	10/11/18 02:22	1

Client Sample ID: MW-1-20181005
Date Collected: 10/05/18 11:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 02:25	1
Arsenic	**0.90**	**J**	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 16:18	1
Barium	**58**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 02:25	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 02:25	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 02:25	1
Chromium	ND		2.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:25	1
Co	ND		1.0	0.054	ug/L		10/10/18 06:30	10/11/18 02:25	1
Copper	ND		2.0	0.56	ug/L		10/10/18 06:30	10/11/18 02:25	1
Lead	**0.69**	**J**	1.0	0.18	ug/L		10/10/18 06:30	10/11/18 02:25	1
Manganese	**230**		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 02:17	1
Nickel	ND		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 02:25	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 16:18	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 02:25	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 02:25	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 02:25	1
Vanadium	ND		5.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:25	1
Zinc	**2.6**	**J B**	10	2.0	ug/L		10/10/18 06:30	10/11/18 02:25	1

Client Sample ID: MW-111D-20181004
Date Collected: 10/04/18 14:25
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.77	J	2.0	0.40	ug/L		10/10/18 06:30	10/11/18 02:29	1
Arsenic	91		5.0	0.33	ug/L		10/12/18 14:21	10/14/18 16:22	1
Barium	3400		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 02:29	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 02:29	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 02:29	1
Chromium	4.4		2.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:29	1
Co	8.6		1.0	0.054	ug/L		10/10/18 06:30	10/11/18 02:29	1
Copper	0.97	J	2.0	0.56	ug/L		10/10/18 06:30	10/11/18 02:29	1
Lead	0.32	J	1.0	0.18	ug/L		10/10/18 06:30	10/11/18 02:29	1
Manganese	2200		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 02:21	1
Nickel	280		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 02:29	1
Selenium	0.71	J	5.0	0.70	ug/L		10/12/18 14:21	10/14/18 16:22	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 02:29	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 02:29	1
Tin	2.2	J	10	0.77	ug/L		10/10/18 06:30	10/11/18 02:29	1
Vanadium	5.6		5.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:29	1
Zinc	9.7	J B	10	2.0	ug/L		10/10/18 06:30	10/11/18 02:29	1

Client Sample ID: MW-113D-20181004
Date Collected: 10/04/18 17:15
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 02:32	1
Arsenic	1.2	J	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 16:25	1
Barium	340		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 02:32	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 02:32	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 02:32	1
Chromium	1.9	J	2.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:32	1
Co	2.7		1.0	0.054	ug/L		10/10/18 06:30	10/11/18 02:32	1
Copper	1.5	J	2.0	0.56	ug/L		10/10/18 06:30	10/11/18 02:32	1
Lead	2.3		1.0	0.18	ug/L		10/10/18 06:30	10/11/18 02:32	1
Manganese	19		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 02:24	1
Nickel	2.1		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 02:32	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 16:25	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 02:32	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 02:32	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 02:32	1
Vanadium	0.84	J	5.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:32	1
Zinc	4.8	J B	10	2.0	ug/L		10/10/18 06:30	10/11/18 02:32	1

Client Sample ID: MW-113S-20181004
Date Collected: 10/04/18 14:45
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 02:36	1
Arsenic	1.7	J	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 16:29	1
Barium	880		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 02:36	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 02:36	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 02:36	1
Chromium	0.50	J	2.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:36	1
Co	0.33	J	1.0	0.054	ug/L		10/10/18 06:30	10/11/18 02:36	1
Copper	1.6	J	2.0	0.56	ug/L		10/10/18 06:30	10/11/18 02:36	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-113S-20181004
Date Collected: 10/04/18 14:45
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.32**	**J**	1.0	0.18	ug/L		10/10/18 06:30	10/11/18 02:36	1
Manganese	**8.2**		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 02:38	1
Nickel	**3.3**		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 02:36	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 16:29	1
Silver	**0.21**	**J**	5.0	0.033	ug/L		10/10/18 06:30	10/11/18 02:36	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 02:36	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 02:36	1
Vanadium	**5.8**		5.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:36	1
Zinc	**7.3**	**J B**	10	2.0	ug/L		10/10/18 06:30	10/11/18 02:36	1

Client Sample ID: MW-101S-20181005
Date Collected: 10/05/18 09:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 02:49	1
Arsenic	**2.3**	**J**	5.0	0.33	ug/L		10/12/18 14:21	10/14/18 16:41	1
Barium	**120**		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 02:49	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 02:49	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 02:49	1
Chromium	**1.1**	**J**	2.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:49	1
Co	**0.31**	**J**	1.0	0.054	ug/L		10/10/18 06:30	10/11/18 02:49	1
Copper	**0.57**	**J**	2.0	0.56	ug/L		10/10/18 06:30	10/11/18 02:49	1
Lead	**0.25**	**J**	1.0	0.18	ug/L		10/10/18 06:30	10/11/18 02:49	1
Manganese	**71**		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 02:41	1
Nickel	**1.3**	**J**	2.0	0.30	ug/L		10/10/18 06:30	10/11/18 02:49	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 16:41	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 02:49	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 02:49	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 02:49	1
Vanadium	**1.1**	**J**	5.0	0.50	ug/L		10/10/18 06:30	10/11/18 02:49	1
Zinc	**2.7**	**J B**	10	2.0	ug/L		10/10/18 06:30	10/11/18 02:49	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-111S-20181004
Date Collected: 10/04/18 16:30
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.032**	**J**	0.20	0.027	ug/L		10/11/18 12:23	10/11/18 23:25	1

Client Sample ID: MW-1-20181005
Date Collected: 10/05/18 11:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 23:27	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-111D-20181004
Date Collected: 10/04/18 14:25
Date Received: 10/06/18 09:05
Lab Sample ID: 280-115218-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 23:30	1

Client Sample ID: MW-113D-20181004
Date Collected: 10/04/18 17:15
Date Received: 10/06/18 09:05
Lab Sample ID: 280-115218-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**2.3**		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 23:32	1

Client Sample ID: MW-113S-20181004
Date Collected: 10/04/18 14:45
Date Received: 10/06/18 09:05
Lab Sample ID: 280-115218-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**5.7**		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 23:34	1

Client Sample ID: MW-101S-20181005
Date Collected: 10/05/18 09:00
Date Received: 10/06/18 09:05
Lab Sample ID: 280-115218-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 23:36	1

General Chemistry

Client Sample ID: MW-111S-20181004
Date Collected: 10/04/18 16:30
Date Received: 10/06/18 09:05
Lab Sample ID: 280-115218-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/12/18 18:32	1
Chloride	**2000**		60	5.1	mg/L			10/15/18 13:53	20
Sulfate	**44**		25	1.2	mg/L			10/15/18 13:34	5
Total Organic Carbon - Duplicates	**180**		5.0	0.78	mg/L			10/08/18 20:46	5
Alkalinity, Total	**1700**		5.0	1.1	mg/L			10/10/18 22:30	1
Cyanide, Total	**0.011**	**J**	0.020	0.0040	mg/L		10/17/18 09:22	10/17/18 14:15	1

Client Sample ID: MW-1-20181005
Date Collected: 10/05/18 11:00
Date Received: 10/06/18 09:05
Lab Sample ID: 280-115218-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/12/18 18:34	1
Chloride	**130**		3.0	0.25	mg/L			10/15/18 14:12	1
Sulfate	**0.52**	**J**	5.0	0.23	mg/L			10/15/18 14:12	1
Total Organic Carbon - Duplicates	**1.3**		1.0	0.16	mg/L			10/08/18 21:05	1
Alkalinity, Total	**53**		5.0	1.1	mg/L			10/10/18 22:00	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/17/18 09:22	10/17/18 14:16	1

Client Sample ID: MW-111D-20181004
Date Collected: 10/04/18 14:25
Date Received: 10/06/18 09:05
Lab Sample ID: 280-115218-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/12/18 18:36	1
Chloride	**1900**		60	5.1	mg/L			10/15/18 14:49	20
Sulfate	**51**		25	1.2	mg/L			10/15/18 14:31	5

General Chemistry (Continued)

Client Sample ID: MW-111D-20181004
Date Collected: 10/04/18 14:25
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	140	B	3.6	0.55	mg/L			10/08/18 23:53	3.57
Alkalinity, Total	1300		5.0	1.1	mg/L			10/10/18 22:14	1
Cyanide, Total	0.0094	J	0.020	0.0040	mg/L		10/17/18 09:22	10/17/18 14:18	1

Client Sample ID: MW-113D-20181004
Date Collected: 10/04/18 17:15
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.41		0.10	0.019	mg/L			10/12/18 18:38	1
Chloride	190		3.0	0.25	mg/L			10/14/18 16:04	1
Sulfate	36		5.0	0.23	mg/L			10/14/18 16:04	1
Total Organic Carbon - Duplicates	3.7	B	1.0	0.16	mg/L			10/09/18 00:12	1
Alkalinity, Total	350		5.0	1.1	mg/L			10/10/18 22:49	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/17/18 09:22	10/17/18 14:19	1

Client Sample ID: MW-113S-20181004
Date Collected: 10/04/18 14:45
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.19		0.10	0.019	mg/L			10/12/18 18:40	1
Chloride	400		30	2.5	mg/L			10/14/18 16:37	10
Sulfate	66		5.0	0.23	mg/L			10/14/18 16:21	1
Total Organic Carbon - Duplicates	11	B	1.0	0.16	mg/L			10/09/18 00:31	1
Alkalinity, Total	720		5.0	1.1	mg/L			10/10/18 21:48	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/17/18 09:22	10/17/18 14:21	1

Client Sample ID: MW-101S-20181005
Date Collected: 10/05/18 09:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.45		0.10	0.019	mg/L			10/12/18 18:26	1
Chloride	67		3.0	0.25	mg/L			10/14/18 16:53	1
Sulfate	72		5.0	0.23	mg/L			10/14/18 16:53	1
Total Organic Carbon - Duplicates	1.0	B	1.0	0.16	mg/L			10/08/18 22:27	1
Alkalinity, Total	230		5.0	1.1	mg/L			10/10/18 21:54	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/17/18 09:22	10/17/18 14:22	1

Surrogate Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115218-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DBFM	DCA	BFB	TOL
Lab Sample ID	Client Sample ID	(77-120)	(70-127)	(78-120)	(80-125)
280-115218-1	MW-111S-20181004	101	106	100	99
280-115218-2	MW-1-20181005	98	100	110	91
280-115218-3	EB-1-VOC-20181004	97	102	111	98
280-115218-4	TB-4-VOC-20181005	96	103	115	97
280-115218-5	MW-111D-20181004	93	104	108	95
280-115218-6	MW-113D-20181004	101	106	104	98
280-115218-7	MW-113S-20181004	102	106	104	100
280-115218-8	MW-101S-20181005	93	94	114	98
280-115218-8 MS	MW-101S-20181005	90	95	104	95
280-115218-8 MS	MW-101S-20181005	102	104	105	95
280-115218-8 MSD	MW-101S-20181005	99	101	109	99
280-115218-8 MSD	MW-101S-20181005	96	101	107	97
LCS 280-432884/10	Lab Control Sample	97	103	108	94
LCS 280-432884/4	Lab Control Sample	95	97	104	94
LCS 280-433054/4	Lab Control Sample	100	105	99	99
LCS 280-433054/6	Lab Control Sample	99	103	99	99
LCSD 280-433054/7	Lab Control Sample Dup	102	105	100	101
MB 280-432884/6	Method Blank	96	105	115	96
MB 280-433054/8	Method Blank	100	107	101	100

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-432884/6
Matrix: Water
Analysis Batch: 432884

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/11/18 09:30	1
Acetonitrile	ND		30	9.6	ug/L			10/11/18 09:30	1
Acrolein	ND		20	2.8	ug/L			10/11/18 09:30	1
Acrylonitrile	ND		20	1.4	ug/L			10/11/18 09:30	1
Benzene	ND		1.0	0.16	ug/L			10/11/18 09:30	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/11/18 09:30	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/11/18 09:30	1
Bromoform	ND		1.0	0.19	ug/L			10/11/18 09:30	1
Bromomethane	ND		2.0	0.21	ug/L			10/11/18 09:30	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/11/18 09:30	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/11/18 09:30	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/11/18 09:30	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/11/18 09:30	1
Chloroprene	ND		1.0	0.21	ug/L			10/11/18 09:30	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/11/18 09:30	1
Chloroethane	ND		2.0	0.41	ug/L			10/11/18 09:30	1
Chloroform	ND		1.0	0.16	ug/L			10/11/18 09:30	1
Chloromethane	ND		2.0	0.30	ug/L			10/11/18 09:30	1
Allyl chloride	ND		2.0	0.17	ug/L			10/11/18 09:30	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/11/18 09:30	1
Dibromomethane	ND		1.0	0.17	ug/L			10/11/18 09:30	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/11/18 09:30	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/11/18 09:30	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/11/18 09:30	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/11/18 09:30	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/11/18 09:30	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/11/18 09:30	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/11/18 09:30	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/11/18 09:30	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/11/18 09:30	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/11/18 09:30	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/11/18 09:30	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/11/18 09:30	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/11/18 09:30	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/11/18 09:30	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/11/18 09:30	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/11/18 09:30	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/11/18 09:30	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/11/18 09:30	1
2-Hexanone	ND		5.0	1.7	ug/L			10/11/18 09:30	1
Iodomethane	ND		1.0	0.23	ug/L			10/11/18 09:30	1
Isobutyl alcohol	ND		110	37	ug/L			10/11/18 09:30	1
Methacrylonitrile	ND		10	1.6	ug/L			10/11/18 09:30	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/11/18 09:30	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/11/18 09:30	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/11/18 09:30	1
Propionitrile	ND		20	3.7	ug/L			10/11/18 09:30	1
Styrene	ND		1.0	0.17	ug/L			10/11/18 09:30	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-432884/6
Matrix: Water
Analysis Batch: 432884

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 09:30	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/11/18 09:30	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/11/18 09:30	1
Toluene	ND		1.0	0.17	ug/L			10/11/18 09:30	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/11/18 09:30	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/11/18 09:30	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/11/18 09:30	1
Trichloroethene	ND		1.0	0.16	ug/L			10/11/18 09:30	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/11/18 09:30	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/11/18 09:30	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/11/18 09:30	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/11/18 09:30	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/11/18 09:30	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/11/18 09:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*96*		*77 - 120*		*10/11/18 09:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*		*10/11/18 09:30*	*1*
4-Bromofluorobenzene (Surr)	*115*		*78 - 120*		*10/11/18 09:30*	*1*
Toluene-d8 (Surr)	*96*		*80 - 125*		*10/11/18 09:30*	*1*

Lab Sample ID: LCS 280-432884/10
Matrix: Water
Analysis Batch: 432884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	50.0	56.6		ug/L		113	50 - 150
Chloroprene	5.00	4.90		ug/L		98	50 - 150
Methacrylonitrile	50.0	54.0		ug/L		108	50 - 150
Methyl methacrylate	10.0	13.5		ug/L		135	50 - 150
Propionitrile	50.0	65.4		ug/L		131	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 127*
4-Bromofluorobenzene (Surr)	*108*		*78 - 120*
Toluene-d8 (Surr)	*94*		*80 - 125*

Lab Sample ID: LCS 280-432884/4
Matrix: Water
Analysis Batch: 432884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	25.7		ug/L		129	39 - 156
Acrolein	50.0	49.0		ug/L		98	36 - 147
Acrylonitrile	50.0	53.9		ug/L		108	56 - 135
Benzene	5.00	4.71		ug/L		94	65 - 135
Chlorobromomethane	5.00	5.39		ug/L		108	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-432884/4
Matrix: Water
Analysis Batch: 432884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorobromomethane	5.00	5.54		ug/L		111	65 - 135
Bromoform	5.00	6.23		ug/L		125	62 - 135
Bromomethane	5.00	5.04		ug/L		101	45 - 135
2-Butanone (MEK)	20.0	23.2		ug/L		116	44 - 177
Carbon disulfide	5.00	5.37		ug/L		107	55 - 143
Carbon tetrachloride	5.00	5.25		ug/L		105	65 - 135
Chlorobenzene	5.00	5.07		ug/L		101	65 - 135
Chlorodibromomethane	5.00	5.99		ug/L		120	65 - 135
Chloroethane	5.00	5.24		ug/L		105	46 - 136
Chloroform	5.00	5.02		ug/L		100	65 - 135
Chloromethane	5.00	5.40		ug/L		108	34 - 145
Allyl chloride	5.00	5.30		ug/L		106	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	5.23		ug/L		105	57 - 135
Dibromomethane	5.00	5.13		ug/L		103	65 - 135
1,2-Dichlorobenzene	5.00	5.09		ug/L		102	65 - 135
1,3-Dichlorobenzene	5.00	5.12		ug/L		102	65 - 135
1,4-Dichlorobenzene	5.00	4.89		ug/L		98	65 - 135
trans-1,4-Dichloro-2-butene	5.00	5.25		ug/L		105	53 - 135
Dichlorodifluoromethane	5.00	4.71		ug/L		94	43 - 142
1,1-Dichloroethane	5.00	4.90		ug/L		98	65 - 135
1,2-Dichloroethane	5.00	5.30		ug/L		106	65 - 135
cis-1,2-Dichloroethene	5.00	5.08		ug/L		102	65 - 135
trans-1,2-Dichloroethene	5.00	5.18		ug/L		104	65 - 135
1,1-Dichloroethene	5.00	5.19		ug/L		104	65 - 136
1,2-Dichloropropane	5.00	5.09		ug/L		102	64 - 135
1,3-Dichloropropane	5.00	5.30		ug/L		106	64 - 135
2,2-Dichloropropane	5.00	4.57		ug/L		91	65 - 135
cis-1,3-Dichloropropene	5.00	5.25		ug/L		105	65 - 135
trans-1,3-Dichloropropene	5.00	5.31		ug/L		106	65 - 135
1,1-Dichloropropene	5.00	4.67		ug/L		93	65 - 135
Ethylbenzene	5.00	4.89		ug/L		98	65 - 135
Ethyl methacrylate	5.00	4.69		ug/L		94	50 - 135
2-Hexanone	20.0	18.9		ug/L		94	57 - 139
Iodomethane	5.00	5.09		ug/L		102	65 - 142
Isobutyl alcohol	125	134		ug/L		107	55 - 135
Methylene Chloride	5.00	5.48		ug/L		110	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	20.7		ug/L		103	60 - 150
Styrene	5.00	4.68		ug/L		94	65 - 135
1,1,1,2-Tetrachloroethane	5.00	5.41		ug/L		108	65 - 135
1,1,2,2-Tetrachloroethane	5.00	5.28		ug/L		106	58 - 135
Tetrachloroethene	5.00	5.06		ug/L		101	65 - 135
Toluene	5.00	4.89		ug/L		98	65 - 135
1,2,4-Trichlorobenzene	5.00	5.02		ug/L		100	58 - 135
1,1,1-Trichloroethane	5.00	4.82		ug/L		96	65 - 135
1,1,2-Trichloroethane	5.00	5.40		ug/L		108	64 - 135
Trichloroethene	5.00	4.97		ug/L		99	65 - 135
Trichlorofluoromethane	5.00	4.97		ug/L		99	53 - 137
1,2,3-Trichloropropane	5.00	5.04		ug/L		101	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-432884/4
Matrix: Water
Analysis Batch: 432884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Vinyl acetate			10.0	9.51		ug/L		95	11 - 187		
Vinyl chloride			5.00	5.25		ug/L		105	40 - 137		
Xylenes, Total			10.0	9.46		ug/L		95	65 - 135		
1,2-Dibromoethane			5.00	5.23		ug/L		105	65 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 127*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*
Toluene-d8 (Surr)	*94*		*80 - 125*

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 432884

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acetone	ND		20.0	22.4		ug/L		112	39 - 156		
Acrolein	ND		50.0	50.3		ug/L		101	36 - 147		
Acrylonitrile	ND		50.0	47.8		ug/L		96	56 - 135		
Benzene	ND		5.00	4.64		ug/L		93	65 - 135		
Chlorobromomethane	ND		5.00	5.27		ug/L		105	65 - 135		
Dichlorobromomethane	ND		5.00	5.29		ug/L		106	65 - 135		
Bromoform	ND		5.00	5.50		ug/L		110	62 - 135		
Bromomethane	ND		5.00	5.70		ug/L		114	45 - 135		
2-Butanone (MEK)	ND		20.0	20.9		ug/L		104	44 - 177		
Carbon disulfide	ND		5.00	5.14		ug/L		103	55 - 143		
Carbon tetrachloride	ND		5.00	5.10		ug/L		102	65 - 135		
Chlorobenzene	ND		5.00	5.15		ug/L		103	65 - 135		
Chlorodibromomethane	ND		5.00	5.70		ug/L		114	65 - 135		
Chloroethane	ND		5.00	5.83		ug/L		117	46 - 136		
Chloroform	0.16	J	5.00	4.98		ug/L		100	65 - 135		
Chloromethane	ND		5.00	6.30		ug/L		126	34 - 145		
Allyl chloride	ND		5.00	5.21		ug/L		104	50 - 135		
1,2-Dibromo-3-Chloropropane	ND		5.00	5.08		ug/L		102	57 - 135		
Dibromomethane	ND		5.00	4.91		ug/L		98	65 - 135		
1,2-Dichlorobenzene	ND		5.00	5.08		ug/L		102	65 - 135		
1,3-Dichlorobenzene	ND		5.00	5.32		ug/L		106	65 - 135		
1,4-Dichlorobenzene	ND		5.00	5.08		ug/L		102	65 - 135		
trans-1,4-Dichloro-2-butene	ND		5.00	5.44		ug/L		109	53 - 135		
Dichlorodifluoromethane	0.33	J F1	5.00	6.61		ug/L		126	43 - 142		
1,1-Dichloroethane	ND		5.00	4.89		ug/L		98	65 - 135		
1,2-Dichloroethane	ND		5.00	5.37		ug/L		107	65 - 135		
cis-1,2-Dichloroethene	0.28	J	5.00	5.07		ug/L		96	65 - 135		
trans-1,2-Dichloroethene	ND		5.00	5.09		ug/L		102	65 - 135		
1,1-Dichloroethene	ND		5.00	4.96		ug/L		99	65 - 136		
1,2-Dichloropropane	ND		5.00	4.85		ug/L		97	64 - 135		
1,3-Dichloropropane	ND		5.00	4.95		ug/L		99	64 - 135		
2,2-Dichloropropane	ND		5.00	4.69		ug/L		94	65 - 135		

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 432884

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,3-Dichloropropene	ND		5.00	4.99		ug/L		100	65 - 135
trans-1,3-Dichloropropene	ND		5.00	4.97		ug/L		99	65 - 135
1,1-Dichloropropene	ND		5.00	4.43		ug/L		89	65 - 135
Ethylbenzene	ND		5.00	4.91		ug/L		98	65 - 135
Ethyl methacrylate	ND		5.00	4.11		ug/L		82	50 - 135
2-Hexanone	ND		20.0	16.2		ug/L		81	57 - 139
Iodomethane	ND		5.00	5.14		ug/L		103	65 - 142
Isobutyl alcohol	ND		125	124		ug/L		99	55 - 135
Methylene Chloride	ND		5.00	5.34		ug/L		107	54 - 141
4-Methyl-2-pentanone (MIBK)	ND		20.0	17.0		ug/L		85	60 - 150
Styrene	ND		5.00	4.62		ug/L		92	65 - 135
1,1,1,2-Tetrachloroethane	ND		5.00	5.41		ug/L		108	65 - 135
1,1,2,2-Tetrachloroethane	ND		5.00	4.95		ug/L		99	58 - 135
Tetrachloroethene	6.3		5.00	10.9		ug/L		90	65 - 135
Toluene	ND		5.00	4.65		ug/L		93	65 - 135
1,2,4-Trichlorobenzene	ND		5.00	4.95		ug/L		99	58 - 135
1,1,1-Trichloroethane	ND		5.00	4.84		ug/L		97	65 - 135
1,1,2-Trichloroethane	ND		5.00	4.75		ug/L		95	64 - 135
Trichloroethene	16		5.00	19.4		ug/L		72	65 - 135
Trichlorofluoromethane	ND		5.00	5.27		ug/L		105	53 - 137
1,2,3-Trichloropropane	ND		5.00	5.14		ug/L		103	65 - 135
Vinyl acetate	ND		10.0	9.31		ug/L		93	11 - 187
Vinyl chloride	ND		5.00	5.68		ug/L		114	40 - 137
Xylenes, Total	ND		10.0	9.78		ug/L		98	65 - 135
1,2-Dibromoethane	ND		5.00	4.84		ug/L		97	65 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*90*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 127*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*
Toluene-d8 (Surr)	*95*		*80 - 125*

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 432884

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	ND		50.0	63.2		ug/L		126	50 - 150
Chloroprene	ND		5.00	5.08		ug/L		102	50 - 150
Methacrylonitrile	ND		50.0	54.2		ug/L		108	50 - 150
Methyl methacrylate	ND		10.0	12.5		ug/L		125	50 - 150
Propionitrile	ND		50.0	62.0		ug/L		124	50 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*102*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 432884

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	95		80 - 125

Lab Sample ID: 280-115218-8 MSD
Matrix: Water
Analysis Batch: 432884

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	ND		20.0	25.9		ug/L		129	39 - 156	14	23
Acrolein	ND		50.0	51.5		ug/L		103	36 - 147	2	30
Acrylonitrile	ND		50.0	52.5		ug/L		105	56 - 135	9	30
Benzene	ND		5.00	4.98		ug/L		100	65 - 135	7	20
Chlorobromomethane	ND		5.00	5.63		ug/L		113	65 - 135	7	29
Dichlorobromomethane	ND		5.00	5.68		ug/L		114	65 - 135	7	20
Bromoform	ND		5.00	6.18		ug/L		124	62 - 135	12	27
Bromomethane	ND		5.00	5.61		ug/L		112	45 - 135	2	33
2-Butanone (MEK)	ND		20.0	23.8		ug/L		119	44 - 177	13	32
Carbon disulfide	ND		5.00	5.88		ug/L		118	55 - 143	13	20
Carbon tetrachloride	ND		5.00	5.89		ug/L		118	65 - 135	15	21
Chlorobenzene	ND		5.00	5.36		ug/L		107	65 - 135	4	20
Chlorodibromomethane	ND		5.00	6.01		ug/L		120	65 - 135	5	20
Chloroethane	ND		5.00	5.88		ug/L		118	46 - 136	1	25
Chloroform	0.16	J	5.00	5.28		ug/L		106	65 - 135	6	20
Chloromethane	ND		5.00	7.03		ug/L		141	34 - 145	11	24
Allyl chloride	ND		5.00	6.00		ug/L		120	50 - 135	14	30
1,2-Dibromo-3-Chloropropane	ND		5.00	5.67		ug/L		113	57 - 135	11	22
Dibromomethane	ND		5.00	5.31		ug/L		106	65 - 135	8	26
1,2-Dichlorobenzene	ND		5.00	5.32		ug/L		106	65 - 135	5	20
1,3-Dichlorobenzene	ND		5.00	5.50		ug/L		110	65 - 135	3	20
1,4-Dichlorobenzene	ND		5.00	5.21		ug/L		104	65 - 135	3	23
trans-1,4-Dichloro-2-butene	ND		5.00	6.27		ug/L		125	53 - 135	14	25
Dichlorodifluoromethane	0.33	J F1	5.00	7.54	F1	ug/L		144	43 - 142	13	30
1,1-Dichloroethane	ND		5.00	5.13		ug/L		103	65 - 135	5	21
1,2-Dichloroethane	ND		5.00	5.67		ug/L		113	65 - 135	6	20
cis-1,2-Dichloroethene	0.28	J	5.00	5.61		ug/L		107	65 - 135	10	20
trans-1,2-Dichloroethene	ND		5.00	5.55		ug/L		111	65 - 135	9	24
1,1-Dichloroethene	ND		5.00	5.70		ug/L		114	65 - 136	14	20
1,2-Dichloropropane	ND		5.00	5.17		ug/L		103	64 - 135	6	20
1,3-Dichloropropane	ND		5.00	5.18		ug/L		104	64 - 135	4	20
2,2-Dichloropropane	ND		5.00	5.43		ug/L		109	65 - 135	15	20
cis-1,3-Dichloropropene	ND		5.00	5.41		ug/L		108	65 - 135	8	26
trans-1,3-Dichloropropene	ND		5.00	5.41		ug/L		108	65 - 135	8	26
1,1-Dichloropropene	ND		5.00	4.97		ug/L		99	65 - 135	12	21
Ethylbenzene	ND		5.00	5.20		ug/L		104	65 - 135	6	20
Ethyl methacrylate	ND		5.00	4.72		ug/L		94	50 - 135	14	30
2-Hexanone	ND		20.0	19.3		ug/L		96	57 - 139	18	25
Iodomethane	ND		5.00	5.52		ug/L		110	65 - 142	7	25
Isobutyl alcohol	ND		125	135		ug/L		108	55 - 135	9	30
Methylene Chloride	ND		5.00	5.73		ug/L		115	54 - 141	7	26

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115218-8 MSD
Matrix: Water
Analysis Batch: 432884

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Methyl-2-pentanone (MIBK)	ND		20.0	20.3		ug/L		102	60 - 150	18	22
Styrene	ND		5.00	4.79		ug/L		96	65 - 135	4	26
1,1,1,2-Tetrachloroethane	ND		5.00	5.72		ug/L		114	65 - 135	6	20
1,1,2,2-Tetrachloroethane	ND		5.00	5.48		ug/L		110	58 - 135	10	20
Tetrachloroethene	6.3		5.00	10.9		ug/L		92	65 - 135	1	20
Toluene	ND		5.00	5.05		ug/L		101	65 - 135	8	20
1,2,4-Trichlorobenzene	ND		5.00	5.48		ug/L		110	58 - 135	10	25
1,1,1-Trichloroethane	ND		5.00	5.31		ug/L		106	65 - 135	9	20
1,1,2-Trichloroethane	ND		5.00	5.31		ug/L		106	64 - 135	11	27
Trichloroethene	16		5.00	19.7		ug/L		78	65 - 135	1	20
Trichlorofluoromethane	ND		5.00	5.81		ug/L		116	53 - 137	10	27
1,2,3-Trichloropropane	ND		5.00	5.31		ug/L		106	65 - 135	3	23
Vinyl acetate	ND		10.0	10.6		ug/L		106	11 - 187	13	24
Vinyl chloride	ND		5.00	6.44		ug/L		129	40 - 137	13	24
Xylenes, Total	ND		10.0	10.3		ug/L		103	65 - 135	5	20
1,2-Dibromoethane	ND		5.00	5.25		ug/L		105	65 - 135	8	27

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 127*
4-Bromofluorobenzene (Surr)	*109*		*78 - 120*
Toluene-d8 (Surr)	*99*		*80 - 125*

Lab Sample ID: 280-115218-8 MSD
Matrix: Water
Analysis Batch: 432884

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetonitrile	ND		50.0	57.3		ug/L		115	50 - 150	10	30
Chloroprene	ND		5.00	4.60		ug/L		92	50 - 150	10	30
Methacrylonitrile	ND		50.0	52.5		ug/L		105	50 - 150	3	30
Methyl methacrylate	ND		10.0	13.5		ug/L		135	50 - 150	7	30
Propionitrile	ND		50.0	63.2		ug/L		126	50 - 150	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 127*
4-Bromofluorobenzene (Surr)	*107*		*78 - 120*
Toluene-d8 (Surr)	*97*		*80 - 125*

Lab Sample ID: MB 280-433054/8
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	1.99	J	10	1.9	ug/L			10/12/18 08:42	1
Acetonitrile	ND		30	9.6	ug/L			10/12/18 08:42	1
Acrolein	ND		20	2.8	ug/L			10/12/18 08:42	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433054/8
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrylonitrile	ND		20	1.4	ug/L			10/12/18 08:42	1
Benzene	ND		1.0	0.16	ug/L			10/12/18 08:42	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/12/18 08:42	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/12/18 08:42	1
Bromoform	ND		1.0	0.19	ug/L			10/12/18 08:42	1
Bromomethane	ND		2.0	0.21	ug/L			10/12/18 08:42	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/12/18 08:42	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/12/18 08:42	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/12/18 08:42	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/12/18 08:42	1
Chloroprene	ND		1.0	0.21	ug/L			10/12/18 08:42	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/12/18 08:42	1
Chloroethane	ND		2.0	0.41	ug/L			10/12/18 08:42	1
Chloroform	ND		1.0	0.16	ug/L			10/12/18 08:42	1
Chloromethane	ND		2.0	0.30	ug/L			10/12/18 08:42	1
Allyl chloride	ND		2.0	0.17	ug/L			10/12/18 08:42	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/12/18 08:42	1
Dibromomethane	ND		1.0	0.17	ug/L			10/12/18 08:42	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/12/18 08:42	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/12/18 08:42	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/12/18 08:42	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/12/18 08:42	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/12/18 08:42	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/12/18 08:42	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/12/18 08:42	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 08:42	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 08:42	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/12/18 08:42	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 08:42	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/12/18 08:42	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 08:42	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/12/18 08:42	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/12/18 08:42	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/12/18 08:42	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/12/18 08:42	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/12/18 08:42	1
2-Hexanone	ND		5.0	1.7	ug/L			10/12/18 08:42	1
Iodomethane	ND		1.0	0.23	ug/L			10/12/18 08:42	1
Isobutyl alcohol	ND		110	37	ug/L			10/12/18 08:42	1
Methacrylonitrile	ND		10	1.6	ug/L			10/12/18 08:42	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/12/18 08:42	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/12/18 08:42	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/12/18 08:42	1
Propionitrile	ND		20	3.7	ug/L			10/12/18 08:42	1
Styrene	ND		1.0	0.17	ug/L			10/12/18 08:42	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 08:42	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 08:42	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/12/18 08:42	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433054/8
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0	0.17	ug/L			10/12/18 08:42	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/12/18 08:42	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/12/18 08:42	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/12/18 08:42	1
Trichloroethene	ND		1.0	0.16	ug/L			10/12/18 08:42	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/12/18 08:42	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/12/18 08:42	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/12/18 08:42	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/12/18 08:42	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/12/18 08:42	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/12/18 08:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*10/12/18 08:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 127*		*10/12/18 08:42*	*1*
4-Bromofluorobenzene (Surr)	*101*		*78 - 120*		*10/12/18 08:42*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*10/12/18 08:42*	*1*

Lab Sample ID: LCS 280-433054/4
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	23.0		ug/L		115	39 - 156
Acrolein	50.0	52.1		ug/L		104	36 - 147
Acrylonitrile	50.0	50.4		ug/L		101	56 - 135
Benzene	5.00	4.60		ug/L		92	65 - 135
Chlorobromomethane	5.00	5.22		ug/L		104	65 - 135
Dichlorobromomethane	5.00	5.36		ug/L		107	65 - 135
Bromoform	5.00	5.98		ug/L		120	62 - 135
Bromomethane	5.00	5.33		ug/L		107	45 - 135
2-Butanone (MEK)	20.0	23.2		ug/L		116	44 - 177
Carbon disulfide	5.00	5.43		ug/L		109	55 - 143
Carbon tetrachloride	5.00	5.23		ug/L		105	65 - 135
Chlorobenzene	5.00	5.02		ug/L		100	65 - 135
Chlorodibromomethane	5.00	5.73		ug/L		115	65 - 135
Chloroethane	5.00	5.56		ug/L		111	46 - 136
Chloroform	5.00	4.75		ug/L		95	65 - 135
Chloromethane	5.00	5.25		ug/L		105	34 - 145
Allyl chloride	5.00	5.25		ug/L		105	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	5.13		ug/L		103	57 - 135
Dibromomethane	5.00	5.01		ug/L		100	65 - 135
1,2-Dichlorobenzene	5.00	5.22		ug/L		104	65 - 135
1,3-Dichlorobenzene	5.00	5.13		ug/L		103	65 - 135
1,4-Dichlorobenzene	5.00	4.86		ug/L		97	65 - 135
trans-1,4-Dichloro-2-butene	5.00	5.63		ug/L		113	53 - 135
Dichlorodifluoromethane	5.00	4.93		ug/L		99	43 - 142
1,1-Dichloroethane	5.00	4.72		ug/L		94	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433054/4
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	5.00	4.99		ug/L		100	65 - 135
cis-1,2-Dichloroethene	5.00	4.97		ug/L		99	65 - 135
trans-1,2-Dichloroethene	5.00	5.16		ug/L		103	65 - 135
1,1-Dichloroethene	5.00	5.17		ug/L		103	65 - 136
1,2-Dichloropropane	5.00	4.92		ug/L		98	64 - 135
1,3-Dichloropropane	5.00	5.09		ug/L		102	64 - 135
2,2-Dichloropropane	5.00	4.70		ug/L		94	65 - 135
cis-1,3-Dichloropropene	5.00	5.19		ug/L		104	65 - 135
trans-1,3-Dichloropropene	5.00	5.14		ug/L		103	65 - 135
1,1-Dichloropropene	5.00	4.60		ug/L		92	65 - 135
Ethylbenzene	5.00	4.80		ug/L		96	65 - 135
Ethyl methacrylate	5.00	4.60		ug/L		92	50 - 135
2-Hexanone	20.0	19.1		ug/L		95	57 - 139
Iodomethane	5.00	5.26		ug/L		105	65 - 142
Isobutyl alcohol	125	119		ug/L		96	55 - 135
Methylene Chloride	5.00	5.35		ug/L		107	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	20.2		ug/L		101	60 - 150
Styrene	5.00	4.73		ug/L		95	65 - 135
1,1,1,2-Tetrachloroethane	5.00	5.43		ug/L		109	65 - 135
1,1,2,2-Tetrachloroethane	5.00	5.14		ug/L		103	58 - 135
Tetrachloroethene	5.00	5.09		ug/L		102	65 - 135
Toluene	5.00	4.71		ug/L		94	65 - 135
1,2,4-Trichlorobenzene	5.00	5.20		ug/L		104	58 - 135
1,1,1-Trichloroethane	5.00	4.76		ug/L		95	65 - 135
1,1,2-Trichloroethane	5.00	5.27		ug/L		105	64 - 135
Trichloroethene	5.00	4.94		ug/L		99	65 - 135
Trichlorofluoromethane	5.00	5.02		ug/L		100	53 - 137
1,2,3-Trichloropropane	5.00	5.14		ug/L		103	65 - 135
Vinyl acetate	10.0	10.2		ug/L		102	11 - 187
Vinyl chloride	5.00	5.26		ug/L		105	40 - 137
Xylenes, Total	10.0	9.70		ug/L		97	65 - 135
1,2-Dibromoethane	5.00	5.07		ug/L		101	65 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*
Toluene-d8 (Surr)	*99*		*80 - 125*

Lab Sample ID: LCS 280-433054/6
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	50.0	50.6		ug/L		101	50 - 150
Chloroprene	5.00	4.90		ug/L		98	50 - 150
Methacrylonitrile	50.0	50.9		ug/L		102	50 - 150
Methyl methacrylate	10.0	14.0		ug/L		140	50 - 150

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433054/6
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Propionitrile			50.0	63.6		ug/L		127	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 127*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*
Toluene-d8 (Surr)	*99*		*80 - 125*

Lab Sample ID: LCSD 280-433054/7
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetonitrile			50.0	57.4		ug/L		115	50 - 150	NaN	30
Chloroprene			5.00	4.99		ug/L		100	50 - 150	NaN	30
Methacrylonitrile			50.0	55.0		ug/L		110	50 - 150	NaN	30
Methyl methacrylate			10.0	15.5	*	ug/L		155	50 - 150	NaN	30
Propionitrile			50.0	65.3		ug/L		131	50 - 150	NaN	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*102*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*
4-Bromofluorobenzene (Surr)	*100*		*78 - 120*
Toluene-d8 (Surr)	*101*		*80 - 125*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 280-433305/4
Matrix: Water
Analysis Batch: 433305

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/13/18 15:18	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 15:18	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 15:18	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 15:18	1
Propane	ND		5.0	0.56	ug/L			10/13/18 15:18	1

Lab Sample ID: LCS 280-433305/2
Matrix: Water
Analysis Batch: 433305

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			73.0	70.1		ug/L		96	75 - 125		
Ethene			128	136		ug/L		107	75 - 125		
Ethane			137	151		ug/L		111	75 - 125		
Acetylene			119	114		ug/L		96	75 - 125		
Propane			201	211		ug/L		105	75 - 125		

Lab Sample ID: LCSD 280-433305/3
Matrix: Water
Analysis Batch: 433305

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane			73.0	68.7		ug/L		94	75 - 125	2	20
Ethene			128	133		ug/L		104	75 - 125	2	20
Ethane			137	148		ug/L		108	75 - 125	2	20
Acetylene			119	115		ug/L		97	75 - 125	1	20
Propane			201	207		ug/L		103	75 - 125	2	20

Lab Sample ID: MB 280-433444/31
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/15/18 19:35	1
Ethene	ND		5.0	0.40	ug/L			10/15/18 19:35	1
Ethane	ND		5.0	0.57	ug/L			10/15/18 19:35	1
Acetylene	ND		5.0	0.73	ug/L			10/15/18 19:35	1
Propane	ND		5.0	0.56	ug/L			10/15/18 19:35	1

Lab Sample ID: MB 280-433444/4
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/15/18 12:39	1
Ethene	ND		5.0	0.40	ug/L			10/15/18 12:39	1
Ethane	ND		5.0	0.57	ug/L			10/15/18 12:39	1
Acetylene	ND		5.0	0.73	ug/L			10/15/18 12:39	1
Propane	ND		5.0	0.56	ug/L			10/15/18 12:39	1

Lab Sample ID: LCS 280-433444/29
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane			73.0	70.4		ug/L		96	75 - 125
Ethene			128	135		ug/L		106	75 - 125
Ethane			137	152		ug/L		111	75 - 125
Acetylene			119	122		ug/L		103	75 - 125
Propane			201	214		ug/L		106	75 - 125

Lab Sample ID: LCSD 280-433444/30
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane			73.0	69.0		ug/L		94	75 - 125	2	20
Ethene			128	132		ug/L		103	75 - 125	2	20
Ethane			137	149		ug/L		109	75 - 125	2	20
Acetylene			119	115		ug/L		97	75 - 125	6	20
Propane			201	210		ug/L		104	75 - 125	2	20

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 433444

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	ND		73.0	49.0		ug/L		67	52 - 145
Ethene	ND		128	100		ug/L		79	75 - 131
Ethane	ND		137	106		ug/L		78	75 - 125
Acetylene	ND		119	109		ug/L		92	52 - 142
Propane	ND		201	147		ug/L		73	50 - 150

Lab Sample ID: 280-115218-8 MSD
Matrix: Water
Analysis Batch: 433444

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	ND		73.0	52.8		ug/L		72	52 - 145	7	20
Ethene	ND		128	106		ug/L		83	75 - 131	6	20
Ethane	ND		137	114		ug/L		83	75 - 125	7	20
Acetylene	ND		119	110		ug/L		92	52 - 142	0	20
Propane	ND		201	159		ug/L		79	50 - 150	8	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-432500/1-A
Matrix: Water
Analysis Batch: 432701

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432500

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		200	35	ug/L		10/09/18 17:30	10/10/18 03:11	1
Iron	36.3	J	100	22	ug/L		10/09/18 17:30	10/10/18 03:11	1
Magnesium	ND		200	11	ug/L		10/09/18 17:30	10/10/18 03:11	1
Potassium	ND		3000	240	ug/L		10/09/18 17:30	10/10/18 03:11	1
Sodium	156	J	1000	120	ug/L		10/09/18 17:30	10/10/18 03:11	1

Lab Sample ID: LCS 280-432500/2-A
Matrix: Water
Analysis Batch: 432701

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432500

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	52100		ug/L		104	90 - 111
Iron	10000	10300		ug/L		103	89 - 115
Magnesium	50000	51400		ug/L		103	90 - 113
Potassium	50000	52800		ug/L		106	89 - 114
Sodium	50000	52000		ug/L		104	90 - 115

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 432701

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA
Prep Batch: 432500

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	80000		50000	134000		ug/L		108	48 - 153
Iron	330	B	10000	10500		ug/L		102	52 - 155
Magnesium	29000		50000	80900		ug/L		104	62 - 146

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 432701

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA
Prep Batch: 432500

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Potassium	5000		50000	59300		ug/L		109	76 - 132
Sodium	33000	B	50000	90200		ug/L		114	70 - 203

Lab Sample ID: 280-115218-8 MSD
Matrix: Water
Analysis Batch: 432701

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA
Prep Batch: 432500

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	80000		50000	130000		ug/L		100	48 - 153	3	20
Iron	330	B	10000	10500		ug/L		101	52 - 155	0	20
Magnesium	29000		50000	79500		ug/L		101	62 - 146	2	20
Potassium	5000		50000	58200		ug/L		106	76 - 132	2	20
Sodium	33000	B	50000	87800		ug/L		110	70 - 203	3	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-432502/1-A
Matrix: Water
Analysis Batch: 432910

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432502

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/10/18 06:30	10/11/18 01:34	1
Barium	ND		1.0	0.29	ug/L		10/10/18 06:30	10/11/18 01:34	1
Beryllium	ND		1.0	0.080	ug/L		10/10/18 06:30	10/11/18 01:34	1
Cadmium	ND		1.0	0.27	ug/L		10/10/18 06:30	10/11/18 01:34	1
Chromium	ND		2.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:34	1
Co	ND		1.0	0.054	ug/L		10/10/18 06:30	10/11/18 01:34	1
Copper	ND		2.0	0.56	ug/L		10/10/18 06:30	10/11/18 01:34	1
Lead	ND		1.0	0.18	ug/L		10/10/18 06:30	10/11/18 01:34	1
Nickel	ND		2.0	0.30	ug/L		10/10/18 06:30	10/11/18 01:34	1
Silver	ND		5.0	0.033	ug/L		10/10/18 06:30	10/11/18 01:34	1
Thallium	ND		1.0	0.050	ug/L		10/10/18 06:30	10/11/18 01:34	1
Tin	ND		10	0.77	ug/L		10/10/18 06:30	10/11/18 01:34	1
Vanadium	ND		5.0	0.50	ug/L		10/10/18 06:30	10/11/18 01:34	1
Zinc	2.10	J	10	2.0	ug/L		10/10/18 06:30	10/11/18 01:34	1

Lab Sample ID: LCS 280-432502/2-A
Matrix: Water
Analysis Batch: 432910

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432502

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	38.6		ug/L		97	79 - 111
Barium	40.0	40.9		ug/L		102	92 - 117
Beryllium	40.0	39.6		ug/L		99	87 - 118
Cadmium	40.0	37.0		ug/L		93	91 - 114
Chromium	40.0	41.0		ug/L		102	91 - 114
Co	40.0	39.9		ug/L		100	94 - 115
Copper	40.0	41.7		ug/L		104	89 - 116
Lead	40.0	40.1		ug/L		100	95 - 116

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 280-432502/2-A
Matrix: Water
Analysis Batch: 432910

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432502

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nickel			40.0	44.2		ug/L		111	92 - 116		
Silver			40.0	41.4		ug/L		104	93 - 118		
Thallium			40.0	39.9		ug/L		100	94 - 115		
Tin			40.0	40.5		ug/L		101	89 - 119		
Vanadium			40.0	39.6		ug/L		99	91 - 114		
Zinc			40.0	39.5		ug/L		99	86 - 123		

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 432910

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA
Prep Batch: 432502

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Antimony	ND		40.0	41.1		ug/L		103	85 - 115		
Barium	120		40.0	161		ug/L		101	85 - 118		
Beryllium	ND		40.0	41.6		ug/L		104	80 - 125		
Cadmium	ND		40.0	36.8		ug/L		92	85 - 115		
Chromium	1.1	J	40.0	41.8		ug/L		102	84 - 121		
Co	0.31	J	40.0	39.7		ug/L		99	85 - 120		
Copper	0.57	J	40.0	39.8		ug/L		98	85 - 119		
Lead	0.25	J	40.0	40.1		ug/L		100	85 - 118		
Nickel	1.3	J	40.0	40.5		ug/L		98	85 - 119		
Silver	ND		40.0	39.1		ug/L		98	85 - 115		
Thallium	ND		40.0	39.4		ug/L		98	85 - 118		
Tin	ND		40.0	41.1		ug/L		103	77 - 115		
Vanadium	1.1	J	40.0	41.1		ug/L		100	85 - 120		
Zinc	2.7	J B	40.0	38.3		ug/L		89	83 - 122		

Lab Sample ID: 280-115218-8 MSD
Matrix: Water
Analysis Batch: 432910

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA
Prep Batch: 432502

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		40.0	41.3		ug/L		103	85 - 115	0	20
Barium	120		40.0	158		ug/L		92	85 - 118	2	20
Beryllium	ND		40.0	41.1		ug/L		103	80 - 125	1	20
Cadmium	ND		40.0	37.0		ug/L		93	85 - 115	1	20
Chromium	1.1	J	40.0	41.5		ug/L		101	84 - 121	1	20
Co	0.31	J	40.0	39.3		ug/L		97	85 - 120	1	20
Copper	0.57	J	40.0	38.6		ug/L		95	85 - 119	3	20
Lead	0.25	J	40.0	39.9		ug/L		99	85 - 118	1	20
Nickel	1.3	J	40.0	41.7		ug/L		101	85 - 119	3	20
Silver	ND		40.0	39.9		ug/L		100	85 - 115	2	20
Thallium	ND		40.0	39.8		ug/L		99	85 - 118	1	20
Tin	ND		40.0	39.5		ug/L		99	77 - 115	4	20
Vanadium	1.1	J	40.0	40.2		ug/L		98	85 - 120	2	20
Zinc	2.7	J B	40.0	38.6		ug/L		90	83 - 122	1	20

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 280-433161/1-A
Matrix: Water
Analysis Batch: 433339

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		1.0	0.31	ug/L		10/12/18 14:21	10/13/18 01:26	1

Lab Sample ID: MB 280-433161/1-A
Matrix: Water
Analysis Batch: 433400

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	0.33	ug/L		10/12/18 14:21	10/14/18 15:24	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 14:21	10/14/18 15:24	1

Lab Sample ID: LCS 280-433161/2-A
Matrix: Water
Analysis Batch: 433339

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433161

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	40.0	42.1		ug/L		105	89 - 119

Lab Sample ID: LCS 280-433161/2-A
Matrix: Water
Analysis Batch: 433400

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433161

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	40.0	36.6		ug/L		92	92 - 112
Selenium	40.0	36.0		ug/L		90	90 - 115

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 433339

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA
Prep Batch: 433161

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	71		40.0	112		ug/L		101	85 - 117

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 433400

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA
Prep Batch: 433161

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.3	J	40.0	38.1		ug/L		89	85 - 117
Selenium	ND		40.0	36.0		ug/L		90	77 - 122

Lab Sample ID: 280-115218-8 MSD
Matrix: Water
Analysis Batch: 433339

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA
Prep Batch: 433161

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Manganese	71		40.0	111		ug/L		99	85 - 117	1	20

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 280-115218-8 MSD — **Client Sample ID: MW-101S-20181005**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433400 — **Prep Batch: 433161**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	2.3	J	40.0	38.4		ug/L		90	85 - 117	1	20
Selenium	ND		40.0	35.5		ug/L		89	77 - 122	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-432916/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433070 — **Prep Batch: 432916**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 23:05	1

Lab Sample ID: LCS 280-432916/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433070 — **Prep Batch: 432916**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.15		ug/L		103	84 - 120

Lab Sample ID: 280-115218-8 MS — **Client Sample ID: MW-101S-20181005**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433070 — **Prep Batch: 432916**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		5.00	4.96		ug/L		99	75 - 125

Lab Sample ID: 280-115218-8 MSD — **Client Sample ID: MW-101S-20181005**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433070 — **Prep Batch: 432916**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		5.00	5.01		ug/L		100	75 - 125	1	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 280-433212/22 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433212

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/12/18 18:24	1

Lab Sample ID: LCS 280-433212/21 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 433212

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	5.00	4.92		mg/L		98	90 - 110

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 433212

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.45		4.00	4.40		mg/L		99	90 - 110

Lab Sample ID: 280-115218-8 MSD
Matrix: Water
Analysis Batch: 433212

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.45		4.00	4.25		mg/L		95	90 - 110	3	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-433346/6
Matrix: Water
Analysis Batch: 433346

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	0.25	mg/L			10/14/18 14:26	1
Sulfate	ND		5.0	0.23	mg/L			10/14/18 14:26	1

Lab Sample ID: LCS 280-433346/4
Matrix: Water
Analysis Batch: 433346

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	101		mg/L		101	90 - 110
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-433346/5
Matrix: Water
Analysis Batch: 433346

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Sulfate	100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-433346/3
Matrix: Water
Analysis Batch: 433346

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.66	J	mg/L		107	50 - 150
Sulfate	2.50	2.69	J	mg/L		108	50 - 150

Lab Sample ID: MB 280-433355/13
Matrix: Water
Analysis Batch: 433355

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	0.25	mg/L			10/14/18 15:48	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 280-433355/13
Matrix: Water
Analysis Batch: 433355

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	0.23	mg/L			10/14/18 15:48	1

Lab Sample ID: LCS 280-433355/11
Matrix: Water
Analysis Batch: 433355

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			100	96.4		mg/L		96	90 - 110		
Sulfate			100	95.2		mg/L		95	90 - 110		

Lab Sample ID: LCSD 280-433355/12
Matrix: Water
Analysis Batch: 433355

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			100	95.9		mg/L		96	90 - 110	0	10
Sulfate			100	94.9		mg/L		95	90 - 110	0	10

Lab Sample ID: MRL 280-433355/10
Matrix: Water
Analysis Batch: 433355

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			2.50	2.32	J	mg/L		93	50 - 150		
Sulfate			2.50	2.36	J	mg/L		94	50 - 150		

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 433355

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	67		25.0	93.9		mg/L		108	80 - 120		
Sulfate	72		25.0	97.7		mg/L		102	80 - 120		

Lab Sample ID: 280-115218-8 MSD
Matrix: Water
Analysis Batch: 433355

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	67		25.0	94.0		mg/L		108	80 - 120	0	20
Sulfate	72		25.0	98.4		mg/L		104	80 - 120	1	20

Lab Sample ID: 280-115218-8 DU
Matrix: Water
Analysis Batch: 433355

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	67			66.9		mg/L				0.1	15
Sulfate	72			72.2		mg/L				0.06	15

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-432524/37
Matrix: Water
Analysis Batch: 432524

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	0.349	J	1.0	0.16	mg/L			10/08/18 21:49	1

Lab Sample ID: MB 280-432524/5
Matrix: Water
Analysis Batch: 432524

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.16	mg/L			10/08/18 12:02	1

Lab Sample ID: LCS 280-432524/3
Matrix: Water
Analysis Batch: 432524

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	25.0	25.1		mg/L		101	88 - 112
TOC Result 2	25.0	25.2		mg/L		101	88 - 112
TOC Result 1	25.0	25.1		mg/L		100	88 - 112

Lab Sample ID: LCS 280-432524/35
Matrix: Water
Analysis Batch: 432524

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	25.0	25.4		mg/L		102	88 - 112
TOC Result 2	25.0	25.4		mg/L		101	88 - 112
TOC Result 1	25.0	25.5		mg/L		102	88 - 112

Lab Sample ID: LCSD 280-432524/36
Matrix: Water
Analysis Batch: 432524

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	25.0	25.5		mg/L		102	88 - 112	0	15
TOC Result 2	25.0	25.4		mg/L		101	88 - 112	0	15
TOC Result 1	25.0	25.6		mg/L		102	88 - 112	0	15

Lab Sample ID: LCSD 280-432524/4
Matrix: Water
Analysis Batch: 432524

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	25.0	25.2		mg/L		101	88 - 112	0	15
TOC Result 2	25.0	25.4		mg/L		101	88 - 112	1	15
TOC Result 1	25.0	25.1		mg/L		101	88 - 112	0	15

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 432524

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	1.0	B	25.0	25.9		mg/L		100	88 - 112
TOC Result 2	0.97	J B	25.0	25.9		mg/L		100	88 - 112
TOC Result 1	1.0	B	25.0	26.0		mg/L		100	88 - 112

Lab Sample ID: 280-115218-8 MSD
Matrix: Water
Analysis Batch: 432524

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	1.0	B	25.0	26.1		mg/L		100	88 - 112	1	15
TOC Result 2	0.97	J B	25.0	26.1		mg/L		100	88 - 112	1	15
TOC Result 1	1.0	B	25.0	26.2		mg/L		101	88 - 112	1	15

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-432942/31
Matrix: Water
Analysis Batch: 432942

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/10/18 21:12	1

Lab Sample ID: LCS 280-432942/30
Matrix: Water
Analysis Batch: 432942

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	200	204		mg/L		102	90 - 110

Method: SM 4500 CN E - Cyanide, Total

Lab Sample ID: MB 280-433762/4-A
Matrix: Water
Analysis Batch: 433835

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433762

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/17/18 09:22	10/17/18 13:53	1

Lab Sample ID: HLCS 280-433762/1-A
Matrix: Water
Analysis Batch: 433835

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433762

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.349		mg/L		100	90 - 110

Method: SM 4500 CN E - Cyanide, Total (Continued)

Lab Sample ID: LCS 280-433762/3-A
Matrix: Water
Analysis Batch: 433835

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.106		mg/L		106	90 - 110

Lab Sample ID: LLCS 280-433762/2-A
Matrix: Water
Analysis Batch: 433835

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433762

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0985		mg/L		98	90 - 110

Lab Sample ID: 280-115218-8 MS
Matrix: Water
Analysis Batch: 433835

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA
Prep Batch: 433762

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		0.100	0.107		mg/L		107	90 - 110

Lab Sample ID: 280-115218-8 MSD
Matrix: Water
Analysis Batch: 433835

Client Sample ID: MW-101S-20181005
Prep Type: Total/NA
Prep Batch: 433762

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		0.100	0.106		mg/L		106	90 - 110	1	20

QC Association Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115218-1

GC/MS VOA

Analysis Batch: 432884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-2	MW-1-20181005	Total/NA	Water	8260B	
280-115218-3	EB-1-VOC-20181004	Total/NA	Water	8260B	
280-115218-4	TB-4-VOC-20181005	Total/NA	Water	8260B	
280-115218-5	MW-111D-20181004	Total/NA	Water	8260B	
280-115218-8	MW-101S-20181005	Total/NA	Water	8260B	
MB 280-432884/6	Method Blank	Total/NA	Water	8260B	
LCS 280-432884/10	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-432884/4	Lab Control Sample	Total/NA	Water	8260B	
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	8260B	
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	8260B	
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	8260B	
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	8260B	

Analysis Batch: 433054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	8260B	
280-115218-6	MW-113D-20181004	Total/NA	Water	8260B	
280-115218-7	MW-113S-20181004	Total/NA	Water	8260B	
MB 280-433054/8	Method Blank	Total/NA	Water	8260B	
LCS 280-433054/4	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-433054/6	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-433054/7	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 433305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	RSK-175	
280-115218-2	MW-1-20181005	Total/NA	Water	RSK-175	
280-115218-5	MW-111D-20181004	Total/NA	Water	RSK-175	
280-115218-6	MW-113D-20181004	Total/NA	Water	RSK-175	
280-115218-7	MW-113S-20181004	Total/NA	Water	RSK-175	
MB 280-433305/4	Method Blank	Total/NA	Water	RSK-175	
LCS 280-433305/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 280-433305/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 433444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-8	MW-101S-20181005	Total/NA	Water	RSK-175	
MB 280-433444/31	Method Blank	Total/NA	Water	RSK-175	
MB 280-433444/4	Method Blank	Total/NA	Water	RSK-175	
LCS 280-433444/29	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 280-433444/30	Lab Control Sample Dup	Total/NA	Water	RSK-175	
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	RSK-175	
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	RSK-175	

Metals

Prep Batch: 432500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	3010A	
280-115218-2	MW-1-20181005	Total/NA	Water	3010A	
280-115218-5	MW-111D-20181004	Total/NA	Water	3010A	
280-115218-6	MW-113D-20181004	Total/NA	Water	3010A	
280-115218-7	MW-113S-20181004	Total/NA	Water	3010A	
280-115218-8	MW-101S-20181005	Total/NA	Water	3010A	
MB 280-432500/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-432500/2-A	Lab Control Sample	Total/NA	Water	3010A	
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	3010A	
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	3010A	

Prep Batch: 432502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	3020A	
280-115218-2	MW-1-20181005	Total/NA	Water	3020A	
280-115218-5	MW-111D-20181004	Total/NA	Water	3020A	
280-115218-6	MW-113D-20181004	Total/NA	Water	3020A	
280-115218-7	MW-113S-20181004	Total/NA	Water	3020A	
280-115218-8	MW-101S-20181005	Total/NA	Water	3020A	
MB 280-432502/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-432502/2-A	Lab Control Sample	Total/NA	Water	3020A	
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	3020A	
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	3020A	

Analysis Batch: 432701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	6010C	432500
280-115218-2	MW-1-20181005	Total/NA	Water	6010C	432500
280-115218-5	MW-111D-20181004	Total/NA	Water	6010C	432500
280-115218-6	MW-113D-20181004	Total/NA	Water	6010C	432500
280-115218-7	MW-113S-20181004	Total/NA	Water	6010C	432500
280-115218-8	MW-101S-20181005	Total/NA	Water	6010C	432500
MB 280-432500/1-A	Method Blank	Total/NA	Water	6010C	432500
LCS 280-432500/2-A	Lab Control Sample	Total/NA	Water	6010C	432500
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	6010C	432500
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	6010C	432500

Analysis Batch: 432910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	6020B	432502
280-115218-2	MW-1-20181005	Total/NA	Water	6020B	432502
280-115218-5	MW-111D-20181004	Total/NA	Water	6020B	432502
280-115218-6	MW-113D-20181004	Total/NA	Water	6020B	432502
280-115218-7	MW-113S-20181004	Total/NA	Water	6020B	432502
280-115218-8	MW-101S-20181005	Total/NA	Water	6020B	432502
MB 280-432502/1-A	Method Blank	Total/NA	Water	6020B	432502
LCS 280-432502/2-A	Lab Control Sample	Total/NA	Water	6020B	432502
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	6020B	432502
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	6020B	432502

Metals (Continued)

Prep Batch: 432916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	7470A	
280-115218-2	MW-1-20181005	Total/NA	Water	7470A	
280-115218-5	MW-111D-20181004	Total/NA	Water	7470A	
280-115218-6	MW-113D-20181004	Total/NA	Water	7470A	
280-115218-7	MW-113S-20181004	Total/NA	Water	7470A	
280-115218-8	MW-101S-20181005	Total/NA	Water	7470A	
MB 280-432916/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-432916/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	7470A	
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	7470A	

Analysis Batch: 433070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	7470A	432916
280-115218-2	MW-1-20181005	Total/NA	Water	7470A	432916
280-115218-5	MW-111D-20181004	Total/NA	Water	7470A	432916
280-115218-6	MW-113D-20181004	Total/NA	Water	7470A	432916
280-115218-7	MW-113S-20181004	Total/NA	Water	7470A	432916
280-115218-8	MW-101S-20181005	Total/NA	Water	7470A	432916
MB 280-432916/1-A	Method Blank	Total/NA	Water	7470A	432916
LCS 280-432916/2-A	Lab Control Sample	Total/NA	Water	7470A	432916
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	7470A	432916
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	7470A	432916

Prep Batch: 433161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	3020A	
280-115218-2	MW-1-20181005	Total/NA	Water	3020A	
280-115218-5	MW-111D-20181004	Total/NA	Water	3020A	
280-115218-6	MW-113D-20181004	Total/NA	Water	3020A	
280-115218-7	MW-113S-20181004	Total/NA	Water	3020A	
280-115218-8	MW-101S-20181005	Total/NA	Water	3020A	
MB 280-433161/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-433161/2-A	Lab Control Sample	Total/NA	Water	3020A	
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	3020A	
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	3020A	

Analysis Batch: 433339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	6020B	433161
280-115218-2	MW-1-20181005	Total/NA	Water	6020B	433161
280-115218-5	MW-111D-20181004	Total/NA	Water	6020B	433161
280-115218-6	MW-113D-20181004	Total/NA	Water	6020B	433161
280-115218-7	MW-113S-20181004	Total/NA	Water	6020B	433161
280-115218-8	MW-101S-20181005	Total/NA	Water	6020B	433161
MB 280-433161/1-A	Method Blank	Total/NA	Water	6020B	433161
LCS 280-433161/2-A	Lab Control Sample	Total/NA	Water	6020B	433161
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	6020B	433161
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	6020B	433161

Metals (Continued)

Analysis Batch: 433400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	6020B	433161
280-115218-2	MW-1-20181005	Total/NA	Water	6020B	433161
280-115218-5	MW-111D-20181004	Total/NA	Water	6020B	433161
280-115218-6	MW-113D-20181004	Total/NA	Water	6020B	433161
280-115218-7	MW-113S-20181004	Total/NA	Water	6020B	433161
280-115218-8	MW-101S-20181005	Total/NA	Water	6020B	433161
MB 280-433161/1-A	Method Blank	Total/NA	Water	6020B	433161
LCS 280-433161/2-A	Lab Control Sample	Total/NA	Water	6020B	433161
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	6020B	433161
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	6020B	433161

General Chemistry

Analysis Batch: 432524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	9060A	
280-115218-2	MW-1-20181005	Total/NA	Water	9060A	
280-115218-5	MW-111D-20181004	Total/NA	Water	9060A	
280-115218-6	MW-113D-20181004	Total/NA	Water	9060A	
280-115218-7	MW-113S-20181004	Total/NA	Water	9060A	
280-115218-8	MW-101S-20181005	Total/NA	Water	9060A	
MB 280-432524/37	Method Blank	Total/NA	Water	9060A	
MB 280-432524/5	Method Blank	Total/NA	Water	9060A	
LCS 280-432524/3	Lab Control Sample	Total/NA	Water	9060A	
LCS 280-432524/35	Lab Control Sample	Total/NA	Water	9060A	
LCSD 280-432524/36	Lab Control Sample Dup	Total/NA	Water	9060A	
LCSD 280-432524/4	Lab Control Sample Dup	Total/NA	Water	9060A	
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	9060A	
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	9060A	

Analysis Batch: 432942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	SM 2320B	
280-115218-2	MW-1-20181005	Total/NA	Water	SM 2320B	
280-115218-5	MW-111D-20181004	Total/NA	Water	SM 2320B	
280-115218-6	MW-113D-20181004	Total/NA	Water	SM 2320B	
280-115218-7	MW-113S-20181004	Total/NA	Water	SM 2320B	
280-115218-8	MW-101S-20181005	Total/NA	Water	SM 2320B	
MB 280-432942/31	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-432942/30	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 433212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	353.2	
280-115218-2	MW-1-20181005	Total/NA	Water	353.2	
280-115218-5	MW-111D-20181004	Total/NA	Water	353.2	
280-115218-6	MW-113D-20181004	Total/NA	Water	353.2	
280-115218-7	MW-113S-20181004	Total/NA	Water	353.2	
280-115218-8	MW-101S-20181005	Total/NA	Water	353.2	
MB 280-433212/22	Method Blank	Total/NA	Water	353.2	

General Chemistry (Continued)

Analysis Batch: 433212 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-433212/21	Lab Control Sample	Total/NA	Water	353.2	
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	353.2	
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	353.2	

Analysis Batch: 433346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	9056A	
280-115218-1	MW-111S-20181004	Total/NA	Water	9056A	
280-115218-2	MW-1-20181005	Total/NA	Water	9056A	
280-115218-5	MW-111D-20181004	Total/NA	Water	9056A	
280-115218-5	MW-111D-20181004	Total/NA	Water	9056A	
MB 280-433346/6	Method Blank	Total/NA	Water	9056A	
LCS 280-433346/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-433346/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-433346/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 433355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-6	MW-113D-20181004	Total/NA	Water	9056A	
280-115218-7	MW-113S-20181004	Total/NA	Water	9056A	
280-115218-7	MW-113S-20181004	Total/NA	Water	9056A	
280-115218-8	MW-101S-20181005	Total/NA	Water	9056A	
MB 280-433355/13	Method Blank	Total/NA	Water	9056A	
LCS 280-433355/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-433355/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-433355/10	Lab Control Sample	Total/NA	Water	9056A	
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	9056A	
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	9056A	
280-115218-8 DU	MW-101S-20181005	Total/NA	Water	9056A	

Prep Batch: 433762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	SM 4500 CN C	
280-115218-2	MW-1-20181005	Total/NA	Water	SM 4500 CN C	
280-115218-5	MW-111D-20181004	Total/NA	Water	SM 4500 CN C	
280-115218-6	MW-113D-20181004	Total/NA	Water	SM 4500 CN C	
280-115218-7	MW-113S-20181004	Total/NA	Water	SM 4500 CN C	
280-115218-8	MW-101S-20181005	Total/NA	Water	SM 4500 CN C	
MB 280-433762/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-433762/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-433762/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-433762/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	SM 4500 CN C	
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 433835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-1	MW-111S-20181004	Total/NA	Water	SM 4500 CN E	433762
280-115218-2	MW-1-20181005	Total/NA	Water	SM 4500 CN E	433762
280-115218-5	MW-111D-20181004	Total/NA	Water	SM 4500 CN E	433762
280-115218-6	MW-113D-20181004	Total/NA	Water	SM 4500 CN E	433762

General Chemistry (Continued)

Analysis Batch: 433835 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115218-7	MW-113S-20181004	Total/NA	Water	SM 4500 CN E	433762
280-115218-8	MW-101S-20181005	Total/NA	Water	SM 4500 CN E	433762
MB 280-433762/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	433762
HLCS 280-433762/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433762
LCS 280-433762/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433762
LLCS 280-433762/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433762
280-115218-8 MS	MW-101S-20181005	Total/NA	Water	SM 4500 CN E	433762
280-115218-8 MSD	MW-101S-20181005	Total/NA	Water	SM 4500 CN E	433762

Client Sample ID: MW-111S-20181004

Date Collected: 10/04/18 16:30
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	20 mL	20 mL	433054	10/12/18 12:43	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 16:12	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 04:04	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 16:14	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 02:22	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 02:14	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432916	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 23:25	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433212	10/12/18 18:32	SVC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	433346	10/15/18 13:34	TLP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	433346	10/15/18 13:53	TLP	TAL DEN
Total/NA	Analysis	9060A		5			432524	10/08/18 20:46	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432942	10/10/18 22:30	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			25 mL	50 mL	433762	10/17/18 09:22	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433835	10/17/18 14:15	RK	TAL DEN

Client Sample ID: MW-1-20181005

Date Collected: 10/05/18 11:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	432884	10/11/18 13:12	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 16:25	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 04:08	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 16:18	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 02:25	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 02:17	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432916	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 23:27	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433212	10/12/18 18:34	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433346	10/15/18 14:12	TLP	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/08/18 21:05	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432942	10/10/18 22:00	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433762	10/17/18 09:22	RK	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115218-1

Client Sample ID: MW-1-20181005

Date Collected: 10/05/18 11:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433835	10/17/18 14:16	RK	TAL DEN

Client Sample ID: EB-1-VOC-20181004

Date Collected: 10/04/18 16:55
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	432884	10/11/18 13:33	MD	TAL DEN

Client Sample ID: TB-4-VOC-20181005

Date Collected: 10/05/18 11:35
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	432884	10/11/18 13:55	MD	TAL DEN

Client Sample ID: MW-111D-20181004

Date Collected: 10/04/18 14:25
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	432884	10/11/18 14:17	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 16:38	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 04:12	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 16:22	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 02:29	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 02:21	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432916	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 23:30	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433212	10/12/18 18:36	SVC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	433346	10/15/18 14:31	TLP	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	433346	10/15/18 14:49	TLP	TAL DEN
Total/NA	Analysis	9060A		3.57			432524	10/08/18 23:53	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432942	10/10/18 22:14	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			25 mL	50 mL	433762	10/17/18 09:22	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433835	10/17/18 14:18	RK	TAL DEN

Client Sample ID: MW-113D-20181004

Date Collected: 10/04/18 17:15
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	20 mL	20 mL	433054	10/12/18 12:21	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 16:52	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 04:29	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 16:25	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 02:32	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 02:24	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432916	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 23:32	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433212	10/12/18 18:38	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433355	10/14/18 16:04	TLP	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/09/18 00:12	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432942	10/10/18 22:49	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433762	10/17/18 09:22	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433835	10/17/18 14:19	RK	TAL DEN

Client Sample ID: MW-113S-20181004

Date Collected: 10/04/18 14:45
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		4	20 mL	20 mL	433054	10/12/18 11:59	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 17:05	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 04:33	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 16:29	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 02:36	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 02:38	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432916	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 23:34	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433212	10/12/18 18:40	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433355	10/14/18 16:21	TLP	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	433355	10/14/18 16:37	TLP	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/09/18 00:31	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432942	10/10/18 21:48	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433762	10/17/18 09:22	RK	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115218-1

Client Sample ID: MW-113S-20181004

Date Collected: 10/04/18 14:45
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433835	10/17/18 14:21	RK	TAL DEN

Client Sample ID: MW-101S-20181005

Date Collected: 10/05/18 09:00
Date Received: 10/06/18 09:05

Lab Sample ID: 280-115218-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	432884	10/11/18 10:13	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433444	10/15/18 20:57	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432500	10/09/18 17:30	LRD	TAL DEN
Total/NA	Analysis	6010C		1			432701	10/10/18 04:36	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 16:41	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432502	10/10/18 06:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			432910	10/11/18 02:49	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433161	10/12/18 14:21	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433339	10/13/18 02:41	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432916	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 23:36	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433212	10/12/18 18:26	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433355	10/14/18 16:53	TLP	TAL DEN
Total/NA	Analysis	9060A		1			432524	10/08/18 22:27	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			432942	10/10/18 21:54	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433762	10/17/18 09:22	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	433835	10/17/18 14:22	RK	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: CDM Smith, Inc. TestAmerica Job ID: 280-115218-1
Project/Site: Bannock Ft. Hall Mine LF, Idaho

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010C	3010A	Water	Calcium
6010C	3010A	Water	Iron
6010C	3010A	Water	Magnesium
6010C	3010A	Water	Potassium
6010C	3010A	Water	Sodium
6020B	3020A	Water	Antimony
6020B	3020A	Water	Arsenic
6020B	3020A	Water	Barium
6020B	3020A	Water	Beryllium
6020B	3020A	Water	Cadmium
6020B	3020A	Water	Chromium
6020B	3020A	Water	Co
6020B	3020A	Water	Copper
6020B	3020A	Water	Lead
6020B	3020A	Water	Manganese
6020B	3020A	Water	Nickel
6020B	3020A	Water	Selenium
6020B	3020A	Water	Silver
6020B	3020A	Water	Thallium
6020B	3020A	Water	Tin
6020B	3020A	Water	Vanadium
6020B	3020A	Water	Zinc
7470A	7470A	Water	Mercury
8260B		Water	1,1,1,2-Tetrachloroethane
8260B		Water	1,1,1-Trichloroethane
8260B		Water	1,1,2,2-Tetrachloroethane
8260B		Water	1,1,2-Trichloroethane
8260B		Water	1,1-Dichloroethane
8260B		Water	1,1-Dichloroethene
8260B		Water	1,1-Dichloropropene
8260B		Water	1,2,3-Trichloropropane
8260B		Water	1,2,4-Trichlorobenzene
8260B		Water	1,2-Dibromo-3-Chloropropane
8260B		Water	1,2-Dibromoethane
8260B		Water	1,2-Dichlorobenzene
8260B		Water	1,2-Dichloroethane
8260B		Water	1,2-Dichloropropane
8260B		Water	1,3-Dichlorobenzene
8260B		Water	1,3-Dichloropropane
8260B		Water	1,4-Dichlorobenzene
8260B		Water	2,2-Dichloropropane
8260B		Water	2-Butanone (MEK)
8260B		Water	2-Hexanone
8260B		Water	4-Methyl-2-pentanone (MIBK)
8260B		Water	Acetone

Laboratory: TestAmerica Denver (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

8260B		Water	Acetonitrile
8260B		Water	Acrolein
8260B		Water	Acrylonitrile
8260B		Water	Allyl chloride
8260B		Water	Benzene
8260B		Water	Bromoform
8260B		Water	Bromomethane
8260B		Water	Carbon disulfide
8260B		Water	Carbon tetrachloride
8260B		Water	Chlorobenzene
8260B		Water	Chlorobromomethane
8260B		Water	Chlorodibromomethane
8260B		Water	Chloroethane
8260B		Water	Chloroform
8260B		Water	Chloromethane
8260B		Water	Chloroprene
8260B		Water	cis-1,2-Dichloroethene
8260B		Water	cis-1,3-Dichloropropene
8260B		Water	Dibromomethane
8260B		Water	Dichlorobromomethane
8260B		Water	Dichlorodifluoromethane
8260B		Water	Ethyl methacrylate
8260B		Water	Ethylbenzene
8260B		Water	Iodomethane
8260B		Water	Isobutyl alcohol
8260B		Water	Methacrylonitrile
8260B		Water	Methyl methacrylate
8260B		Water	Methylene Chloride
8260B		Water	Propionitrile
8260B		Water	Styrene
8260B		Water	Tetrachloroethene
8260B		Water	Toluene
8260B		Water	trans-1,2-Dichloroethene
8260B		Water	trans-1,3-Dichloropropene
8260B		Water	trans-1,4-Dichloro-2-butene
8260B		Water	Trichloroethene
8260B		Water	Trichlorofluoromethane
8260B		Water	Vinyl acetate
8260B		Water	Vinyl chloride
8260B		Water	Xylenes, Total
9056A		Water	Chloride
9056A		Water	Sulfate
RSK-175		Water	Acetylene
RSK-175		Water	Ethane
RSK-175		Water	Ethene
RSK-175		Water	Methane
RSK-175		Water	Propane
SM 4500 CN E	SM 4500 CN C	Water	Cyanide, Total

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kama Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0627	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify), Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA-SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-1115-20181004	10/4/18	1430	G	W			3	1							1	1		1	1	1	3	1	12	
MW-1-20181005	10/5/18	1100	G	W			3	1							1	1		1	1	1	3	1	12	
EB-1-VOC-20181004	10/4/18	1455	G	W			3																3	
TB-4-VOC-20181005	10/5/18	1135	G	W			2																2	
MW-111D-20181004	10/4/18	1425	G	W			3																3	
MW-113D-20181004	10/4/18	1715	G	W			3																3	
MW-1135-20181004	10/4/18	1495	G	W			3																3	
MW-1015-20181005	10/5/18	0900	G	W	Y		9																9	

280-115218 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
		10/5/18 1600			10-06-18 0905	TAEN
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.1, 1.6, 0.7 +0.7 IR9 XFERED BY LCO 10-06-18

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kenna Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastestoil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A - Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S	X	
MW-111D-20181004	10/4/18	1625	G	W				1							1	1		1	1	1	3	1	9	
MW-113D-20181004	10/4/18	1715	G	W				1							1	1		1	1	1	3	1	9	
MW-113S-20181004	10/4/18	1445	G	W				1							1	1		1	1	1	3	1	9	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/5/18 1600			10-06-18 0905	TADEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Cosme	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify), Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-1015-20181005	10/5/18	0900	G	W			Y	3							3	3		3	3	3	9	3	30	
							RL	10/5/18																

Sub bottle

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/5/18 16:00			10-06-18 0905	TAEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: CDM Smith, Inc.

Job Number: 280-115218-1

Login Number: 115218
List Number: 1
Creator: Dunlap, Krista M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115262-1
Client Project/Site: Bannock Ft. Hall Mine LF, Idaho

For:
CDM Smith, Inc.
14432 S.E. Eastgate Way
Suite 100
Bellevue, Washington 98007-6493

Attn: Mary Lou Fox

Authorized for release by:
11/8/2018 8:56:33 AM

Dylan Bieniulis, Project Manager I
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LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions 3
Case Narrative 5
Detection Summary 9
Method Summary 10
Sample Summary 11
Client Sample Results 12
Surrogate Summary 27
QC Sample Results 30
QC Association 63
Chronicle 69
Certification Summary 71
Chain of Custody 73
Receipt Checklists 80
Isotope Dilution Summary 82
Field Data Sheets 83

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115262-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: CDM Smith, Inc.

Project: Bannock Ft. Hall Mine LF, Idaho

Report Number: 280-115262-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/9/2018 8:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.8º C, 1.6º C, 1.6º C, 2.0º C, 2.2º C and 2.3º C.

One of three HCl preserved VOA vials for the requested 8260B VOCs analysis for MW-13Q-20181006 (280-115262-1) was received with a headspace bubble greater than 6 mm in diameter. Sufficient sample volume without headspace was received to perform the requested analysis. The client was notified on 10/10/2018.

Three of nine HCl preserved VOA vials for the requested 8260B VOCs analysis for parent sample MW-13-20181006 (280-115262-2) (+MS/MSD) were received with a headspace bubble greater than 6 mm in diameter. Sufficient sample volume without headspace was received to perform the requested analysis for the parent sample (+MS/MSD). The client was notified on 10/10/2018.

The laboratory received two HCl preserved trip blank VOA vials that were not listed on the chain of custody. The laboratory logged the containers as TRIP BLANK (280-115262-3) for 8260B VOCs analysis with a collection date/time equivalent to the earliest collected field sample listed on the chain of custody per standard laboratory practice and will proceed unless instructed otherwise. The client was notified on 10/10/2018.

Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) are referenced without a collection time on one of the pages of the chain of custody. The laboratory logged all sample volume received for each sample with the available collection time recorded on all other pages of the chain of custody. The client was notified on 10/10/2018.

The requested 8290 Dioxins/Furans analyses were logged as 8290 - 2,3,7,8 TCDD only per client instructions received on 10/4/2018 prior to sample receipt.

The 8290 - 2,3,7,8 TCDD only analyses were subcontracted to TestAmerica's Sacramento laboratory.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples MW-13Q-20181006 (280-115262-1), MW-13-20181006 (280-115262-2) and TRIP BLANK (280-115262-3) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/14/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-115262-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 10/11/2018 and analyzed on 10/17/2018.

Hexachlorocyclopentadiene failed the recovery criteria low for LCS 280-432905/2-A. Hexachlorocyclopentadiene has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified. Refer to the QC report for details.

p-Phenylene diamine failed the recovery criteria low for the MS of sample MW-13-20181006MS (280-115262-2) in batch 280-433630. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHLORINATED PESTICIDES

Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for chlorinated pesticides in accordance with SW 846 8081A. The samples were prepared on 10/10/2018 and analyzed on 10/30/2018.

TestAmerica Denver's practice for the reporting of dual column data in packages requiring forms and/or raw data is to report the surrogates from both columns, and the preferred result for any given target analyte from the analyst selected column. The preferred results for target analytes and surrogates are reported as PRIMARY on the Sample Datasheets.

The following samples required a mercury clean-up, via EPA Method 3660A, to reduce matrix interferences caused by sulfur: MW-13Q-20181006 (280-115262-1), MW-13-20181006 (280-115262-2), MW-13-20181006 (280-115262-2[MS]), MW-13-20181006 (280-115262-2[MSD]), (LCS 280-432838/2-A), (LCSD 280-432838/3-A) and (MB 280-432838/1-A).

Endrin aldehyde failed the recovery criteria low for LCSD 280-432838/3-A. Endrin aldehyde exceeded the RPD limit. The client was notified on 11/5/2018 and elected not to re-extract the samples associated with the LCS/LCSD. Endrin aldehyde failed the recovery criteria low and Endosulfan sulfate failed the recovery criteria high for the MS of sample MW-13-20181006MS (280-115262-2) in batch 280-435394. Endrin aldehyde failed the recovery criteria low and 4,4'-DDD, Dieldrin, Endosulfan sulfate, gamma-BHC (Lindane), and Heptachlor epoxide failed the recovery criteria high for the MSD of sample MW-13-20181006MSD (280-115262-2) in batch 280-435394. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for polychlorinated biphenyls (PCBs) in accordance with SW 846 8082A. The samples were prepared on 10/10/2018 and analyzed on 11/01/2018.

TestAmerica Denver's practice for the reporting of dual column data in packages requiring forms and/or raw data is to report the surrogates from both columns, and the preferred result for any given target analyte from the analyst selected column. The preferred results for target analytes and surrogates are reported as PRIMARY on the Sample Datasheets.

The following samples required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences: MW-13Q-20181006 (280-115262-1), MW-13-20181006 (280-115262-2), MW-13-20181006 (280-115262-2[MS]), MW-13-20181006 (280-115262-2[MSD]), (LCS 280-432838/4-A), (LCSD 280-432838/5-A) and (MB 280-432838/1-A).

The following samples required a mercury clean-up, via EPA Method 3660A, to reduce matrix interferences caused by sulfur: MW-13Q-20181006 (280-115262-1), MW-13-20181006 (280-115262-2), MW-13-20181006 (280-115262-2[MS]), MW-13-20181006 (280-115262-2[MSD]), (LCS 280-432838/4-A), (LCSD 280-432838/5-A) and (MB 280-432838/1-A).

DCB Decachlorobiphenyl and Tetrachloro-m-xylene failed the surrogate recovery criteria high for LCS 280-432838/4-A. Refer to the QC report for details.

The continuing calibration verification (CCV) recovered below the lower limit for Tetrachloro-m-xylene on the confirmation column: (CCV 280-435709/36), (CCV 280-435709/47), (CCV 280-435709/57) and (CCVIS 280-435709/4). The primary column was in control. All

Job ID: 280-115262-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

associated samples results are ND and the surrogate recoveries are in control; therefore, the data was reported from the in control column.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ORGANOPHOSPHORUS PESTICIDES
Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for organophosphorus pesticides in accordance with EPA SW-846 Method 8141A. The samples were prepared on 10/10/2018 and analyzed on 10/12/2018.

TestAmerica Denver's practice for the reporting of dual column data in packages requiring forms and/or raw data is to report the surrogates from both columns, and the preferred result for any given target analyte from the analyst selected column. The preferred results for target analytes and surrogates are reported as PRIMARY on the Sample Datasheets. Analytes Atrazine/Propazine, Phosmet/EPN, and Bolstar/Famphur co-elute on one of the columns used for this analysis. As a result, there are no results reported for the %Difference in the concentration on the Form X.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHLORINATED HERBICIDES
Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 10/10/2018 and analyzed on 10/12/2018.

TestAmerica Denver's practice for the reporting of dual column data in packages requiring forms and/or raw data is to report the surrogates from both columns, and the preferred result for any given target analyte from the analyst selected column. The preferred results for target analytes and surrogates are reported as PRIMARY on the Sample Datasheets. Analytes 2,4-DB/dinoseb co-elute on one of the columns used for this analysis. As a result, there are no results reported for the %Difference in the concentration on the Form X.

2,4-D and Silvex (2,4,5-TP) failed the recovery criteria high for the MS of sample MW-13-20181006MS (280-115262-2) in batch 280-433150. 2,4-D and Silvex (2,4,5-TP) failed the recovery criteria high for the MSD of sample MW-13-20181006MSD (280-115262-2) in batch 280-433150. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIOXINS AND FURANS (HRGC/HRMS)
Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for dioxins and furans (HRGC/HRMS) in accordance with SW846 8290. The samples were prepared on 10/16/2018 and analyzed on 10/24/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP)
Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 10/13/2018 and analyzed on 10/15/2018.

Sodium was detected in method blank MB 280-432774/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The low level continuing calibration verification (CCVL) associated with batch 280-433544 recovered above the upper control limit. The samples associated with this CCV were greater than 10x the RL and controlled to the CCV for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP/MS)
Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for Total Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared and analyzed on 10/12/2018 and 10/16/2018.

Job ID: 280-115262-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Zinc failed the recovery criteria low for the MSD of sample MW-13-20181006MSD (280-115262-2) in batch 280-433710. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY
Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 10/11/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ALKALINITY
Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 10/10/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

NITRATE-NITRITE AS NITROGEN
Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 10/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL CYANIDE
Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for total cyanide in accordance with SM20 4500 CN E. The samples were prepared and analyzed on 10/18/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS (28 DAYS)
Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 10/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SULFIDE
Samples MW-13Q-20181006 (280-115262-1) and MW-13-20181006 (280-115262-2) were analyzed for sulfide in accordance with SM20 4500 S2 D. The samples were analyzed on 10/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115262-1

Client Sample ID: MW-13Q-20181006 — Lab Sample ID: 280-115262-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dichlorodifluoromethane	0.42	J	2.0	0.31	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.42	J	1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.24	J	1.0	0.20	ug/L	1		8260B	Total/NA
Calcium	44000		200	35	ug/L	1		6010C	Total/NA
Iron	130		100	22	ug/L	1		6010C	Total/NA
Magnesium	37000		200	11	ug/L	1		6010C	Total/NA
Potassium	2700	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	39000	^ B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	3.5	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	110		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.2	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.18	J	1.0	0.054	ug/L	1		6020B	Total/NA
Manganese	2.9		1.0	0.31	ug/L	1		6020B	Total/NA
Vanadium	0.76	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	3.7	J	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.63		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	83		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	20		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	210		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-13-20181006 — Lab Sample ID: 280-115262-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dichlorodifluoromethane	0.39	J	2.0	0.31	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.40	J	1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.23	J	1.0	0.20	ug/L	1		8260B	Total/NA
Calcium	44000		200	35	ug/L	1		6010C	Total/NA
Iron	290		100	22	ug/L	1		6010C	Total/NA
Magnesium	38000		200	11	ug/L	1		6010C	Total/NA
Potassium	2900	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	37000	^ B	1000	120	ug/L	1		6010C	Total/NA
Antimony	0.58	J	2.0	0.40	ug/L	1		6020B	Total/NA
Arsenic	4.1	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	120		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.4	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	1.2		1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.83	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.60	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	22		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	0.62	J	2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	0.91	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	6.2	J F1	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.60		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	83		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	21		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	210		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 280-115262-3

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Method Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115262-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL DEN
8081A	Organochlorine Pesticides (GC)	SW846	TAL DEN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL DEN
8141A	Organophosphorous Pesticides (GC)	SW846	TAL DEN
8151A	Herbicides (GC)	SW846	TAL DEN
8290	Dioxins and Furans (HRGC/HRMS)	SW846	TAL SAC
6010C	Metals (ICP)	SW846	TAL DEN
6020B	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 4500 CN E	Cyanide, Total	SM	TAL DEN
SM 4500 S2 D	Sulfide, Total	SM	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
3520C	Liquid-Liquid Extraction (Continuous)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
8151A	Extraction (Herbicides)	SW846	TAL DEN
8290	Separatory Funnel (Liquid-Liquid) Extraction of Dioxins and Furans	SW846	TAL SAC
SM 4500 CN C	Cyanide, Distillation	SM	TAL DEN

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115262-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115262-1	MW-13Q-20181006	Water	10/06/18 16:30	10/09/18 08:45
280-115262-2	MW-13-20181006	Water	10/06/18 09:30	10/09/18 08:45
280-115262-3	TRIP BLANK	Water	10/06/18 09:30	10/09/18 08:45

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 12:14	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 12:14	1
Acrolein	ND		20	2.8	ug/L			10/14/18 12:14	1
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 12:14	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 12:14	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 12:14	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 12:14	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 12:14	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 12:14	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 12:14	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 12:14	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 12:14	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 12:14	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 12:14	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 12:14	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 12:14	1
Chloroform	ND		1.0	0.16	ug/L			10/14/18 12:14	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 12:14	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 12:14	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 12:14	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 12:14	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 12:14	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 12:14	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 12:14	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 12:14	1
Dichlorodifluoromethane	**0.42**	**J**	2.0	0.31	ug/L			10/14/18 12:14	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/14/18 12:14	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 12:14	1
cis-1,2-Dichloroethene	**0.42**	**J**	1.0	0.15	ug/L			10/14/18 12:14	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 12:14	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 12:14	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 12:14	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 12:14	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 12:14	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 12:14	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 12:14	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 12:14	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 12:14	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 12:14	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 12:14	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 12:14	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 12:14	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 12:14	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 12:14	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 12:14	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 12:14	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 12:14	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 12:14	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 12:14	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 12:14	1
Tetrachloroethene	**0.24**	**J**	1.0	0.20	ug/L			10/14/18 12:14	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 12:14	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 12:14	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 12:14	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 12:14	1
Trichloroethene	ND		1.0	0.16	ug/L			10/14/18 12:14	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 12:14	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 12:14	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 12:14	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 12:14	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 12:14	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 12:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*112*		*77 - 120*		*10/14/18 12:14*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 127*		*10/14/18 12:14*	*1*
4-Bromofluorobenzene (Surr)	*88*		*78 - 120*		*10/14/18 12:14*	*1*
Toluene-d8 (Surr)	*98*		*80 - 125*		*10/14/18 12:14*	*1*

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 12:35	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 12:35	1
Acrolein	ND		20	2.8	ug/L			10/14/18 12:35	1
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 12:35	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 12:35	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 12:35	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 12:35	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 12:35	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 12:35	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 12:35	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 12:35	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 12:35	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 12:35	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 12:35	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 12:35	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 12:35	1
Chloroform	ND		1.0	0.16	ug/L			10/14/18 12:35	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 12:35	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 12:35	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 12:35	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 12:35	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 12:35	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 12:35	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 12:35	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 12:35	1
Dichlorodifluoromethane	**0.39**	**J**	2.0	0.31	ug/L			10/14/18 12:35	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/14/18 12:35	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 12:35	1
cis-1,2-Dichloroethene	**0.40**	**J**	1.0	0.15	ug/L			10/14/18 12:35	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 12:35	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 12:35	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 12:35	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 12:35	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 12:35	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 12:35	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 12:35	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 12:35	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 12:35	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 12:35	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 12:35	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 12:35	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 12:35	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 12:35	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 12:35	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 12:35	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 12:35	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 12:35	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 12:35	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 12:35	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 12:35	1
Tetrachloroethene	**0.23**	**J**	1.0	0.20	ug/L			10/14/18 12:35	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 12:35	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 12:35	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 12:35	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 12:35	1
Trichloroethene	ND		1.0	0.16	ug/L			10/14/18 12:35	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 12:35	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 12:35	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 12:35	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 12:35	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 12:35	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 12:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*114*		*77 - 120*		*10/14/18 12:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 127*		*10/14/18 12:35*	*1*
4-Bromofluorobenzene (Surr)	*88*		*78 - 120*		*10/14/18 12:35*	*1*
Toluene-d8 (Surr)	*98*		*80 - 125*		*10/14/18 12:35*	*1*

Client Sample ID: TRIP BLANK
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 14:21	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 14:21	1
Acrolein	ND		20	2.8	ug/L			10/14/18 14:21	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TRIP BLANK
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 14:21	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 14:21	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 14:21	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 14:21	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 14:21	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 14:21	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 14:21	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 14:21	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 14:21	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 14:21	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 14:21	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 14:21	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 14:21	1
Chloroform	ND		1.0	0.16	ug/L			10/14/18 14:21	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 14:21	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 14:21	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 14:21	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 14:21	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 14:21	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 14:21	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 14:21	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 14:21	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/14/18 14:21	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/14/18 14:21	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 14:21	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 14:21	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 14:21	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 14:21	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 14:21	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 14:21	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 14:21	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 14:21	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 14:21	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 14:21	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 14:21	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 14:21	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 14:21	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 14:21	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 14:21	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 14:21	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 14:21	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 14:21	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 14:21	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 14:21	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 14:21	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 14:21	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 14:21	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/14/18 14:21	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 14:21	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TRIP BLANK
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 14:21	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 14:21	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 14:21	1
Trichloroethene	ND		1.0	0.16	ug/L			10/14/18 14:21	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 14:21	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 14:21	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 14:21	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 14:21	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 14:21	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 14:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*119*		*77 - 120*		*10/14/18 14:21*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*		*10/14/18 14:21*	*1*
4-Bromofluorobenzene (Surr)	*89*		*78 - 120*		*10/14/18 14:21*	*1*
Toluene-d8 (Surr)	*96*		*80 - 125*		*10/14/18 14:21*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		10	1.8	ug/L		10/11/18 08:49	10/17/18 00:25	1
1,3,5-Trinitrobenzene	ND		52	4.2	ug/L		10/11/18 08:49	10/17/18 00:25	1
1,3-Dinitrobenzene	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
1,4-Naphthoquinone	ND		52	14	ug/L		10/11/18 08:49	10/17/18 00:25	1
1-Naphthylamine	ND		10	3.2	ug/L		10/11/18 08:49	10/17/18 00:25	1
2,3,4,6-Tetrachlorophenol	ND		52	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
2,4,5-Trichlorophenol	ND		10	0.47	ug/L		10/11/18 08:49	10/17/18 00:25	1
2,4,6-Trichlorophenol	ND		10	0.30	ug/L		10/11/18 08:49	10/17/18 00:25	1
2,4-Dichlorophenol	ND		10	0.67	ug/L		10/11/18 08:49	10/17/18 00:25	1
2,4-Dimethylphenol	ND		10	0.60	ug/L		10/11/18 08:49	10/17/18 00:25	1
2,4-Dinitrophenol	ND		31	10	ug/L		10/11/18 08:49	10/17/18 00:25	1
2,4-Dinitrotoluene	ND		10	1.7	ug/L		10/11/18 08:49	10/17/18 00:25	1
2,6-Dichlorophenol	ND		10	1.4	ug/L		10/11/18 08:49	10/17/18 00:25	1
2,6-Dinitrotoluene	ND		10	2.0	ug/L		10/11/18 08:49	10/17/18 00:25	1
2-Acetylaminofluorene	ND		100	7.3	ug/L		10/11/18 08:49	10/17/18 00:25	1
2-Chloronaphthalene	ND		4.2	0.27	ug/L		10/11/18 08:49	10/17/18 00:25	1
2-Chlorophenol	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
2-Methylnaphthalene	ND		4.2	0.30	ug/L		10/11/18 08:49	10/17/18 00:25	1
2-Methylphenol	ND		10	1.0	ug/L		10/11/18 08:49	10/17/18 00:25	1
2-Naphthylamine	ND		10	3.2	ug/L		10/11/18 08:49	10/17/18 00:25	1
2-Nitroaniline	ND		10	1.8	ug/L		10/11/18 08:49	10/17/18 00:25	1
2-Nitrophenol	ND		10	0.41	ug/L		10/11/18 08:49	10/17/18 00:25	1
3 & 4 Methylphenol	ND		10	0.26	ug/L		10/11/18 08:49	10/17/18 00:25	1
3,3'-Dichlorobenzidine	ND		52	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
3,3'-Dimethylbenzidine	ND		21	4.2	ug/L		10/11/18 08:49	10/17/18 00:25	1
3-Methylcholanthrene	ND		21	1.8	ug/L		10/11/18 08:49	10/17/18 00:25	1
3-Nitroaniline	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,6-Dinitro-2-methylphenol	ND		52	4.2	ug/L		10/11/18 08:49	10/17/18 00:25	1
4-Aminobiphenyl	ND		52	4.7	ug/L		10/11/18 08:49	10/17/18 00:25	1
4-Bromophenyl phenyl ether	ND		10	0.45	ug/L		10/11/18 08:49	10/17/18 00:25	1
4-Chloro-3-methylphenol	ND		10	2.5	ug/L		10/11/18 08:49	10/17/18 00:25	1
4-Chloroaniline	ND		10	2.2	ug/L		10/11/18 08:49	10/17/18 00:25	1
4-Chlorophenyl phenyl ether	ND		10	1.7	ug/L		10/11/18 08:49	10/17/18 00:25	1
4-Nitroaniline	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
4-Nitrophenol	ND		10	1.3	ug/L		10/11/18 08:49	10/17/18 00:25	1
5-Nitro-o-toluidine	ND		21	1.5	ug/L		10/11/18 08:49	10/17/18 00:25	1
7,12-Dimethylbenz(a)anthracene	ND		21	1.6	ug/L		10/11/18 08:49	10/17/18 00:25	1
a,a-Dimethylphenethylamine	ND		52	21	ug/L		10/11/18 08:49	10/17/18 00:25	1
Acenaphthene	ND		4.2	0.29	ug/L		10/11/18 08:49	10/17/18 00:25	1
Acenaphthylene	ND		4.2	0.51	ug/L		10/11/18 08:49	10/17/18 00:25	1
Acetophenone	ND		10	0.25	ug/L		10/11/18 08:49	10/17/18 00:25	1
Anthracene	ND		4.2	0.44	ug/L		10/11/18 08:49	10/17/18 00:25	1
Benzo[a]anthracene	ND		4.2	0.36	ug/L		10/11/18 08:49	10/17/18 00:25	1
Benzo[a]pyrene	ND		4.2	0.32	ug/L		10/11/18 08:49	10/17/18 00:25	1
Benzo[b]fluoranthene	ND		4.2	0.55	ug/L		10/11/18 08:49	10/17/18 00:25	1
Benzo[g,h,i]perylene	ND		4.2	0.52	ug/L		10/11/18 08:49	10/17/18 00:25	1
Benzo[k]fluoranthene	ND		4.2	0.48	ug/L		10/11/18 08:49	10/17/18 00:25	1
Benzyl alcohol	ND		10	0.24	ug/L		10/11/18 08:49	10/17/18 00:25	1
Bis(2-chloroethoxy)methane	ND		10	1.0	ug/L		10/11/18 08:49	10/17/18 00:25	1
Bis(2-chloroethyl)ether	ND		10	0.43	ug/L		10/11/18 08:49	10/17/18 00:25	1
Bis(2-ethylhexyl) phthalate	ND		10	0.58	ug/L		10/11/18 08:49	10/17/18 00:25	1
bis(chloroisopropyl) ether	ND		10	0.29	ug/L		10/11/18 08:49	10/17/18 00:25	1
Butyl benzyl phthalate	ND		4.2	1.0	ug/L		10/11/18 08:49	10/17/18 00:25	1
Chlorobenzilate	ND		10	0.68	ug/L		10/11/18 08:49	10/17/18 00:25	1
Chrysene	ND		4.2	0.56	ug/L		10/11/18 08:49	10/17/18 00:25	1
Diallate	ND		5.8	0.58	ug/L		10/11/18 08:49	10/17/18 00:25	1
Dibenz(a,h)anthracene	ND		4.2	0.53	ug/L		10/11/18 08:49	10/17/18 00:25	1
Dibenzofuran	ND		4.2	0.30	ug/L		10/11/18 08:49	10/17/18 00:25	1
Diethyl phthalate	ND		4.2	0.40	ug/L		10/11/18 08:49	10/17/18 00:25	1
Dimethyl phthalate	ND		4.2	0.22	ug/L		10/11/18 08:49	10/17/18 00:25	1
Di-n-butyl phthalate	ND		4.2	1.2	ug/L		10/11/18 08:49	10/17/18 00:25	1
Di-n-octyl phthalate	ND		4.2	0.36	ug/L		10/11/18 08:49	10/17/18 00:25	1
Diphenylamine	ND		10	1.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
Ethyl methanesulfonate	ND		10	0.98	ug/L		10/11/18 08:49	10/17/18 00:25	1
Fluoranthene	ND		4.2	0.21	ug/L		10/11/18 08:49	10/17/18 00:25	1
Fluorene	ND		4.2	0.32	ug/L		10/11/18 08:49	10/17/18 00:25	1
Hexachlorobenzene	ND		10	0.69	ug/L		10/11/18 08:49	10/17/18 00:25	1
Hexachlorobutadiene	ND		10	3.4	ug/L		10/11/18 08:49	10/17/18 00:25	1
Hexachlorocyclopentadiene	ND	*	52	10	ug/L		10/11/18 08:49	10/17/18 00:25	1
Hexachloroethane	ND		10	2.2	ug/L		10/11/18 08:49	10/17/18 00:25	1
Hexachloropropene	ND		100	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
Indeno[1,2,3-cd]pyrene	ND		4.2	0.68	ug/L		10/11/18 08:49	10/17/18 00:25	1
Isophorone	ND		10	0.22	ug/L		10/11/18 08:49	10/17/18 00:25	1
Isosafrole	ND		3.6	1.0	ug/L		10/11/18 08:49	10/17/18 00:25	1
Methapyrilene	ND		52	21	ug/L		10/11/18 08:49	10/17/18 00:25	1
Methyl methanesulfonate	ND		10	1.0	ug/L		10/11/18 08:49	10/17/18 00:25	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		4.2	0.30	ug/L		10/11/18 08:49	10/17/18 00:25	1
Nitrobenzene	ND		10	0.84	ug/L		10/11/18 08:49	10/17/18 00:25	1
N-Nitrosodiethylamine	ND		10	1.8	ug/L		10/11/18 08:49	10/17/18 00:25	1
N-Nitrosodimethylamine	ND		10	0.30	ug/L		10/11/18 08:49	10/17/18 00:25	1
N-Nitrosodi-n-butylamine	ND		10	1.3	ug/L		10/11/18 08:49	10/17/18 00:25	1
N-Nitrosodi-n-propylamine	ND		10	0.36	ug/L		10/11/18 08:49	10/17/18 00:25	1
n-Nitrosodiphenylamine(as diphenylamine)	ND		10	0.46	ug/L		10/11/18 08:49	10/17/18 00:25	1
N-Nitrosomethylethylamine	ND		10	1.8	ug/L		10/11/18 08:49	10/17/18 00:25	1
N-Nitrosopiperidine	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
N-Nitrosopyrrolidine	ND		10	0.84	ug/L		10/11/18 08:49	10/17/18 00:25	1
o,o',o''-Triethylphosphorothioate	ND		52	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
o-Toluidine	ND		10	1.5	ug/L		10/11/18 08:49	10/17/18 00:25	1
p-Dimethylamino azobenzene	ND		21	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
Pentachlorobenzene	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
Pentachloronitrobenzene	ND		52	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
Pentachlorophenol	ND		52	21	ug/L		10/11/18 08:49	10/17/18 00:25	1
Phenacetin	ND		21	1.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
Phenanthrene	ND		4.2	0.27	ug/L		10/11/18 08:49	10/17/18 00:25	1
Phenol	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
p-Phenylene diamine	ND		100	5.2	ug/L		10/11/18 08:49	10/17/18 00:25	1
Pronamide	ND		21	2.1	ug/L		10/11/18 08:49	10/17/18 00:25	1
Pyrene	ND		10	0.39	ug/L		10/11/18 08:49	10/17/18 00:25	1
Safrole, Total	ND		21	1.2	ug/L		10/11/18 08:49	10/17/18 00:25	1
Thionazin	ND		52	0.90	ug/L		10/11/18 08:49	10/17/18 00:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*65*		*48 - 135*	*10/11/18 08:49*	*10/17/18 00:25*	*1*
2-Fluorobiphenyl	*62*		*48 - 135*	*10/11/18 08:49*	*10/17/18 00:25*	*1*
2-Fluorophenol	*63*		*41 - 135*	*10/11/18 08:49*	*10/17/18 00:25*	*1*
Nitrobenzene-d5	*59*		*42 - 135*	*10/11/18 08:49*	*10/17/18 00:25*	*1*
Phenol-d5	*66*		*46 - 135*	*10/11/18 08:49*	*10/17/18 00:25*	*1*
Terphenyl-d14	*87*		*20 - 135*	*10/11/18 08:49*	*10/17/18 00:25*	*1*

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		10	1.8	ug/L		10/11/18 08:49	10/17/18 00:52	1
1,3,5-Trinitrobenzene	ND		52	4.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
1,3-Dinitrobenzene	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
1,4-Naphthoquinone	ND		52	14	ug/L		10/11/18 08:49	10/17/18 00:52	1
1-Naphthylamine	ND		10	3.2	ug/L		10/11/18 08:49	10/17/18 00:52	1
2,3,4,6-Tetrachlorophenol	ND		52	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
2,4,5-Trichlorophenol	ND		10	0.46	ug/L		10/11/18 08:49	10/17/18 00:52	1
2,4,6-Trichlorophenol	ND		10	0.30	ug/L		10/11/18 08:49	10/17/18 00:52	1
2,4-Dichlorophenol	ND		10	0.66	ug/L		10/11/18 08:49	10/17/18 00:52	1
2,4-Dimethylphenol	ND		10	0.60	ug/L		10/11/18 08:49	10/17/18 00:52	1
2,4-Dinitrophenol	ND		31	10	ug/L		10/11/18 08:49	10/17/18 00:52	1
2,4-Dinitrotoluene	ND		10	1.7	ug/L		10/11/18 08:49	10/17/18 00:52	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,6-Dichlorophenol	ND		10	1.4	ug/L		10/11/18 08:49	10/17/18 00:52	1
2,6-Dinitrotoluene	ND		10	2.0	ug/L		10/11/18 08:49	10/17/18 00:52	1
2-Acetylaminofluorene	ND		100	7.2	ug/L		10/11/18 08:49	10/17/18 00:52	1
2-Chloronaphthalene	ND		4.1	0.27	ug/L		10/11/18 08:49	10/17/18 00:52	1
2-Chlorophenol	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
2-Methylnaphthalene	ND		4.1	0.30	ug/L		10/11/18 08:49	10/17/18 00:52	1
2-Methylphenol	ND		10	1.0	ug/L		10/11/18 08:49	10/17/18 00:52	1
2-Naphthylamine	ND		10	3.2	ug/L		10/11/18 08:49	10/17/18 00:52	1
2-Nitroaniline	ND		10	1.8	ug/L		10/11/18 08:49	10/17/18 00:52	1
2-Nitrophenol	ND		10	0.40	ug/L		10/11/18 08:49	10/17/18 00:52	1
3 & 4 Methylphenol	ND		10	0.26	ug/L		10/11/18 08:49	10/17/18 00:52	1
3,3'-Dichlorobenzidine	ND		52	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
3,3'-Dimethylbenzidine	ND		21	4.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
3-Methylcholanthrene	ND		21	1.8	ug/L		10/11/18 08:49	10/17/18 00:52	1
3-Nitroaniline	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
4,6-Dinitro-2-methylphenol	ND		52	4.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
4-Aminobiphenyl	ND		52	4.6	ug/L		10/11/18 08:49	10/17/18 00:52	1
4-Bromophenyl phenyl ether	ND		10	0.44	ug/L		10/11/18 08:49	10/17/18 00:52	1
4-Chloro-3-methylphenol	ND		10	2.5	ug/L		10/11/18 08:49	10/17/18 00:52	1
4-Chloroaniline	ND		10	2.2	ug/L		10/11/18 08:49	10/17/18 00:52	1
4-Chlorophenyl phenyl ether	ND		10	1.7	ug/L		10/11/18 08:49	10/17/18 00:52	1
4-Nitroaniline	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
4-Nitrophenol	ND		10	1.3	ug/L		10/11/18 08:49	10/17/18 00:52	1
5-Nitro-o-toluidine	ND		21	1.4	ug/L		10/11/18 08:49	10/17/18 00:52	1
7,12-Dimethylbenz(a)anthracene	ND		21	1.6	ug/L		10/11/18 08:49	10/17/18 00:52	1
a,a-Dimethylphenethylamine	ND		52	21	ug/L		10/11/18 08:49	10/17/18 00:52	1
Acenaphthene	ND		4.1	0.29	ug/L		10/11/18 08:49	10/17/18 00:52	1
Acenaphthylene	ND		4.1	0.51	ug/L		10/11/18 08:49	10/17/18 00:52	1
Acetophenone	ND		10	0.25	ug/L		10/11/18 08:49	10/17/18 00:52	1
Anthracene	ND		4.1	0.43	ug/L		10/11/18 08:49	10/17/18 00:52	1
Benzo[a]anthracene	ND		4.1	0.36	ug/L		10/11/18 08:49	10/17/18 00:52	1
Benzo[a]pyrene	ND		4.1	0.32	ug/L		10/11/18 08:49	10/17/18 00:52	1
Benzo[b]fluoranthene	ND		4.1	0.55	ug/L		10/11/18 08:49	10/17/18 00:52	1
Benzo[g,h,i]perylene	ND		4.1	0.52	ug/L		10/11/18 08:49	10/17/18 00:52	1
Benzo[k]fluoranthene	ND		4.1	0.48	ug/L		10/11/18 08:49	10/17/18 00:52	1
Benzyl alcohol	ND		10	0.24	ug/L		10/11/18 08:49	10/17/18 00:52	1
Bis(2-chloroethoxy)methane	ND		10	1.0	ug/L		10/11/18 08:49	10/17/18 00:52	1
Bis(2-chloroethyl)ether	ND		10	0.42	ug/L		10/11/18 08:49	10/17/18 00:52	1
Bis(2-ethylhexyl) phthalate	ND		10	0.58	ug/L		10/11/18 08:49	10/17/18 00:52	1
bis(chloroisopropyl) ether	ND		10	0.29	ug/L		10/11/18 08:49	10/17/18 00:52	1
Butyl benzyl phthalate	ND		4.1	1.0	ug/L		10/11/18 08:49	10/17/18 00:52	1
Chlorobenzilate	ND		10	0.68	ug/L		10/11/18 08:49	10/17/18 00:52	1
Chrysene	ND		4.1	0.56	ug/L		10/11/18 08:49	10/17/18 00:52	1
Diallate	ND		5.8	0.58	ug/L		10/11/18 08:49	10/17/18 00:52	1
Dibenz(a,h)anthracene	ND		4.1	0.53	ug/L		10/11/18 08:49	10/17/18 00:52	1
Dibenzofuran	ND		4.1	0.30	ug/L		10/11/18 08:49	10/17/18 00:52	1
Diethyl phthalate	ND		4.1	0.39	ug/L		10/11/18 08:49	10/17/18 00:52	1
Dimethyl phthalate	ND		4.1	0.22	ug/L		10/11/18 08:49	10/17/18 00:52	1
Di-n-butyl phthalate	ND		4.1	1.2	ug/L		10/11/18 08:49	10/17/18 00:52	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate	ND		4.1	0.36	ug/L		10/11/18 08:49	10/17/18 00:52	1
Diphenylamine	ND		10	1.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
Ethyl methanesulfonate	ND		10	0.97	ug/L		10/11/18 08:49	10/17/18 00:52	1
Fluoranthene	ND		4.1	0.21	ug/L		10/11/18 08:49	10/17/18 00:52	1
Fluorene	ND		4.1	0.32	ug/L		10/11/18 08:49	10/17/18 00:52	1
Hexachlorobenzene	ND		10	0.68	ug/L		10/11/18 08:49	10/17/18 00:52	1
Hexachlorobutadiene	ND		10	3.4	ug/L		10/11/18 08:49	10/17/18 00:52	1
Hexachlorocyclopentadiene	ND	*	52	10	ug/L		10/11/18 08:49	10/17/18 00:52	1
Hexachloroethane	ND		10	2.2	ug/L		10/11/18 08:49	10/17/18 00:52	1
Hexachloropropene	ND		100	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
Indeno[1,2,3-cd]pyrene	ND		4.1	0.67	ug/L		10/11/18 08:49	10/17/18 00:52	1
Isophorone	ND		10	0.22	ug/L		10/11/18 08:49	10/17/18 00:52	1
Isosafrole	ND		3.6	1.0	ug/L		10/11/18 08:49	10/17/18 00:52	1
Methapyrilene	ND		52	21	ug/L		10/11/18 08:49	10/17/18 00:52	1
Methyl methanesulfonate	ND		10	1.0	ug/L		10/11/18 08:49	10/17/18 00:52	1
Naphthalene	ND		4.1	0.30	ug/L		10/11/18 08:49	10/17/18 00:52	1
Nitrobenzene	ND		10	0.84	ug/L		10/11/18 08:49	10/17/18 00:52	1
N-Nitrosodiethylamine	ND		10	1.8	ug/L		10/11/18 08:49	10/17/18 00:52	1
N-Nitrosodimethylamine	ND		10	0.30	ug/L		10/11/18 08:49	10/17/18 00:52	1
N-Nitrosodi-n-butylamine	ND		10	1.3	ug/L		10/11/18 08:49	10/17/18 00:52	1
N-Nitrosodi-n-propylamine	ND		10	0.36	ug/L		10/11/18 08:49	10/17/18 00:52	1
n-Nitrosodiphenylamine(as diphenylamine)	ND		10	0.45	ug/L		10/11/18 08:49	10/17/18 00:52	1
N-Nitrosomethylethylamine	ND		10	1.8	ug/L		10/11/18 08:49	10/17/18 00:52	1
N-Nitrosopiperidine	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
N-Nitrosopyrrolidine	ND		10	0.83	ug/L		10/11/18 08:49	10/17/18 00:52	1
o,o',o''-Triethylphosphorothioate	ND		52	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
o-Toluidine	ND		10	1.4	ug/L		10/11/18 08:49	10/17/18 00:52	1
p-Dimethylamino azobenzene	ND		21	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
Pentachlorobenzene	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
Pentachloronitrobenzene	ND		52	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
Pentachlorophenol	ND		52	21	ug/L		10/11/18 08:49	10/17/18 00:52	1
Phenacetin	ND		21	1.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
Phenanthrene	ND		4.1	0.27	ug/L		10/11/18 08:49	10/17/18 00:52	1
Phenol	ND		10	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
p-Phenylene diamine	ND	F1	100	5.2	ug/L		10/11/18 08:49	10/17/18 00:52	1
Pronamide	ND		21	2.1	ug/L		10/11/18 08:49	10/17/18 00:52	1
Pyrene	ND		10	0.38	ug/L		10/11/18 08:49	10/17/18 00:52	1
Safrole, Total	ND		21	1.2	ug/L		10/11/18 08:49	10/17/18 00:52	1
Thionazin	ND		52	0.89	ug/L		10/11/18 08:49	10/17/18 00:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*65*		*48 - 135*	*10/11/18 08:49*	*10/17/18 00:52*	*1*
2-Fluorobiphenyl	*79*		*48 - 135*	*10/11/18 08:49*	*10/17/18 00:52*	*1*
2-Fluorophenol	*78*		*41 - 135*	*10/11/18 08:49*	*10/17/18 00:52*	*1*
Nitrobenzene-d5	*74*		*42 - 135*	*10/11/18 08:49*	*10/17/18 00:52*	*1*
Phenol-d5	*77*		*46 - 135*	*10/11/18 08:49*	*10/17/18 00:52*	*1*
Terphenyl-d14	*79*		*20 - 135*	*10/11/18 08:49*	*10/17/18 00:52*	*1*

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.050	0.0077	ug/L		10/10/18 18:04	10/30/18 05:12	1
4,4'-DDE	ND		0.050	0.0075	ug/L		10/10/18 18:04	10/30/18 05:12	1
4,4'-DDT	ND		0.050	0.015	ug/L		10/10/18 18:04	10/30/18 05:12	1
Aldrin	ND		0.050	0.0059	ug/L		10/10/18 18:04	10/30/18 05:12	1
alpha-BHC	ND		0.050	0.0053	ug/L		10/10/18 18:04	10/30/18 05:12	1
beta-BHC	ND		0.050	0.0087	ug/L		10/10/18 18:04	10/30/18 05:12	1
delta-BHC	ND		0.050	0.0058	ug/L		10/10/18 18:04	10/30/18 05:12	1
Dieldrin	ND		0.050	0.0063	ug/L		10/10/18 18:04	10/30/18 05:12	1
Endosulfan I	ND		0.050	0.0058	ug/L		10/10/18 18:04	10/30/18 05:12	1
Endosulfan II	ND		0.050	0.0070	ug/L		10/10/18 18:04	10/30/18 05:12	1
Endosulfan sulfate	ND		0.050	0.0057	ug/L		10/10/18 18:04	10/30/18 05:12	1
Endrin	ND		0.050	0.0079	ug/L		10/10/18 18:04	10/30/18 05:12	1
Endrin aldehyde	ND	*	0.050	0.0088	ug/L		10/10/18 18:04	10/30/18 05:12	1
gamma-BHC (Lindane)	ND		0.050	0.0069	ug/L		10/10/18 18:04	10/30/18 05:12	1
Heptachlor	ND		0.050	0.0077	ug/L		10/10/18 18:04	10/30/18 05:12	1
Heptachlor epoxide	ND		0.050	0.0075	ug/L		10/10/18 18:04	10/30/18 05:12	1
Kepone	ND		1.0	0.35	ug/L		10/10/18 18:04	10/30/18 05:12	1
Methoxychlor	ND		0.10	0.013	ug/L		10/10/18 18:04	10/30/18 05:12	1
Toxaphene	ND		2.0	0.37	ug/L		10/10/18 18:04	10/30/18 05:12	1
Isodrin	ND		0.10	0.0039	ug/L		10/10/18 18:04	10/30/18 05:12	1
Technical Chlordane	ND		0.50	0.14	ug/L		10/10/18 18:04	10/30/18 05:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*81*		*34 - 122*	*10/10/18 18:04*	*10/30/18 05:12*	*1*
Tetrachloro-m-xylene	*77*		*28 - 115*	*10/10/18 18:04*	*10/30/18 05:12*	*1*

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND	F1	0.051	0.0079	ug/L		10/10/18 18:04	10/30/18 05:29	1
4,4'-DDE	ND		0.051	0.0077	ug/L		10/10/18 18:04	10/30/18 05:29	1
4,4'-DDT	ND		0.051	0.015	ug/L		10/10/18 18:04	10/30/18 05:29	1
Aldrin	ND		0.051	0.0060	ug/L		10/10/18 18:04	10/30/18 05:29	1
alpha-BHC	ND		0.051	0.0054	ug/L		10/10/18 18:04	10/30/18 05:29	1
beta-BHC	ND		0.051	0.0089	ug/L		10/10/18 18:04	10/30/18 05:29	1
delta-BHC	ND		0.051	0.0059	ug/L		10/10/18 18:04	10/30/18 05:29	1
Dieldrin	ND	F1	0.051	0.0065	ug/L		10/10/18 18:04	10/30/18 05:29	1
Endosulfan I	ND		0.051	0.0059	ug/L		10/10/18 18:04	10/30/18 05:29	1
Endosulfan II	ND		0.051	0.0072	ug/L		10/10/18 18:04	10/30/18 05:29	1
Endosulfan sulfate	ND	F1	0.051	0.0058	ug/L		10/10/18 18:04	10/30/18 05:29	1
Endrin	ND		0.051	0.0081	ug/L		10/10/18 18:04	10/30/18 05:29	1
Endrin aldehyde	ND	* F1	0.051	0.0090	ug/L		10/10/18 18:04	10/30/18 05:29	1
gamma-BHC (Lindane)	ND	F1	0.051	0.0071	ug/L		10/10/18 18:04	10/30/18 05:29	1
Heptachlor	ND		0.051	0.0079	ug/L		10/10/18 18:04	10/30/18 05:29	1
Heptachlor epoxide	ND	F1	0.051	0.0077	ug/L		10/10/18 18:04	10/30/18 05:29	1
Kepone	ND		1.0	0.36	ug/L		10/10/18 18:04	10/30/18 05:29	1
Methoxychlor	ND		0.10	0.013	ug/L		10/10/18 18:04	10/30/18 05:29	1
Toxaphene	ND		2.1	0.38	ug/L		10/10/18 18:04	10/30/18 05:29	1
Isodrin	ND		0.10	0.0040	ug/L		10/10/18 18:04	10/30/18 05:29	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technical Chlordane	ND		0.51	0.14	ug/L		10/10/18 18:04	10/30/18 05:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*86*		*34 - 122*	*10/10/18 18:04*	*10/30/18 05:29*	*1*
Tetrachloro-m-xylene	*80*		*28 - 115*	*10/10/18 18:04*	*10/30/18 05:29*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		1.0	0.22	ug/L		10/10/18 18:04	11/01/18 05:15	1
PCB-1016	ND		1.0	0.12	ug/L		10/10/18 18:04	11/01/18 05:15	1
PCB-1232	ND		1.0	0.17	ug/L		10/10/18 18:04	11/01/18 05:15	1
PCB-1242	ND		1.0	0.10	ug/L		10/10/18 18:04	11/01/18 05:15	1
PCB-1248	ND		1.0	0.092	ug/L		10/10/18 18:04	11/01/18 05:15	1
PCB-1254	ND		1.0	0.11	ug/L		10/10/18 18:04	11/01/18 05:15	1
PCB-1260	ND		1.0	0.16	ug/L		10/10/18 18:04	11/01/18 05:15	1
Polychlorinated biphenyls, Total	ND		1.0	0.085	ug/L		10/10/18 18:04	11/01/18 05:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*86*		*25 - 120*	*10/10/18 18:04*	*11/01/18 05:15*	*1*
DCB Decachlorobiphenyl	*91*		*30 - 136*	*10/10/18 18:04*	*11/01/18 05:15*	*1*

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		1.0	0.22	ug/L		10/10/18 18:04	11/01/18 05:37	1
PCB-1016	ND		1.0	0.13	ug/L		10/10/18 18:04	11/01/18 05:37	1
PCB-1232	ND		1.0	0.17	ug/L		10/10/18 18:04	11/01/18 05:37	1
PCB-1242	ND		1.0	0.11	ug/L		10/10/18 18:04	11/01/18 05:37	1
PCB-1248	ND		1.0	0.094	ug/L		10/10/18 18:04	11/01/18 05:37	1
PCB-1254	ND		1.0	0.12	ug/L		10/10/18 18:04	11/01/18 05:37	1
PCB-1260	ND		1.0	0.16	ug/L		10/10/18 18:04	11/01/18 05:37	1
Polychlorinated biphenyls, Total	ND		1.0	0.087	ug/L		10/10/18 18:04	11/01/18 05:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*83*		*25 - 120*	*10/10/18 18:04*	*11/01/18 05:37*	*1*
DCB Decachlorobiphenyl	*85*		*30 - 136*	*10/10/18 18:04*	*11/01/18 05:37*	*1*

Method: 8141A - Organophosphorous Pesticides (GC)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethoate	ND		1.6	0.47	ug/L		10/10/18 14:00	10/12/18 19:54	1
Disulfoton	ND		1.0	0.33	ug/L		10/10/18 14:00	10/12/18 19:54	1
Famphur	ND		1.0	0.19	ug/L		10/10/18 14:00	10/12/18 19:54	1

Method: 8141A - Organophosphorous Pesticides (GC) (Continued)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl parathion	ND		4.1	0.15	ug/L		10/10/18 14:00	10/12/18 19:54	1
Parathion	ND		1.0	0.15	ug/L		10/10/18 14:00	10/12/18 19:54	1
Phorate	ND		1.2	0.16	ug/L		10/10/18 14:00	10/12/18 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Triphenylphosphate	*65*		*60 - 154*	*10/10/18 14:00*	*10/12/18 19:54*	*1*
Chlormefos	*76*		*49 - 171*	*10/10/18 14:00*	*10/12/18 19:54*	*1*

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethoate	ND		1.5	0.45	ug/L		10/10/18 14:00	10/12/18 17:57	1
Disulfoton	ND		1.0	0.32	ug/L		10/10/18 14:00	10/12/18 17:57	1
Famphur	ND		1.0	0.18	ug/L		10/10/18 14:00	10/12/18 17:57	1
Methyl parathion	ND		4.0	0.14	ug/L		10/10/18 14:00	10/12/18 17:57	1
Parathion	ND		1.0	0.14	ug/L		10/10/18 14:00	10/12/18 17:57	1
Phorate	ND		1.2	0.15	ug/L		10/10/18 14:00	10/12/18 17:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Triphenylphosphate	*71*		*60 - 154*	*10/10/18 14:00*	*10/12/18 17:57*	*1*
Chlormefos	*77*		*49 - 171*	*10/10/18 14:00*	*10/12/18 17:57*	*1*

Method: 8151A - Herbicides (GC)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		4.2	0.22	ug/L		10/10/18 14:45	10/12/18 23:25	1
Dinoseb	ND		1.0	0.47	ug/L		10/10/18 14:45	10/12/18 23:25	1
2,4,5-T	ND		1.0	0.20	ug/L		10/10/18 14:45	10/12/18 23:25	1
Silvex (2,4,5-TP)	ND		1.0	0.18	ug/L		10/10/18 14:45	10/12/18 23:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*85*		*39 - 135*	*10/10/18 14:45*	*10/12/18 23:25*	*1*

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND	F1	4.3	0.22	ug/L		10/10/18 14:45	10/12/18 23:40	1
Dinoseb	ND		1.1	0.48	ug/L		10/10/18 14:45	10/12/18 23:40	1
2,4,5-T	ND		1.1	0.20	ug/L		10/10/18 14:45	10/12/18 23:40	1
Silvex (2,4,5-TP)	ND	F1	1.1	0.18	ug/L		10/10/18 14:45	10/12/18 23:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*95*		*39 - 135*	*10/10/18 14:45*	*10/12/18 23:40*	*1*

Method: 8290 - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		9.9	0.29	pg/L		10/16/18 14:34	10/24/18 08:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*91*		*40 - 135*	*10/16/18 14:34*	*10/24/18 08:03*	*1*

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		9.7	0.36	pg/L		10/16/18 14:34	10/24/18 16:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*90*		*40 - 135*	*10/16/18 14:34*	*10/24/18 16:13*	*1*

Method: 6010C - Metals (ICP)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**44000**		200	35	ug/L		10/13/18 09:30	10/15/18 20:07	1
Iron	**130**		100	22	ug/L		10/13/18 09:30	10/15/18 20:07	1
Magnesium	**37000**		200	11	ug/L		10/13/18 09:30	10/15/18 20:07	1
Potassium	**2700**	**J**	3000	240	ug/L		10/13/18 09:30	10/15/18 20:07	1
Sodium	**39000**	**^ B**	1000	120	ug/L		10/13/18 09:30	10/15/18 20:07	1

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**44000**		200	35	ug/L		10/13/18 09:30	10/15/18 20:10	1
Iron	**290**		100	22	ug/L		10/13/18 09:30	10/15/18 20:10	1
Magnesium	**38000**		200	11	ug/L		10/13/18 09:30	10/15/18 20:10	1
Potassium	**2900**	**J**	3000	240	ug/L		10/13/18 09:30	10/15/18 20:10	1
Sodium	**37000**	**^ B**	1000	120	ug/L		10/13/18 09:30	10/15/18 20:10	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/12/18 06:00	10/12/18 21:27	1
Arsenic	**3.5**	**J**	5.0	0.33	ug/L		10/12/18 06:00	10/12/18 21:27	1
Barium	**110**		1.0	0.29	ug/L		10/12/18 06:00	10/12/18 21:27	1
Beryllium	ND		1.0	0.080	ug/L		10/12/18 06:00	10/12/18 21:27	1
Cadmium	ND		1.0	0.27	ug/L		10/12/18 06:00	10/12/18 21:27	1
Chromium	**1.2**	**J**	2.0	0.50	ug/L		10/12/18 06:00	10/12/18 21:27	1
Co	**0.18**	**J**	1.0	0.054	ug/L		10/12/18 06:00	10/12/18 21:27	1
Copper	ND		2.0	0.56	ug/L		10/12/18 06:00	10/12/18 21:27	1
Lead	ND		1.0	0.18	ug/L		10/12/18 06:00	10/12/18 21:27	1
Manganese	**2.9**		1.0	0.31	ug/L		10/12/18 06:00	10/12/18 21:27	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		2.0	0.30	ug/L		10/12/18 06:00	10/12/18 21:27	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 06:00	10/12/18 21:27	1
Silver	ND		5.0	0.033	ug/L		10/12/18 06:00	10/12/18 21:27	1
Thallium	ND		1.0	0.050	ug/L		10/12/18 06:00	10/12/18 21:27	1
Tin	ND		10	0.77	ug/L		10/12/18 06:00	10/12/18 21:27	1
Vanadium	**0.76**	**J**	5.0	0.50	ug/L		10/12/18 06:00	10/12/18 21:27	1
Zinc	**3.7**	**J**	10	2.0	ug/L		10/16/18 08:10	10/16/18 15:09	1

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.58**	**J**	2.0	0.40	ug/L		10/12/18 06:00	10/12/18 21:35	1
Arsenic	**4.1**	**J**	5.0	0.33	ug/L		10/12/18 06:00	10/12/18 21:35	1
Barium	**120**		1.0	0.29	ug/L		10/12/18 06:00	10/12/18 21:35	1
Beryllium	ND		1.0	0.080	ug/L		10/12/18 06:00	10/12/18 21:35	1
Cadmium	ND		1.0	0.27	ug/L		10/12/18 06:00	10/12/18 21:35	1
Chromium	**1.4**	**J**	2.0	0.50	ug/L		10/12/18 06:00	10/12/18 21:35	1
Co	**1.2**		1.0	0.054	ug/L		10/12/18 06:00	10/12/18 21:35	1
Copper	**0.83**	**J**	2.0	0.56	ug/L		10/12/18 06:00	10/12/18 21:35	1
Lead	**0.60**	**J**	1.0	0.18	ug/L		10/12/18 06:00	10/12/18 21:35	1
Manganese	**22**		1.0	0.31	ug/L		10/12/18 06:00	10/12/18 21:35	1
Nickel	**0.62**	**J**	2.0	0.30	ug/L		10/12/18 06:00	10/12/18 21:35	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 06:00	10/12/18 21:35	1
Silver	ND		5.0	0.033	ug/L		10/12/18 06:00	10/12/18 21:35	1
Thallium	ND		1.0	0.050	ug/L		10/12/18 06:00	10/12/18 21:35	1
Tin	ND		10	0.77	ug/L		10/12/18 06:00	10/12/18 21:35	1
Vanadium	**0.91**	**J**	5.0	0.50	ug/L		10/12/18 06:00	10/12/18 21:35	1
Zinc	**6.2**	**J F1**	10	2.0	ug/L		10/16/18 08:10	10/16/18 15:13	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 23:54	1

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 23:56	1

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115262-1

General Chemistry

Client Sample ID: MW-13Q-20181006
Date Collected: 10/06/18 16:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.63**		0.10	0.019	mg/L			10/15/18 16:49	1
Chloride	**83**		3.0	0.25	mg/L			10/15/18 22:11	1
Sulfate	**20**		5.0	0.23	mg/L			10/15/18 22:11	1
Alkalinity, Total	**210**		5.0	1.1	mg/L			10/10/18 19:40	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 14:02	1
Sulfide	ND		0.050	0.0070	mg/L			10/13/18 09:32	1

Client Sample ID: MW-13-20181006
Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.60**		0.10	0.019	mg/L			10/15/18 16:43	1
Chloride	**83**		3.0	0.25	mg/L			10/15/18 22:30	1
Sulfate	**21**		5.0	0.23	mg/L			10/15/18 22:30	1
Alkalinity, Total	**210**		5.0	1.1	mg/L			10/10/18 19:46	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 13:57	1
Sulfide	ND		0.050	0.0070	mg/L			10/13/18 09:32	1

Surrogate Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115262-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DBFM	DCA	BFB	TOL
Lab Sample ID	Client Sample ID	(77-120)	(70-127)	(78-120)	(80-125)
280-115262-1	MW-13Q-20181006	112	111	88	98
280-115262-2	MW-13-20181006	114	113	88	98
280-115262-2 MS	MW-13-20181006	109	108	95	110
280-115262-2 MS	MW-13-20181006	107	108	95	96
280-115262-2 MSD	MW-13-20181006	110	112	92	109
280-115262-2 MSD	MW-13-20181006	106	105	95	97
280-115262-3	TRIP BLANK	119	114	89	96
LCS 280-433352/32	Lab Control Sample	103	104	103	97
LCS 280-433352/4	Lab Control Sample	100	93	98	109
MB 280-433352/6	Method Blank	106	102	91	99

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	PHL	TPHL
Lab Sample ID	Client Sample ID	(48-135)	(48-135)	(41-135)	(42-135)	(46-135)	(20-135)
280-115262-1	MW-13Q-20181006	65	62	63	59	66	87
280-115262-2	MW-13-20181006	65	79	78	74	77	79
280-115262-2 MS	MW-13-20181006	72	76	87	77	82	73
280-115262-2 MS	MW-13-20181006	64	75	78	77	79	76
280-115262-2 MSD	MW-13-20181006	77	82	99	85	87	74
280-115262-2 MSD	MW-13-20181006	71	75	81	79	82	81
LCS 280-432905/2-A	Lab Control Sample	71	72	58	65	63	81
LCS 280-432905/3-A	Lab Control Sample	74	75	77	75	79	83
MB 280-432905/1-A	Method Blank	67	75	87	73	83	80

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPHL = Terphenyl-d14

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCBP1	TCX1
Lab Sample ID	Client Sample ID	(34-122)	(28-115)
280-115262-1	MW-13Q-20181006	81	77
280-115262-2	MW-13-20181006	86	80
280-115262-2 MS	MW-13-20181006	82	77

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCBP1	TCX1
Lab Sample ID	Client Sample ID	(34-122)	(28-115)
280-115262-2 MSD	MW-13-20181006	82	78
LCS 280-432838/2-A	Lab Control Sample	86	73
LCSD 280-432838/3-A	Lab Control Sample Dup	91	77
MB 280-432838/1-A	Method Blank	88	83

Surrogate Legend

DCBP = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX2	DCBP2
Lab Sample ID	Client Sample ID	(25-120)	(30-136)
280-115262-1	MW-13Q-20181006	86	91
280-115262-2	MW-13-20181006	83	85
280-115262-2 MS	MW-13-20181006	85	78
280-115262-2 MSD	MW-13-20181006	83	85
LCS 280-432838/4-A	Lab Control Sample	166 X	167 X
LCSD 280-432838/5-A	Lab Control Sample Dup	90	90
MB 280-432838/1-A	Method Blank	88	87

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCBP = DCB Decachlorobiphenyl

Method: 8141A - Organophosphorous Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TPP1	CMF1
Lab Sample ID	Client Sample ID	(60-154)	(49-171)
280-115262-1	MW-13Q-20181006	65	76
280-115262-2	MW-13-20181006	71	77
280-115262-2 MS	MW-13-20181006	83	77
280-115262-2 MSD	MW-13-20181006	84	84
LCS 280-432806/2-A	Lab Control Sample	83	82
MB 280-432806/1-A	Method Blank	72	70

Surrogate Legend

TPP = Triphenylphosphate

CMF = Chlormefos

Surrogate Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115262-1

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	DCPAA1 (39-135)								
280-115262-1	MW-13Q-20181006	85								
280-115262-2	MW-13-20181006	95								
280-115262-2 MS	MW-13-20181006	98								
280-115262-2 MSD	MW-13-20181006	95								
LCS 280-432814/2-A	Lab Control Sample	88								
MB 280-432814/1-A	Method Blank	87								

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-433352/6
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 11:53	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 11:53	1
Acrolein	ND		20	2.8	ug/L			10/14/18 11:53	1
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 11:53	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 11:53	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 11:53	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 11:53	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 11:53	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 11:53	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 11:53	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 11:53	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 11:53	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 11:53	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 11:53	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 11:53	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 11:53	1
Chloroform	ND		1.0	0.16	ug/L			10/14/18 11:53	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 11:53	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 11:53	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 11:53	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 11:53	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 11:53	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 11:53	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 11:53	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 11:53	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/14/18 11:53	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/14/18 11:53	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 11:53	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 11:53	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 11:53	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 11:53	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 11:53	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 11:53	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 11:53	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 11:53	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 11:53	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 11:53	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 11:53	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 11:53	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 11:53	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 11:53	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 11:53	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 11:53	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 11:53	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 11:53	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 11:53	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 11:53	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 11:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433352/6
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 11:53	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 11:53	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/14/18 11:53	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 11:53	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 11:53	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 11:53	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 11:53	1
Trichloroethene	ND		1.0	0.16	ug/L			10/14/18 11:53	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 11:53	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 11:53	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 11:53	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 11:53	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 11:53	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 11:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*106*		*77 - 120*		*10/14/18 11:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 127*		*10/14/18 11:53*	*1*
4-Bromofluorobenzene (Surr)	*91*		*78 - 120*		*10/14/18 11:53*	*1*
Toluene-d8 (Surr)	*99*		*80 - 125*		*10/14/18 11:53*	*1*

Lab Sample ID: LCS 280-433352/32
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	80.0	71.8		ug/L		90	50 - 150
Chloroprene	8.00	7.26		ug/L		91	50 - 150
Methacrylonitrile	80.0	83.9		ug/L		105	50 - 150
Methyl methacrylate	16.0	12.1		ug/L		76	50 - 150
Propionitrile	80.0	80.8		ug/L		101	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*103*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*
4-Bromofluorobenzene (Surr)	*103*		*78 - 120*
Toluene-d8 (Surr)	*97*		*80 - 125*

Lab Sample ID: LCS 280-433352/4
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	17.3		ug/L		87	39 - 156
Acrolein	50.0	51.8		ug/L		104	36 - 147
Acrylonitrile	50.0	53.5		ug/L		107	56 - 135
Benzene	5.00	4.70		ug/L		94	65 - 135
Chlorobromomethane	5.00	4.45		ug/L		89	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433352/4
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorobromomethane	5.00	4.43		ug/L		89	65 - 135
Bromoform	5.00	4.07		ug/L		81	62 - 135
Bromomethane	5.00	5.11		ug/L		102	45 - 135
2-Butanone (MEK)	20.0	13.6		ug/L		68	44 - 177
Carbon disulfide	5.00	5.26		ug/L		105	55 - 143
Carbon tetrachloride	5.00	4.99		ug/L		100	65 - 135
Chlorobenzene	5.00	4.70		ug/L		94	65 - 135
Chlorodibromomethane	5.00	4.41		ug/L		88	65 - 135
Chloroethane	5.00	5.26		ug/L		105	46 - 136
Chloroform	5.00	4.48		ug/L		90	65 - 135
Chloromethane	5.00	4.84		ug/L		97	34 - 145
Allyl chloride	5.00	4.91		ug/L		98	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	4.67	J	ug/L		93	57 - 135
Dibromomethane	5.00	4.16		ug/L		83	65 - 135
1,2-Dichlorobenzene	5.00	4.60		ug/L		92	65 - 135
1,3-Dichlorobenzene	5.00	4.73		ug/L		95	65 - 135
1,4-Dichlorobenzene	5.00	4.48		ug/L		90	65 - 135
trans-1,4-Dichloro-2-butene	5.00	4.56		ug/L		91	53 - 135
Dichlorodifluoromethane	5.00	4.65		ug/L		93	43 - 142
1,1-Dichloroethane	5.00	4.69		ug/L		94	65 - 135
1,2-Dichloroethane	5.00	4.27		ug/L		85	65 - 135
cis-1,2-Dichloroethene	5.00	4.41		ug/L		88	65 - 135
trans-1,2-Dichloroethene	5.00	5.34		ug/L		107	65 - 135
1,1-Dichloroethene	5.00	5.30		ug/L		106	65 - 136
1,2-Dichloropropane	5.00	4.37		ug/L		87	64 - 135
1,3-Dichloropropane	5.00	4.29		ug/L		86	64 - 135
2,2-Dichloropropane	5.00	4.73		ug/L		95	65 - 135
cis-1,3-Dichloropropene	5.00	3.74		ug/L		75	65 - 135
trans-1,3-Dichloropropene	5.00	3.83		ug/L		77	65 - 135
1,1-Dichloropropene	5.00	4.70		ug/L		94	65 - 135
Ethylbenzene	5.00	4.85		ug/L		97	65 - 135
Ethyl methacrylate	5.00	3.67		ug/L		73	50 - 135
2-Hexanone	20.0	14.7		ug/L		73	57 - 139
Iodomethane	5.00	5.48		ug/L		110	65 - 142
Isobutyl alcohol	125	102	J	ug/L		82	55 - 135
Methylene Chloride	5.00	4.89		ug/L		98	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	14.0		ug/L		70	60 - 150
Styrene	5.00	4.40		ug/L		88	65 - 135
1,1,1,2-Tetrachloroethane	5.00	4.78		ug/L		96	65 - 135
1,1,2,2-Tetrachloroethane	5.00	3.90		ug/L		78	58 - 135
Tetrachloroethene	5.00	5.18		ug/L		104	65 - 135
Toluene	5.00	4.97		ug/L		99	65 - 135
1,2,4-Trichlorobenzene	5.00	4.23		ug/L		85	58 - 135
1,1,1-Trichloroethane	5.00	4.81		ug/L		96	65 - 135
1,1,2-Trichloroethane	5.00	4.35		ug/L		87	64 - 135
Trichloroethene	5.00	4.60		ug/L		92	65 - 135
Trichlorofluoromethane	5.00	5.37		ug/L		107	53 - 137
1,2,3-Trichloropropane	5.00	3.99		ug/L		80	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433352/4
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Vinyl acetate			10.0	8.26		ug/L		83	11 - 187		
Vinyl chloride			5.00	4.94		ug/L		99	40 - 137		
Xylenes, Total			10.0	9.40		ug/L		94	65 - 135		
1,2-Dibromoethane			5.00	4.18		ug/L		84	65 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 127*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*
Toluene-d8 (Surr)	*109*		*80 - 125*

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433352

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acetone	ND		20.0	20.0		ug/L		100	39 - 156		
Acrolein	ND		50.0	60.7		ug/L		121	36 - 147		
Acrylonitrile	ND		50.0	63.9		ug/L		128	56 - 135		
Benzene	ND		5.00	4.84		ug/L		97	65 - 135		
Chlorobromomethane	ND		5.00	5.22		ug/L		104	65 - 135		
Dichlorobromomethane	ND		5.00	5.00		ug/L		100	65 - 135		
Bromoform	ND		5.00	5.14		ug/L		103	62 - 135		
Bromomethane	ND		5.00	5.70		ug/L		114	45 - 135		
2-Butanone (MEK)	ND		20.0	17.3		ug/L		86	44 - 177		
Carbon disulfide	ND		5.00	5.62		ug/L		112	55 - 143		
Carbon tetrachloride	ND		5.00	5.27		ug/L		105	65 - 135		
Chlorobenzene	ND		5.00	4.99		ug/L		100	65 - 135		
Chlorodibromomethane	ND		5.00	5.23		ug/L		105	65 - 135		
Chloroethane	ND		5.00	5.49		ug/L		110	46 - 136		
Chloroform	ND		5.00	4.95		ug/L		99	65 - 135		
Chloromethane	ND		5.00	5.42		ug/L		108	34 - 145		
Allyl chloride	ND		5.00	5.19		ug/L		104	50 - 135		
1,2-Dibromo-3-Chloropropane	ND		5.00	5.23		ug/L		105	57 - 135		
Dibromomethane	ND		5.00	5.11		ug/L		102	65 - 135		
1,2-Dichlorobenzene	ND		5.00	4.88		ug/L		98	65 - 135		
1,3-Dichlorobenzene	ND		5.00	4.65		ug/L		93	65 - 135		
1,4-Dichlorobenzene	ND		5.00	4.62		ug/L		92	65 - 135		
trans-1,4-Dichloro-2-butene	ND		5.00	4.79		ug/L		96	53 - 135		
Dichlorodifluoromethane	0.39	J	5.00	5.64		ug/L		105	43 - 142		
1,1-Dichloroethane	ND		5.00	5.15		ug/L		103	65 - 135		
1,2-Dichloroethane	ND		5.00	4.84		ug/L		97	65 - 135		
cis-1,2-Dichloroethene	0.40	J	5.00	5.18		ug/L		95	65 - 135		
trans-1,2-Dichloroethene	ND		5.00	5.87		ug/L		117	65 - 135		
1,1-Dichloroethene	ND		5.00	5.51		ug/L		110	65 - 136		
1,2-Dichloropropane	ND		5.00	5.08		ug/L		102	64 - 135		
1,3-Dichloropropane	ND		5.00	4.89		ug/L		98	64 - 135		
2,2-Dichloropropane	ND		5.00	5.10		ug/L		102	65 - 135		

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433352

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,3-Dichloropropene	ND		5.00	3.65		ug/L		73	65 - 135
trans-1,3-Dichloropropene	ND		5.00	4.10		ug/L		82	65 - 135
1,1-Dichloropropene	ND		5.00	4.68		ug/L		94	65 - 135
Ethylbenzene	ND		5.00	4.96		ug/L		99	65 - 135
Ethyl methacrylate	ND		5.00	3.97		ug/L		79	50 - 135
2-Hexanone	ND		20.0	15.1		ug/L		76	57 - 139
Iodomethane	ND		5.00	6.01		ug/L		120	65 - 142
Isobutyl alcohol	ND		125	96.6	J	ug/L		77	55 - 135
Methylene Chloride	ND		5.00	5.90		ug/L		118	54 - 141
4-Methyl-2-pentanone (MIBK)	ND		20.0	15.8		ug/L		79	60 - 150
Styrene	ND		5.00	4.58		ug/L		92	65 - 135
1,1,1,2-Tetrachloroethane	ND		5.00	5.24		ug/L		105	65 - 135
1,1,2,2-Tetrachloroethane	ND		5.00	4.48		ug/L		90	58 - 135
Tetrachloroethene	0.23	J	5.00	5.36		ug/L		102	65 - 135
Toluene	ND		5.00	5.28		ug/L		106	65 - 135
1,2,4-Trichlorobenzene	ND		5.00	4.41		ug/L		88	58 - 135
1,1,1-Trichloroethane	ND		5.00	5.07		ug/L		101	65 - 135
1,1,2-Trichloroethane	ND		5.00	5.09		ug/L		102	64 - 135
Trichloroethene	ND		5.00	4.71		ug/L		94	65 - 135
Trichlorofluoromethane	ND		5.00	5.91		ug/L		118	53 - 137
1,2,3-Trichloropropane	ND		5.00	4.54		ug/L		91	65 - 135
Vinyl acetate	ND		10.0	9.17		ug/L		92	11 - 187
Vinyl chloride	ND		5.00	5.30		ug/L		106	40 - 137
Xylenes, Total	ND		10.0	9.43		ug/L		94	65 - 135
1,2-Dibromoethane	ND		5.00	4.88		ug/L		98	65 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*109*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 127*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*
Toluene-d8 (Surr)	*110*		*80 - 125*

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433352

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	ND		40.0	38.3		ug/L		96	50 - 150
Chloroprene	ND		4.00	2.85		ug/L		71	50 - 150
Methacrylonitrile	ND		40.0	40.8		ug/L		102	50 - 150
Methyl methacrylate	ND		8.00	6.08		ug/L		76	50 - 150
Propionitrile	ND		40.0	51.4		ug/L		129	50 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*107*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 127*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433352

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*80 - 125*

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433352

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	ND		20.0	23.6		ug/L		118	39 - 156	16	23
Acrolein	ND		50.0	68.9		ug/L		138	36 - 147	13	30
Acrylonitrile	ND		50.0	57.4		ug/L		115	56 - 135	11	30
Benzene	ND		5.00	5.10		ug/L		102	65 - 135	5	20
Chlorobromomethane	ND		5.00	5.44		ug/L		109	65 - 135	4	29
Dichlorobromomethane	ND		5.00	5.21		ug/L		104	65 - 135	4	20
Bromoform	ND		5.00	5.37		ug/L		107	62 - 135	4	27
Bromomethane	ND		5.00	6.27		ug/L		125	45 - 135	10	33
2-Butanone (MEK)	ND		20.0	17.7		ug/L		89	44 - 177	2	32
Carbon disulfide	ND		5.00	6.01		ug/L		120	55 - 143	7	20
Carbon tetrachloride	ND		5.00	5.69		ug/L		114	65 - 135	8	21
Chlorobenzene	ND		5.00	5.12		ug/L		102	65 - 135	3	20
Chlorodibromomethane	ND		5.00	5.53		ug/L		111	65 - 135	6	20
Chloroethane	ND		5.00	6.15		ug/L		123	46 - 136	11	25
Chloroform	ND		5.00	5.24		ug/L		105	65 - 135	6	20
Chloromethane	ND		5.00	6.02		ug/L		120	34 - 145	11	24
Allyl chloride	ND		5.00	5.40		ug/L		108	50 - 135	4	30
1,2-Dibromo-3-Chloropropane	ND		5.00	5.69		ug/L		114	57 - 135	8	22
Dibromomethane	ND		5.00	5.65		ug/L		113	65 - 135	10	26
1,2-Dichlorobenzene	ND		5.00	5.08		ug/L		102	65 - 135	4	20
1,3-Dichlorobenzene	ND		5.00	4.85		ug/L		97	65 - 135	4	20
1,4-Dichlorobenzene	ND		5.00	4.70		ug/L		94	65 - 135	2	23
trans-1,4-Dichloro-2-butene	ND		5.00	5.20		ug/L		104	53 - 135	8	25
Dichlorodifluoromethane	0.39	J	5.00	6.40		ug/L		120	43 - 142	13	30
1,1-Dichloroethane	ND		5.00	5.39		ug/L		108	65 - 135	5	21
1,2-Dichloroethane	ND		5.00	5.15		ug/L		103	65 - 135	6	20
cis-1,2-Dichloroethene	0.40	J	5.00	5.44		ug/L		101	65 - 135	5	20
trans-1,2-Dichloroethene	ND		5.00	6.03		ug/L		121	65 - 135	3	24
1,1-Dichloroethene	ND		5.00	5.92		ug/L		118	65 - 136	7	20
1,2-Dichloropropane	ND		5.00	5.42		ug/L		108	64 - 135	6	20
1,3-Dichloropropane	ND		5.00	5.18		ug/L		104	64 - 135	6	20
2,2-Dichloropropane	ND		5.00	5.59		ug/L		112	65 - 135	9	20
cis-1,3-Dichloropropene	ND		5.00	3.82		ug/L		76	65 - 135	5	26
trans-1,3-Dichloropropene	ND		5.00	4.25		ug/L		85	65 - 135	3	26
1,1-Dichloropropene	ND		5.00	4.95		ug/L		99	65 - 135	5	21
Ethylbenzene	ND		5.00	5.01		ug/L		100	65 - 135	1	20
Ethyl methacrylate	ND		5.00	4.17		ug/L		83	50 - 135	5	30
2-Hexanone	ND		20.0	16.2		ug/L		81	57 - 139	7	25
Iodomethane	ND		5.00	6.46		ug/L		129	65 - 142	7	25
Isobutyl alcohol	ND		125	125		ug/L		100	55 - 135	26	30
Methylene Chloride	ND		5.00	6.21		ug/L		124	54 - 141	5	26

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433352

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Methyl-2-pentanone (MIBK)	ND		20.0	17.3		ug/L		87	60 - 150	9	22
Styrene	ND		5.00	4.80		ug/L		96	65 - 135	5	26
1,1,1,2-Tetrachloroethane	ND		5.00	5.64		ug/L		113	65 - 135	7	20
1,1,2,2-Tetrachloroethane	ND		5.00	4.87		ug/L		97	58 - 135	8	20
Tetrachloroethene	0.23	J	5.00	5.56		ug/L		106	65 - 135	4	20
Toluene	ND		5.00	5.44		ug/L		109	65 - 135	3	20
1,2,4-Trichlorobenzene	ND		5.00	4.80		ug/L		96	58 - 135	9	25
1,1,1-Trichloroethane	ND		5.00	5.47		ug/L		109	65 - 135	8	20
1,1,2-Trichloroethane	ND		5.00	5.52		ug/L		110	64 - 135	8	27
Trichloroethene	ND		5.00	4.86		ug/L		97	65 - 135	3	20
Trichlorofluoromethane	ND		5.00	6.40		ug/L		128	53 - 137	8	27
1,2,3-Trichloropropane	ND		5.00	4.92		ug/L		98	65 - 135	8	23
Vinyl acetate	ND		10.0	9.77		ug/L		98	11 - 187	6	24
Vinyl chloride	ND		5.00	5.89		ug/L		118	40 - 137	11	24
Xylenes, Total	ND		10.0	9.96		ug/L		100	65 - 135	5	20
1,2-Dibromoethane	ND		5.00	5.18		ug/L		104	65 - 135	6	27

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*110*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 127*
4-Bromofluorobenzene (Surr)	*92*		*78 - 120*
Toluene-d8 (Surr)	*109*		*80 - 125*

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433352

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetonitrile	ND		40.0	37.5		ug/L		94	50 - 150	2	30
Chloroprene	ND		4.00	2.88		ug/L		72	50 - 150	1	30
Methacrylonitrile	ND		40.0	34.4		ug/L		86	50 - 150	17	30
Methyl methacrylate	ND		8.00	5.20		ug/L		65	50 - 150	16	30
Propionitrile	ND		40.0	49.9		ug/L		125	50 - 150	3	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*106*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*
Toluene-d8 (Surr)	*97*		*80 - 125*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-432905/1-A
Matrix: Water
Analysis Batch: 433630

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432905

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		10	1.7	ug/L		10/11/18 08:49	10/16/18 15:51	1
1,3,5-Trinitrobenzene	ND		50	4.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
1,3-Dinitrobenzene	ND		10	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
1,4-Naphthoquinone	ND		50	14	ug/L		10/11/18 08:49	10/16/18 15:51	1
1-Naphthylamine	ND		10	3.1	ug/L		10/11/18 08:49	10/16/18 15:51	1
2,3,4,6-Tetrachlorophenol	ND		50	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
2,4,5-Trichlorophenol	ND		10	0.45	ug/L		10/11/18 08:49	10/16/18 15:51	1
2,4,6-Trichlorophenol	ND		10	0.29	ug/L		10/11/18 08:49	10/16/18 15:51	1
2,4-Dichlorophenol	ND		10	0.64	ug/L		10/11/18 08:49	10/16/18 15:51	1
2,4-Dimethylphenol	ND		10	0.58	ug/L		10/11/18 08:49	10/16/18 15:51	1
2,4-Dinitrophenol	ND		30	10	ug/L		10/11/18 08:49	10/16/18 15:51	1
2,4-Dinitrotoluene	ND		10	1.7	ug/L		10/11/18 08:49	10/16/18 15:51	1
2,6-Dichlorophenol	ND		10	1.4	ug/L		10/11/18 08:49	10/16/18 15:51	1
2,6-Dinitrotoluene	ND		10	1.9	ug/L		10/11/18 08:49	10/16/18 15:51	1
2-Acetylaminofluorene	ND		100	7.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
2-Chloronaphthalene	ND		4.0	0.26	ug/L		10/11/18 08:49	10/16/18 15:51	1
2-Chlorophenol	ND		10	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
2-Methylnaphthalene	ND		4.0	0.29	ug/L		10/11/18 08:49	10/16/18 15:51	1
2-Methylphenol	ND		10	0.98	ug/L		10/11/18 08:49	10/16/18 15:51	1
2-Naphthylamine	ND		10	3.1	ug/L		10/11/18 08:49	10/16/18 15:51	1
2-Nitroaniline	ND		10	1.7	ug/L		10/11/18 08:49	10/16/18 15:51	1
2-Nitrophenol	ND		10	0.39	ug/L		10/11/18 08:49	10/16/18 15:51	1
3 & 4 Methylphenol	ND		10	0.25	ug/L		10/11/18 08:49	10/16/18 15:51	1
3,3'-Dichlorobenzidine	ND		50	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
3,3'-Dimethylbenzidine	ND		20	4.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
3-Methylcholanthrene	ND		20	1.7	ug/L		10/11/18 08:49	10/16/18 15:51	1
3-Nitroaniline	ND		10	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
4,6-Dinitro-2-methylphenol	ND		50	4.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
4-Aminobiphenyl	ND		50	4.5	ug/L		10/11/18 08:49	10/16/18 15:51	1
4-Bromophenyl phenyl ether	ND		10	0.43	ug/L		10/11/18 08:49	10/16/18 15:51	1
4-Chloro-3-methylphenol	ND		10	2.4	ug/L		10/11/18 08:49	10/16/18 15:51	1
4-Chloroaniline	ND		10	2.1	ug/L		10/11/18 08:49	10/16/18 15:51	1
4-Chlorophenyl phenyl ether	ND		10	1.7	ug/L		10/11/18 08:49	10/16/18 15:51	1
4-Nitroaniline	ND		10	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
4-Nitrophenol	ND		10	1.2	ug/L		10/11/18 08:49	10/16/18 15:51	1
5-Nitro-o-toluidine	ND		20	1.4	ug/L		10/11/18 08:49	10/16/18 15:51	1
7,12-Dimethylbenz(a)anthracene	ND		20	1.6	ug/L		10/11/18 08:49	10/16/18 15:51	1
a,a-Dimethylphenethylamine	ND		50	20	ug/L		10/11/18 08:49	10/16/18 15:51	1
Acenaphthene	ND		4.0	0.28	ug/L		10/11/18 08:49	10/16/18 15:51	1
Acenaphthylene	ND		4.0	0.49	ug/L		10/11/18 08:49	10/16/18 15:51	1
Acetophenone	ND		10	0.24	ug/L		10/11/18 08:49	10/16/18 15:51	1
Anthracene	ND		4.0	0.42	ug/L		10/11/18 08:49	10/16/18 15:51	1
Benzo[a]anthracene	ND		4.0	0.35	ug/L		10/11/18 08:49	10/16/18 15:51	1
Benzo[a]pyrene	ND		4.0	0.31	ug/L		10/11/18 08:49	10/16/18 15:51	1
Benzo[b]fluoranthene	ND		4.0	0.53	ug/L		10/11/18 08:49	10/16/18 15:51	1
Benzo[g,h,i]perylene	ND		4.0	0.50	ug/L		10/11/18 08:49	10/16/18 15:51	1
Benzo[k]fluoranthene	ND		4.0	0.46	ug/L		10/11/18 08:49	10/16/18 15:51	1
Benzyl alcohol	ND		10	0.23	ug/L		10/11/18 08:49	10/16/18 15:51	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-432905/1-A
Matrix: Water
Analysis Batch: 433630

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432905

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		10	0.97	ug/L		10/11/18 08:49	10/16/18 15:51	1
Bis(2-chloroethyl)ether	ND		10	0.41	ug/L		10/11/18 08:49	10/16/18 15:51	1
Bis(2-ethylhexyl) phthalate	ND		10	0.56	ug/L		10/11/18 08:49	10/16/18 15:51	1
bis(chloroisopropyl) ether	ND		10	0.28	ug/L		10/11/18 08:49	10/16/18 15:51	1
Butyl benzyl phthalate	ND		4.0	1.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
Chlorobenzilate	ND		10	0.66	ug/L		10/11/18 08:49	10/16/18 15:51	1
Chrysene	ND		4.0	0.54	ug/L		10/11/18 08:49	10/16/18 15:51	1
Diallate	ND		5.6	0.56	ug/L		10/11/18 08:49	10/16/18 15:51	1
Dibenz(a,h)anthracene	ND		4.0	0.51	ug/L		10/11/18 08:49	10/16/18 15:51	1
Dibenzofuran	ND		4.0	0.29	ug/L		10/11/18 08:49	10/16/18 15:51	1
Diethyl phthalate	ND		4.0	0.38	ug/L		10/11/18 08:49	10/16/18 15:51	1
Dimethyl phthalate	ND		4.0	0.21	ug/L		10/11/18 08:49	10/16/18 15:51	1
Di-n-butyl phthalate	ND		4.0	1.2	ug/L		10/11/18 08:49	10/16/18 15:51	1
Di-n-octyl phthalate	ND		4.0	0.35	ug/L		10/11/18 08:49	10/16/18 15:51	1
Diphenylamine	ND		10	1.1	ug/L		10/11/18 08:49	10/16/18 15:51	1
Ethyl methanesulfonate	ND		10	0.94	ug/L		10/11/18 08:49	10/16/18 15:51	1
Fluoranthene	ND		4.0	0.20	ug/L		10/11/18 08:49	10/16/18 15:51	1
Fluorene	ND		4.0	0.31	ug/L		10/11/18 08:49	10/16/18 15:51	1
Hexachlorobenzene	ND		10	0.66	ug/L		10/11/18 08:49	10/16/18 15:51	1
Hexachlorobutadiene	ND		10	3.3	ug/L		10/11/18 08:49	10/16/18 15:51	1
Hexachlorocyclopentadiene	ND		50	10	ug/L		10/11/18 08:49	10/16/18 15:51	1
Hexachloroethane	ND		10	2.1	ug/L		10/11/18 08:49	10/16/18 15:51	1
Hexachloropropene	ND		100	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
Indeno[1,2,3-cd]pyrene	ND		4.0	0.65	ug/L		10/11/18 08:49	10/16/18 15:51	1
Isophorone	ND		10	0.21	ug/L		10/11/18 08:49	10/16/18 15:51	1
Isosafrole	ND		3.5	1.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
Methapyrilene	ND		50	20	ug/L		10/11/18 08:49	10/16/18 15:51	1
Methyl methanesulfonate	ND		10	1.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
Naphthalene	ND		4.0	0.29	ug/L		10/11/18 08:49	10/16/18 15:51	1
Nitrobenzene	ND		10	0.81	ug/L		10/11/18 08:49	10/16/18 15:51	1
N-Nitrosodiethylamine	ND		10	1.7	ug/L		10/11/18 08:49	10/16/18 15:51	1
N-Nitrosodimethylamine	ND		10	0.29	ug/L		10/11/18 08:49	10/16/18 15:51	1
N-Nitrosodi-n-butylamine	ND		10	1.2	ug/L		10/11/18 08:49	10/16/18 15:51	1
N-Nitrosodi-n-propylamine	ND		10	0.35	ug/L		10/11/18 08:49	10/16/18 15:51	1
n-Nitrosodiphenylamine(as diphenylamine)	ND		10	0.44	ug/L		10/11/18 08:49	10/16/18 15:51	1
N-Nitrosomethylethylamine	ND		10	1.8	ug/L		10/11/18 08:49	10/16/18 15:51	1
N-Nitrosopiperidine	ND		10	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
N-Nitrosopyrrolidine	ND		10	0.80	ug/L		10/11/18 08:49	10/16/18 15:51	1
o,o',o''-Triethylphosphorothioate	ND		50	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
o-Toluidine	ND		10	1.4	ug/L		10/11/18 08:49	10/16/18 15:51	1
p-Dimethylamino azobenzene	ND		20	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
Pentachlorobenzene	ND		10	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
Pentachloronitrobenzene	ND		50	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
Pentachlorophenol	ND		50	20	ug/L		10/11/18 08:49	10/16/18 15:51	1
Phenacetin	ND		20	1.1	ug/L		10/11/18 08:49	10/16/18 15:51	1
Phenanthrene	ND		4.0	0.26	ug/L		10/11/18 08:49	10/16/18 15:51	1
Phenol	ND		10	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-432905/1-A
Matrix: Water
Analysis Batch: 433630

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432905

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
p-Phenylene diamine	ND		100	5.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
Pronamide	ND		20	2.0	ug/L		10/11/18 08:49	10/16/18 15:51	1
Pyrene	ND		10	0.37	ug/L		10/11/18 08:49	10/16/18 15:51	1
Safrole, Total	ND		20	1.1	ug/L		10/11/18 08:49	10/16/18 15:51	1
Thionazin	ND		50	0.86	ug/L		10/11/18 08:49	10/16/18 15:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*67*		*48 - 135*	*10/11/18 08:49*	*10/16/18 15:51*	*1*
2-Fluorobiphenyl	*75*		*48 - 135*	*10/11/18 08:49*	*10/16/18 15:51*	*1*
2-Fluorophenol	*87*		*41 - 135*	*10/11/18 08:49*	*10/16/18 15:51*	*1*
Nitrobenzene-d5	*73*		*42 - 135*	*10/11/18 08:49*	*10/16/18 15:51*	*1*
Phenol-d5	*83*		*46 - 135*	*10/11/18 08:49*	*10/16/18 15:51*	*1*
Terphenyl-d14	*80*		*20 - 135*	*10/11/18 08:49*	*10/16/18 15:51*	*1*

Lab Sample ID: LCS 280-432905/2-A
Matrix: Water
Analysis Batch: 433630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4,5-Tetrachlorobenzene	80.0	46.8		ug/L		58	57 - 117
1,3-Dinitrobenzene	80.0	65.4		ug/L		82	65 - 135
2,3,4,6-Tetrachlorophenol	80.0	56.9		ug/L		71	64 - 128
2,4,5-Trichlorophenol	80.0	60.9		ug/L		76	60 - 129
2,4,6-Trichlorophenol	80.0	62.7		ug/L		78	60 - 137
2,4-Dichlorophenol	80.0	56.0		ug/L		70	62 - 119
2,4-Dimethylphenol	80.0	41.4		ug/L		52	33 - 117
2,4-Dinitrophenol	160	108		ug/L		67	56 - 121
2,4-Dinitrotoluene	80.0	65.1		ug/L		81	65 - 135
2,6-Dichlorophenol	80.0	56.0		ug/L		70	63 - 118
2,6-Dinitrotoluene	80.0	64.0		ug/L		80	65 - 135
2-Chloronaphthalene	80.0	54.3		ug/L		68	51 - 128
2-Chlorophenol	80.0	47.6		ug/L		59	54 - 124
2-Methylnaphthalene	80.0	46.5		ug/L		58	53 - 119
2-Methylphenol	80.0	51.3		ug/L		64	55 - 123
2-Nitroaniline	80.0	67.1		ug/L		84	57 - 133
2-Nitrophenol	80.0	50.6		ug/L		63	61 - 121
3 & 4 Methylphenol	80.0	56.3		ug/L		70	51 - 124
3,3'-Dichlorobenzidine	160	114		ug/L		72	43 - 104
3-Nitroaniline	80.0	49.7		ug/L		62	27 - 111
4,6-Dinitro-2-methylphenol	160	139		ug/L		87	63 - 122
4-Bromophenyl phenyl ether	80.0	61.0		ug/L		76	65 - 115
4-Chloro-3-methylphenol	80.0	60.3		ug/L		75	65 - 121
4-Chloroaniline	80.0	46.9		ug/L		59	30 - 99
4-Chlorophenyl phenyl ether	80.0	56.9		ug/L		71	56 - 130
4-Nitroaniline	80.0	60.4		ug/L		75	54 - 128
4-Nitrophenol	160	128		ug/L		80	50 - 140
Acenaphthene	80.0	58.6		ug/L		73	54 - 129
Acenaphthylene	80.0	59.2		ug/L		74	55 - 123

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-432905/2-A
Matrix: Water
Analysis Batch: 433630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetophenone	80.0	54.6		ug/L		68	46 - 127
Anthracene	80.0	60.3		ug/L		75	65 - 116
Benzo[a]anthracene	80.0	59.2		ug/L		74	63 - 120
Benzo[a]pyrene	80.0	58.3		ug/L		73	62 - 114
Benzo[b]fluoranthene	80.0	60.8		ug/L		76	64 - 122
Benzo[g,h,i]perylene	80.0	57.2		ug/L		71	60 - 122
Benzo[k]fluoranthene	80.0	64.4		ug/L		80	69 - 125
Benzyl alcohol	80.0	53.0		ug/L		66	54 - 124
Bis(2-chloroethoxy)methane	80.0	53.9		ug/L		67	62 - 114
Bis(2-chloroethyl)ether	80.0	48.1		ug/L		60	53 - 132
Bis(2-ethylhexyl) phthalate	80.0	63.4		ug/L		79	61 - 123
bis(chloroisopropyl) ether	80.0	47.9		ug/L		60	44 - 132
Butyl benzyl phthalate	80.0	61.5		ug/L		77	64 - 121
Chrysene	80.0	64.1		ug/L		80	65 - 122
Dibenz(a,h)anthracene	80.0	57.6		ug/L		72	60 - 120
Dibenzofuran	80.0	58.8		ug/L		74	56 - 128
Diethyl phthalate	80.0	62.5		ug/L		78	60 - 133
Dimethyl phthalate	80.0	63.4		ug/L		79	59 - 131
Di-n-butyl phthalate	80.0	59.9		ug/L		75	65 - 118
Di-n-octyl phthalate	80.0	52.3		ug/L		65	56 - 119
Diphenylamine	68.0	48.6		ug/L		71	60 - 124
Fluoranthene	80.0	57.3		ug/L		72	65 - 118
Fluorene	80.0	58.5		ug/L		73	51 - 133
Hexachlorobenzene	80.0	60.0		ug/L		75	65 - 114
Hexachlorobutadiene	80.0	30.9		ug/L		39	36 - 118
Hexachlorocyclopentadiene	160	14.6	J *	ug/L		9	10 - 106
Hexachloroethane	80.0	29.7		ug/L		37	27 - 123
Indeno[1,2,3-cd]pyrene	80.0	49.0		ug/L		61	53 - 116
Isophorone	80.0	60.0		ug/L		75	58 - 111
Naphthalene	80.0	43.0		ug/L		54	50 - 119
Nitrobenzene	80.0	54.1		ug/L		68	59 - 117
N-Nitrosodimethylamine	80.0	47.3		ug/L		59	48 - 121
N-Nitrosodi-n-propylamine	80.0	58.8		ug/L		73	57 - 117
n-Nitrosodiphenylamine(as diphenylamine)	80.0	63.5		ug/L		79	63 - 116
Pentachlorophenol	160	107		ug/L		67	56 - 115
Phenanthrene	80.0	61.5		ug/L		77	63 - 119
Phenol	80.0	53.5		ug/L		67	50 - 127
Pyrene	80.0	67.3		ug/L		84	59 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*71*		*48 - 135*
2-Fluorobiphenyl	*72*		*48 - 135*
2-Fluorophenol	*58*		*41 - 135*
Nitrobenzene-d5	*65*		*42 - 135*
Phenol-d5	*63*		*46 - 135*
Terphenyl-d14	*81*		*20 - 135*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-432905/3-A
Matrix: Water
Analysis Batch: 433630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trinitrobenzene	80.0	66.1		ug/L		83	62 - 121
1,4-Naphthoquinone	80.0	73.5		ug/L		92	57 - 131
1-Naphthylamine	80.0	54.1		ug/L		68	33 - 109
2-Acetylaminofluorene	80.0	77.4	J	ug/L		97	70 - 125
2-Naphthylamine	80.0	61.5		ug/L		77	41 - 104
3,3'-Dimethylbenzidine	80.0	44.5		ug/L		56	10 - 90
3-Methylcholanthrene	80.0	31.0		ug/L		39	39 - 108
4-Aminobiphenyl	80.0	56.4		ug/L		71	41 - 101
5-Nitro-o-toluidine	80.0	67.8		ug/L		85	46 - 113
7,12-Dimethylbenz(a)anthracene	80.0	61.2		ug/L		77	42 - 119
a,a-Dimethylphenethylamine	80.0	38.0	J	ug/L		47	17 - 94
Chlorobenzilate	80.0	73.3		ug/L		92	70 - 124
Diallate	80.0	80.9		ug/L		101	65 - 117
Ethyl methanesulfonate	80.0	66.7		ug/L		83	57 - 115
Hexachloropropene	80.0	32.8	J	ug/L		41	29 - 96
Isosafrole	80.0	58.2		ug/L		73	46 - 120
Methapyrilene	79.4	43.9	J	ug/L		55	10 - 106
Methyl methanesulfonate	80.0	56.8		ug/L		71	42 - 116
N-Nitrosodiethylamine	80.0	66.5		ug/L		83	62 - 115
N-Nitrosodi-n-butylamine	80.0	73.0		ug/L		91	66 - 117
N-Nitrosomethylethylamine	80.0	66.2		ug/L		83	57 - 117
N-Nitrosopiperidine	80.0	65.8		ug/L		82	67 - 112
N-Nitrosopyrrolidine	80.0	66.8		ug/L		84	65 - 114
o,o',o''-Triethylphosphorothioate	80.0	62.2		ug/L		78	65 - 114
o-Toluidine	80.0	56.4		ug/L		71	41 - 104
p-Dimethylamino azobenzene	80.0	81.2		ug/L		102	65 - 128
Pentachlorobenzene	80.0	62.5		ug/L		78	61 - 125
Pentachloronitrobenzene	80.0	75.5		ug/L		94	67 - 123
Phenacetin	80.0	79.4		ug/L		99	68 - 122
p-Phenylene diamine	80.0	23.3	J	ug/L		29	10 - 63
Pronamide	80.0	75.8		ug/L		95	72 - 118
Safrole, Total	80.0	61.2		ug/L		77	65 - 111
Thionazin	80.0	83.2		ug/L		104	66 - 128

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*74*		*48 - 135*
2-Fluorobiphenyl	*75*		*48 - 135*
2-Fluorophenol	*77*		*41 - 135*
Nitrobenzene-d5	*75*		*42 - 135*
Phenol-d5	*79*		*46 - 135*
Terphenyl-d14	*83*		*20 - 135*

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433630

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4,5-Tetrachlorobenzene	ND		79.4	55.5		ug/L		70	57 - 117

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433630

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3-Dinitrobenzene	ND		79.4	68.7		ug/L		87	65 - 135
2,3,4,6-Tetrachlorophenol	ND		79.4	59.6		ug/L		75	64 - 128
2,4,5-Trichlorophenol	ND		79.4	63.5		ug/L		80	60 - 129
2,4,6-Trichlorophenol	ND		79.4	65.7		ug/L		83	60 - 137
2,4-Dichlorophenol	ND		79.4	62.4		ug/L		79	62 - 119
2,4-Dimethylphenol	ND		79.4	55.4		ug/L		70	33 - 117
2,4-Dinitrophenol	ND		159	107		ug/L		67	56 - 121
2,4-Dinitrotoluene	ND		79.4	67.4		ug/L		85	65 - 135
2,6-Dichlorophenol	ND		79.4	63.0		ug/L		79	63 - 118
2,6-Dinitrotoluene	ND		79.4	67.0		ug/L		84	65 - 135
2-Chloronaphthalene	ND		79.4	60.6		ug/L		76	51 - 128
2-Chlorophenol	ND		79.4	65.2		ug/L		82	54 - 124
2-Methylnaphthalene	ND		79.4	55.8		ug/L		70	53 - 119
2-Methylphenol	ND		79.4	63.1		ug/L		79	55 - 123
2-Nitroaniline	ND		79.4	69.8		ug/L		88	57 - 133
2-Nitrophenol	ND		79.4	61.0		ug/L		77	61 - 121
3 & 4 Methylphenol	ND		79.4	60.9		ug/L		77	51 - 124
3,3'-Dichlorobenzidine	ND		159	96.0		ug/L		60	43 - 104
3-Nitroaniline	ND		79.4	42.7		ug/L		54	27 - 111
4,6-Dinitro-2-methylphenol	ND		159	135		ug/L		85	63 - 122
4-Bromophenyl phenyl ether	ND		79.4	61.0		ug/L		77	65 - 115
4-Chloro-3-methylphenol	ND		79.4	64.0		ug/L		81	65 - 121
4-Chloroaniline	ND		79.4	39.6		ug/L		50	30 - 99
4-Chlorophenyl phenyl ether	ND		79.4	60.9		ug/L		77	56 - 130
4-Nitroaniline	ND		79.4	61.7		ug/L		78	54 - 128
4-Nitrophenol	ND		159	135		ug/L		85	50 - 140
Acenaphthene	ND		79.4	63.7		ug/L		80	54 - 129
Acenaphthylene	ND		79.4	64.0		ug/L		81	55 - 123
Acetophenone	ND		79.4	61.4		ug/L		77	46 - 127
Anthracene	ND		79.4	61.4		ug/L		77	65 - 116
Benzo[a]anthracene	ND		79.4	59.5		ug/L		75	63 - 120
Benzo[a]pyrene	ND		79.4	64.4		ug/L		81	62 - 114
Benzo[b]fluoranthene	ND		79.4	64.1		ug/L		81	64 - 122
Benzo[g,h,i]perylene	ND		79.4	61.9		ug/L		78	60 - 122
Benzo[k]fluoranthene	ND		79.4	69.6		ug/L		88	69 - 125
Benzyl alcohol	ND		79.4	58.4		ug/L		74	54 - 124
Bis(2-chloroethoxy)methane	ND		79.4	63.1		ug/L		79	62 - 114
Bis(2-chloroethyl)ether	ND		79.4	66.2		ug/L		83	53 - 132
Bis(2-ethylhexyl) phthalate	ND		79.4	66.0		ug/L		83	61 - 123
bis(chloroisopropyl) ether	ND		79.4	64.5		ug/L		81	44 - 132
Butyl benzyl phthalate	ND		79.4	63.4		ug/L		80	64 - 121
Chrysene	ND		79.4	64.8		ug/L		82	65 - 122
Dibenz(a,h)anthracene	ND		79.4	59.7		ug/L		75	60 - 120
Dibenzofuran	ND		79.4	62.6		ug/L		79	56 - 128
Diethyl phthalate	ND		79.4	65.6		ug/L		83	60 - 133
Dimethyl phthalate	ND		79.4	65.5		ug/L		82	59 - 131
Di-n-butyl phthalate	ND		79.4	63.1		ug/L		79	65 - 118
Di-n-octyl phthalate	ND		79.4	56.1		ug/L		71	56 - 119

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433630

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diphenylamine	ND		67.5	50.8		ug/L		75	60 - 124
Fluoranthene	ND		79.4	58.6		ug/L		74	65 - 118
Fluorene	ND		79.4	63.2		ug/L		80	51 - 133
Hexachlorobenzene	ND		79.4	60.4		ug/L		76	65 - 114
Hexachlorobutadiene	ND		79.4	46.7		ug/L		59	36 - 118
Hexachlorocyclopentadiene	ND	*	159	63.4		ug/L		40	10 - 106
Hexachloroethane	ND		79.4	44.1		ug/L		56	27 - 123
Indeno[1,2,3-cd]pyrene	ND		79.4	53.8		ug/L		68	53 - 116
Isophorone	ND		79.4	65.3		ug/L		82	58 - 111
Naphthalene	ND		79.4	57.2		ug/L		72	50 - 119
Nitrobenzene	ND		79.4	64.9		ug/L		82	59 - 117
N-Nitrosodimethylamine	ND		79.4	64.3		ug/L		81	48 - 121
N-Nitrosodi-n-propylamine	ND		79.4	62.6		ug/L		79	57 - 117
n-Nitrosodiphenylamine(as diphenylamine)	ND		79.4	62.0		ug/L		78	63 - 116
Pentachlorophenol	ND		159	107		ug/L		67	56 - 115
Phenanthrene	ND		79.4	62.6		ug/L		79	63 - 119
Phenol	ND		79.4	70.9		ug/L		89	50 - 127
Pyrene	ND		79.4	66.8		ug/L		84	59 - 124

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*72*		*48 - 135*
2-Fluorobiphenyl	*76*		*48 - 135*
2-Fluorophenol	*87*		*41 - 135*
Nitrobenzene-d5	*77*		*42 - 135*
Phenol-d5	*82*		*46 - 135*
Terphenyl-d14	*73*		*20 - 135*

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433630

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trinitrobenzene	ND		80.1	67.8		ug/L		85	62 - 121
1,4-Naphthoquinone	ND		80.1	91.6		ug/L		114	57 - 131
1-Naphthylamine	ND		80.1	35.3		ug/L		44	33 - 109
2-Acetylaminofluorene	ND		80.1	76.5	J	ug/L		95	70 - 125
2-Naphthylamine	ND		80.1	60.0		ug/L		75	41 - 104
3,3'-Dimethylbenzidine	ND		80.1	21.2		ug/L		26	10 - 90
3-Methylcholanthrene	ND		80.1	35.1		ug/L		44	39 - 108
4-Aminobiphenyl	ND		80.1	52.2		ug/L		65	41 - 101
5-Nitro-o-toluidine	ND		80.1	66.6		ug/L		83	46 - 113
7,12-Dimethylbenz(a)anthracene	ND		80.1	60.3		ug/L		75	42 - 119
a,a-Dimethylphenethylamine	ND		80.1	32.5	J	ug/L		41	17 - 94
Chlorobenzilate	ND		80.1	72.6		ug/L		91	70 - 124
Diallate	ND		80.1	77.6		ug/L		97	65 - 117
Ethyl methanesulfonate	ND		80.1	68.8		ug/L		86	57 - 115
Hexachloropropene	ND		80.1	43.7	J	ug/L		55	29 - 96

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433630

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Isosafrole	ND		80.1	62.7		ug/L		78	46 - 120
Methapyrilene	ND		79.5	37.0	J	ug/L		47	10 - 106
Methyl methanesulfonate	ND		80.1	61.2		ug/L		76	42 - 116
N-Nitrosodiethylamine	ND		80.1	68.3		ug/L		85	62 - 115
N-Nitrosodi-n-butylamine	ND		80.1	74.5		ug/L		93	66 - 117
N-Nitrosomethylethylamine	ND		80.1	67.8		ug/L		85	57 - 117
N-Nitrosopiperidine	ND		80.1	70.1		ug/L		88	67 - 112
N-Nitrosopyrrolidine	ND		80.1	69.9		ug/L		87	65 - 114
o,o',o''-Triethylphosphorothioate	ND		80.1	65.4		ug/L		82	65 - 114
o-Toluidine	ND		80.1	57.9		ug/L		72	41 - 104
p-Dimethylamino azobenzene	ND		80.1	67.6		ug/L		84	65 - 128
Pentachlorobenzene	ND		80.1	61.1		ug/L		76	61 - 125
Pentachloronitrobenzene	ND		80.1	69.1		ug/L		86	67 - 123
Phenacetin	ND		80.1	75.8		ug/L		95	68 - 122
p-Phenylene diamine	ND	F1	80.1	ND	F1	ug/L		0	10 - 63
Pronamide	ND		80.1	70.9		ug/L		89	72 - 118
Safrole, Total	ND		80.1	65.7		ug/L		82	65 - 111
Thionazin	ND		80.1	80.2		ug/L		100	66 - 128

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*64*		*48 - 135*
2-Fluorobiphenyl	*75*		*48 - 135*
2-Fluorophenol	*78*		*41 - 135*
Nitrobenzene-d5	*77*		*42 - 135*
Phenol-d5	*79*		*46 - 135*
Terphenyl-d14	*76*		*20 - 135*

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433630

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4,5-Tetrachlorobenzene	ND		85.0	65.0		ug/L		76	57 - 117	16	30
1,3-Dinitrobenzene	ND		85.0	77.0		ug/L		91	65 - 135	11	30
2,3,4,6-Tetrachlorophenol	ND		85.0	67.8		ug/L		80	64 - 128	13	30
2,4,5-Trichlorophenol	ND		85.0	71.8		ug/L		84	60 - 129	12	30
2,4,6-Trichlorophenol	ND		85.0	73.6		ug/L		87	60 - 137	11	30
2,4-Dichlorophenol	ND		85.0	73.0		ug/L		86	62 - 119	16	30
2,4-Dimethylphenol	ND		85.0	65.5		ug/L		77	33 - 117	17	30
2,4-Dinitrophenol	ND		170	126		ug/L		74	56 - 121	16	30
2,4-Dinitrotoluene	ND		85.0	76.7		ug/L		90	65 - 135	13	32
2,6-Dichlorophenol	ND		85.0	72.3		ug/L		85	63 - 118	14	50
2,6-Dinitrotoluene	ND		85.0	75.1		ug/L		88	65 - 135	11	30
2-Chloronaphthalene	ND		85.0	70.4		ug/L		83	51 - 128	15	30
2-Chlorophenol	ND		85.0	73.6		ug/L		87	54 - 124	12	46
2-Methylnaphthalene	ND		85.0	65.9		ug/L		77	53 - 119	17	32
2-Methylphenol	ND		85.0	72.5		ug/L		85	55 - 123	14	40
2-Nitroaniline	ND		85.0	77.4		ug/L		91	57 - 133	10	30

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433630

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Nitrophenol	ND		85.0	72.7		ug/L		86	61 - 121	18	38
3 & 4 Methylphenol	ND		85.0	75.0		ug/L		88	51 - 124	21	36
3,3'-Dichlorobenzidine	ND		170	104		ug/L		61	43 - 104	8	50
3-Nitroaniline	ND		85.0	45.4		ug/L		53	27 - 111	6	30
4,6-Dinitro-2-methylphenol	ND		170	158		ug/L		93	63 - 122	16	30
4-Bromophenyl phenyl ether	ND		85.0	70.3		ug/L		83	65 - 115	14	30
4-Chloro-3-methylphenol	ND		85.0	71.2		ug/L		84	65 - 121	11	30
4-Chloroaniline	ND		85.0	39.5		ug/L		46	30 - 99	0	38
4-Chlorophenyl phenyl ether	ND		85.0	69.6		ug/L		82	56 - 130	13	30
4-Nitroaniline	ND		85.0	69.6		ug/L		82	54 - 128	12	34
4-Nitrophenol	ND		170	149		ug/L		87	50 - 140	10	50
Acenaphthene	ND		85.0	72.4		ug/L		85	54 - 129	13	30
Acenaphthylene	ND		85.0	74.0		ug/L		87	55 - 123	14	30
Acetophenone	ND		85.0	75.6		ug/L		89	46 - 127	21	35
Anthracene	ND		85.0	71.3		ug/L		84	65 - 116	15	30
Benzo[a]anthracene	ND		85.0	68.9		ug/L		81	63 - 120	15	30
Benzo[a]pyrene	ND		85.0	72.1		ug/L		85	62 - 114	11	30
Benzo[b]fluoranthene	ND		85.0	71.7		ug/L		84	64 - 122	11	30
Benzo[g,h,i]perylene	ND		85.0	71.7		ug/L		84	60 - 122	15	30
Benzo[k]fluoranthene	ND		85.0	77.9		ug/L		92	69 - 125	11	30
Benzyl alcohol	ND		85.0	72.4		ug/L		85	54 - 124	21	37
Bis(2-chloroethoxy)methane	ND		85.0	71.5		ug/L		84	62 - 114	13	30
Bis(2-chloroethyl)ether	ND		85.0	73.5		ug/L		87	53 - 132	10	41
Bis(2-ethylhexyl) phthalate	ND		85.0	77.5		ug/L		91	61 - 123	16	30
bis(chloroisopropyl) ether	ND		85.0	74.0		ug/L		87	44 - 132	14	37
Butyl benzyl phthalate	ND		85.0	73.3		ug/L		86	64 - 121	14	30
Chrysene	ND		85.0	74.1		ug/L		87	65 - 122	13	30
Dibenz(a,h)anthracene	ND		85.0	70.6		ug/L		83	60 - 120	17	30
Dibenzofuran	ND		85.0	71.1		ug/L		84	56 - 128	13	30
Diethyl phthalate	ND		85.0	74.0		ug/L		87	60 - 133	12	30
Dimethyl phthalate	ND		85.0	73.8		ug/L		87	59 - 131	12	30
Di-n-butyl phthalate	ND		85.0	73.2		ug/L		86	65 - 118	15	30
Di-n-octyl phthalate	ND		85.0	66.2		ug/L		78	56 - 119	16	30
Diphenylamine	ND		72.2	54.2		ug/L		75	60 - 124	6	50
Fluoranthene	ND		85.0	69.6		ug/L		82	65 - 118	17	30
Fluorene	ND		85.0	72.0		ug/L		85	51 - 133	13	30
Hexachlorobenzene	ND		85.0	67.9		ug/L		80	65 - 114	12	30
Hexachlorobutadiene	ND		85.0	57.0		ug/L		67	36 - 118	20	47
Hexachlorocyclopentadiene	ND	*	170	87.4		ug/L		51	10 - 106	32	66
Hexachloroethane	ND		85.0	54.6		ug/L		64	27 - 123	21	53
Indeno[1,2,3-cd]pyrene	ND		85.0	63.9		ug/L		75	53 - 116	17	30
Isophorone	ND		85.0	74.4		ug/L		88	58 - 111	13	30
Naphthalene	ND		85.0	66.9		ug/L		79	50 - 119	16	40
Nitrobenzene	ND		85.0	76.9		ug/L		91	59 - 117	17	39
N-Nitrosodimethylamine	ND		85.0	81.2		ug/L		96	48 - 121	23	36
N-Nitrosodi-n-propylamine	ND		85.0	77.8		ug/L		92	57 - 117	22	30
n-Nitrosodiphenylamine(as diphenylamine)	ND		85.0	67.2		ug/L		79	63 - 116	8	30

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433630

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	ND		170	127		ug/L		75	56 - 115	17	30
Phenanthrene	ND		85.0	71.6		ug/L		84	63 - 119	13	30
Phenol	ND		85.0	78.9		ug/L		93	50 - 127	11	37
Pyrene	ND		85.0	75.2		ug/L		89	59 - 124	12	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*77*		*48 - 135*
2-Fluorobiphenyl	*82*		*48 - 135*
2-Fluorophenol	*99*		*41 - 135*
Nitrobenzene-d5	*85*		*42 - 135*
Phenol-d5	*87*		*46 - 135*
Terphenyl-d14	*74*		*20 - 135*

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433630

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene	ND		83.6	77.4		ug/L		93	62 - 121	13	50
1,4-Naphthoquinone	ND		83.6	84.6		ug/L		101	57 - 131	8	50
1-Naphthylamine	ND		83.6	46.8		ug/L		56	33 - 109	28	50
2-Acetylaminofluorene	ND		83.6	86.9	J	ug/L		104	70 - 125	13	50
2-Naphthylamine	ND		83.6	57.0		ug/L		68	41 - 104	5	50
3,3'-Dimethylbenzidine	ND		83.6	31.2		ug/L		37	10 - 90	38	50
3-Methylcholanthrene	ND		83.6	44.5		ug/L		53	39 - 108	24	50
4-Aminobiphenyl	ND		83.6	46.4	J	ug/L		55	41 - 101	12	50
5-Nitro-o-toluidine	ND		83.6	60.9		ug/L		73	46 - 113	9	50
7,12-Dimethylbenz(a)anthracene	ND		83.6	73.8		ug/L		88	42 - 119	20	50
a,a-Dimethylphenethylamine	ND		83.6	39.7	J	ug/L		47	17 - 94	20	50
Chlorobenzilate	ND		83.6	80.5		ug/L		96	70 - 124	10	50
Diallate	ND		83.6	88.9		ug/L		106	65 - 117	14	50
Ethyl methanesulfonate	ND		83.6	74.2		ug/L		89	57 - 115	8	50
Hexachloropropene	ND		83.6	38.3	J	ug/L		46	29 - 96	13	50
Isosafrole	ND		83.6	70.4		ug/L		84	46 - 120	12	50
Methapyrilene	ND		82.9	43.5	J	ug/L		53	10 - 106	16	50
Methyl methanesulfonate	ND		83.6	65.9		ug/L		79	42 - 116	7	50
N-Nitrosodiethylamine	ND		83.6	73.3		ug/L		88	62 - 115	7	50
N-Nitrosodi-n-butylamine	ND		83.6	76.2		ug/L		91	66 - 117	2	50
N-Nitrosomethylethylamine	ND		83.6	76.6		ug/L		92	57 - 117	12	50
N-Nitrosopiperidine	ND		83.6	76.0		ug/L		91	67 - 112	8	50
N-Nitrosopyrrolidine	ND		83.6	78.8		ug/L		94	65 - 114	12	50
o,o',o''-Triethylphosphorothioate	ND		83.6	69.0		ug/L		83	65 - 114	5	50
o-Toluidine	ND		83.6	51.8		ug/L		62	41 - 104	11	50
p-Dimethylamino azobenzene	ND		83.6	84.0		ug/L		101	65 - 128	22	50
Pentachlorobenzene	ND		83.6	68.4		ug/L		82	61 - 125	11	50
Pentachloronitrobenzene	ND		83.6	81.6		ug/L		98	67 - 123	17	50
Phenacetin	ND		83.6	85.1		ug/L		102	68 - 122	12	50
p-Phenylene diamine	ND	F1	83.6	22.6	J	ug/L		27	10 - 63	NC	50

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433630

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432905

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pronamide	ND		83.6	81.9		ug/L		98	72 - 118	14	50
Safrole, Total	ND		83.6	67.9		ug/L		81	65 - 111	3	50
Thionazin	ND		83.6	90.4		ug/L		108	66 - 128	12	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*71*		*48 - 135*
2-Fluorobiphenyl	*75*		*48 - 135*
2-Fluorophenol	*81*		*41 - 135*
Nitrobenzene-d5	*79*		*42 - 135*
Phenol-d5	*82*		*46 - 135*
Terphenyl-d14	*81*		*20 - 135*

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 280-432838/1-A
Matrix: Water
Analysis Batch: 435394

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432838

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.050	0.0077	ug/L		10/10/18 18:04	10/30/18 03:27	1
4,4'-DDE	ND		0.050	0.0075	ug/L		10/10/18 18:04	10/30/18 03:27	1
4,4'-DDT	ND		0.050	0.015	ug/L		10/10/18 18:04	10/30/18 03:27	1
Aldrin	ND		0.050	0.0059	ug/L		10/10/18 18:04	10/30/18 03:27	1
alpha-BHC	ND		0.050	0.0053	ug/L		10/10/18 18:04	10/30/18 03:27	1
beta-BHC	ND		0.050	0.0087	ug/L		10/10/18 18:04	10/30/18 03:27	1
delta-BHC	ND		0.050	0.0058	ug/L		10/10/18 18:04	10/30/18 03:27	1
Dieldrin	ND		0.050	0.0063	ug/L		10/10/18 18:04	10/30/18 03:27	1
Endosulfan I	ND		0.050	0.0058	ug/L		10/10/18 18:04	10/30/18 03:27	1
Endosulfan II	ND		0.050	0.0070	ug/L		10/10/18 18:04	10/30/18 03:27	1
Endosulfan sulfate	ND		0.050	0.0057	ug/L		10/10/18 18:04	10/30/18 03:27	1
Endrin	ND		0.050	0.0079	ug/L		10/10/18 18:04	10/30/18 03:27	1
Endrin aldehyde	ND		0.050	0.0088	ug/L		10/10/18 18:04	10/30/18 03:27	1
gamma-BHC (Lindane)	ND		0.050	0.0069	ug/L		10/10/18 18:04	10/30/18 03:27	1
Heptachlor	ND		0.050	0.0077	ug/L		10/10/18 18:04	10/30/18 03:27	1
Heptachlor epoxide	ND		0.050	0.0075	ug/L		10/10/18 18:04	10/30/18 03:27	1
Kepone	ND		1.0	0.35	ug/L		10/10/18 18:04	10/30/18 03:27	1
Methoxychlor	ND		0.10	0.013	ug/L		10/10/18 18:04	10/30/18 03:27	1
Toxaphene	ND		2.0	0.37	ug/L		10/10/18 18:04	10/30/18 03:27	1
Isodrin	ND		0.10	0.0039	ug/L		10/10/18 18:04	10/30/18 03:27	1
Technical Chlordane	ND		0.50	0.14	ug/L		10/10/18 18:04	10/30/18 03:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*88*		*34 - 122*	*10/10/18 18:04*	*10/30/18 03:27*	*1*
Tetrachloro-m-xylene	*83*		*28 - 115*	*10/10/18 18:04*	*10/30/18 03:27*	*1*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 280-432838/2-A
Matrix: Water
Analysis Batch: 435394

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432838

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
4,4'-DDD			0.500	0.559		ug/L		112	73 - 115		
4,4'-DDE			0.500	0.493		ug/L		99	74 - 112		
4,4'-DDT			0.500	0.515		ug/L		103	72 - 121		
Aldrin			0.500	0.462		ug/L		92	50 - 114		
alpha-BHC			0.500	0.509		ug/L		102	68 - 113		
beta-BHC			0.500	0.483		ug/L		97	54 - 113		
delta-BHC			0.500	0.513		ug/L		103	72 - 113		
Dieldrin			0.500	0.544		ug/L		109	78 - 116		
Endosulfan I			0.500	0.501		ug/L		100	73 - 111		
Endosulfan II			0.500	0.490		ug/L		98	69 - 109		
Endosulfan sulfate			0.500	0.573		ug/L		115	71 - 116		
Endrin			0.500	0.559		ug/L		112	69 - 128		
Endrin aldehyde			0.500	0.243		ug/L		49	47 - 119		
gamma-BHC (Lindane)			0.500	0.513		ug/L		103	71 - 112		
Heptachlor			0.500	0.484		ug/L		97	61 - 115		
Heptachlor epoxide			0.500	0.532		ug/L		106	72 - 114		
Methoxychlor			0.500	0.539		ug/L		108	67 - 131		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*86*		*34 - 122*
Tetrachloro-m-xylene	*73*		*28 - 115*

Lab Sample ID: LCSD 280-432838/3-A
Matrix: Water
Analysis Batch: 435394

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 432838

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD			0.500	0.566		ug/L		113	73 - 115	1	50
4,4'-DDE			0.500	0.486		ug/L		97	74 - 112	2	50
4,4'-DDT			0.500	0.483		ug/L		97	72 - 121	6	25
Aldrin			0.500	0.426		ug/L		85	50 - 114	8	33
alpha-BHC			0.500	0.529		ug/L		106	68 - 113	4	50
beta-BHC			0.500	0.506		ug/L		101	54 - 113	5	50
delta-BHC			0.500	0.532		ug/L		106	72 - 113	4	50
Dieldrin			0.500	0.553		ug/L		111	78 - 116	2	22
Endosulfan I			0.500	0.512		ug/L		102	73 - 111	2	50
Endosulfan II			0.500	0.497		ug/L		99	69 - 109	1	50
Endosulfan sulfate			0.500	0.571		ug/L		114	71 - 116	0	50
Endrin			0.500	0.557		ug/L		111	69 - 128	0	39
Endrin aldehyde			0.500	0.0602	*	ug/L		12	47 - 119	121	50
gamma-BHC (Lindane)			0.500	0.537		ug/L		107	71 - 112	5	26
Heptachlor			0.500	0.471		ug/L		94	61 - 115	3	27
Heptachlor epoxide			0.500	0.553		ug/L		111	72 - 114	4	50
Methoxychlor			0.500	0.513		ug/L		103	67 - 131	5	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*91*		*34 - 122*

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCSD 280-432838/3-A
Matrix: Water
Analysis Batch: 435394

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 432838

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	77		28 - 115

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 435394

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432838

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	ND	F1	0.529	0.607		ug/L		115	73 - 115
4,4'-DDE	ND		0.529	0.526		ug/L		99	74 - 112
4,4'-DDT	ND		0.529	0.497		ug/L		94	72 - 121
Aldrin	ND		0.529	0.445		ug/L		84	50 - 114
alpha-BHC	ND		0.529	0.574		ug/L		108	68 - 113
beta-BHC	ND		0.529	0.539		ug/L		102	54 - 113
delta-BHC	ND		0.529	0.541		ug/L		102	72 - 113
Dieldrin	ND	F1	0.529	0.587		ug/L		111	78 - 116
Endosulfan I	ND		0.529	0.549		ug/L		104	73 - 111
Endosulfan II	ND		0.529	0.528		ug/L		100	69 - 109
Endosulfan sulfate	ND	F1	0.529	0.635	F1	ug/L		120	71 - 116
Endrin	ND		0.529	0.596		ug/L		113	69 - 128
Endrin aldehyde	ND	* F1	0.529	ND	F1	ug/L		0	47 - 119
gamma-BHC (Lindane)	ND	F1	0.529	0.581		ug/L		110	71 - 112
Heptachlor	ND		0.529	0.490		ug/L		93	61 - 115
Heptachlor epoxide	ND	F1	0.529	0.586		ug/L		111	72 - 114
Methoxychlor	ND		0.529	0.546		ug/L		103	67 - 131

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl	82		34 - 122
Tetrachloro-m-xylene	77		28 - 115

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 435394

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432838

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD	ND	F1	0.510	0.633	F1	ug/L		124	73 - 115	4	50
4,4'-DDE	ND		0.510	0.529		ug/L		104	74 - 112	1	50
4,4'-DDT	ND		0.510	0.463		ug/L		91	72 - 121	7	25
Aldrin	ND		0.510	0.452		ug/L		89	50 - 114	2	33
alpha-BHC	ND		0.510	0.564		ug/L		111	68 - 113	2	50
beta-BHC	ND		0.510	0.533		ug/L		105	54 - 113	1	50
delta-BHC	ND		0.510	0.545		ug/L		107	72 - 113	1	50
Dieldrin	ND	F1	0.510	0.602	F1	ug/L		118	78 - 116	2	22
Endosulfan I	ND		0.510	0.534		ug/L		105	73 - 111	3	50
Endosulfan II	ND		0.510	0.544		ug/L		107	69 - 109	3	50
Endosulfan sulfate	ND	F1	0.510	0.628	F1	ug/L		123	71 - 116	1	50
Endrin	ND		0.510	0.613		ug/L		120	69 - 128	3	39
Endrin aldehyde	ND	* F1	0.510	0.158	F1	ug/L		31	47 - 119	NC	50
gamma-BHC (Lindane)	ND	F1	0.510	0.576	F1	ug/L		113	71 - 112	1	26

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 435394

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432838

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Heptachlor	ND		0.510	0.495		ug/L		97	61 - 115	1	27
Heptachlor epoxide	ND	F1	0.510	0.600	F1	ug/L		118	72 - 114	2	50
Methoxychlor	ND		0.510	0.515		ug/L		101	67 - 131	6	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*82*		*34 - 122*
Tetrachloro-m-xylene	*78*		*28 - 115*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 280-432838/1-A
Matrix: Water
Analysis Batch: 435709

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432838

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		1.0	0.21	ug/L		10/10/18 18:04	11/01/18 01:44	1
PCB-1016	ND		1.0	0.12	ug/L		10/10/18 18:04	11/01/18 01:44	1
PCB-1232	ND		1.0	0.17	ug/L		10/10/18 18:04	11/01/18 01:44	1
PCB-1242	ND		1.0	0.10	ug/L		10/10/18 18:04	11/01/18 01:44	1
PCB-1248	ND		1.0	0.092	ug/L		10/10/18 18:04	11/01/18 01:44	1
PCB-1254	ND		1.0	0.11	ug/L		10/10/18 18:04	11/01/18 01:44	1
PCB-1260	ND		1.0	0.16	ug/L		10/10/18 18:04	11/01/18 01:44	1
Polychlorinated biphenyls, Total	ND		1.0	0.085	ug/L		10/10/18 18:04	11/01/18 01:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*88*		*25 - 120*	*10/10/18 18:04*	*11/01/18 01:44*	*1*
DCB Decachlorobiphenyl	*87*		*30 - 136*	*10/10/18 18:04*	*11/01/18 01:44*	*1*

Lab Sample ID: LCS 280-432838/4-A
Matrix: Water
Analysis Batch: 435709

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432838

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			2.00	1.96		ug/L		98	58 - 128		
PCB-1260			2.00	1.90		ug/L		95	69 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*166*	*X*	*25 - 120*
DCB Decachlorobiphenyl	*167*	*X*	*30 - 136*

Lab Sample ID: LCSD 280-432838/5-A
Matrix: Water
Analysis Batch: 435709

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 432838

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016			2.00	2.08		ug/L		104	58 - 128	6	30
PCB-1260			2.00	2.05		ug/L		102	69 - 140	7	30

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCSD 280-432838/5-A
Matrix: Water
Analysis Batch: 435709

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 432838

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	*90*		*25 - 120*
DCB Decachlorobiphenyl	*90*		*30 - 136*

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 435709

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432838

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	ND		2.07	2.02		ug/L		97	58 - 128
PCB-1260	ND		2.07	2.00		ug/L		96	69 - 140

Surrogate	MS %Recovery	MS Qualifier	Limits
Tetrachloro-m-xylene	*85*		*25 - 120*
DCB Decachlorobiphenyl	*78*		*30 - 136*

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 435709

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432838

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	ND		2.04	1.98		ug/L		97	58 - 128	2	30
PCB-1260	ND		2.04	1.88		ug/L		92	69 - 140	6	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	*83*		*25 - 120*
DCB Decachlorobiphenyl	*85*		*30 - 136*

Method: 8141A - Organophosphorous Pesticides (GC)

Lab Sample ID: MB 280-432806/1-A
Matrix: Water
Analysis Batch: 433145

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethoate	ND		1.5	0.45	ug/L		10/10/18 14:00	10/12/18 14:47	1
Disulfoton	ND		1.0	0.32	ug/L		10/10/18 14:00	10/12/18 14:47	1
Famphur	ND		1.0	0.18	ug/L		10/10/18 14:00	10/12/18 14:47	1
Methyl parathion	ND		4.0	0.14	ug/L		10/10/18 14:00	10/12/18 14:47	1
Parathion	ND		1.0	0.14	ug/L		10/10/18 14:00	10/12/18 14:47	1
Phorate	ND		1.2	0.15	ug/L		10/10/18 14:00	10/12/18 14:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenylphosphate	*72*		*60 - 154*	*10/10/18 14:00*	*10/12/18 14:47*	*1*
Chlormefos	*70*		*49 - 171*	*10/10/18 14:00*	*10/12/18 14:47*	*1*

Method: 8141A - Organophosphorous Pesticides (GC) (Continued)

Lab Sample ID: LCS 280-432806/2-A
Matrix: Water
Analysis Batch: 433145

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dimethoate	4.00	2.27		ug/L		57	42 - 115
Disulfoton	4.00	3.48		ug/L		87	45 - 115
Famphur	4.00	3.09		ug/L		77	62 - 115
Methyl parathion	4.00	3.50	J	ug/L		87	58 - 115
Parathion	4.00	3.26		ug/L		81	55 - 115
Phorate	4.00	3.23		ug/L		81	40 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Triphenylphosphate	*83*		*60 - 154*
Chlormefos	*82*		*49 - 171*

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433145

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432806

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dimethoate	ND		4.02	2.83		ug/L		70	42 - 115
Disulfoton	ND		4.02	3.38		ug/L		84	45 - 115
Famphur	ND		4.02	3.08		ug/L		77	62 - 115
Methyl parathion	ND		4.02	3.38	J	ug/L		84	58 - 115
Parathion	ND		4.02	3.15		ug/L		78	55 - 115
Phorate	ND		4.02	3.11		ug/L		78	40 - 115

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Triphenylphosphate	*83*		*60 - 154*
Chlormefos	*77*		*49 - 171*

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433145

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432806

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dimethoate	ND		4.12	2.92		ug/L		71	42 - 115	3	38
Disulfoton	ND		4.12	3.51		ug/L		85	45 - 115	4	31
Famphur	ND		4.12	3.16		ug/L		77	62 - 115	2	20
Methyl parathion	ND		4.12	3.55	J	ug/L		86	58 - 115	5	20
Parathion	ND		4.12	3.32		ug/L		80	55 - 115	5	20
Phorate	ND		4.12	3.28		ug/L		80	40 - 115	5	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Triphenylphosphate	*84*		*60 - 154*
Chlormefos	*84*		*49 - 171*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 280-432814/1-A
Matrix: Water
Analysis Batch: 433150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432814

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		4.0	0.21	ug/L		10/10/18 14:45	10/12/18 22:07	1
Dinoseb	ND		1.0	0.45	ug/L		10/10/18 14:45	10/12/18 22:07	1
2,4,5-T	ND		1.0	0.19	ug/L		10/10/18 14:45	10/12/18 22:07	1
Silvex (2,4,5-TP)	ND		1.0	0.17	ug/L		10/10/18 14:45	10/12/18 22:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*87*		*39 - 135*	*10/10/18 14:45*	*10/12/18 22:07*	*1*

Lab Sample ID: LCS 280-432814/2-A
Matrix: Water
Analysis Batch: 433150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432814

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D	5.00	5.78		ug/L		116	47 - 151
Dinoseb	5.00	3.99		ug/L		80	10 - 120
2,4,5-T	5.00	5.42		ug/L		108	42 - 152
Silvex (2,4,5-TP)	5.00	5.86		ug/L		117	48 - 148

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*88*		*39 - 135*

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433150

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432814

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D	ND	F1	5.08	6.57	F1	ug/L		129	46 - 126
Dinoseb	ND		5.08	4.63		ug/L		91	25 - 132
2,4,5-T	ND		5.08	6.11		ug/L		120	45 - 135
Silvex (2,4,5-TP)	ND	F1	5.08	6.66	F1	ug/L		131	48 - 127

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*98*		*39 - 135*

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433150

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432814

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4-D	ND	F1	5.01	6.53	F1	ug/L		130	46 - 126	1	30
Dinoseb	ND		5.01	4.51		ug/L		90	25 - 132	3	30
2,4,5-T	ND		5.01	6.12		ug/L		122	45 - 135	0	30
Silvex (2,4,5-TP)	ND	F1	5.01	6.59	F1	ug/L		132	48 - 127	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*95*		*39 - 135*

Method: 8290 - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-252699/1-A
Matrix: Water
Analysis Batch: 254635

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 252699

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		10	0.15	pg/L		10/16/18 14:34	10/24/18 05:45	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*91*		*40 - 135*	*10/16/18 14:34*	*10/24/18 05:45*	*1*

Lab Sample ID: LCS 320-252699/2-A
Matrix: Water
Analysis Batch: 254635

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 252699

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	200	223		pg/L		111	72 - 128

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*85*		*40 - 135*

Lab Sample ID: LCSD 320-252699/3-A
Matrix: Water
Analysis Batch: 254635

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 252699

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,3,7,8-TCDD	200	219		pg/L		110	72 - 128	1	20

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*89*		*40 - 135*

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 254638

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 252699

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	ND		208	223		pg/L		107	72 - 128

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*89*		*40 - 135*

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 254638

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 252699

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,3,7,8-TCDD	ND		203	220		pg/L		109	72 - 128	1	20

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*94*		*40 - 135*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-432774/1-A
Matrix: Water
Analysis Batch: 433544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432774

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		200	35	ug/L		10/13/18 09:30	10/15/18 20:00	1
Iron	ND		100	22	ug/L		10/13/18 09:30	10/15/18 20:00	1
Magnesium	ND		200	11	ug/L		10/13/18 09:30	10/15/18 20:00	1
Potassium	ND		3000	240	ug/L		10/13/18 09:30	10/15/18 20:00	1
Sodium	315	J ^	1000	120	ug/L		10/13/18 09:30	10/15/18 20:00	1

Lab Sample ID: LCS 280-432774/2-A
Matrix: Water
Analysis Batch: 433544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432774

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	51300		ug/L		103	90 - 111
Iron	10000	10200		ug/L		102	89 - 115
Magnesium	50000	49200		ug/L		98	90 - 113
Potassium	50000	50300		ug/L		101	89 - 114
Sodium	50000	50400	^	ug/L		101	90 - 115

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433544

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432774

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	44000		50000	91500		ug/L		95	48 - 153
Iron	290		10000	10400		ug/L		101	52 - 155
Magnesium	38000		50000	86700		ug/L		98	62 - 146
Potassium	2900	J	50000	54400		ug/L		103	76 - 132
Sodium	37000	^ B	50000	93700	^	ug/L		114	70 - 203

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433544

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432774

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	44000		50000	93200		ug/L		98	48 - 153	2	20
Iron	290		10000	10600		ug/L		103	52 - 155	1	20
Magnesium	38000		50000	87600		ug/L		99	62 - 146	1	20
Potassium	2900	J	50000	54700		ug/L		104	76 - 132	1	20
Sodium	37000	^ B	50000	92100	^	ug/L		110	70 - 203	2	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-432773/1-A
Matrix: Water
Analysis Batch: 433338

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432773

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/12/18 06:00	10/12/18 21:23	1
Arsenic	ND		5.0	0.33	ug/L		10/12/18 06:00	10/12/18 21:23	1
Barium	ND		1.0	0.29	ug/L		10/12/18 06:00	10/12/18 21:23	1

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 280-432773/1-A
Matrix: Water
Analysis Batch: 433338

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432773

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		1.0	0.080	ug/L		10/12/18 06:00	10/12/18 21:23	1
Cadmium	ND		1.0	0.27	ug/L		10/12/18 06:00	10/12/18 21:23	1
Chromium	ND		2.0	0.50	ug/L		10/12/18 06:00	10/12/18 21:23	1
Co	ND		1.0	0.054	ug/L		10/12/18 06:00	10/12/18 21:23	1
Copper	ND		2.0	0.56	ug/L		10/12/18 06:00	10/12/18 21:23	1
Lead	ND		1.0	0.18	ug/L		10/12/18 06:00	10/12/18 21:23	1
Manganese	ND		1.0	0.31	ug/L		10/12/18 06:00	10/12/18 21:23	1
Nickel	ND		2.0	0.30	ug/L		10/12/18 06:00	10/12/18 21:23	1
Selenium	ND		5.0	0.70	ug/L		10/12/18 06:00	10/12/18 21:23	1
Silver	ND		5.0	0.033	ug/L		10/12/18 06:00	10/12/18 21:23	1
Thallium	ND		1.0	0.050	ug/L		10/12/18 06:00	10/12/18 21:23	1
Tin	ND		10	0.77	ug/L		10/12/18 06:00	10/12/18 21:23	1
Vanadium	ND		5.0	0.50	ug/L		10/12/18 06:00	10/12/18 21:23	1

Lab Sample ID: LCS 280-432773/2-A
Matrix: Water
Analysis Batch: 433338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432773

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	40.7		ug/L		102	86 - 110
Arsenic	40.0	35.4		ug/L		89	80 - 106
Barium	40.0	42.0		ug/L		105	88 - 113
Beryllium	40.0	38.3		ug/L		96	82 - 113
Cadmium	40.0	38.8		ug/L		97	85 - 111
Chromium	40.0	37.3		ug/L		93	87 - 115
Co	40.0	37.9		ug/L		95	89 - 113
Copper	40.0	37.4		ug/L		93	87 - 114
Lead	40.0	40.4		ug/L		101	91 - 113
Manganese	40.0	39.7		ug/L		99	90 - 114
Nickel	40.0	37.1		ug/L		93	87 - 116
Selenium	40.0	34.8		ug/L		87	80 - 113
Silver	40.0	39.4		ug/L		98	85 - 117
Thallium	40.0	39.6		ug/L		99	90 - 111
Tin	40.0	40.6		ug/L		101	88 - 113
Vanadium	40.0	37.8		ug/L		95	85 - 113

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433338

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432773

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.58	J	40.0	39.6		ug/L		98	85 - 115
Arsenic	4.1	J	40.0	39.9		ug/L		89	85 - 117
Barium	120		40.0	157		ug/L		99	85 - 118
Beryllium	ND		40.0	39.3		ug/L		98	80 - 125
Cadmium	ND		40.0	39.6		ug/L		99	85 - 115
Chromium	1.4	J	40.0	38.5		ug/L		93	84 - 121
Co	1.2		40.0	37.7		ug/L		91	85 - 120
Copper	0.83	J	40.0	36.3		ug/L		89	85 - 119

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433338

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432773

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.60	J	40.0	40.0		ug/L		99	85 - 118
Manganese	22		40.0	59.2		ug/L		94	85 - 117
Nickel	0.62	J	40.0	36.2		ug/L		89	85 - 119
Selenium	ND		40.0	34.0		ug/L		85	77 - 122
Silver	ND		40.0	38.1		ug/L		95	85 - 115
Thallium	ND		40.0	38.9		ug/L		97	85 - 118
Tin	ND		40.0	36.5		ug/L		91	77 - 115
Vanadium	0.91	J	40.0	38.6		ug/L		94	85 - 120

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433338

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432773

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.58	J	40.0	40.0		ug/L		98	85 - 115	1	20
Arsenic	4.1	J	40.0	39.9		ug/L		90	85 - 117	0	20
Barium	120		40.0	155		ug/L		95	85 - 118	1	20
Beryllium	ND		40.0	39.2		ug/L		98	80 - 125	0	20
Cadmium	ND		40.0	40.9		ug/L		102	85 - 115	3	20
Chromium	1.4	J	40.0	38.8		ug/L		93	84 - 121	1	20
Co	1.2		40.0	37.6		ug/L		91	85 - 120	0	20
Copper	0.83	J	40.0	36.6		ug/L		90	85 - 119	1	20
Lead	0.60	J	40.0	39.6		ug/L		97	85 - 118	1	20
Manganese	22		40.0	62.0		ug/L		101	85 - 117	5	20
Nickel	0.62	J	40.0	37.6		ug/L		92	85 - 119	4	20
Selenium	ND		40.0	35.2		ug/L		88	77 - 122	4	20
Silver	ND		40.0	38.2		ug/L		95	85 - 115	0	20
Thallium	ND		40.0	38.6		ug/L		96	85 - 118	1	20
Tin	ND		40.0	36.1		ug/L		90	77 - 115	1	20
Vanadium	0.91	J	40.0	39.0		ug/L		95	85 - 120	1	20

Lab Sample ID: MB 280-433447/1-A
Matrix: Water
Analysis Batch: 433710

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433447

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		10	2.0	ug/L		10/16/18 08:10	10/16/18 15:02	1

Lab Sample ID: LCS 280-433447/2-A
Matrix: Water
Analysis Batch: 433710

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433447

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	40.0	46.3		ug/L		116	81 - 120

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433710

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 433447

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	6.2	J F1	40.0	40.7		ug/L		86	83 - 122

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433710

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 433447

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Zinc	6.2	J F1	40.0	38.3	F1	ug/L		80	83 - 122	6	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-432916/1-A
Matrix: Water
Analysis Batch: 433070

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432916

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/11/18 12:23	10/11/18 23:05	1

Lab Sample ID: LCS 280-432916/2-A
Matrix: Water
Analysis Batch: 433070

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432916

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.15		ug/L		103	84 - 120

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433070

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432916

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		5.00	5.23		ug/L		105	75 - 125

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433070

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 432916

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		5.00	4.96		ug/L		99	75 - 125	5	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 280-433511/22
Matrix: Water
Analysis Batch: 433511

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/15/18 16:41	1

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 280-433511/21
Matrix: Water
Analysis Batch: 433511

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N			5.00	5.08		mg/L		102	90 - 110		

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433511

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N	0.60		4.00	4.74		mg/L		103	90 - 110		

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433511

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.60		4.00	4.73		mg/L		103	90 - 110	0	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-433433/6
Matrix: Water
Analysis Batch: 433433

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	0.25	mg/L			10/15/18 14:21	1
Sulfate	ND		5.0	0.23	mg/L			10/15/18 14:21	1

Lab Sample ID: LCS 280-433433/4
Matrix: Water
Analysis Batch: 433433

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			100	95.3		mg/L		95	90 - 110		
Sulfate			100	100		mg/L		100	90 - 110		

Lab Sample ID: LCSD 280-433433/5
Matrix: Water
Analysis Batch: 433433

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			100	95.3		mg/L		95	90 - 110	0	10
Sulfate			100	99.7		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-433433/3
Matrix: Water
Analysis Batch: 433433

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			2.50	2.71	J	mg/L		108	50 - 150		
Sulfate			2.50	2.65	J	mg/L		106	50 - 150		

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433433

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	83		25.0	111		mg/L		114	80 - 120
Sulfate	21		25.0	48.7		mg/L		112	80 - 120

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433433

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	83		25.0	112		mg/L		116	80 - 120	0	20
Sulfate	21		25.0	48.9		mg/L		113	80 - 120	1	20

Lab Sample ID: 280-115262-2 DU
Matrix: Water
Analysis Batch: 433433

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	83		82.5		mg/L		0.2	15
Sulfate	21		19.8		mg/L		4	15

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-432942/5
Matrix: Water
Analysis Batch: 432942

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/10/18 18:50	1

Lab Sample ID: LCS 280-432942/4
Matrix: Water
Analysis Batch: 432942

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	200	203		mg/L		102	90 - 110

Method: SM 4500 CN E - Cyanide, Total

Lab Sample ID: MB 280-433909/4-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433909

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 13:56	1

Method: SM 4500 CN E - Cyanide, Total (Continued)

Lab Sample ID: HLCS 280-433909/1-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.336		mg/L		96	90 - 110

Lab Sample ID: LCS 280-433909/3-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0976		mg/L		98	90 - 110

Lab Sample ID: LLCS 280-433909/2-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0963		mg/L		96	90 - 110

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 434011

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		0.100	0.0921		mg/L		92	90 - 110

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 434011

Client Sample ID: MW-13-20181006
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		0.100	0.0903		mg/L		90	90 - 110	2	20

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-433243/4
Matrix: Water
Analysis Batch: 433243

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			10/13/18 09:32	1

Lab Sample ID: LCS 280-433243/3
Matrix: Water
Analysis Batch: 433243

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.564	0.573		mg/L		102	85 - 115

Method: SM 4500 S2 D - Sulfide, Total (Continued)

Lab Sample ID: 280-115262-2 MS
Matrix: Water
Analysis Batch: 433243

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide	ND		0.518	0.414		mg/L		80	80 - 119		

Lab Sample ID: 280-115262-2 MSD
Matrix: Water
Analysis Batch: 433243

Client Sample ID: MW-13-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND		0.518	0.433		mg/L		84	80 - 119	4	10

QC Association Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115262-1

GC/MS VOA

Analysis Batch: 433352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	8260B	
280-115262-2	MW-13-20181006	Total/NA	Water	8260B	
280-115262-3	TRIP BLANK	Total/NA	Water	8260B	
MB 280-433352/6	Method Blank	Total/NA	Water	8260B	
LCS 280-433352/32	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-433352/4	Lab Control Sample	Total/NA	Water	8260B	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	8260B	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	8260B	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	8260B	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 432905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	3520C	
280-115262-2	MW-13-20181006	Total/NA	Water	3520C	
MB 280-432905/1-A	Method Blank	Total/NA	Water	3520C	
LCS 280-432905/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCS 280-432905/3-A	Lab Control Sample	Total/NA	Water	3520C	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	3520C	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	3520C	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	3520C	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	3520C	

Analysis Batch: 433630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	8270C	432905
280-115262-2	MW-13-20181006	Total/NA	Water	8270C	432905
MB 280-432905/1-A	Method Blank	Total/NA	Water	8270C	432905
LCS 280-432905/2-A	Lab Control Sample	Total/NA	Water	8270C	432905
LCS 280-432905/3-A	Lab Control Sample	Total/NA	Water	8270C	432905
280-115262-2 MS	MW-13-20181006	Total/NA	Water	8270C	432905
280-115262-2 MS	MW-13-20181006	Total/NA	Water	8270C	432905
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	8270C	432905
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	8270C	432905

GC Semi VOA

Prep Batch: 432806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	3510C	
280-115262-2	MW-13-20181006	Total/NA	Water	3510C	
MB 280-432806/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-432806/2-A	Lab Control Sample	Total/NA	Water	3510C	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	3510C	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	3510C	

GC Semi VOA (Continued)

Prep Batch: 432814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	8151A	
280-115262-2	MW-13-20181006	Total/NA	Water	8151A	
MB 280-432814/1-A	Method Blank	Total/NA	Water	8151A	
LCS 280-432814/2-A	Lab Control Sample	Total/NA	Water	8151A	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	8151A	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	8151A	

Prep Batch: 432838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	3510C	
280-115262-2	MW-13-20181006	Total/NA	Water	3510C	
MB 280-432838/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-432838/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 280-432838/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-432838/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 280-432838/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	3510C	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	3510C	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	3510C	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	3510C	

Analysis Batch: 433145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	8141A	432806
280-115262-2	MW-13-20181006	Total/NA	Water	8141A	432806
MB 280-432806/1-A	Method Blank	Total/NA	Water	8141A	432806
LCS 280-432806/2-A	Lab Control Sample	Total/NA	Water	8141A	432806
280-115262-2 MS	MW-13-20181006	Total/NA	Water	8141A	432806
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	8141A	432806

Analysis Batch: 433150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	8151A	432814
280-115262-2	MW-13-20181006	Total/NA	Water	8151A	432814
MB 280-432814/1-A	Method Blank	Total/NA	Water	8151A	432814
LCS 280-432814/2-A	Lab Control Sample	Total/NA	Water	8151A	432814
280-115262-2 MS	MW-13-20181006	Total/NA	Water	8151A	432814
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	8151A	432814

Analysis Batch: 435394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	8081A	432838
280-115262-2	MW-13-20181006	Total/NA	Water	8081A	432838
MB 280-432838/1-A	Method Blank	Total/NA	Water	8081A	432838
LCS 280-432838/2-A	Lab Control Sample	Total/NA	Water	8081A	432838
LCSD 280-432838/3-A	Lab Control Sample Dup	Total/NA	Water	8081A	432838
280-115262-2 MS	MW-13-20181006	Total/NA	Water	8081A	432838
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	8081A	432838

GC Semi VOA (Continued)

Analysis Batch: 435709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	8082A	432838
280-115262-2	MW-13-20181006	Total/NA	Water	8082A	432838
MB 280-432838/1-A	Method Blank	Total/NA	Water	8082A	432838
LCS 280-432838/4-A	Lab Control Sample	Total/NA	Water	8082A	432838
LCSD 280-432838/5-A	Lab Control Sample Dup	Total/NA	Water	8082A	432838
280-115262-2 MS	MW-13-20181006	Total/NA	Water	8082A	432838
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	8082A	432838

Specialty Organics

Prep Batch: 252699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	8290	
280-115262-2	MW-13-20181006	Total/NA	Water	8290	
MB 320-252699/1-A	Method Blank	Total/NA	Water	8290	
LCS 320-252699/2-A	Lab Control Sample	Total/NA	Water	8290	
LCSD 320-252699/3-A	Lab Control Sample Dup	Total/NA	Water	8290	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	8290	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	8290	

Analysis Batch: 254635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	8290	252699
MB 320-252699/1-A	Method Blank	Total/NA	Water	8290	252699
LCS 320-252699/2-A	Lab Control Sample	Total/NA	Water	8290	252699
LCSD 320-252699/3-A	Lab Control Sample Dup	Total/NA	Water	8290	252699

Analysis Batch: 254638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-2	MW-13-20181006	Total/NA	Water	8290	252699
280-115262-2 MS	MW-13-20181006	Total/NA	Water	8290	252699
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	8290	252699

Metals

Prep Batch: 432773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	3020A	
280-115262-2	MW-13-20181006	Total/NA	Water	3020A	
MB 280-432773/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-432773/2-A	Lab Control Sample	Total/NA	Water	3020A	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	3020A	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	3020A	

Prep Batch: 432774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	3010A	
280-115262-2	MW-13-20181006	Total/NA	Water	3010A	
MB 280-432774/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-432774/2-A	Lab Control Sample	Total/NA	Water	3010A	

Metals (Continued)

Prep Batch: 432774 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-2 MS	MW-13-20181006	Total/NA	Water	3010A	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	3010A	

Prep Batch: 432916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	7470A	
280-115262-2	MW-13-20181006	Total/NA	Water	7470A	
MB 280-432916/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-432916/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	7470A	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	7470A	

Analysis Batch: 433070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	7470A	432916
280-115262-2	MW-13-20181006	Total/NA	Water	7470A	432916
MB 280-432916/1-A	Method Blank	Total/NA	Water	7470A	432916
LCS 280-432916/2-A	Lab Control Sample	Total/NA	Water	7470A	432916
280-115262-2 MS	MW-13-20181006	Total/NA	Water	7470A	432916
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	7470A	432916

Analysis Batch: 433338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	6020B	432773
280-115262-2	MW-13-20181006	Total/NA	Water	6020B	432773
MB 280-432773/1-A	Method Blank	Total/NA	Water	6020B	432773
LCS 280-432773/2-A	Lab Control Sample	Total/NA	Water	6020B	432773
280-115262-2 MS	MW-13-20181006	Total/NA	Water	6020B	432773
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	6020B	432773

Prep Batch: 433447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	3020A	
280-115262-2	MW-13-20181006	Total/NA	Water	3020A	
MB 280-433447/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-433447/2-A	Lab Control Sample	Total/NA	Water	3020A	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	3020A	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	3020A	

Analysis Batch: 433544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	6010C	432774
280-115262-2	MW-13-20181006	Total/NA	Water	6010C	432774
MB 280-432774/1-A	Method Blank	Total/NA	Water	6010C	432774
LCS 280-432774/2-A	Lab Control Sample	Total/NA	Water	6010C	432774
280-115262-2 MS	MW-13-20181006	Total/NA	Water	6010C	432774
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	6010C	432774

Analysis Batch: 433710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	6020B	433447

Metals (Continued)

Analysis Batch: 433710 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-2	MW-13-20181006	Total/NA	Water	6020B	433447
MB 280-433447/1-A	Method Blank	Total/NA	Water	6020B	433447
LCS 280-433447/2-A	Lab Control Sample	Total/NA	Water	6020B	433447
280-115262-2 MS	MW-13-20181006	Total/NA	Water	6020B	433447
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	6020B	433447

General Chemistry

Analysis Batch: 432942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	SM 2320B	
280-115262-2	MW-13-20181006	Total/NA	Water	SM 2320B	
MB 280-432942/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-432942/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 433243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	SM 4500 S2 D	
280-115262-2	MW-13-20181006	Total/NA	Water	SM 4500 S2 D	
MB 280-433243/4	Method Blank	Total/NA	Water	SM 4500 S2 D	
LCS 280-433243/3	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	SM 4500 S2 D	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 433433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	9056A	
280-115262-2	MW-13-20181006	Total/NA	Water	9056A	
MB 280-433433/6	Method Blank	Total/NA	Water	9056A	
LCS 280-433433/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-433433/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-433433/3	Lab Control Sample	Total/NA	Water	9056A	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	9056A	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	9056A	
280-115262-2 DU	MW-13-20181006	Total/NA	Water	9056A	

Analysis Batch: 433511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	353.2	
280-115262-2	MW-13-20181006	Total/NA	Water	353.2	
MB 280-433511/22	Method Blank	Total/NA	Water	353.2	
LCS 280-433511/21	Lab Control Sample	Total/NA	Water	353.2	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	353.2	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	353.2	

Prep Batch: 433909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	SM 4500 CN C	
280-115262-2	MW-13-20181006	Total/NA	Water	SM 4500 CN C	
MB 280-433909/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	

General Chemistry (Continued)

Prep Batch: 433909 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HLCS 280-433909/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-433909/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-433909/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
280-115262-2 MS	MW-13-20181006	Total/NA	Water	SM 4500 CN C	
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 434011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115262-1	MW-13Q-20181006	Total/NA	Water	SM 4500 CN E	433909
280-115262-2	MW-13-20181006	Total/NA	Water	SM 4500 CN E	433909
MB 280-433909/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	433909
HLCS 280-433909/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433909
LCS 280-433909/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433909
LLCS 280-433909/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433909
280-115262-2 MS	MW-13-20181006	Total/NA	Water	SM 4500 CN E	433909
280-115262-2 MSD	MW-13-20181006	Total/NA	Water	SM 4500 CN E	433909

Client Sample ID: MW-13Q-20181006

Lab Sample ID: 280-115262-1

Date Collected: 10/06/18 16:30

Matrix: Water

Date Received: 10/09/18 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433352	10/14/18 12:14	DPI	TAL DEN
Total/NA	Prep	3520C			959.5 mL	1 mL	432905	10/11/18 08:49	JT	TAL DEN
Total/NA	Analysis	8270C		1			433630	10/17/18 00:25	DCK	TAL DEN
Total/NA	Prep	3510C			994.6 mL	10 mL	432838	10/10/18 18:04	AJE	TAL DEN
Total/NA	Analysis	8081A		1			435394	10/30/18 05:12	TEM	TAL DEN
Total/NA	Prep	3510C			994.6 mL	10 mL	432838	10/10/18 18:04	AJE	TAL DEN
Total/NA	Analysis	8082A		1			435709	11/01/18 05:15	BJP	TAL DEN
Total/NA	Prep	3510C			965.4 mL	2 mL	432806	10/10/18 14:00	AAG	TAL DEN
Total/NA	Analysis	8141A		1			433145	10/12/18 19:54	TEM	TAL DEN
Total/NA	Prep	8151A			958.6 mL	10 mL	432814	10/10/18 14:45	RPC	TAL DEN
Total/NA	Analysis	8151A		1			433150	10/12/18 23:25	AMB1	TAL DEN
Total/NA	Prep	8290			1011.9 mL	20 uL	252699	10/16/18 14:34	A1A	TAL SAC
Total/NA	Analysis	8290		1			254635	10/24/18 08:03	AS	TAL SAC
Total/NA	Prep	3010A			50 mL	50 mL	432774	10/13/18 09:30	THP	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/15/18 20:07	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432773	10/12/18 06:00	THP	TAL DEN
Total/NA	Analysis	6020B		1			433338	10/12/18 21:27	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433447	10/16/18 08:10	MRJ	TAL DEN
Total/NA	Analysis	6020B		1			433710	10/16/18 15:09	CRR	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432916	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 23:54	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 16:49	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/15/18 22:11	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			432942	10/10/18 19:40	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:02	RK	TAL DEN
Total/NA	Analysis	SM 4500 S2 D		1	10 mL	10 mL	433243	10/13/18 09:32	JAP	TAL DEN

Client Sample ID: MW-13-20181006

Lab Sample ID: 280-115262-2

Date Collected: 10/06/18 09:30

Matrix: Water

Date Received: 10/09/18 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433352	10/14/18 12:35	DPI	TAL DEN
Total/NA	Prep	3520C			968.2 mL	1 mL	432905	10/11/18 08:49	JT	TAL DEN
Total/NA	Analysis	8270C		1			433630	10/17/18 00:52	DCK	TAL DEN
Total/NA	Prep	3510C			975.4 mL	10 mL	432838	10/10/18 18:04	AJE	TAL DEN
Total/NA	Analysis	8081A		1			435394	10/30/18 05:29	TEM	TAL DEN
Total/NA	Prep	3510C			975.4 mL	10 mL	432838	10/10/18 18:04	AJE	TAL DEN
Total/NA	Analysis	8082A		1			435709	11/01/18 05:37	BJP	TAL DEN
Total/NA	Prep	3510C			1002.8 mL	2 mL	432806	10/10/18 14:00	AAG	TAL DEN
Total/NA	Analysis	8141A		1			433145	10/12/18 17:57	TEM	TAL DEN
Total/NA	Prep	8151A			937.6 mL	10 mL	432814	10/10/18 14:45	RPC	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115262-1

Client Sample ID: MW-13-20181006

Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8151A		1			433150	10/12/18 23:40	AMB1	TAL DEN
Total/NA	Prep	8290			1035.9 mL	20 uL	252699	10/16/18 14:34	A1A	TAL SAC
Total/NA	Analysis	8290		1			254638	10/24/18 16:13	SMA	TAL SAC
Total/NA	Prep	3010A			50 mL	50 mL	432774	10/13/18 09:30	THP	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/15/18 20:10	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432773	10/12/18 06:00	THP	TAL DEN
Total/NA	Analysis	6020B		1			433338	10/12/18 21:35	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	433447	10/16/18 08:10	MRJ	TAL DEN
Total/NA	Analysis	6020B		1			433710	10/16/18 15:13	CRR	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	432916	10/11/18 12:23	MRJ	TAL DEN
Total/NA	Analysis	7470A		1			433070	10/11/18 23:56	MRJ	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 16:43	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/15/18 22:30	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			432942	10/10/18 19:46	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 13:57	RK	TAL DEN
Total/NA	Analysis	SM 4500 S2 D		1	10 mL	10 mL	433243	10/13/18 09:32	JAP	TAL DEN

Client Sample ID: TRIP BLANK

Date Collected: 10/06/18 09:30
Date Received: 10/09/18 08:45

Lab Sample ID: 280-115262-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433352	10/14/18 14:21	DPI	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115262-1

Laboratory: TestAmerica Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19
A2LA	ISO/IEC 17025		2907.01	10-31-19
Alabama	State Program	4	40730	09-30-12 *
Alaska (UST)	State Program	10	UST-30	01-08-19
Arizona	State Program	9	AZ0713	12-20-18
Arkansas DEQ	State Program	6	88-0687	06-01-19
California	State Program	9	2513	01-18-19
Connecticut	State Program	1	PH-0686	09-30-20
Florida	NELAP	4	E87667	06-30-19
Georgia	State Program	4	N/A	01-08-19 *
Illinois	NELAP	5	200017	04-30-19
Iowa	State Program	7	370	12-01-18
Kansas	NELAP	7	E-10166	04-30-19
Louisiana	NELAP	6	02096	06-30-19
Maine	State Program	1	CO0002	03-03-19
Minnesota	NELAP	5	8-999-405	12-31-18
Nevada	State Program	9	CO0026	07-31-19
New Hampshire	NELAP	1	205310	04-28-19
New Jersey	NELAP	2	CO004	06-30-19
New York	NELAP	2	11964	04-01-19
North Carolina (WW/SW)	State Program	4	358	12-31-18
North Dakota	State Program	8	R-034	01-08-19
Oklahoma	State Program	6	8614	08-31-19
Oregon	NELAP	10	4025	01-08-19
Pennsylvania	NELAP	3	68-00664	07-31-19
South Carolina	State Program	4	72002001	01-08-19
Texas	NELAP	6	T104704183-17-14	09-30-19
US Fish & Wildlife	Federal			07-31-19
USDA	Federal			03-26-21
Utah	NELAP	8	CO00026	07-31-19
Virginia	NELAP	3	460232	06-14-19
Washington	State Program	10	C583	08-03-19
West Virginia DEP	State Program	3	354	12-31-18
Wisconsin	State Program	5	999615430	08-31-19 *
Wyoming (UST)	A2LA	8	2907.01	10-31-19

Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD ELAP		L2468	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: CDM Smith, Inc. TestAmerica Job ID: 280-115262-1
Project/Site: Bannock Ft. Hall Mine LF, Idaho

Laboratory: TestAmerica Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Illinois	NELAP	5	200060	03-17-19
Kansas	NELAP	7	E-10375	10-31-18 *
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-18-19
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	03-31-19
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-19
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	12-31-20
Utah	NELAP	8	CA00044	02-28-19
Vermont	State Program	1	VT-4040	04-30-19
Virginia	NELAP	3	460278	03-14-19
Washington	State Program	10	C581	05-05-19
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

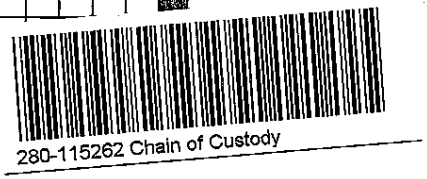
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kayla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	A	D	M	N	N	N	N	N	B	B	C/B	N	N	S	A	S	X	
MW-13Q-20181006	10/6/18	16:30	G	W				2	2	2	2	2										10	



Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 4 Data Package

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/8/18 12:00			10/9/18 0845	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.1, 1.5, 1.3, 0.9, 1.6, 0.9 +0.7 IR #9

Transfer by JO

11/8/2018

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A - Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
						Preservation Code:	X	X	A	B	N	N	N	N	D	B	C/B	N	S	S	A	S	X	
MW-13Q-20181006	10/6/18		G	W				3	1						1	1	1	1	1	1			20	
MW-13-20181006	10/6/18		G	W		Y	9	3							3	3	3	3	3	3			27	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 4 Data Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/8/18 12:00			10/9/18 0845	TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kayla Leshe	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601	PO #:			
Phone:	WO #:			
Email: HillsMW@cdmsmith.com	Project #: See TA PM at sample receipt for project #			
Project Name: Bannock Ft. Hall Mine LF, Idaho	SSOW#:			
Site:				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/9020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8280 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	B	N	N	N	N	N	N	N	B	E	C/B	N	N	S	A	S	X	
MW-13Q-20181006	10/6/18	16:30	G	W									2									2	
MW-13-20181006	10/6/18	09:30	G	W									6									6	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/8/18 12:00			10/9/18 0845	TAD
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: MT, 59601				
Phone:	PO #:			Other:
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B--VOCs	6010B/7020--Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	9200--Dioxins/Furans (TA SACRAMENTO)	7470A--Mercury	4500--CN--E--Total Cyanide	SM4500_S2_D--Total Sulfide	9056A--Anions, (Cl and SO4)	2320B--Alkalinity	353.2--Nitrate/Nitrite	RSK-175--Dissolved Gases (MEFA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	N	N	N	N	N	N	B	B	C/B	N	N	S	A	S	X	
MW-13-20181006	10/6/18	09:30	G	W	Y			2	2	2	2	2										9	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 4 Data Package

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Jm2n	10/8/18 12:00			10/9/18 0845	TAADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	P	B	C3	N	N	S	A3	S			
MW-13-20181006	10/6/18	09:30	G	W		Y		2	2	2	2	2											6	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 4 Data Package

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/8/18 12:00			10/9/18 1895	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

11/8/2018

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Loshe	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B-VOCs	6010/6020A-Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290-Dioxins/Furans-(CFA-SAORAMENTO)	ZA70A-Mercury	4500-CN_E-Total Cyanide	SM4500-S2-D-Total Sulfide	9056A-Anions (Cl and SO4)	2320B-Alkalinity	353.2-Nitrate/Nitrite	RSK-175-Dissolved Gases (MEEA)	9060A-TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:			A	D	N	N	N	N	N	N	D	B	CB	N	N	S	A	S		
MW-13-20181006	10/6/18	09:30			Y			3	3	3	3	3										6	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 4 Data Package

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/8/18 12:00			10/9/18 0845	TAEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bieniulis, Dylan T	Carrier Tracking No(s):	COC No: 280-457749.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: dylan.bieniulis@testamericainc.com	State of Origin: Idaho	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 280-115262-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 10/25/2018			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: 28018772			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8290/8290_P_Sep (MOD) 2,3,7,8 - TCDD only	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-13Q-20181006 (280-115262-1)	10/6/18	16:30 Mountain		Water			X	2	
MW-13-20181006 (280-115262-2)	10/6/18	09:30 Mountain		Water			X	2	
MW-13-20181006 (280-115262-2MS)	10/6/18	09:30 Mountain	MS	Water			X	2	
MW-13-20181006 (280-115262-2MSD)	10/6/18	09:30 Mountain	MSD	Water			X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:
Empty Kit Relinquished by:	Date: Time: Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10-10-2018 1627	TALRT	[signature]	10/11/18 0935	TA-SAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes △ No | Custody Seal No.: 628873 | Cooler Temperature(s) °C and Other Remarks: 5.0

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: CDM Smith, Inc.

Job Number: 280-115262-1

Login Number: 115262
List Number: 1
Creator: Diffendall, Jessica L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: CDM Smith, Inc.

Job Number: 280-115262-1

Login Number: 115262
List Number: 2
Creator: Gooch, Mayce

List Source: TestAmerica Sacramento
List Creation: 10/12/18 08:34 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	678873
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.2C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115262-1

Method: 8290 - Dioxins and Furans (HRGC/HRMS)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (40-135)							
280-115262-1	MW-13Q-20181006	91							
280-115262-2	MW-13-20181006	90							
280-115262-2 MS	MW-13-20181006	89							
280-115262-2 MSD	MW-13-20181006	94							
LCS 320-252699/2-A	Lab Control Sample	85							
LCSD 320-252699/3-A	Lab Control Sample Dup	89							
MB 320-252699/1-A	Method Blank	91							

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Receiving Notes

280-115262 Field Sheet

Job:_____

Tracking # 4467 6849 4873 SO / PO / FO / 2-Day / SAT / Ground / UPS / Courier /

Drop Off / GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:_____

Therm. ID: **AK-2 / AK-3 / AK-5 / AK-6 / HACCP / Other**____ (+0.7°C)

Ice X Wet X Gel _____ Other _____

Cooler Custody Seal: 678873

Sample Custody Seal: —

Cooler ID: —

Temp: Observed 5.2 Corrected 5.2

From: Temp Blank ☐ Sample ☒

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace?	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
CoC is complete w/o discrepancies?	☒	☐	☐
Samples received within holding time?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Cooler compromised/tampered with?	☐	☒	☐
Samples compromised/tampered with?	☐	☒	☐
Samples w/o discrepancies?	☒	☐	☐
Sample containers have legible labels?	☒	☐	☐
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided.	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐
Sample temp OK?	☒	☐	☐
Sample out of temp?	☐	☒	☐

Initials: SC Date: 10/11/18

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WLC cart

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115307-1
Client Project/Site: Bannock Ft. Hall Mine LF, Idaho

For:
CDM Smith, Inc.
14432 S.E. Eastgate Way
Suite 100
Bellevue, Washington 98007-6493

Attn: Mary Lou Fox

Authorized for release by:
10/31/2018 3:38:31 PM

Dylan Bieniulis, Project Manager I
(303)736-0100
dylan.bieniulis@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions 3
Case Narrative 4
Detection Summary 9
Method Summary 20
Sample Summary 21
Client Sample Results 22
Surrogate Summary 80
QC Sample Results 82
QC Association 115
Chronicle 125
Certification Summary 136
Chain of Custody 138
Receipt Checklists 146
Isotope Dilution Summary 148
Field Data Sheets 149

Definitions/Glossary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
E	Result exceeded calibration range.
B	Compound was found in the blank and sample.
*	LCS or LCSD is outside acceptance limits.
X	Surrogate is outside control limits

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115307-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: CDM Smith, Inc.

Project: Bannock Ft. Hall Mine LF, Idaho

Report Number: 280-115307-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/10/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 1.5º C, 1.6º C, 1.8º C, 2.4º C, 4.2º C, 5.3º C and 5.6º C.

The requested 8290 Dioxins/Furans analyses were logged as 8290 - 2,3,7,8 TCDD only per client instructions received on 10/4/2018 prior to sample receipt. The 8290 - 2,3,7,8 TCDD only analyses were subcontracted to TestAmerica's Sacramento laboratory.

The sample ID and collection date/time on the container labels of sample volume received for MW-112M-20181005 (280-115307-6) did not match the chain of custody. The container labels list a sample ID of MW-112M-20181005 and a collection date/time of 10/5/2018 at 1510 while the chain of custody lists a sample ID of MW-112M-20181006 with a collection date/time of 10/6/2018 at 1510. It can be noted that the chain of custody also references a client sample ID of MW-112M-20181005 with a collection date/time of 10/5/2018 at 1510 on a separate page with 8260B VOCs requested only and the laboratory received appropriate sample volume labeled to match the chain of custody. As all of the referenced sample containers are labeled with a sample ID of MW-112M-20181005 and a collection date/time of 10/5/2018 at 1510, the laboratory has logged all sample volume under one lab sample ID, MW-112M-20181005 (280-115307-6). The client was notified on 10/11/2018.

Twelve of twelve containers received for sample MW-103D-20181009 (280-115307-36) did not list a collection time on the container labels. The laboratory logged the sample collection time of the sample volume per the chain of custody. The client was notified on 10/11/2018.

Two of three HCl preserved VOA vials for the requested 8260B VOCs for RW-3-20181007 (280-115307-11) did not list a sample collection time on the container labels. The laboratory logged the sample collection time of the containers per the chain of custody. The client was notified on 10/11/2018.

One of seven coolers was received without a custody seal present. It can be noted that the shipping tape was fully in tact and there was no evidence of tampering with the sample volume during transit. The cooler contained all sample volume for the requested analyses for MW-109S-20181006 (280-115307-5) and all sample volume for the requested analyses except three VOA vials for 8260B VOCs for each of the following samples: MW-112M-20181006 (280-115307-6) and MW--112MQ-20181005 (280-115307-7). The laboratory will proceed with the requested analyses for these samples unless instructed otherwise. The client was notified on 10/11/2018.

Two of three HCl preserved VOA vials for the requested 8260B VOCs analysis for MW-4-20181005 (280-115307-15) were received with a headspace bubble greater than 6 mm in diameter. Sufficient sample volume without headspace was received to perform the requested

Job ID: 280-115307-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

analysis. However, analytical results may be biased low due to headspace if re-analysis is requested or required. The client was notified on 10/11/2018.

Three of three HCl preserved VOA vials for the requested 8260B VOCs analysis for MW-6A-20181009 (280-115307-24) were received with a headspace bubble greater than 6 mm in diameter. Analytical results may be biased low due to headspace. The laboratory will proceed with the requested analysis unless instructed otherwise. The client was notified on 10/11/2018.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples MW-112M-20181005 (280-115307-6), MW-112MQ-20181005 (280-115307-7), RW-3-20181007 (280-115307-11), MW-7-20181008 (280-115307-12), MW-106D-20181008 (280-115307-13), MW-112D-20181005 (280-115307-14), MW-4-20181005 (280-115307-15), MW-109D-20181006 (280-115307-16), MW-109S-20181006 (280-115307-18), RW-9-20181007 (280-115307-19), EB-0-VOC-20181006 (280-115307-20), EB-2-VOC-20181006 (280-115307-21), TB-7-VOC-20181009 (280-115307-22), MW-115D-20181008 (280-115307-23), MW-6A-20181009 (280-115307-24), MW-4A-20181005 (280-115307-25), MW-4AQ-20181005 (280-115307-26), EB-4-VOC-20181008 (280-115307-27), RW-17-20181007 (280-115307-29), EB-3-VOC-100718 (280-115307-30), RW-10-20181007 (280-115307-33), MW-3A-20181008 (280-115307-34), MW-103S-20181009 (280-115307-35), MW-103D-20181009 (280-115307-36) and TB-9-VOC-20181009 (280-115307-37) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/12/2018, 10/14/2018, 10/15/2018, 10/16/2018, 10/18/2018 and 10/19/2018.

Acetone was detected in method blank MB 280-433054/8 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Methylene Chloride was detected in method blank MB 280-433542/6 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Methylene Chloride was detected in method blank MB 280-434030/8 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Method(s) 8260B: Surrogate recovery for the following samples (batch 433352) were outside the upper control limit: Dibromofluoromethane (Surr) (at 123%, limits 77-120%) failed the surrogate recovery criteria high for MW-115D-20181008 (280-115307-23); 1,2-Dichloroethane-d4 (Surr) (at 128%, limits 70-127%) and Dibromofluoromethane (Surr) (at 124%, limits 77-120%) failed the surrogate recover criteria high for MW-6A-20181009 (280-115307-24); Dibromofluoromethane (Surr) (at 124%, limits 77-120%) failed the surrogate recovery criteria high for MW-4AQ-20181005 (280-115307-26). These samples did not contain any target analytes associated with these surrogates; therefore, re-extraction and/or re-analysis was not performed. Refer to the QC report for details.

Method(s) 8260B: The laboratory control sample duplicate (LCSD 280-433054/7) for analytical batch 280-433054 recovered outside control limits for the following analytes: Methyl Methacrylate (50%-150%) at 155%. These analytes were biased high in the LCSD and were not detected in the associated samples; therefore, the data have been reported. Refer to the QC report for details.

Method(s) 8260B: The continuing calibration verification (CCV) associated with batch 280-433054 recovered above the upper control limit for 2-Butanone (50%D) at 56.7%D. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MW-112M-20181005 (280-115307-6), MW-112MQ-20181005 (280-115307-7), EB-0-VOC-20181006 (280-115307-20), EB-2-VOC-20181006 (280-115307-21), EB-4-VOC-20181008 (280-115307-27), TB-9-VOC-20181009 (280-115307-37) and (CCV 280-433054/2). Refer to the QC report for details.

Method(s) 8260B: The continuing calibration verification (CCV) associated with batch 280-434030 recovered above the upper control limit for methyl methacrylate (35%D) at 46%D. The samples, MW-3A-20181008 (280-115307-34), MW-103S-20181009 (280-115307-35), MW-103D-20181009 (280-115307-36) and (CCV 280-434030/3), associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Samples MW-112M-20181005 (280-115307-6)[4X], MW-112MQ-20181005 (280-115307-7)[4X], RW-3-20181007 (280-115307-11)[4X], MW-112D-20181005 (280-115307-14)[10X], MW-109S-20181006 (280-115307-18)[4X], RW-9-20181007 (280-115307-19)[10X], RW-17-20181007 (280-115307-29)[4X] and RW-10-20181007 (280-115307-33)[4X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Job ID: 280-115307-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Method(s) 8260B: The following volatile samples were analyzed with significant headspace in the sample container: MW-4-20181005 (280-115307-15), MW-6A-20181009 (280-115307-24), MW-3A-20181008 (280-115307-34), MW-103S-20181009 (280-115307-35) and MW-103D-20181009 (280-115307-36). Significant headspace is defined as a bubble greater than 6 mm in diameter.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DISSOLVED GASES

Samples MW-109S-20181006 (280-115307-5), MW-112M-20181005 (280-115307-6), MW-112MQ-20181005 (280-115307-7), RW-4-20181007 (280-115307-8), MW-121-20181007 (280-115307-9), RW-3-20181007 (280-115307-11), MW-7-20181008 (280-115307-12), MW-112D-20181005 (280-115307-14), MW-109D-20181006 (280-115307-16), MW-103S-20181009 (280-115307-35) and MW-103D-20181009 (280-115307-36) were analyzed for dissolved gases in accordance with RSK_175. The samples were analyzed on 10/13/2018, 10/15/2018 and 10/16/2018.

Method(s) RSK-175: The following volatile samples were analyzed with significant headspace in the sample container: MW-121-20181007 (280-115307-9), MW-7-20181008 (280-115307-12), MW-103S-20181009 (280-115307-35), MW-103D-20181009 (280-115307-36) and (280-115307-H-12 DU). Significant headspace is defined as a bubble greater than 6 mm in diameter.

Analytes Acetylene/Ethane co-elute on one of the columns used for this analysis. As a result, there are no results reported for the %Difference in the concentration on the Form X.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIOXINS AND FURANS (HRGC/HRMS)

Samples MW-12-20181008 (280-115307-1), MW-9-20181007 (280-115307-2), INJ-1R-20181006 (280-115307-3) and MW-8-20181007 (280-115307-4) were analyzed for dioxins and furans (HRGC/HRMS) in accordance with SW846 8290. The samples were prepared on 10/16/2018 and analyzed on 10/24/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP)

Samples MW-109S-20181006 (280-115307-5), MW-112M-20181005 (280-115307-6), MW-112MQ-20181005 (280-115307-7), RW-4-20181007 (280-115307-8), MW-121-20181007 (280-115307-9), RW-7773P-20181007 (280-115307-10), RW-3-20181007 (280-115307-11), MW-7-20181008 (280-115307-12), MW-106D-20181008 (280-115307-13), MW-112D-20181005 (280-115307-14), MW-4-20181005 (280-115307-15), MW-109D-20181006 (280-115307-16), MW-115D-20181008 (280-115307-23), MW-6A-20181009 (280-115307-24), MW-4A-20181005 (280-115307-25), MW-4AQ-20181005 (280-115307-26), MW-3A-20181008 (280-115307-34), MW-103S-20181009 (280-115307-35) and MW-103D-20181009 (280-115307-36) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 10/13/2018 and analyzed on 10/16/2018.

Sodium was detected in method blank MB 280-432959/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Method(s) 6010C: The low level continuing calibration verification (CCVL) associated with batch 280-433544 recovered above the upper control limit (130%) for Na at 140%, 136% and 133%. The samples associated with this CCVL were greater then 10x the RL and so controlled to the CCV for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP/MS)

Samples MW-109S-20181006 (280-115307-5), MW-112M-20181005 (280-115307-6), MW-112MQ-20181005 (280-115307-7), RW-4-20181007 (280-115307-8), MW-121-20181007 (280-115307-9), RW-7773P-20181007 (280-115307-10), RW-3-20181007 (280-115307-11), MW-7-20181008 (280-115307-12), MW-106D-20181008 (280-115307-13), MW-112D-20181005 (280-115307-14), MW-4-20181005 (280-115307-15), MW-109D-20181006 (280-115307-16), MW-115D-20181008 (280-115307-23), MW-6A-20181009 (280-115307-24), MW-4A-20181005 (280-115307-25), MW-4AQ-20181005 (280-115307-26), MW-3A-20181008 (280-115307-34), MW-103S-20181009 (280-115307-35) and MW-103D-20181009 (280-115307-36) were analyzed for Total Metals (ICP/MS) in accordance

Job ID: 280-115307-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

with SW846 6020B. The samples were prepared on 10/13/2018 and analyzed on 10/14/2018.

Zinc was detected in method blank MB 280-432958/1-A at a level that was above the method detection limit but below the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Method(s) 6020B: The initial calibration verification (ICV) result for Antimony (111%) for batch 280-433400 was above the upper control limit (110%). Sample results were <RL, and have been reported as qualified data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY

Samples MW-109S-20181006 (280-115307-5), MW-112M-20181005 (280-115307-6), MW-112MQ-20181005 (280-115307-7), RW-4-20181007 (280-115307-8), MW-121-20181007 (280-115307-9), RW-7773P-20181007 (280-115307-10), RW-3-20181007 (280-115307-11), MW-7-20181008 (280-115307-12), MW-106D-20181008 (280-115307-13), MW-112D-20181005 (280-115307-14), MW-109D-20181006 (280-115307-16), MW-115D-20181008 (280-115307-23), MW-103S-20181009 (280-115307-35) and MW-103D-20181009 (280-115307-36) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 10/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ALKALINITY

Samples MW-109S-20181006 (280-115307-5), MW-112M-20181005 (280-115307-6), MW-112MQ-20181005 (280-115307-7), RW-4-20181007 (280-115307-8), MW-121-20181007 (280-115307-9), RW-3-20181007 (280-115307-11), MW-7-20181008 (280-115307-12), MW-106D-20181008 (280-115307-13), MW-112D-20181005 (280-115307-14), MW-4-20181005 (280-115307-15), MW-109D-20181006 (280-115307-16), MW-115D-20181008 (280-115307-23), MW-6A-20181009 (280-115307-24), MW-4A-20181005 (280-115307-25), MW-4AQ-20181005 (280-115307-26), MW-3A-20181008 (280-115307-34), MW-103S-20181009 (280-115307-35) and MW-103D-20181009 (280-115307-36) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 10/11/2018 and 10/12/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

NITRATE-NITRITE AS NITROGEN

Samples MW-109S-20181006 (280-115307-5), MW-112M-20181005 (280-115307-6), MW-112MQ-20181005 (280-115307-7), RW-4-20181007 (280-115307-8), MW-121-20181007 (280-115307-9), RW-3-20181007 (280-115307-11), MW-7-20181008 (280-115307-12), MW-106D-20181008 (280-115307-13), MW-112D-20181005 (280-115307-14), MW-4-20181005 (280-115307-15), MW-109D-20181006 (280-115307-16), MW-115D-20181008 (280-115307-23), MW-6A-20181009 (280-115307-24), MW-4A-20181005 (280-115307-25), MW-4AQ-20181005 (280-115307-26), MW-3A-20181008 (280-115307-34), MW-103S-20181009 (280-115307-35) and MW-103D-20181009 (280-115307-36) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 10/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL AND AMENABLE CYANIDE

Samples MW-109S-20181006 (280-115307-5), MW-112M-20181005 (280-115307-6), MW-112MQ-20181005 (280-115307-7), RW-4-20181007 (280-115307-8), MW-121-20181007 (280-115307-9), RW-7773P-20181007 (280-115307-10), RW-3-20181007 (280-115307-11), MW-7-20181008 (280-115307-12), MW-106D-20181008 (280-115307-13), MW-112D-20181005 (280-115307-14), MW-109D-20181006 (280-115307-16), MW-115D-20181008 (280-115307-23), MW-103S-20181009 (280-115307-35) and MW-103D-20181009 (280-115307-36) were analyzed for total and amenable cyanide in accordance with SM20 4500 CN E. The samples were prepared and analyzed on 10/18/2018, 10/19/2018 and 10/22/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS (28 DAYS)

Samples MW-109S-20181006 (280-115307-5), MW-112M-20181005 (280-115307-6), MW-112MQ-20181005 (280-115307-7), RW-4-20181007 (280-115307-8), MW-121-20181007 (280-115307-9), RW-3-20181007 (280-115307-11), MW-7-20181008

Job ID: 280-115307-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

(280-115307-12), MW-106D-20181008 (280-115307-13), MW-112D-20181005 (280-115307-14), MW-4-20181005 (280-115307-15), MW-109D-20181006 (280-115307-16), MW-115D-20181008 (280-115307-23), MW-6A-20181009 (280-115307-24), MW-4A-20181005 (280-115307-25), MW-4AQ-20181005 (280-115307-26), MW-3A-20181008 (280-115307-34), MW-103S-20181009 (280-115307-35) and MW-103D-20181009 (280-115307-36) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 10/15/2018 and 10/16/2018.

Sample MW-121-20181007 (280-115307-9)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL ORGANIC CARBON

Samples MW-109S-20181006 (280-115307-5), MW-112M-20181005 (280-115307-6), MW-112MQ-20181005 (280-115307-7), RW-4-20181007 (280-115307-8), MW-121-20181007 (280-115307-9), RW-3-20181007 (280-115307-11), MW-7-20181008 (280-115307-12), MW-112D-20181005 (280-115307-14), MW-109D-20181006 (280-115307-16), MW-103S-20181009 (280-115307-35) and MW-103D-20181009 (280-115307-36) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060A. The samples were analyzed on 10/11/2018 and 10/12/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Client Sample ID: MW-12-20181008 — Lab Sample ID: 280-115307-1

No Detections.

Client Sample ID: MW-9-20181007 — Lab Sample ID: 280-115307-2

No Detections.

Client Sample ID: INJ-1R-20181006 — Lab Sample ID: 280-115307-3

No Detections.

Client Sample ID: MW-8-20181007 — Lab Sample ID: 280-115307-4

No Detections.

Client Sample ID: MW-109S-20181006 — Lab Sample ID: 280-115307-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	88000		200	35	ug/L	1		6010C	Total/NA
Magnesium	40000		200	11	ug/L	1		6010C	Total/NA
Potassium	4000		3000	240	ug/L	1		6010C	Total/NA
Sodium	59000	^ B	1000	120	ug/L	1		6010C	Total/NA
Antimony	0.61	J ^	2.0	0.40	ug/L	1		6020B	Total/NA
Arsenic	0.68	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	140		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.64	J	2.0	0.50	ug/L	1		6020B	Total/NA
Copper	0.57	J	2.0	0.56	ug/L	1		6020B	Total/NA
Manganese	0.35	J	1.0	0.31	ug/L	1		6020B	Total/NA
Vanadium	0.74	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	3.5	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.73		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	91		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	110		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.1		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	280		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-112M-20181005 — Lab Sample ID: 280-115307-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.66	J	4.0	0.64	ug/L	4		8260B	Total/NA
Tetrachloroethene	7.0		4.0	0.80	ug/L	4		8260B	Total/NA
Trichloroethene	120		4.0	0.64	ug/L	4		8260B	Total/NA
Calcium	93000		200	35	ug/L	1		6010C	Total/NA
Iron	480		100	22	ug/L	1		6010C	Total/NA
Magnesium	38000		200	11	ug/L	1		6010C	Total/NA
Potassium	2500	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	57000	^ B	1000	120	ug/L	1		6010C	Total/NA
Antimony	0.57	J ^	2.0	0.40	ug/L	1		6020B	Total/NA
Arsenic	0.53	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	120		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.8	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.17	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.94	J	2.0	0.56	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-112M-20181005 (Continued) — Lab Sample ID: 280-115307-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.50	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	13		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	0.56	J	2.0	0.30	ug/L	1		6020B	Total/NA
Silver	0.095	J	5.0	0.033	ug/L	1		6020B	Total/NA
Vanadium	0.73	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	5.1	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.77		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	78		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	67		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	0.74	J	1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	340		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-112MQ-20181005 — Lab Sample ID: 280-115307-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.72	J	4.0	0.64	ug/L	4		8260B	Total/NA
Tetrachloroethene	8.2		4.0	0.80	ug/L	4		8260B	Total/NA
1,1,1-Trichloroethane	0.67	J	4.0	0.64	ug/L	4		8260B	Total/NA
Trichloroethene	130		4.0	0.64	ug/L	4		8260B	Total/NA
Calcium	92000		200	35	ug/L	1		6010C	Total/NA
Iron	170		100	22	ug/L	1		6010C	Total/NA
Magnesium	38000		200	11	ug/L	1		6010C	Total/NA
Potassium	2400	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	57000	^ B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.46	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	110		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.7	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.073	J	1.0	0.054	ug/L	1		6020B	Total/NA
Lead	0.21	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	4.6		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	0.33	J	2.0	0.30	ug/L	1		6020B	Total/NA
Silver	0.055	J	5.0	0.033	ug/L	1		6020B	Total/NA
Zinc	3.8	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.75		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	79		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	66		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	0.64	J	1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	330		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: RW-4-20181007 — Lab Sample ID: 280-115307-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	150000		200	35	ug/L	1		6010C	Total/NA
Iron	380		100	22	ug/L	1		6010C	Total/NA
Magnesium	53000		200	11	ug/L	1		6010C	Total/NA
Potassium	4600		3000	240	ug/L	1		6010C	Total/NA
Sodium	70000	^ B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.65	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	250		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	2.5		2.0	0.50	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: RW-4-20181007 (Continued) — Lab Sample ID: 280-115307-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Co	0.13	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	13		2.0	0.56	ug/L	1		6020B	Total/NA
Lead	2.3		1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	4.8		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	3.7		2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	0.61	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	120	B	10	2.0	ug/L	1		6020B	Total/NA
Mercury	0.032	J	0.20	0.027	ug/L	1		7470A	Total/NA
Nitrate Nitrite as N	0.60		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	160		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	100		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.8		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	400		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-121-20181007 — Lab Sample ID: 280-115307-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	56		5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	230000		200	35	ug/L	1		6010C	Total/NA
Iron	2600		100	22	ug/L	1		6010C	Total/NA
Magnesium	74000		200	11	ug/L	1		6010C	Total/NA
Potassium	6500		3000	240	ug/L	1		6010C	Total/NA
Sodium	190000	^ B	1000	120	ug/L	1		6010C	Total/NA
Arsenic	9.0		5.0	0.33	ug/L	1		6020B	Total/NA
Barium	1500		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	2.3		2.0	0.50	ug/L	1		6020B	Total/NA
Co	18		1.0	0.054	ug/L	1		6020B	Total/NA
Copper	2.5		2.0	0.56	ug/L	1		6020B	Total/NA
Lead	2.1		1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	2200		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	60		2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	2.7	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	11	B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	1.4		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	460		30	2.5	mg/L	10		9056A	Total/NA
Sulfate	55		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	16		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	650		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: RW-7773P-20181007 — Lab Sample ID: 280-115307-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	72000		200	35	ug/L	1		6010C	Total/NA
Iron	77	J	100	22	ug/L	1		6010C	Total/NA
Magnesium	25000		200	11	ug/L	1		6010C	Total/NA
Potassium	6100		3000	240	ug/L	1		6010C	Total/NA
Sodium	33000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.5	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	110		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.70	J	2.0	0.50	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: RW-7773P-20181007 (Continued) — Lab Sample ID: 280-115307-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	1.9	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.87	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	2.6		1.0	0.31	ug/L	1		6020B	Total/NA
Vanadium	0.81	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	210	B	10	2.0	ug/L	1		6020B	Total/NA

Client Sample ID: RW-3-20181007 — Lab Sample ID: 280-115307-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.63	J	1.0	0.16	ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	0.41	J	1.0	0.15	ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	0.40	J	1.0	0.16	ug/L	1		8260B	Total/NA
Dichlorodifluoromethane	0.72	J	2.0	0.31	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	1.0		1.0	0.22	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	9.1		1.0	0.15	ug/L	1		8260B	Total/NA
1,2-Dichloropropane	0.24	J	1.0	0.18	ug/L	1		8260B	Total/NA
Tetrachloroethene	19		1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	140	E	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	1.2		1.0	0.10	ug/L	1		8260B	Total/NA
Trichloroethene - DL	130		4.0	0.64	ug/L	4		8260B	Total/NA
Methane	1.9	J	5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	120000		200	35	ug/L	1		6010C	Total/NA
Iron	75	J	100	22	ug/L	1		6010C	Total/NA
Magnesium	47000		200	11	ug/L	1		6010C	Total/NA
Potassium	4000		3000	240	ug/L	1		6010C	Total/NA
Sodium	74000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.57	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	240		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.52	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	2.7		1.0	0.054	ug/L	1		6020B	Total/NA
Copper	3.8		2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.50	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	1300		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	15		2.0	0.30	ug/L	1		6020B	Total/NA
Zinc	94	B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.43		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	170		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	110		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	2.3		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	360		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-7-20181008 — Lab Sample ID: 280-115307-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	16		1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.38	J	1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	0.75	J	1.0	0.16	ug/L	1		8260B	Total/NA
Methane	6.6		5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	73000		200	35	ug/L	1		6010C	Total/NA
Iron	22	J	100	22	ug/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-7-20181008 (Continued) — Lab Sample ID: 280-115307-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	23000		200	11	ug/L	1		6010C	Total/NA
Potassium	2500	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	32000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.57	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	360		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.80	J	2.0	0.50	ug/L	1		6020B	Total/NA
Copper	0.80	J	2.0	0.56	ug/L	1		6020B	Total/NA
Manganese	1.7		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	0.49	J	2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	0.51	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	3.9	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	2.3		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	81		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	20		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	0.76	J	1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	210		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0021	J	0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: MW-106D-20181008 — Lab Sample ID: 280-115307-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	74000		200	35	ug/L	1		6010C	Total/NA
Magnesium	26000		200	11	ug/L	1		6010C	Total/NA
Potassium	6100		3000	240	ug/L	1		6010C	Total/NA
Sodium	34000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.6	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	110		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.83	J	2.0	0.50	ug/L	1		6020B	Total/NA
Vanadium	1.1	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	2.1	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	1.8		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	45		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	42		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	270		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-112D-20181005 — Lab Sample ID: 280-115307-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.28	J	1.0	0.16	ug/L	1		8260B	Total/NA
Dichlorodifluoromethane	2.0		2.0	0.31	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.43	J	1.0	0.22	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.20	J	1.0	0.15	ug/L	1		8260B	Total/NA
1,1-Dichloroethene	1.3		1.0	0.23	ug/L	1		8260B	Total/NA
Tetrachloroethene	11		1.0	0.20	ug/L	1		8260B	Total/NA
1,1,1-Trichloroethane	0.92	J	1.0	0.16	ug/L	1		8260B	Total/NA
Trichloroethene	250	E	1.0	0.16	ug/L	1		8260B	Total/NA
Trichlorofluoromethane	1.0	J	2.0	0.29	ug/L	1		8260B	Total/NA
Trichloroethene - DL	200		10	1.6	ug/L	10		8260B	Total/NA
Calcium	87000		200	35	ug/L	1		6010C	Total/NA
Iron	150		100	22	ug/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-112D-20181005 (Continued) — Lab Sample ID: 280-115307-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	32000		200	11	ug/L	1		6010C	Total/NA
Potassium	2400	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	41000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.93	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	110		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.0	J	2.0	0.50	ug/L	1		6020B	Total/NA
Copper	0.69	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.22	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	3.6		1.0	0.31	ug/L	1		6020B	Total/NA
Vanadium	0.60	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	4.1	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	1.1		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	82		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	81		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.2		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	260		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-4-20181005 — Lab Sample ID: 280-115307-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dichlorodifluoromethane	0.72	J	2.0	0.31	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.97	J	1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	4.1		1.0	0.20	ug/L	1		8260B	Total/NA
1,1,1-Trichloroethane	0.22	J	1.0	0.16	ug/L	1		8260B	Total/NA
Trichloroethene	0.32	J	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.63	J	1.0	0.10	ug/L	1		8260B	Total/NA
Xylenes, Total	0.51	J	2.0	0.19	ug/L	1		8260B	Total/NA
Calcium	130000		200	35	ug/L	1		6010C	Total/NA
Iron	560		100	22	ug/L	1		6010C	Total/NA
Magnesium	51000		200	11	ug/L	1		6010C	Total/NA
Potassium	3200		3000	240	ug/L	1		6010C	Total/NA
Sodium	50000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	2.4	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	150		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	2.5		2.0	0.50	ug/L	1		6020B	Total/NA
Co	2.8		1.0	0.054	ug/L	1		6020B	Total/NA
Lead	0.20	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	280		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	13		2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	1.2	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	5.8	J B	10	2.0	ug/L	1		6020B	Total/NA
Chloride	42		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	18		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	580		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-109D-20181006 — Lab Sample ID: 280-115307-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.45	J	1.0	0.16	ug/L	1		8260B	Total/NA
Tetrachloroethene	8.6		1.0	0.20	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-109D-20181006 (Continued) — Lab Sample ID: 280-115307-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	60		1.0	0.16	ug/L	1		8260B	Total/NA
Calcium	110000		200	35	ug/L	1		6010C	Total/NA
Iron	40	J	100	22	ug/L	1		6010C	Total/NA
Magnesium	44000		200	11	ug/L	1		6010C	Total/NA
Potassium	3300		3000	240	ug/L	1		6010C	Total/NA
Sodium	59000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.62	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	140		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.70	J	2.0	0.50	ug/L	1		6020B	Total/NA
Manganese	0.40	J	1.0	0.31	ug/L	1		6020B	Total/NA
Zinc	3.0	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	1.3		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	110		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	110		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.1		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	310		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-109S-20181006 — Lab Sample ID: 280-115307-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.80	J	1.0	0.16	ug/L	1		8260B	Total/NA
Tetrachloroethene	30		1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	120	E	1.0	0.16	ug/L	1		8260B	Total/NA
Trichloroethene - DL	110		4.0	0.64	ug/L	4		8260B	Total/NA

Client Sample ID: RW-9-20181007 — Lab Sample ID: 280-115307-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.23	J	1.0	0.16	ug/L	1		8260B	Total/NA
Chloroform	0.28	J	1.0	0.16	ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	0.58	J	1.0	0.15	ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	0.33	J	1.0	0.16	ug/L	1		8260B	Total/NA
Dichlorodifluoromethane	0.49	J	2.0	0.31	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	1.8		1.0	0.22	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	15		1.0	0.15	ug/L	1		8260B	Total/NA
1,2-Dichloropropane	0.38	J	1.0	0.18	ug/L	1		8260B	Total/NA
Methylene Chloride	0.55	J	2.0	0.32	ug/L	1		8260B	Total/NA
Tetrachloroethene	12		1.0	0.20	ug/L	1		8260B	Total/NA
1,1,1-Trichloroethane	0.33	J	1.0	0.16	ug/L	1		8260B	Total/NA
Trichloroethene	240	E	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	2.4		1.0	0.10	ug/L	1		8260B	Total/NA
Trichloroethene - DL	210		10	1.6	ug/L	10		8260B	Total/NA

Client Sample ID: EB-0-VOC-20181006 — Lab Sample ID: 280-115307-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	5.1	J B	10	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.60	J	2.0	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: EB-2-VOC-20181006 — Lab Sample ID: 280-115307-21

This Detection Summary does not include radiochemical test results.

Client Sample ID: EB-2-VOC-20181006 (Continued) — Lab Sample ID: 280-115307-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.8	J B	10	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.46	J	2.0	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: TB-7-VOC-20181009 — Lab Sample ID: 280-115307-22

No Detections.

Client Sample ID: MW-115D-20181008 — Lab Sample ID: 280-115307-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	76000		200	35	ug/L	1		6010C	Total/NA
Magnesium	28000		200	11	ug/L	1		6010C	Total/NA
Potassium	7600		3000	240	ug/L	1		6010C	Total/NA
Sodium	46000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.9	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	120		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.80	J	2.0	0.50	ug/L	1		6020B	Total/NA
Manganese	0.75	J	1.0	0.31	ug/L	1		6020B	Total/NA
Vanadium	1.1	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	4.3	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	2.1		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	48		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	43		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	300		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-6A-20181009 — Lab Sample ID: 280-115307-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	74000		200	35	ug/L	1		6010C	Total/NA
Iron	310		100	22	ug/L	1		6010C	Total/NA
Magnesium	42000		200	11	ug/L	1		6010C	Total/NA
Potassium	2200	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	51000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.48	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	210		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.1	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.15	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.68	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.29	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	8.7		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	0.62	J	2.0	0.30	ug/L	1		6020B	Total/NA
Zinc	5.7	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	4.9		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	150		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	46		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	190		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-4A-20181005 — Lab Sample ID: 280-115307-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	87000		200	35	ug/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-4A-20181005 (Continued) — Lab Sample ID: 280-115307-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	210		100	22	ug/L	1		6010C	Total/NA
Magnesium	19000		200	11	ug/L	1		6010C	Total/NA
Potassium	3700		3000	240	ug/L	1		6010C	Total/NA
Sodium	63000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.4	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	190		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.91	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.18	J	1.0	0.054	ug/L	1		6020B	Total/NA
Lead	0.24	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	6.2		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	0.37	J	2.0	0.30	ug/L	1		6020B	Total/NA
Selenium	0.87	J	5.0	0.70	ug/L	1		6020B	Total/NA
Vanadium	1.0	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	5.2	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	2.4		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	140		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	51		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	170		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-4AQ-20181005 — Lab Sample ID: 280-115307-26

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	89000		200	35	ug/L	1		6010C	Total/NA
Iron	240		100	22	ug/L	1		6010C	Total/NA
Magnesium	19000		200	11	ug/L	1		6010C	Total/NA
Potassium	3800		3000	240	ug/L	1		6010C	Total/NA
Sodium	63000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.4	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	190		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.91	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.13	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.57	J	2.0	0.56	ug/L	1		6020B	Total/NA
Manganese	6.1		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	0.45	J	2.0	0.30	ug/L	1		6020B	Total/NA
Selenium	0.92	J	5.0	0.70	ug/L	1		6020B	Total/NA
Vanadium	1.0	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	3.7	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	2.4		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	140		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	50		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	180		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: EB-4-VOC-20181008 — Lab Sample ID: 280-115307-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.7	J B	10	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.43	J	2.0	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: RW-17-20181007 — Lab Sample ID: 280-115307-29

This Detection Summary does not include radiochemical test results.

Client Sample ID: RW-17-20181007 (Continued) — Lab Sample ID: 280-115307-29

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.67	J	1.0	0.16	ug/L	1		8260B	Total/NA
Dichlorodifluoromethane	0.34	J	2.0	0.31	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.32	J	1.0	0.22	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	3.2		1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	22		1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	120	E	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.54	J	1.0	0.10	ug/L	1		8260B	Total/NA
Trichloroethene - DL	100		4.0	0.64	ug/L	4		8260B	Total/NA

Client Sample ID: EB-3-VOC-100718 — Lab Sample ID: 280-115307-30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.5	J	10	1.9	ug/L	1		8260B	Total/NA
Carbon disulfide	0.70	J	2.0	0.45	ug/L	1		8260B	Total/NA
Methylene Chloride	0.51	J	2.0	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: RW-10-20181007 — Lab Sample ID: 280-115307-33

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.63	J	1.0	0.16	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.99	J	1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	19		1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	88	E	1.0	0.16	ug/L	1		8260B	Total/NA
Trichloroethene - DL	49		4.0	0.64	ug/L	4		8260B	Total/NA

Client Sample ID: MW-3A-20181008 — Lab Sample ID: 280-115307-34

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.51	J B	2.0	0.32	ug/L	1		8260B	Total/NA
Calcium	55000		200	35	ug/L	1		6010C	Total/NA
Iron	63	J	100	22	ug/L	1		6010C	Total/NA
Magnesium	28000		200	11	ug/L	1		6010C	Total/NA
Potassium	2600	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	41000	B ^	1000	120	ug/L	1		6010C	Total/NA
Barium	160		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.53	J	2.0	0.50	ug/L	1		6020B	Total/NA
Copper	0.66	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.37	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	2.1		1.0	0.31	ug/L	1		6020B	Total/NA
Zinc	20	B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	1.0		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	57		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	30		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	230		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-103S-20181009 — Lab Sample ID: 280-115307-35

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.57	J	1.0	0.15	ug/L	1		8260B	Total/NA
Methylene Chloride	0.42	J B	2.0	0.32	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-103S-20181009 (Continued)

Lab Sample ID: 280-115307-35

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1.4		1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	8.0		1.0	0.16	ug/L	1		8260B	Total/NA
Calcium	82000		200	35	ug/L	1		6010C	Total/NA
Magnesium	30000		200	11	ug/L	1		6010C	Total/NA
Potassium	6300		3000	240	ug/L	1		6010C	Total/NA
Sodium	41000	B ^	1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.6	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	120		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.75	J	2.0	0.50	ug/L	1		6020B	Total/NA
Nickel	0.32	J	2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	0.86	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	3.3	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	1.8		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	63		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	51		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.1		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	280		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0060	J	0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: MW-103D-20181009

Lab Sample ID: 280-115307-36

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.33	J B	2.0	0.32	ug/L	1		8260B	Total/NA
Toluene	0.34	J	1.0	0.17	ug/L	1		8260B	Total/NA
Calcium	39000		200	35	ug/L	1		6010C	Total/NA
Iron	200		100	22	ug/L	1		6010C	Total/NA
Magnesium	35000		200	11	ug/L	1		6010C	Total/NA
Potassium	5100		3000	240	ug/L	1		6010C	Total/NA
Sodium	59000	B ^	1000	120	ug/L	1		6010C	Total/NA
Barium	78		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	3.1		2.0	0.50	ug/L	1		6020B	Total/NA
Co	3.4		1.0	0.054	ug/L	1		6020B	Total/NA
Lead	0.63	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	18		1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	22		2.0	0.30	ug/L	1		6020B	Total/NA
Zinc	5.2	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.10		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	59		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	32		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	0.45	J	1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	250		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.086		0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: TB-9-VOC-20181009

Lab Sample ID: 280-115307-37

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
RSK-175	Dissolved Gases (GC)	RSK	TAL DEN
8290	Dioxins and Furans (HRGC/HRMS)	SW846	TAL SAC
6010C	Metals (ICP)	SW846	TAL DEN
6020B	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
9060A	Organic Carbon, Total (TOC)	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 4500 CN E	Cyanide, Total	SM	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
8290	Separatory Funnel (Liquid-Liquid) Extraction of Dioxins and Furans	SW846	TAL SAC
SM 4500 CN C	Cyanide, Distillation	SM	TAL DEN

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115307-1	MW-12-20181008	Water	10/08/18 10:10	10/10/18 09:00
280-115307-2	MW-9-20181007	Water	10/07/18 14:00	10/10/18 09:00
280-115307-3	INJ-1R-20181006	Water	10/06/18 18:00	10/10/18 09:00
280-115307-4	MW-8-20181007	Water	10/07/18 10:35	10/10/18 09:00
280-115307-5	MW-109S-20181006	Water	10/06/18 11:30	10/10/18 09:00
280-115307-6	MW-112M-20181005	Water	10/05/18 15:10	10/10/18 09:00
280-115307-7	MW-112MQ-20181005	Water	10/05/18 15:15	10/10/18 09:00
280-115307-8	RW-4-20181007	Water	10/07/18 12:40	10/10/18 09:00
280-115307-9	MW-121-20181007	Water	10/07/18 10:15	10/10/18 09:00
280-115307-10	RW-7773P-20181007	Water	10/07/18 16:05	10/10/18 09:00
280-115307-11	RW-3-20181007	Water	10/07/18 10:45	10/10/18 09:00
280-115307-12	MW-7-20181008	Water	10/08/18 09:50	10/10/18 09:00
280-115307-13	MW-106D-20181008	Water	10/08/18 16:40	10/10/18 09:00
280-115307-14	MW-112D-20181005	Water	10/05/18 13:50	10/10/18 09:00
280-115307-15	MW-4-20181005	Water	10/05/18 15:00	10/10/18 09:00
280-115307-16	MW-109D-20181006	Water	10/06/18 09:45	10/10/18 09:00
280-115307-18	MW-109S-20181006	Water	10/06/18 11:50	10/10/18 09:00
280-115307-19	RW-9-20181007	Water	10/07/18 12:30	10/10/18 09:00
280-115307-20	EB-0-VOC-20181006	Water	10/06/18 09:20	10/10/18 09:00
280-115307-21	EB-2-VOC-20181006	Water	10/06/18 09:15	10/10/18 09:00
280-115307-22	TB-7-VOC-20181009	Water	10/09/18 11:30	10/10/18 09:00
280-115307-23	MW-115D-20181008	Water	10/08/18 13:05	10/10/18 09:00
280-115307-24	MW-6A-20181009	Water	10/09/18 16:40	10/10/18 09:00
280-115307-25	MW-4A-20181005	Water	10/05/18 13:05	10/10/18 09:00
280-115307-26	MW-4AQ-20181005	Water	10/05/18 13:05	10/10/18 09:00
280-115307-27	EB-4-VOC-20181008	Water	10/08/18 14:55	10/10/18 09:00
280-115307-29	RW-17-20181007	Water	10/07/18 11:30	10/10/18 09:00
280-115307-30	EB-3-VOC-100718	Water	10/07/18 09:05	10/10/18 09:00
280-115307-33	RW-10-20181007	Water	10/07/18 11:15	10/10/18 09:00
280-115307-34	MW-3A-20181008	Water	10/08/18 14:35	10/10/18 09:00
280-115307-35	MW-103S-20181009	Water	10/09/18 10:05	10/10/18 09:00
280-115307-36	MW-103D-20181009	Water	10/09/18 14:10	10/10/18 09:00
280-115307-37	TB-9-VOC-20181009	Water	10/09/18 15:00	10/10/18 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: MW-112M-20181005
Date Collected: 10/05/18 15:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		40	7.6	ug/L			10/12/18 13:05	4
Acetonitrile	ND		120	38	ug/L			10/12/18 13:05	4
Acrolein	ND		80	11	ug/L			10/12/18 13:05	4
Acrylonitrile	ND		80	5.6	ug/L			10/12/18 13:05	4
Benzene	ND		4.0	0.64	ug/L			10/12/18 13:05	4
Chlorobromomethane	ND		4.0	0.40	ug/L			10/12/18 13:05	4
Dichlorobromomethane	ND		4.0	0.68	ug/L			10/12/18 13:05	4
Bromoform	ND		4.0	0.76	ug/L			10/12/18 13:05	4
Bromomethane	ND		8.0	0.84	ug/L			10/12/18 13:05	4
2-Butanone (MEK)	ND		24	8.0	ug/L			10/12/18 13:05	4
Carbon disulfide	ND		8.0	1.8	ug/L			10/12/18 13:05	4
Carbon tetrachloride	ND		4.0	0.76	ug/L			10/12/18 13:05	4
Chlorobenzene	ND		4.0	0.68	ug/L			10/12/18 13:05	4
Chloroprene	ND		4.0	0.84	ug/L			10/12/18 13:05	4
Chlorodibromomethane	ND		4.0	0.68	ug/L			10/12/18 13:05	4
Chloroethane	ND		8.0	1.6	ug/L			10/12/18 13:05	4
Chloroform	**0.66**	**J**	4.0	0.64	ug/L			10/12/18 13:05	4
Chloromethane	ND		8.0	1.2	ug/L			10/12/18 13:05	4
Allyl chloride	ND		8.0	0.68	ug/L			10/12/18 13:05	4
1,2-Dibromo-3-Chloropropane	ND		20	1.9	ug/L			10/12/18 13:05	4
Dibromomethane	ND		4.0	0.68	ug/L			10/12/18 13:05	4
1,2-Dichlorobenzene	ND		4.0	0.60	ug/L			10/12/18 13:05	4
1,3-Dichlorobenzene	ND		4.0	0.52	ug/L			10/12/18 13:05	4
1,4-Dichlorobenzene	ND		4.0	0.64	ug/L			10/12/18 13:05	4
trans-1,4-Dichloro-2-butene	ND		12	3.2	ug/L			10/12/18 13:05	4
Dichlorodifluoromethane	ND		8.0	1.2	ug/L			10/12/18 13:05	4
1,1-Dichloroethane	ND		4.0	0.88	ug/L			10/12/18 13:05	4
1,2-Dichloroethane	ND		4.0	0.52	ug/L			10/12/18 13:05	4
cis-1,2-Dichloroethene	ND		4.0	0.60	ug/L			10/12/18 13:05	4
trans-1,2-Dichloroethene	ND		4.0	0.60	ug/L			10/12/18 13:05	4
1,1-Dichloroethene	ND		4.0	0.92	ug/L			10/12/18 13:05	4
1,2-Dichloropropane	ND		4.0	0.72	ug/L			10/12/18 13:05	4
1,3-Dichloropropane	ND		4.0	0.88	ug/L			10/12/18 13:05	4
2,2-Dichloropropane	ND		4.0	0.72	ug/L			10/12/18 13:05	4
cis-1,3-Dichloropropene	ND		4.0	0.64	ug/L			10/12/18 13:05	4
trans-1,3-Dichloropropene	ND		12	0.76	ug/L			10/12/18 13:05	4
1,1-Dichloropropene	ND		4.0	0.76	ug/L			10/12/18 13:05	4
Ethylbenzene	ND		4.0	0.64	ug/L			10/12/18 13:05	4
Ethyl methacrylate	ND		12	3.4	ug/L			10/12/18 13:05	4
2-Hexanone	ND		20	6.8	ug/L			10/12/18 13:05	4
Iodomethane	ND		4.0	0.92	ug/L			10/12/18 13:05	4
Isobutyl alcohol	ND		440	150	ug/L			10/12/18 13:05	4
Methacrylonitrile	ND		40	6.4	ug/L			10/12/18 13:05	4
Methylene Chloride	ND		8.0	1.3	ug/L			10/12/18 13:05	4
Methyl methacrylate	ND	*	16	4.4	ug/L			10/12/18 13:05	4
4-Methyl-2-pentanone (MIBK)	ND		20	3.9	ug/L			10/12/18 13:05	4
Propionitrile	ND		80	15	ug/L			10/12/18 13:05	4
Styrene	ND		4.0	0.68	ug/L			10/12/18 13:05	4
1,1,1,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/12/18 13:05	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-112M-20181005
Date Collected: 10/05/18 15:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/12/18 13:05	4
Tetrachloroethene	**7.0**		4.0	0.80	ug/L			10/12/18 13:05	4
Toluene	ND		4.0	0.68	ug/L			10/12/18 13:05	4
1,2,4-Trichlorobenzene	ND		4.0	0.84	ug/L			10/12/18 13:05	4
1,1,1-Trichloroethane	ND		4.0	0.64	ug/L			10/12/18 13:05	4
1,1,2-Trichloroethane	ND		4.0	1.1	ug/L			10/12/18 13:05	4
Trichloroethene	**120**		4.0	0.64	ug/L			10/12/18 13:05	4
Trichlorofluoromethane	ND		8.0	1.2	ug/L			10/12/18 13:05	4
1,2,3-Trichloropropane	ND		10	1.3	ug/L			10/12/18 13:05	4
Vinyl acetate	ND		12	3.8	ug/L			10/12/18 13:05	4
Vinyl chloride	ND		4.0	0.40	ug/L			10/12/18 13:05	4
Xylenes, Total	ND		8.0	0.76	ug/L			10/12/18 13:05	4
1,2-Dibromoethane	ND		4.0	0.72	ug/L			10/12/18 13:05	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 127*		*10/12/18 13:05*	*4*
Toluene-d8 (Surr)	*97*		*80 - 125*		*10/12/18 13:05*	*4*
4-Bromofluorobenzene (Surr)	*113*		*78 - 120*		*10/12/18 13:05*	*4*
Dibromofluoromethane (Surr)	*104*		*77 - 120*		*10/12/18 13:05*	*4*

Client Sample ID: MW-112MQ-20181005
Date Collected: 10/05/18 15:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		40	7.6	ug/L			10/12/18 13:27	4
Acetonitrile	ND		120	38	ug/L			10/12/18 13:27	4
Acrolein	ND		80	11	ug/L			10/12/18 13:27	4
Acrylonitrile	ND		80	5.6	ug/L			10/12/18 13:27	4
Benzene	ND		4.0	0.64	ug/L			10/12/18 13:27	4
Chlorobromomethane	ND		4.0	0.40	ug/L			10/12/18 13:27	4
Dichlorobromomethane	ND		4.0	0.68	ug/L			10/12/18 13:27	4
Bromoform	ND		4.0	0.76	ug/L			10/12/18 13:27	4
Bromomethane	ND		8.0	0.84	ug/L			10/12/18 13:27	4
2-Butanone (MEK)	ND		24	8.0	ug/L			10/12/18 13:27	4
Carbon disulfide	ND		8.0	1.8	ug/L			10/12/18 13:27	4
Carbon tetrachloride	ND		4.0	0.76	ug/L			10/12/18 13:27	4
Chlorobenzene	ND		4.0	0.68	ug/L			10/12/18 13:27	4
Chloroprene	ND		4.0	0.84	ug/L			10/12/18 13:27	4
Chlorodibromomethane	ND		4.0	0.68	ug/L			10/12/18 13:27	4
Chloroethane	ND		8.0	1.6	ug/L			10/12/18 13:27	4
Chloroform	**0.72**	**J**	4.0	0.64	ug/L			10/12/18 13:27	4
Chloromethane	ND		8.0	1.2	ug/L			10/12/18 13:27	4
Allyl chloride	ND		8.0	0.68	ug/L			10/12/18 13:27	4
1,2-Dibromo-3-Chloropropane	ND		20	1.9	ug/L			10/12/18 13:27	4
Dibromomethane	ND		4.0	0.68	ug/L			10/12/18 13:27	4
1,2-Dichlorobenzene	ND		4.0	0.60	ug/L			10/12/18 13:27	4
1,3-Dichlorobenzene	ND		4.0	0.52	ug/L			10/12/18 13:27	4
1,4-Dichlorobenzene	ND		4.0	0.64	ug/L			10/12/18 13:27	4
trans-1,4-Dichloro-2-butene	ND		12	3.2	ug/L			10/12/18 13:27	4
Dichlorodifluoromethane	ND		8.0	1.2	ug/L			10/12/18 13:27	4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-112MQ-20181005
Date Collected: 10/05/18 15:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		4.0	0.88	ug/L			10/12/18 13:27	4
1,2-Dichloroethane	ND		4.0	0.52	ug/L			10/12/18 13:27	4
cis-1,2-Dichloroethene	ND		4.0	0.60	ug/L			10/12/18 13:27	4
trans-1,2-Dichloroethene	ND		4.0	0.60	ug/L			10/12/18 13:27	4
1,1-Dichloroethene	ND		4.0	0.92	ug/L			10/12/18 13:27	4
1,2-Dichloropropane	ND		4.0	0.72	ug/L			10/12/18 13:27	4
1,3-Dichloropropane	ND		4.0	0.88	ug/L			10/12/18 13:27	4
2,2-Dichloropropane	ND		4.0	0.72	ug/L			10/12/18 13:27	4
cis-1,3-Dichloropropene	ND		4.0	0.64	ug/L			10/12/18 13:27	4
trans-1,3-Dichloropropene	ND		12	0.76	ug/L			10/12/18 13:27	4
1,1-Dichloropropene	ND		4.0	0.76	ug/L			10/12/18 13:27	4
Ethylbenzene	ND		4.0	0.64	ug/L			10/12/18 13:27	4
Ethyl methacrylate	ND		12	3.4	ug/L			10/12/18 13:27	4
2-Hexanone	ND		20	6.8	ug/L			10/12/18 13:27	4
Iodomethane	ND		4.0	0.92	ug/L			10/12/18 13:27	4
Isobutyl alcohol	ND		440	150	ug/L			10/12/18 13:27	4
Methacrylonitrile	ND		40	6.4	ug/L			10/12/18 13:27	4
Methylene Chloride	ND		8.0	1.3	ug/L			10/12/18 13:27	4
Methyl methacrylate	ND	*	16	4.4	ug/L			10/12/18 13:27	4
4-Methyl-2-pentanone (MIBK)	ND		20	3.9	ug/L			10/12/18 13:27	4
Propionitrile	ND		80	15	ug/L			10/12/18 13:27	4
Styrene	ND		4.0	0.68	ug/L			10/12/18 13:27	4
1,1,1,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/12/18 13:27	4
1,1,2,2-Tetrachloroethane	ND		4.0	0.84	ug/L			10/12/18 13:27	4
Tetrachloroethene	**8.2**		4.0	0.80	ug/L			10/12/18 13:27	4
Toluene	ND		4.0	0.68	ug/L			10/12/18 13:27	4
1,2,4-Trichlorobenzene	ND		4.0	0.84	ug/L			10/12/18 13:27	4
1,1,1-Trichloroethane	**0.67**	**J**	4.0	0.64	ug/L			10/12/18 13:27	4
1,1,2-Trichloroethane	ND		4.0	1.1	ug/L			10/12/18 13:27	4
Trichloroethene	**130**		4.0	0.64	ug/L			10/12/18 13:27	4
Trichlorofluoromethane	ND		8.0	1.2	ug/L			10/12/18 13:27	4
1,2,3-Trichloropropane	ND		10	1.3	ug/L			10/12/18 13:27	4
Vinyl acetate	ND		12	3.8	ug/L			10/12/18 13:27	4
Vinyl chloride	ND		4.0	0.40	ug/L			10/12/18 13:27	4
Xylenes, Total	ND		8.0	0.76	ug/L			10/12/18 13:27	4
1,2-Dibromoethane	ND		4.0	0.72	ug/L			10/12/18 13:27	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 127*		*10/12/18 13:27*	*4*
Toluene-d8 (Surr)	*98*		*80 - 125*		*10/12/18 13:27*	*4*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*		*10/12/18 13:27*	*4*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*10/12/18 13:27*	*4*

Client Sample ID: RW-3-20181007
Date Collected: 10/07/18 10:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 14:42	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 14:42	1
Acrolein	ND		20	2.8	ug/L			10/14/18 14:42	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RW-3-20181007
Date Collected: 10/07/18 10:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 14:42	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 14:42	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 14:42	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 14:42	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 14:42	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 14:42	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 14:42	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 14:42	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 14:42	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 14:42	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 14:42	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 14:42	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 14:42	1
Chloroform	**0.63**	**J**	1.0	0.16	ug/L			10/14/18 14:42	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 14:42	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 14:42	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 14:42	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 14:42	1
1,2-Dichlorobenzene	**0.41**	**J**	1.0	0.15	ug/L			10/14/18 14:42	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 14:42	1
1,4-Dichlorobenzene	**0.40**	**J**	1.0	0.16	ug/L			10/14/18 14:42	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 14:42	1
Dichlorodifluoromethane	**0.72**	**J**	2.0	0.31	ug/L			10/14/18 14:42	1
1,1-Dichloroethane	**1.0**		1.0	0.22	ug/L			10/14/18 14:42	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 14:42	1
cis-1,2-Dichloroethene	**9.1**		1.0	0.15	ug/L			10/14/18 14:42	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 14:42	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 14:42	1
1,2-Dichloropropane	**0.24**	**J**	1.0	0.18	ug/L			10/14/18 14:42	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 14:42	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 14:42	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 14:42	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 14:42	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 14:42	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 14:42	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 14:42	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 14:42	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 14:42	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 14:42	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 14:42	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 14:42	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 14:42	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 14:42	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 14:42	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 14:42	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 14:42	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 14:42	1
Tetrachloroethene	**19**		1.0	0.20	ug/L			10/14/18 14:42	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 14:42	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RW-3-20181007
Date Collected: 10/07/18 10:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 14:42	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 14:42	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 14:42	1
Trichloroethene	**140**	**E**	1.0	0.16	ug/L			10/14/18 14:42	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 14:42	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 14:42	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 14:42	1
Vinyl chloride	**1.2**		1.0	0.10	ug/L			10/14/18 14:42	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 14:42	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 14:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*		*10/14/18 14:42*	*1*
Toluene-d8 (Surr)	*96*		*80 - 125*		*10/14/18 14:42*	*1*
4-Bromofluorobenzene (Surr)	*91*		*78 - 120*		*10/14/18 14:42*	*1*
Dibromofluoromethane (Surr)	*118*		*77 - 120*		*10/14/18 14:42*	*1*

Client Sample ID: MW-7-20181008
Date Collected: 10/08/18 09:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 15:03	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 15:03	1
Acrolein	ND		20	2.8	ug/L			10/14/18 15:03	1
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 15:03	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 15:03	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 15:03	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 15:03	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 15:03	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 15:03	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 15:03	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 15:03	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 15:03	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 15:03	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 15:03	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 15:03	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 15:03	1
Chloroform	ND		1.0	0.16	ug/L			10/14/18 15:03	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 15:03	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 15:03	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 15:03	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 15:03	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 15:03	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 15:03	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 15:03	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 15:03	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/14/18 15:03	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/14/18 15:03	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 15:03	1
cis-1,2-Dichloroethene	**16**		1.0	0.15	ug/L			10/14/18 15:03	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-7-20181008
Date Collected: 10/08/18 09:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 15:03	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 15:03	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 15:03	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 15:03	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 15:03	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 15:03	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 15:03	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 15:03	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 15:03	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 15:03	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 15:03	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 15:03	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 15:03	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 15:03	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 15:03	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 15:03	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 15:03	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 15:03	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 15:03	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 15:03	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 15:03	1
Tetrachloroethene	**0.38**	**J**	1.0	0.20	ug/L			10/14/18 15:03	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 15:03	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 15:03	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 15:03	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 15:03	1
Trichloroethene	**0.75**	**J**	1.0	0.16	ug/L			10/14/18 15:03	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 15:03	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 15:03	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 15:03	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 15:03	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 15:03	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 15:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*118*		*70 - 127*		*10/14/18 15:03*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*10/14/18 15:03*	*1*
4-Bromofluorobenzene (Surr)	*87*		*78 - 120*		*10/14/18 15:03*	*1*
Dibromofluoromethane (Surr)	*118*		*77 - 120*		*10/14/18 15:03*	*1*

Client Sample ID: MW-106D-20181008
Date Collected: 10/08/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 15:24	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 15:24	1
Acrolein	ND		20	2.8	ug/L			10/14/18 15:24	1
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 15:24	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 15:24	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 15:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-106D-20181008
Date Collected: 10/08/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 15:24	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 15:24	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 15:24	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 15:24	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 15:24	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 15:24	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 15:24	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 15:24	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 15:24	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 15:24	1
Chloroform	ND		1.0	0.16	ug/L			10/14/18 15:24	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 15:24	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 15:24	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 15:24	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 15:24	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 15:24	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 15:24	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 15:24	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 15:24	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/14/18 15:24	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/14/18 15:24	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 15:24	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 15:24	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 15:24	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 15:24	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 15:24	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 15:24	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 15:24	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 15:24	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 15:24	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 15:24	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 15:24	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 15:24	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 15:24	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 15:24	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 15:24	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 15:24	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 15:24	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 15:24	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 15:24	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 15:24	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 15:24	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 15:24	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 15:24	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/14/18 15:24	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 15:24	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 15:24	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 15:24	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 15:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-106D-20181008
Date Collected: 10/08/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		1.0	0.16	ug/L			10/14/18 15:24	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 15:24	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 15:24	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 15:24	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 15:24	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 15:24	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 15:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*116*		*70 - 127*		*10/14/18 15:24*	*1*
Toluene-d8 (Surr)	*96*		*80 - 125*		*10/14/18 15:24*	*1*
4-Bromofluorobenzene (Surr)	*87*		*78 - 120*		*10/14/18 15:24*	*1*
Dibromofluoromethane (Surr)	*120*		*77 - 120*		*10/14/18 15:24*	*1*

Client Sample ID: MW-112D-20181005
Date Collected: 10/05/18 13:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 15:45	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 15:45	1
Acrolein	ND		20	2.8	ug/L			10/14/18 15:45	1
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 15:45	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 15:45	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 15:45	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 15:45	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 15:45	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 15:45	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 15:45	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 15:45	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 15:45	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 15:45	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 15:45	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 15:45	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 15:45	1
Chloroform	**0.28**	**J**	1.0	0.16	ug/L			10/14/18 15:45	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 15:45	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 15:45	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 15:45	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 15:45	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 15:45	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 15:45	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 15:45	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 15:45	1
Dichlorodifluoromethane	**2.0**		2.0	0.31	ug/L			10/14/18 15:45	1
1,1-Dichloroethane	**0.43**	**J**	1.0	0.22	ug/L			10/14/18 15:45	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 15:45	1
cis-1,2-Dichloroethene	**0.20**	**J**	1.0	0.15	ug/L			10/14/18 15:45	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 15:45	1
1,1-Dichloroethene	**1.3**		1.0	0.23	ug/L			10/14/18 15:45	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 15:45	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-112D-20181005
Date Collected: 10/05/18 13:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 15:45	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 15:45	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 15:45	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 15:45	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 15:45	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 15:45	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 15:45	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 15:45	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 15:45	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 15:45	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 15:45	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 15:45	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 15:45	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 15:45	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 15:45	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 15:45	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 15:45	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 15:45	1
Tetrachloroethene	**11**		1.0	0.20	ug/L			10/14/18 15:45	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 15:45	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 15:45	1
1,1,1-Trichloroethane	**0.92**	**J**	1.0	0.16	ug/L			10/14/18 15:45	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 15:45	1
Trichloroethene	**250**	**E**	1.0	0.16	ug/L			10/14/18 15:45	1
Trichlorofluoromethane	**1.0**	**J**	2.0	0.29	ug/L			10/14/18 15:45	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 15:45	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 15:45	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 15:45	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 15:45	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*70 - 127*		*10/14/18 15:45*	*1*
Toluene-d8 (Surr)	*96*		*80 - 125*		*10/14/18 15:45*	*1*
4-Bromofluorobenzene (Surr)	*87*		*78 - 120*		*10/14/18 15:45*	*1*
Dibromofluoromethane (Surr)	*120*		*77 - 120*		*10/14/18 15:45*	*1*

Client Sample ID: MW-4-20181005
Date Collected: 10/05/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/15/18 14:26	1
Acetonitrile	ND		30	9.6	ug/L			10/15/18 14:26	1
Acrolein	ND		20	2.8	ug/L			10/15/18 14:26	1
Acrylonitrile	ND		20	1.4	ug/L			10/15/18 14:26	1
Benzene	ND		1.0	0.16	ug/L			10/15/18 14:26	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/15/18 14:26	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/15/18 14:26	1
Bromoform	ND		1.0	0.19	ug/L			10/15/18 14:26	1
Bromomethane	ND		2.0	0.21	ug/L			10/15/18 14:26	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-4-20181005
Date Collected: 10/05/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/15/18 14:26	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/15/18 14:26	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/15/18 14:26	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/15/18 14:26	1
Chloroprene	ND		1.0	0.21	ug/L			10/15/18 14:26	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/15/18 14:26	1
Chloroethane	ND		2.0	0.41	ug/L			10/15/18 14:26	1
Chloroform	ND		1.0	0.16	ug/L			10/15/18 14:26	1
Chloromethane	ND		2.0	0.30	ug/L			10/15/18 14:26	1
Allyl chloride	ND		2.0	0.17	ug/L			10/15/18 14:26	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/15/18 14:26	1
Dibromomethane	ND		1.0	0.17	ug/L			10/15/18 14:26	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/15/18 14:26	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/15/18 14:26	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/15/18 14:26	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/15/18 14:26	1
Dichlorodifluoromethane	**0.72**	**J**	2.0	0.31	ug/L			10/15/18 14:26	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/15/18 14:26	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/15/18 14:26	1
cis-1,2-Dichloroethene	**0.97**	**J**	1.0	0.15	ug/L			10/15/18 14:26	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 14:26	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/15/18 14:26	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 14:26	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/15/18 14:26	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 14:26	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/15/18 14:26	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/15/18 14:26	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/15/18 14:26	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/15/18 14:26	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/15/18 14:26	1
2-Hexanone	ND		5.0	1.7	ug/L			10/15/18 14:26	1
Iodomethane	ND		1.0	0.23	ug/L			10/15/18 14:26	1
Isobutyl alcohol	ND		110	37	ug/L			10/15/18 14:26	1
Methacrylonitrile	ND		10	1.6	ug/L			10/15/18 14:26	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/15/18 14:26	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/15/18 14:26	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/15/18 14:26	1
Propionitrile	ND		20	3.7	ug/L			10/15/18 14:26	1
Styrene	ND		1.0	0.17	ug/L			10/15/18 14:26	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 14:26	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 14:26	1
Tetrachloroethene	**4.1**		1.0	0.20	ug/L			10/15/18 14:26	1
Toluene	ND		1.0	0.17	ug/L			10/15/18 14:26	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/15/18 14:26	1
1,1,1-Trichloroethane	**0.22**	**J**	1.0	0.16	ug/L			10/15/18 14:26	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/15/18 14:26	1
Trichloroethene	**0.32**	**J**	1.0	0.16	ug/L			10/15/18 14:26	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/15/18 14:26	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/15/18 14:26	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-4-20181005
Date Collected: 10/05/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl acetate	ND		3.0	0.94	ug/L			10/15/18 14:26	1
Vinyl chloride	**0.63**	**J**	1.0	0.10	ug/L			10/15/18 14:26	1
Xylenes, Total	**0.51**	**J**	2.0	0.19	ug/L			10/15/18 14:26	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/15/18 14:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 127*		*10/15/18 14:26*	*1*
Toluene-d8 (Surr)	*84*		*80 - 125*		*10/15/18 14:26*	*1*
4-Bromofluorobenzene (Surr)	*83*		*78 - 120*		*10/15/18 14:26*	*1*
Dibromofluoromethane (Surr)	*95*		*77 - 120*		*10/15/18 14:26*	*1*

Client Sample ID: MW-109D-20181006
Date Collected: 10/06/18 09:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/16/18 12:28	1
Acetonitrile	ND		30	9.6	ug/L			10/16/18 12:28	1
Acrolein	ND		20	2.8	ug/L			10/16/18 12:28	1
Acrylonitrile	ND		20	1.4	ug/L			10/16/18 12:28	1
Benzene	ND		1.0	0.16	ug/L			10/16/18 12:28	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/16/18 12:28	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/16/18 12:28	1
Bromoform	ND		1.0	0.19	ug/L			10/16/18 12:28	1
Bromomethane	ND		2.0	0.21	ug/L			10/16/18 12:28	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/16/18 12:28	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/16/18 12:28	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/16/18 12:28	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/16/18 12:28	1
Chloroprene	ND		1.0	0.21	ug/L			10/16/18 12:28	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/16/18 12:28	1
Chloroethane	ND		2.0	0.41	ug/L			10/16/18 12:28	1
Chloroform	**0.45**	**J**	1.0	0.16	ug/L			10/16/18 12:28	1
Chloromethane	ND		2.0	0.30	ug/L			10/16/18 12:28	1
Allyl chloride	ND		2.0	0.17	ug/L			10/16/18 12:28	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/16/18 12:28	1
Dibromomethane	ND		1.0	0.17	ug/L			10/16/18 12:28	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/16/18 12:28	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/16/18 12:28	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/16/18 12:28	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/16/18 12:28	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/16/18 12:28	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/16/18 12:28	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/16/18 12:28	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 12:28	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 12:28	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/16/18 12:28	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 12:28	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/16/18 12:28	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 12:28	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/16/18 12:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-109D-20181006
Date Collected: 10/06/18 09:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/16/18 12:28	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/16/18 12:28	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/16/18 12:28	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/16/18 12:28	1
2-Hexanone	ND		5.0	1.7	ug/L			10/16/18 12:28	1
Iodomethane	ND		1.0	0.23	ug/L			10/16/18 12:28	1
Isobutyl alcohol	ND		110	37	ug/L			10/16/18 12:28	1
Methacrylonitrile	ND		10	1.6	ug/L			10/16/18 12:28	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/16/18 12:28	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/16/18 12:28	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/16/18 12:28	1
Propionitrile	ND		20	3.7	ug/L			10/16/18 12:28	1
Styrene	ND		1.0	0.17	ug/L			10/16/18 12:28	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 12:28	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 12:28	1
Tetrachloroethene	**8.6**		1.0	0.20	ug/L			10/16/18 12:28	1
Toluene	ND		1.0	0.17	ug/L			10/16/18 12:28	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/16/18 12:28	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/16/18 12:28	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/16/18 12:28	1
Trichloroethene	**60**		1.0	0.16	ug/L			10/16/18 12:28	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/16/18 12:28	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/16/18 12:28	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/16/18 12:28	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/16/18 12:28	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/16/18 12:28	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/16/18 12:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 127*		*10/16/18 12:28*	*1*
Toluene-d8 (Surr)	*90*		*80 - 125*		*10/16/18 12:28*	*1*
4-Bromofluorobenzene (Surr)	*82*		*78 - 120*		*10/16/18 12:28*	*1*
Dibromofluoromethane (Surr)	*95*		*77 - 120*		*10/16/18 12:28*	*1*

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/15/18 15:30	1
Acetonitrile	ND		30	9.6	ug/L			10/15/18 15:30	1
Acrolein	ND		20	2.8	ug/L			10/15/18 15:30	1
Acrylonitrile	ND		20	1.4	ug/L			10/15/18 15:30	1
Benzene	ND		1.0	0.16	ug/L			10/15/18 15:30	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/15/18 15:30	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/15/18 15:30	1
Bromoform	ND		1.0	0.19	ug/L			10/15/18 15:30	1
Bromomethane	ND		2.0	0.21	ug/L			10/15/18 15:30	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/15/18 15:30	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/15/18 15:30	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/15/18 15:30	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		1.0	0.17	ug/L			10/15/18 15:30	1
Chloroprene	ND		1.0	0.21	ug/L			10/15/18 15:30	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/15/18 15:30	1
Chloroethane	ND		2.0	0.41	ug/L			10/15/18 15:30	1
Chloroform	**0.80**	**J**	1.0	0.16	ug/L			10/15/18 15:30	1
Chloromethane	ND		2.0	0.30	ug/L			10/15/18 15:30	1
Allyl chloride	ND		2.0	0.17	ug/L			10/15/18 15:30	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/15/18 15:30	1
Dibromomethane	ND		1.0	0.17	ug/L			10/15/18 15:30	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/15/18 15:30	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/15/18 15:30	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/15/18 15:30	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/15/18 15:30	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/15/18 15:30	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/15/18 15:30	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/15/18 15:30	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 15:30	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 15:30	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/15/18 15:30	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 15:30	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/15/18 15:30	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 15:30	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/15/18 15:30	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/15/18 15:30	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/15/18 15:30	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/15/18 15:30	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/15/18 15:30	1
2-Hexanone	ND		5.0	1.7	ug/L			10/15/18 15:30	1
Iodomethane	ND		1.0	0.23	ug/L			10/15/18 15:30	1
Isobutyl alcohol	ND		110	37	ug/L			10/15/18 15:30	1
Methacrylonitrile	ND		10	1.6	ug/L			10/15/18 15:30	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/15/18 15:30	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/15/18 15:30	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/15/18 15:30	1
Propionitrile	ND		20	3.7	ug/L			10/15/18 15:30	1
Styrene	ND		1.0	0.17	ug/L			10/15/18 15:30	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 15:30	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 15:30	1
Tetrachloroethene	**30**		1.0	0.20	ug/L			10/15/18 15:30	1
Toluene	ND		1.0	0.17	ug/L			10/15/18 15:30	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/15/18 15:30	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/15/18 15:30	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/15/18 15:30	1
Trichloroethene	**120**	**E**	1.0	0.16	ug/L			10/15/18 15:30	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/15/18 15:30	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/15/18 15:30	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/15/18 15:30	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/15/18 15:30	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/15/18 15:30	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/15/18 15:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 127*		*10/15/18 15:30*	*1*
Toluene-d8 (Surr)	*86*		*80 - 125*		*10/15/18 15:30*	*1*
4-Bromofluorobenzene (Surr)	*82*		*78 - 120*		*10/15/18 15:30*	*1*
Dibromofluoromethane (Surr)	*98*		*77 - 120*		*10/15/18 15:30*	*1*

Client Sample ID: RW-9-20181007
Date Collected: 10/07/18 12:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/15/18 16:12	1
Acetonitrile	ND		30	9.6	ug/L			10/15/18 16:12	1
Acrolein	ND		20	2.8	ug/L			10/15/18 16:12	1
Acrylonitrile	ND		20	1.4	ug/L			10/15/18 16:12	1
Benzene	**0.23**	**J**	1.0	0.16	ug/L			10/15/18 16:12	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/15/18 16:12	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/15/18 16:12	1
Bromoform	ND		1.0	0.19	ug/L			10/15/18 16:12	1
Bromomethane	ND		2.0	0.21	ug/L			10/15/18 16:12	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/15/18 16:12	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/15/18 16:12	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/15/18 16:12	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/15/18 16:12	1
Chloroprene	ND		1.0	0.21	ug/L			10/15/18 16:12	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/15/18 16:12	1
Chloroethane	ND		2.0	0.41	ug/L			10/15/18 16:12	1
Chloroform	**0.28**	**J**	1.0	0.16	ug/L			10/15/18 16:12	1
Chloromethane	ND		2.0	0.30	ug/L			10/15/18 16:12	1
Allyl chloride	ND		2.0	0.17	ug/L			10/15/18 16:12	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/15/18 16:12	1
Dibromomethane	ND		1.0	0.17	ug/L			10/15/18 16:12	1
1,2-Dichlorobenzene	**0.58**	**J**	1.0	0.15	ug/L			10/15/18 16:12	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/15/18 16:12	1
1,4-Dichlorobenzene	**0.33**	**J**	1.0	0.16	ug/L			10/15/18 16:12	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/15/18 16:12	1
Dichlorodifluoromethane	**0.49**	**J**	2.0	0.31	ug/L			10/15/18 16:12	1
1,1-Dichloroethane	**1.8**		1.0	0.22	ug/L			10/15/18 16:12	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/15/18 16:12	1
cis-1,2-Dichloroethene	**15**		1.0	0.15	ug/L			10/15/18 16:12	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 16:12	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/15/18 16:12	1
1,2-Dichloropropane	**0.38**	**J**	1.0	0.18	ug/L			10/15/18 16:12	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/15/18 16:12	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 16:12	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/15/18 16:12	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/15/18 16:12	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/15/18 16:12	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/15/18 16:12	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RW-9-20181007
Date Collected: 10/07/18 12:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/15/18 16:12	1
2-Hexanone	ND		5.0	1.7	ug/L			10/15/18 16:12	1
Iodomethane	ND		1.0	0.23	ug/L			10/15/18 16:12	1
Isobutyl alcohol	ND		110	37	ug/L			10/15/18 16:12	1
Methacrylonitrile	ND		10	1.6	ug/L			10/15/18 16:12	1
Methylene Chloride	**0.55**	**J**	2.0	0.32	ug/L			10/15/18 16:12	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/15/18 16:12	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/15/18 16:12	1
Propionitrile	ND		20	3.7	ug/L			10/15/18 16:12	1
Styrene	ND		1.0	0.17	ug/L			10/15/18 16:12	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 16:12	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 16:12	1
Tetrachloroethene	**12**		1.0	0.20	ug/L			10/15/18 16:12	1
Toluene	ND		1.0	0.17	ug/L			10/15/18 16:12	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/15/18 16:12	1
1,1,1-Trichloroethane	**0.33**	**J**	1.0	0.16	ug/L			10/15/18 16:12	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/15/18 16:12	1
Trichloroethene	**240**	**E**	1.0	0.16	ug/L			10/15/18 16:12	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/15/18 16:12	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/15/18 16:12	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/15/18 16:12	1
Vinyl chloride	**2.4**		1.0	0.10	ug/L			10/15/18 16:12	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/15/18 16:12	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/15/18 16:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 127*		*10/15/18 16:12*	*1*
Toluene-d8 (Surr)	*83*		*80 - 125*		*10/15/18 16:12*	*1*
4-Bromofluorobenzene (Surr)	*79*		*78 - 120*		*10/15/18 16:12*	*1*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*10/15/18 16:12*	*1*

Client Sample ID: EB-0-VOC-20181006
Date Collected: 10/06/18 09:20
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**5.1**	**J B**	10	1.9	ug/L			10/12/18 16:23	1
Acetonitrile	ND		30	9.6	ug/L			10/12/18 16:23	1
Acrolein	ND		20	2.8	ug/L			10/12/18 16:23	1
Acrylonitrile	ND		20	1.4	ug/L			10/12/18 16:23	1
Benzene	ND		1.0	0.16	ug/L			10/12/18 16:23	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/12/18 16:23	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/12/18 16:23	1
Bromoform	ND		1.0	0.19	ug/L			10/12/18 16:23	1
Bromomethane	ND		2.0	0.21	ug/L			10/12/18 16:23	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/12/18 16:23	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/12/18 16:23	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/12/18 16:23	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/12/18 16:23	1
Chloroprene	ND		1.0	0.21	ug/L			10/12/18 16:23	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/12/18 16:23	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-0-VOC-20181006
Date Collected: 10/06/18 09:20
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		2.0	0.41	ug/L			10/12/18 16:23	1
Chloroform	ND		1.0	0.16	ug/L			10/12/18 16:23	1
Chloromethane	ND		2.0	0.30	ug/L			10/12/18 16:23	1
Allyl chloride	ND		2.0	0.17	ug/L			10/12/18 16:23	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/12/18 16:23	1
Dibromomethane	ND		1.0	0.17	ug/L			10/12/18 16:23	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/12/18 16:23	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/12/18 16:23	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/12/18 16:23	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/12/18 16:23	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/12/18 16:23	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/12/18 16:23	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/12/18 16:23	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 16:23	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 16:23	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/12/18 16:23	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 16:23	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/12/18 16:23	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 16:23	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/12/18 16:23	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/12/18 16:23	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/12/18 16:23	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/12/18 16:23	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/12/18 16:23	1
2-Hexanone	ND		5.0	1.7	ug/L			10/12/18 16:23	1
Iodomethane	ND		1.0	0.23	ug/L			10/12/18 16:23	1
Isobutyl alcohol	ND		110	37	ug/L			10/12/18 16:23	1
Methacrylonitrile	ND		10	1.6	ug/L			10/12/18 16:23	1
Methylene Chloride	**0.60**	**J**	2.0	0.32	ug/L			10/12/18 16:23	1
Methyl methacrylate	ND	*	4.0	1.1	ug/L			10/12/18 16:23	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/12/18 16:23	1
Propionitrile	ND		20	3.7	ug/L			10/12/18 16:23	1
Styrene	ND		1.0	0.17	ug/L			10/12/18 16:23	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 16:23	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 16:23	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/12/18 16:23	1
Toluene	ND		1.0	0.17	ug/L			10/12/18 16:23	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/12/18 16:23	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/12/18 16:23	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/12/18 16:23	1
Trichloroethene	ND		1.0	0.16	ug/L			10/12/18 16:23	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/12/18 16:23	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/12/18 16:23	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/12/18 16:23	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/12/18 16:23	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/12/18 16:23	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/12/18 16:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*		*10/12/18 16:23*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-0-VOC-20181006
Date Collected: 10/06/18 09:20
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-20
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 125*		*10/12/18 16:23*	*1*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*		*10/12/18 16:23*	*1*
Dibromofluoromethane (Surr)	*107*		*77 - 120*		*10/12/18 16:23*	*1*

Client Sample ID: EB-2-VOC-20181006
Date Collected: 10/06/18 09:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**4.8**	**J B**	10	1.9	ug/L			10/12/18 16:45	1
Acetonitrile	ND		30	9.6	ug/L			10/12/18 16:45	1
Acrolein	ND		20	2.8	ug/L			10/12/18 16:45	1
Acrylonitrile	ND		20	1.4	ug/L			10/12/18 16:45	1
Benzene	ND		1.0	0.16	ug/L			10/12/18 16:45	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/12/18 16:45	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/12/18 16:45	1
Bromoform	ND		1.0	0.19	ug/L			10/12/18 16:45	1
Bromomethane	ND		2.0	0.21	ug/L			10/12/18 16:45	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/12/18 16:45	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/12/18 16:45	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/12/18 16:45	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/12/18 16:45	1
Chloroprene	ND		1.0	0.21	ug/L			10/12/18 16:45	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/12/18 16:45	1
Chloroethane	ND		2.0	0.41	ug/L			10/12/18 16:45	1
Chloroform	ND		1.0	0.16	ug/L			10/12/18 16:45	1
Chloromethane	ND		2.0	0.30	ug/L			10/12/18 16:45	1
Allyl chloride	ND		2.0	0.17	ug/L			10/12/18 16:45	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/12/18 16:45	1
Dibromomethane	ND		1.0	0.17	ug/L			10/12/18 16:45	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/12/18 16:45	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/12/18 16:45	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/12/18 16:45	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/12/18 16:45	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/12/18 16:45	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/12/18 16:45	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/12/18 16:45	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 16:45	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 16:45	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/12/18 16:45	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 16:45	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/12/18 16:45	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 16:45	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/12/18 16:45	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/12/18 16:45	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/12/18 16:45	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/12/18 16:45	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/12/18 16:45	1
2-Hexanone	ND		5.0	1.7	ug/L			10/12/18 16:45	1
Iodomethane	ND		1.0	0.23	ug/L			10/12/18 16:45	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-2-VOC-20181006
Date Collected: 10/06/18 09:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isobutyl alcohol	ND		110	37	ug/L			10/12/18 16:45	1
Methacrylonitrile	ND		10	1.6	ug/L			10/12/18 16:45	1
Methylene Chloride	**0.46**	**J**	2.0	0.32	ug/L			10/12/18 16:45	1
Methyl methacrylate	ND	*	4.0	1.1	ug/L			10/12/18 16:45	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/12/18 16:45	1
Propionitrile	ND		20	3.7	ug/L			10/12/18 16:45	1
Styrene	ND		1.0	0.17	ug/L			10/12/18 16:45	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 16:45	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 16:45	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/12/18 16:45	1
Toluene	ND		1.0	0.17	ug/L			10/12/18 16:45	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/12/18 16:45	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/12/18 16:45	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/12/18 16:45	1
Trichloroethene	ND		1.0	0.16	ug/L			10/12/18 16:45	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/12/18 16:45	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/12/18 16:45	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/12/18 16:45	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/12/18 16:45	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/12/18 16:45	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/12/18 16:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*		*10/12/18 16:45*	*1*
Toluene-d8 (Surr)	*102*		*80 - 125*		*10/12/18 16:45*	*1*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*		*10/12/18 16:45*	*1*
Dibromofluoromethane (Surr)	*112*		*77 - 120*		*10/12/18 16:45*	*1*

Client Sample ID: TB-7-VOC-20181009
Date Collected: 10/09/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-22
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 17:31	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 17:31	1
Acrolein	ND		20	2.8	ug/L			10/14/18 17:31	1
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 17:31	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 17:31	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 17:31	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 17:31	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 17:31	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 17:31	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 17:31	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 17:31	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 17:31	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 17:31	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 17:31	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 17:31	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 17:31	1
Chloroform	ND		1.0	0.16	ug/L			10/14/18 17:31	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 17:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-7-VOC-20181009
Date Collected: 10/09/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-22
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 17:31	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 17:31	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 17:31	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 17:31	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 17:31	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 17:31	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 17:31	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/14/18 17:31	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/14/18 17:31	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 17:31	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 17:31	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 17:31	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 17:31	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 17:31	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 17:31	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 17:31	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 17:31	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 17:31	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 17:31	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 17:31	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 17:31	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 17:31	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 17:31	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 17:31	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 17:31	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 17:31	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 17:31	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 17:31	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 17:31	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 17:31	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 17:31	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 17:31	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/14/18 17:31	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 17:31	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 17:31	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 17:31	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 17:31	1
Trichloroethene	ND		1.0	0.16	ug/L			10/14/18 17:31	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 17:31	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 17:31	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 17:31	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 17:31	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 17:31	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 17:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*122*		*70 - 127*		*10/14/18 17:31*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*10/14/18 17:31*	*1*
4-Bromofluorobenzene (Surr)	*86*		*78 - 120*		*10/14/18 17:31*	*1*
Dibromofluoromethane (Surr)	*118*		*77 - 120*		*10/14/18 17:31*	*1*

Client Sample ID: MW-115D-20181008
Date Collected: 10/08/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-23
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 17:52	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 17:52	1
Acrolein	ND		20	2.8	ug/L			10/14/18 17:52	1
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 17:52	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 17:52	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 17:52	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 17:52	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 17:52	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 17:52	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 17:52	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 17:52	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 17:52	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 17:52	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 17:52	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 17:52	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 17:52	1
Chloroform	ND		1.0	0.16	ug/L			10/14/18 17:52	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 17:52	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 17:52	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 17:52	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 17:52	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 17:52	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 17:52	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 17:52	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 17:52	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/14/18 17:52	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/14/18 17:52	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 17:52	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 17:52	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 17:52	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 17:52	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 17:52	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 17:52	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 17:52	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 17:52	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 17:52	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 17:52	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 17:52	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 17:52	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 17:52	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 17:52	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 17:52	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 17:52	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 17:52	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 17:52	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 17:52	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 17:52	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 17:52	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 17:52	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 17:52	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/14/18 17:52	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-115D-20181008
Date Collected: 10/08/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-23
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0	0.17	ug/L			10/14/18 17:52	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 17:52	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 17:52	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 17:52	1
Trichloroethene	ND		1.0	0.16	ug/L			10/14/18 17:52	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 17:52	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 17:52	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 17:52	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 17:52	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 17:52	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 17:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*124*		*70 - 127*		*10/14/18 17:52*	*1*
Toluene-d8 (Surr)	*95*		*80 - 125*		*10/14/18 17:52*	*1*
4-Bromofluorobenzene (Surr)	*85*		*78 - 120*		*10/14/18 17:52*	*1*
Dibromofluoromethane (Surr)	*123*	*X*	*77 - 120*		*10/14/18 17:52*	*1*

Client Sample ID: MW-6A-20181009
Date Collected: 10/09/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-24
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 18:13	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 18:13	1
Acrolein	ND		20	2.8	ug/L			10/14/18 18:13	1
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 18:13	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 18:13	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 18:13	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 18:13	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 18:13	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 18:13	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 18:13	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 18:13	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 18:13	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 18:13	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 18:13	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 18:13	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 18:13	1
Chloroform	ND		1.0	0.16	ug/L			10/14/18 18:13	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 18:13	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 18:13	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 18:13	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 18:13	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 18:13	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 18:13	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 18:13	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 18:13	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/14/18 18:13	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/14/18 18:13	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 18:13	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-6A-20181009
Date Collected: 10/09/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-24
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 18:13	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 18:13	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 18:13	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 18:13	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 18:13	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 18:13	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 18:13	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 18:13	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 18:13	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 18:13	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 18:13	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 18:13	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 18:13	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 18:13	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 18:13	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 18:13	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 18:13	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 18:13	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 18:13	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 18:13	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 18:13	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 18:13	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/14/18 18:13	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 18:13	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 18:13	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 18:13	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 18:13	1
Trichloroethene	ND		1.0	0.16	ug/L			10/14/18 18:13	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 18:13	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 18:13	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 18:13	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 18:13	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 18:13	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 18:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*128*	*X*	*70 - 127*		*10/14/18 18:13*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*10/14/18 18:13*	*1*
4-Bromofluorobenzene (Surr)	*84*		*78 - 120*		*10/14/18 18:13*	*1*
Dibromofluoromethane (Surr)	*124*	*X*	*77 - 120*		*10/14/18 18:13*	*1*

Client Sample ID: MW-4A-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-25
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/15/18 16:54	1
Acetonitrile	ND		30	9.6	ug/L			10/15/18 16:54	1
Acrolein	ND		20	2.8	ug/L			10/15/18 16:54	1
Acrylonitrile	ND		20	1.4	ug/L			10/15/18 16:54	1
Benzene	ND		1.0	0.16	ug/L			10/15/18 16:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-4A-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-25
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobromomethane	ND		1.0	0.10	ug/L			10/15/18 16:54	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/15/18 16:54	1
Bromoform	ND		1.0	0.19	ug/L			10/15/18 16:54	1
Bromomethane	ND		2.0	0.21	ug/L			10/15/18 16:54	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/15/18 16:54	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/15/18 16:54	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/15/18 16:54	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/15/18 16:54	1
Chloroprene	ND		1.0	0.21	ug/L			10/15/18 16:54	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/15/18 16:54	1
Chloroethane	ND		2.0	0.41	ug/L			10/15/18 16:54	1
Chloroform	ND		1.0	0.16	ug/L			10/15/18 16:54	1
Chloromethane	ND		2.0	0.30	ug/L			10/15/18 16:54	1
Allyl chloride	ND		2.0	0.17	ug/L			10/15/18 16:54	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/15/18 16:54	1
Dibromomethane	ND		1.0	0.17	ug/L			10/15/18 16:54	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/15/18 16:54	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/15/18 16:54	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/15/18 16:54	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/15/18 16:54	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/15/18 16:54	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/15/18 16:54	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/15/18 16:54	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 16:54	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 16:54	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/15/18 16:54	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 16:54	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/15/18 16:54	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 16:54	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/15/18 16:54	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/15/18 16:54	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/15/18 16:54	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/15/18 16:54	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/15/18 16:54	1
2-Hexanone	ND		5.0	1.7	ug/L			10/15/18 16:54	1
Iodomethane	ND		1.0	0.23	ug/L			10/15/18 16:54	1
Isobutyl alcohol	ND		110	37	ug/L			10/15/18 16:54	1
Methacrylonitrile	ND		10	1.6	ug/L			10/15/18 16:54	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/15/18 16:54	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/15/18 16:54	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/15/18 16:54	1
Propionitrile	ND		20	3.7	ug/L			10/15/18 16:54	1
Styrene	ND		1.0	0.17	ug/L			10/15/18 16:54	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 16:54	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 16:54	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/15/18 16:54	1
Toluene	ND		1.0	0.17	ug/L			10/15/18 16:54	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/15/18 16:54	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/15/18 16:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-4A-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-25
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/15/18 16:54	1
Trichloroethene	ND		1.0	0.16	ug/L			10/15/18 16:54	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/15/18 16:54	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/15/18 16:54	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/15/18 16:54	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/15/18 16:54	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/15/18 16:54	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/15/18 16:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 127*		*10/15/18 16:54*	*1*
Toluene-d8 (Surr)	*86*		*80 - 125*		*10/15/18 16:54*	*1*
4-Bromofluorobenzene (Surr)	*79*		*78 - 120*		*10/15/18 16:54*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*10/15/18 16:54*	*1*

Client Sample ID: MW-4AQ-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-26
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 18:55	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 18:55	1
Acrolein	ND		20	2.8	ug/L			10/14/18 18:55	1
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 18:55	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 18:55	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 18:55	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 18:55	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 18:55	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 18:55	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 18:55	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 18:55	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 18:55	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 18:55	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 18:55	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 18:55	1
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 18:55	1
Chloroform	ND		1.0	0.16	ug/L			10/14/18 18:55	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 18:55	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 18:55	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 18:55	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 18:55	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 18:55	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 18:55	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 18:55	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 18:55	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/14/18 18:55	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/14/18 18:55	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 18:55	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 18:55	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 18:55	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 18:55	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-4AQ-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-26
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 18:55	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 18:55	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 18:55	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 18:55	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 18:55	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 18:55	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 18:55	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 18:55	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 18:55	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 18:55	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 18:55	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 18:55	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 18:55	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 18:55	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 18:55	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 18:55	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 18:55	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 18:55	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 18:55	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/14/18 18:55	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 18:55	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 18:55	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 18:55	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 18:55	1
Trichloroethene	ND		1.0	0.16	ug/L			10/14/18 18:55	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 18:55	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 18:55	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 18:55	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 18:55	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 18:55	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 18:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*126*		*70 - 127*		*10/14/18 18:55*	*1*
Toluene-d8 (Surr)	*94*		*80 - 125*		*10/14/18 18:55*	*1*
4-Bromofluorobenzene (Surr)	*85*		*78 - 120*		*10/14/18 18:55*	*1*
Dibromofluoromethane (Surr)	*124*	*X*	*77 - 120*		*10/14/18 18:55*	*1*

Client Sample ID: EB-4-VOC-20181008
Date Collected: 10/08/18 14:55
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-27
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**4.7**	**J B**	10	1.9	ug/L			10/12/18 17:06	1
Acetonitrile	ND		30	9.6	ug/L			10/12/18 17:06	1
Acrolein	ND		20	2.8	ug/L			10/12/18 17:06	1
Acrylonitrile	ND		20	1.4	ug/L			10/12/18 17:06	1
Benzene	ND		1.0	0.16	ug/L			10/12/18 17:06	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/12/18 17:06	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/12/18 17:06	1
Bromoform	ND		1.0	0.19	ug/L			10/12/18 17:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-4-VOC-20181008
Date Collected: 10/08/18 14:55
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-27
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		2.0	0.21	ug/L			10/12/18 17:06	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/12/18 17:06	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/12/18 17:06	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/12/18 17:06	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/12/18 17:06	1
Chloroprene	ND		1.0	0.21	ug/L			10/12/18 17:06	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/12/18 17:06	1
Chloroethane	ND		2.0	0.41	ug/L			10/12/18 17:06	1
Chloroform	ND		1.0	0.16	ug/L			10/12/18 17:06	1
Chloromethane	ND		2.0	0.30	ug/L			10/12/18 17:06	1
Allyl chloride	ND		2.0	0.17	ug/L			10/12/18 17:06	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/12/18 17:06	1
Dibromomethane	ND		1.0	0.17	ug/L			10/12/18 17:06	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/12/18 17:06	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/12/18 17:06	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/12/18 17:06	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/12/18 17:06	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/12/18 17:06	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/12/18 17:06	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/12/18 17:06	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 17:06	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 17:06	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/12/18 17:06	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 17:06	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/12/18 17:06	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 17:06	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/12/18 17:06	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/12/18 17:06	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/12/18 17:06	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/12/18 17:06	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/12/18 17:06	1
2-Hexanone	ND		5.0	1.7	ug/L			10/12/18 17:06	1
Iodomethane	ND		1.0	0.23	ug/L			10/12/18 17:06	1
Isobutyl alcohol	ND		110	37	ug/L			10/12/18 17:06	1
Methacrylonitrile	ND		10	1.6	ug/L			10/12/18 17:06	1
Methylene Chloride	**0.43**	**J**	2.0	0.32	ug/L			10/12/18 17:06	1
Methyl methacrylate	ND	*	4.0	1.1	ug/L			10/12/18 17:06	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/12/18 17:06	1
Propionitrile	ND		20	3.7	ug/L			10/12/18 17:06	1
Styrene	ND		1.0	0.17	ug/L			10/12/18 17:06	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 17:06	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 17:06	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/12/18 17:06	1
Toluene	ND		1.0	0.17	ug/L			10/12/18 17:06	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/12/18 17:06	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/12/18 17:06	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/12/18 17:06	1
Trichloroethene	ND		1.0	0.16	ug/L			10/12/18 17:06	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/12/18 17:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-4-VOC-20181008
Date Collected: 10/08/18 14:55
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-27
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/12/18 17:06	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/12/18 17:06	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/12/18 17:06	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/12/18 17:06	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/12/18 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*		*10/12/18 17:06*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*10/12/18 17:06*	*1*
4-Bromofluorobenzene (Surr)	*106*		*78 - 120*		*10/12/18 17:06*	*1*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*10/12/18 17:06*	*1*

Client Sample ID: RW-17-20181007
Date Collected: 10/07/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-29
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/15/18 17:15	1
Acetonitrile	ND		30	9.6	ug/L			10/15/18 17:15	1
Acrolein	ND		20	2.8	ug/L			10/15/18 17:15	1
Acrylonitrile	ND		20	1.4	ug/L			10/15/18 17:15	1
Benzene	ND		1.0	0.16	ug/L			10/15/18 17:15	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/15/18 17:15	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/15/18 17:15	1
Bromoform	ND		1.0	0.19	ug/L			10/15/18 17:15	1
Bromomethane	ND		2.0	0.21	ug/L			10/15/18 17:15	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/15/18 17:15	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/15/18 17:15	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/15/18 17:15	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/15/18 17:15	1
Chloroprene	ND		1.0	0.21	ug/L			10/15/18 17:15	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/15/18 17:15	1
Chloroethane	ND		2.0	0.41	ug/L			10/15/18 17:15	1
Chloroform	**0.67**	**J**	1.0	0.16	ug/L			10/15/18 17:15	1
Chloromethane	ND		2.0	0.30	ug/L			10/15/18 17:15	1
Allyl chloride	ND		2.0	0.17	ug/L			10/15/18 17:15	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/15/18 17:15	1
Dibromomethane	ND		1.0	0.17	ug/L			10/15/18 17:15	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/15/18 17:15	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/15/18 17:15	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/15/18 17:15	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/15/18 17:15	1
Dichlorodifluoromethane	**0.34**	**J**	2.0	0.31	ug/L			10/15/18 17:15	1
1,1-Dichloroethane	**0.32**	**J**	1.0	0.22	ug/L			10/15/18 17:15	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/15/18 17:15	1
cis-1,2-Dichloroethene	**3.2**		1.0	0.15	ug/L			10/15/18 17:15	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 17:15	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/15/18 17:15	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 17:15	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/15/18 17:15	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 17:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RW-17-20181007
Date Collected: 10/07/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-29
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/15/18 17:15	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/15/18 17:15	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/15/18 17:15	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/15/18 17:15	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/15/18 17:15	1
2-Hexanone	ND		5.0	1.7	ug/L			10/15/18 17:15	1
Iodomethane	ND		1.0	0.23	ug/L			10/15/18 17:15	1
Isobutyl alcohol	ND		110	37	ug/L			10/15/18 17:15	1
Methacrylonitrile	ND		10	1.6	ug/L			10/15/18 17:15	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/15/18 17:15	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/15/18 17:15	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/15/18 17:15	1
Propionitrile	ND		20	3.7	ug/L			10/15/18 17:15	1
Styrene	ND		1.0	0.17	ug/L			10/15/18 17:15	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 17:15	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 17:15	1
Tetrachloroethene	**22**		1.0	0.20	ug/L			10/15/18 17:15	1
Toluene	ND		1.0	0.17	ug/L			10/15/18 17:15	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/15/18 17:15	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/15/18 17:15	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/15/18 17:15	1
Trichloroethene	**120**	**E**	1.0	0.16	ug/L			10/15/18 17:15	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/15/18 17:15	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/15/18 17:15	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/15/18 17:15	1
Vinyl chloride	**0.54**	**J**	1.0	0.10	ug/L			10/15/18 17:15	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/15/18 17:15	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/15/18 17:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 127*		*10/15/18 17:15*	*1*
Toluene-d8 (Surr)	*86*		*80 - 125*		*10/15/18 17:15*	*1*
4-Bromofluorobenzene (Surr)	*82*		*78 - 120*		*10/15/18 17:15*	*1*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*10/15/18 17:15*	*1*

Client Sample ID: EB-3-VOC-100718
Date Collected: 10/07/18 09:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-30
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**3.5**	**J**	10	1.9	ug/L			10/15/18 17:58	1
Acetonitrile	ND		30	9.6	ug/L			10/15/18 17:58	1
Acrolein	ND		20	2.8	ug/L			10/15/18 17:58	1
Acrylonitrile	ND		20	1.4	ug/L			10/15/18 17:58	1
Benzene	ND		1.0	0.16	ug/L			10/15/18 17:58	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/15/18 17:58	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/15/18 17:58	1
Bromoform	ND		1.0	0.19	ug/L			10/15/18 17:58	1
Bromomethane	ND		2.0	0.21	ug/L			10/15/18 17:58	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/15/18 17:58	1
Carbon disulfide	**0.70**	**J**	2.0	0.45	ug/L			10/15/18 17:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-3-VOC-100718
Date Collected: 10/07/18 09:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-30
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/15/18 17:58	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/15/18 17:58	1
Chloroprene	ND		1.0	0.21	ug/L			10/15/18 17:58	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/15/18 17:58	1
Chloroethane	ND		2.0	0.41	ug/L			10/15/18 17:58	1
Chloroform	ND		1.0	0.16	ug/L			10/15/18 17:58	1
Chloromethane	ND		2.0	0.30	ug/L			10/15/18 17:58	1
Allyl chloride	ND		2.0	0.17	ug/L			10/15/18 17:58	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/15/18 17:58	1
Dibromomethane	ND		1.0	0.17	ug/L			10/15/18 17:58	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/15/18 17:58	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/15/18 17:58	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/15/18 17:58	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/15/18 17:58	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/15/18 17:58	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/15/18 17:58	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/15/18 17:58	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 17:58	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 17:58	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/15/18 17:58	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 17:58	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/15/18 17:58	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 17:58	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/15/18 17:58	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/15/18 17:58	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/15/18 17:58	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/15/18 17:58	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/15/18 17:58	1
2-Hexanone	ND		5.0	1.7	ug/L			10/15/18 17:58	1
Iodomethane	ND		1.0	0.23	ug/L			10/15/18 17:58	1
Isobutyl alcohol	ND		110	37	ug/L			10/15/18 17:58	1
Methacrylonitrile	ND		10	1.6	ug/L			10/15/18 17:58	1
Methylene Chloride	**0.51**	**J**	2.0	0.32	ug/L			10/15/18 17:58	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/15/18 17:58	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/15/18 17:58	1
Propionitrile	ND		20	3.7	ug/L			10/15/18 17:58	1
Styrene	ND		1.0	0.17	ug/L			10/15/18 17:58	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 17:58	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 17:58	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/15/18 17:58	1
Toluene	ND		1.0	0.17	ug/L			10/15/18 17:58	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/15/18 17:58	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/15/18 17:58	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/15/18 17:58	1
Trichloroethene	ND		1.0	0.16	ug/L			10/15/18 17:58	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/15/18 17:58	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/15/18 17:58	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/15/18 17:58	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/15/18 17:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-3-VOC-100718
Date Collected: 10/07/18 09:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-30
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		2.0	0.19	ug/L			10/15/18 17:58	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/15/18 17:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 127*		*10/15/18 17:58*	*1*
Toluene-d8 (Surr)	*87*		*80 - 125*		*10/15/18 17:58*	*1*
4-Bromofluorobenzene (Surr)	*81*		*78 - 120*		*10/15/18 17:58*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*10/15/18 17:58*	*1*

Client Sample ID: RW-10-20181007
Date Collected: 10/07/18 11:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-33
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/15/18 12:12	1
Acetonitrile	ND		30	9.6	ug/L			10/15/18 12:12	1
Acrolein	ND		20	2.8	ug/L			10/15/18 12:12	1
Acrylonitrile	ND		20	1.4	ug/L			10/15/18 12:12	1
Benzene	ND		1.0	0.16	ug/L			10/15/18 12:12	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/15/18 12:12	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/15/18 12:12	1
Bromoform	ND		1.0	0.19	ug/L			10/15/18 12:12	1
Bromomethane	ND		2.0	0.21	ug/L			10/15/18 12:12	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/15/18 12:12	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/15/18 12:12	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/15/18 12:12	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/15/18 12:12	1
Chloroprene	ND		1.0	0.21	ug/L			10/15/18 12:12	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/15/18 12:12	1
Chloroethane	ND		2.0	0.41	ug/L			10/15/18 12:12	1
Chloroform	**0.63**	**J**	1.0	0.16	ug/L			10/15/18 12:12	1
Chloromethane	ND		2.0	0.30	ug/L			10/15/18 12:12	1
Allyl chloride	ND		2.0	0.17	ug/L			10/15/18 12:12	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/15/18 12:12	1
Dibromomethane	ND		1.0	0.17	ug/L			10/15/18 12:12	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/15/18 12:12	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/15/18 12:12	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/15/18 12:12	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/15/18 12:12	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/15/18 12:12	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/15/18 12:12	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/15/18 12:12	1
cis-1,2-Dichloroethene	**0.99**	**J**	1.0	0.15	ug/L			10/15/18 12:12	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 12:12	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/15/18 12:12	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 12:12	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/15/18 12:12	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 12:12	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/15/18 12:12	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/15/18 12:12	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/15/18 12:12	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RW-10-20181007
Date Collected: 10/07/18 11:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-33
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		1.0	0.16	ug/L			10/15/18 12:12	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/15/18 12:12	1
2-Hexanone	ND		5.0	1.7	ug/L			10/15/18 12:12	1
Iodomethane	ND		1.0	0.23	ug/L			10/15/18 12:12	1
Isobutyl alcohol	ND		110	37	ug/L			10/15/18 12:12	1
Methacrylonitrile	ND		10	1.6	ug/L			10/15/18 12:12	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/15/18 12:12	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/15/18 12:12	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/15/18 12:12	1
Propionitrile	ND		20	3.7	ug/L			10/15/18 12:12	1
Styrene	ND		1.0	0.17	ug/L			10/15/18 12:12	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 12:12	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 12:12	1
Tetrachloroethene	**19**		1.0	0.20	ug/L			10/15/18 12:12	1
Toluene	ND		1.0	0.17	ug/L			10/15/18 12:12	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/15/18 12:12	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/15/18 12:12	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/15/18 12:12	1
Trichloroethene	**88**	**E**	1.0	0.16	ug/L			10/15/18 12:12	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/15/18 12:12	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/15/18 12:12	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/15/18 12:12	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/15/18 12:12	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/15/18 12:12	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/15/18 12:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 127*		*10/15/18 12:12*	*1*
Toluene-d8 (Surr)	*88*		*80 - 125*		*10/15/18 12:12*	*1*
4-Bromofluorobenzene (Surr)	*79*		*78 - 120*		*10/15/18 12:12*	*1*
Dibromofluoromethane (Surr)	*92*		*77 - 120*		*10/15/18 12:12*	*1*

Client Sample ID: MW-3A-20181008
Date Collected: 10/08/18 14:35
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-34
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/18/18 23:48	1
Acetonitrile	ND		30	9.6	ug/L			10/18/18 23:48	1
Acrolein	ND		20	2.8	ug/L			10/18/18 23:48	1
Acrylonitrile	ND		20	1.4	ug/L			10/18/18 23:48	1
Benzene	ND		1.0	0.16	ug/L			10/18/18 23:48	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/18/18 23:48	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/18/18 23:48	1
Bromoform	ND		1.0	0.19	ug/L			10/18/18 23:48	1
Bromomethane	ND		2.0	0.21	ug/L			10/18/18 23:48	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/18/18 23:48	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/18/18 23:48	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/18/18 23:48	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/18/18 23:48	1
Chloroprene	ND		1.0	0.21	ug/L			10/18/18 23:48	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-3A-20181008
Date Collected: 10/08/18 14:35
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-34
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/18/18 23:48	1
Chloroethane	ND		2.0	0.41	ug/L			10/18/18 23:48	1
Chloroform	ND		1.0	0.16	ug/L			10/18/18 23:48	1
Chloromethane	ND		2.0	0.30	ug/L			10/18/18 23:48	1
Allyl chloride	ND		2.0	0.17	ug/L			10/18/18 23:48	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/18/18 23:48	1
Dibromomethane	ND		1.0	0.17	ug/L			10/18/18 23:48	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/18/18 23:48	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/18/18 23:48	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/18/18 23:48	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/18/18 23:48	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/18/18 23:48	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/18/18 23:48	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/18/18 23:48	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/18/18 23:48	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/18/18 23:48	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/18/18 23:48	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/18/18 23:48	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/18/18 23:48	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/18/18 23:48	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/18/18 23:48	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/18/18 23:48	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/18/18 23:48	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/18/18 23:48	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/18/18 23:48	1
2-Hexanone	ND		5.0	1.7	ug/L			10/18/18 23:48	1
Iodomethane	ND		1.0	0.23	ug/L			10/18/18 23:48	1
Isobutyl alcohol	ND		110	37	ug/L			10/18/18 23:48	1
Methacrylonitrile	ND		10	1.6	ug/L			10/18/18 23:48	1
Methylene Chloride	**0.51**	**J B**	2.0	0.32	ug/L			10/18/18 23:48	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/18/18 23:48	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/18/18 23:48	1
Propionitrile	ND		20	3.7	ug/L			10/18/18 23:48	1
Styrene	ND		1.0	0.17	ug/L			10/18/18 23:48	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/18/18 23:48	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/18/18 23:48	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/18/18 23:48	1
Toluene	ND		1.0	0.17	ug/L			10/18/18 23:48	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/18/18 23:48	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/18/18 23:48	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/18/18 23:48	1
Trichloroethene	ND		1.0	0.16	ug/L			10/18/18 23:48	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/18/18 23:48	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/18/18 23:48	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/18/18 23:48	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/18/18 23:48	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/18/18 23:48	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/18/18 23:48	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		70 - 127		10/18/18 23:48	1
Toluene-d8 (Surr)	103		80 - 125		10/18/18 23:48	1
4-Bromofluorobenzene (Surr)	97		78 - 120		10/18/18 23:48	1
Dibromofluoromethane (Surr)	117		77 - 120		10/18/18 23:48	1

Client Sample ID: MW-103S-20181009 — **Lab Sample ID: 280-115307-35**
Date Collected: 10/09/18 10:05 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/19/18 00:09	1
Acetonitrile	ND		30	9.6	ug/L			10/19/18 00:09	1
Acrolein	ND		20	2.8	ug/L			10/19/18 00:09	1
Acrylonitrile	ND		20	1.4	ug/L			10/19/18 00:09	1
Benzene	ND		1.0	0.16	ug/L			10/19/18 00:09	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/19/18 00:09	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/19/18 00:09	1
Bromoform	ND		1.0	0.19	ug/L			10/19/18 00:09	1
Bromomethane	ND		2.0	0.21	ug/L			10/19/18 00:09	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/19/18 00:09	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/19/18 00:09	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/19/18 00:09	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/19/18 00:09	1
Chloroprene	ND		1.0	0.21	ug/L			10/19/18 00:09	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/19/18 00:09	1
Chloroethane	ND		2.0	0.41	ug/L			10/19/18 00:09	1
Chloroform	ND		1.0	0.16	ug/L			10/19/18 00:09	1
Chloromethane	ND		2.0	0.30	ug/L			10/19/18 00:09	1
Allyl chloride	ND		2.0	0.17	ug/L			10/19/18 00:09	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/19/18 00:09	1
Dibromomethane	ND		1.0	0.17	ug/L			10/19/18 00:09	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/19/18 00:09	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/19/18 00:09	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/19/18 00:09	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/19/18 00:09	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/19/18 00:09	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/19/18 00:09	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/19/18 00:09	1
cis-1,2-Dichloroethene	**0.57**	**J**	1.0	0.15	ug/L			10/19/18 00:09	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/19/18 00:09	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/19/18 00:09	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/19/18 00:09	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/19/18 00:09	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/19/18 00:09	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/19/18 00:09	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/19/18 00:09	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/19/18 00:09	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/19/18 00:09	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/19/18 00:09	1
2-Hexanone	ND		5.0	1.7	ug/L			10/19/18 00:09	1
Iodomethane	ND		1.0	0.23	ug/L			10/19/18 00:09	1
Isobutyl alcohol	ND		110	37	ug/L			10/19/18 00:09	1
Methacrylonitrile	ND		10	1.6	ug/L			10/19/18 00:09	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-103S-20181009
Date Collected: 10/09/18 10:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-35
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	**0.42**	**J B**	2.0	0.32	ug/L			10/19/18 00:09	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/19/18 00:09	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/19/18 00:09	1
Propionitrile	ND		20	3.7	ug/L			10/19/18 00:09	1
Styrene	ND		1.0	0.17	ug/L			10/19/18 00:09	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/19/18 00:09	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/19/18 00:09	1
Tetrachloroethene	**1.4**		1.0	0.20	ug/L			10/19/18 00:09	1
Toluene	ND		1.0	0.17	ug/L			10/19/18 00:09	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/19/18 00:09	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/19/18 00:09	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/19/18 00:09	1
Trichloroethene	**8.0**		1.0	0.16	ug/L			10/19/18 00:09	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/19/18 00:09	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/19/18 00:09	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/19/18 00:09	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/19/18 00:09	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/19/18 00:09	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/19/18 00:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 127*		*10/19/18 00:09*	*1*
Toluene-d8 (Surr)	*101*		*80 - 125*		*10/19/18 00:09*	*1*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*		*10/19/18 00:09*	*1*
Dibromofluoromethane (Surr)	*112*		*77 - 120*		*10/19/18 00:09*	*1*

Client Sample ID: MW-103D-20181009
Date Collected: 10/09/18 14:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-36
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/19/18 00:31	1
Acetonitrile	ND		30	9.6	ug/L			10/19/18 00:31	1
Acrolein	ND		20	2.8	ug/L			10/19/18 00:31	1
Acrylonitrile	ND		20	1.4	ug/L			10/19/18 00:31	1
Benzene	ND		1.0	0.16	ug/L			10/19/18 00:31	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/19/18 00:31	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/19/18 00:31	1
Bromoform	ND		1.0	0.19	ug/L			10/19/18 00:31	1
Bromomethane	ND		2.0	0.21	ug/L			10/19/18 00:31	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/19/18 00:31	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/19/18 00:31	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/19/18 00:31	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/19/18 00:31	1
Chloroprene	ND		1.0	0.21	ug/L			10/19/18 00:31	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/19/18 00:31	1
Chloroethane	ND		2.0	0.41	ug/L			10/19/18 00:31	1
Chloroform	ND		1.0	0.16	ug/L			10/19/18 00:31	1
Chloromethane	ND		2.0	0.30	ug/L			10/19/18 00:31	1
Allyl chloride	ND		2.0	0.17	ug/L			10/19/18 00:31	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/19/18 00:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-103D-20181009
Date Collected: 10/09/18 14:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-36
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibromomethane	ND		1.0	0.17	ug/L			10/19/18 00:31	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/19/18 00:31	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/19/18 00:31	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/19/18 00:31	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/19/18 00:31	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/19/18 00:31	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/19/18 00:31	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/19/18 00:31	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/19/18 00:31	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/19/18 00:31	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/19/18 00:31	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/19/18 00:31	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/19/18 00:31	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/19/18 00:31	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/19/18 00:31	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/19/18 00:31	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/19/18 00:31	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/19/18 00:31	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/19/18 00:31	1
2-Hexanone	ND		5.0	1.7	ug/L			10/19/18 00:31	1
Iodomethane	ND		1.0	0.23	ug/L			10/19/18 00:31	1
Isobutyl alcohol	ND		110	37	ug/L			10/19/18 00:31	1
Methacrylonitrile	ND		10	1.6	ug/L			10/19/18 00:31	1
Methylene Chloride	**0.33**	**J B**	2.0	0.32	ug/L			10/19/18 00:31	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/19/18 00:31	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/19/18 00:31	1
Propionitrile	ND		20	3.7	ug/L			10/19/18 00:31	1
Styrene	ND		1.0	0.17	ug/L			10/19/18 00:31	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/19/18 00:31	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/19/18 00:31	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/19/18 00:31	1
Toluene	**0.34**	**J**	1.0	0.17	ug/L			10/19/18 00:31	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/19/18 00:31	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/19/18 00:31	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/19/18 00:31	1
Trichloroethene	ND		1.0	0.16	ug/L			10/19/18 00:31	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/19/18 00:31	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/19/18 00:31	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/19/18 00:31	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/19/18 00:31	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/19/18 00:31	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/19/18 00:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 127*		*10/19/18 00:31*	*1*
Toluene-d8 (Surr)	*102*		*80 - 125*		*10/19/18 00:31*	*1*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*		*10/19/18 00:31*	*1*
Dibromofluoromethane (Surr)	*117*		*77 - 120*		*10/19/18 00:31*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-9-VOC-20181009
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-37
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/12/18 17:28	1
Acetonitrile	ND		30	9.6	ug/L			10/12/18 17:28	1
Acrolein	ND		20	2.8	ug/L			10/12/18 17:28	1
Acrylonitrile	ND		20	1.4	ug/L			10/12/18 17:28	1
Benzene	ND		1.0	0.16	ug/L			10/12/18 17:28	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/12/18 17:28	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/12/18 17:28	1
Bromoform	ND		1.0	0.19	ug/L			10/12/18 17:28	1
Bromomethane	ND		2.0	0.21	ug/L			10/12/18 17:28	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/12/18 17:28	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/12/18 17:28	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/12/18 17:28	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/12/18 17:28	1
Chloroprene	ND		1.0	0.21	ug/L			10/12/18 17:28	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/12/18 17:28	1
Chloroethane	ND		2.0	0.41	ug/L			10/12/18 17:28	1
Chloroform	ND		1.0	0.16	ug/L			10/12/18 17:28	1
Chloromethane	ND		2.0	0.30	ug/L			10/12/18 17:28	1
Allyl chloride	ND		2.0	0.17	ug/L			10/12/18 17:28	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/12/18 17:28	1
Dibromomethane	ND		1.0	0.17	ug/L			10/12/18 17:28	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/12/18 17:28	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/12/18 17:28	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/12/18 17:28	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/12/18 17:28	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/12/18 17:28	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/12/18 17:28	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/12/18 17:28	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 17:28	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 17:28	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/12/18 17:28	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 17:28	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/12/18 17:28	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 17:28	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/12/18 17:28	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/12/18 17:28	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/12/18 17:28	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/12/18 17:28	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/12/18 17:28	1
2-Hexanone	ND		5.0	1.7	ug/L			10/12/18 17:28	1
Iodomethane	ND		1.0	0.23	ug/L			10/12/18 17:28	1
Isobutyl alcohol	ND		110	37	ug/L			10/12/18 17:28	1
Methacrylonitrile	ND		10	1.6	ug/L			10/12/18 17:28	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/12/18 17:28	1
Methyl methacrylate	ND	*	4.0	1.1	ug/L			10/12/18 17:28	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/12/18 17:28	1
Propionitrile	ND		20	3.7	ug/L			10/12/18 17:28	1
Styrene	ND		1.0	0.17	ug/L			10/12/18 17:28	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 17:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-9-VOC-20181009
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-37
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 17:28	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/12/18 17:28	1
Toluene	ND		1.0	0.17	ug/L			10/12/18 17:28	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/12/18 17:28	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/12/18 17:28	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/12/18 17:28	1
Trichloroethene	ND		1.0	0.16	ug/L			10/12/18 17:28	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/12/18 17:28	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/12/18 17:28	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/12/18 17:28	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/12/18 17:28	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/12/18 17:28	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/12/18 17:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 127*		*10/12/18 17:28*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*10/12/18 17:28*	*1*
4-Bromofluorobenzene (Surr)	*104*		*78 - 120*		*10/12/18 17:28*	*1*
Dibromofluoromethane (Surr)	*106*		*77 - 120*		*10/12/18 17:28*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: RW-3-20181007
Date Collected: 10/07/18 10:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**130**		4.0	0.64	ug/L			10/15/18 13:01	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 127*		*10/15/18 13:01*	*4*
Toluene-d8 (Surr)	*87*		*80 - 125*		*10/15/18 13:01*	*4*
4-Bromofluorobenzene (Surr)	*81*		*78 - 120*		*10/15/18 13:01*	*4*
Dibromofluoromethane (Surr)	*97*		*77 - 120*		*10/15/18 13:01*	*4*

Client Sample ID: MW-112D-20181005
Date Collected: 10/05/18 13:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**200**		10	1.6	ug/L			10/15/18 13:22	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 127*		*10/15/18 13:22*	*10*
Toluene-d8 (Surr)	*88*		*80 - 125*		*10/15/18 13:22*	*10*
4-Bromofluorobenzene (Surr)	*80*		*78 - 120*		*10/15/18 13:22*	*10*
Dibromofluoromethane (Surr)	*98*		*77 - 120*		*10/15/18 13:22*	*10*

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**110**		4.0	0.64	ug/L			10/15/18 15:51	4

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		70 - 127		10/15/18 15:51	4
Toluene-d8 (Surr)	88		80 - 125		10/15/18 15:51	4
4-Bromofluorobenzene (Surr)	81		78 - 120		10/15/18 15:51	4
Dibromofluoromethane (Surr)	96		77 - 120		10/15/18 15:51	4

Client Sample ID: RW-9-20181007 — **Lab Sample ID: 280-115307-19**
Date Collected: 10/07/18 12:30 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	210		10	1.6	ug/L			10/15/18 16:33	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 127		10/15/18 16:33	10
Toluene-d8 (Surr)	87		80 - 125		10/15/18 16:33	10
4-Bromofluorobenzene (Surr)	80		78 - 120		10/15/18 16:33	10
Dibromofluoromethane (Surr)	99		77 - 120		10/15/18 16:33	10

Client Sample ID: RW-17-20181007 — **Lab Sample ID: 280-115307-29**
Date Collected: 10/07/18 11:30 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	100		4.0	0.64	ug/L			10/15/18 17:36	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		70 - 127		10/15/18 17:36	4
Toluene-d8 (Surr)	87		80 - 125		10/15/18 17:36	4
4-Bromofluorobenzene (Surr)	82		78 - 120		10/15/18 17:36	4
Dibromofluoromethane (Surr)	101		77 - 120		10/15/18 17:36	4

Client Sample ID: RW-10-20181007 — **Lab Sample ID: 280-115307-33**
Date Collected: 10/07/18 11:15 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	49		4.0	0.64	ug/L			10/16/18 12:50	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		70 - 127		10/16/18 12:50	4
Toluene-d8 (Surr)	89		80 - 125		10/16/18 12:50	4
4-Bromofluorobenzene (Surr)	84		78 - 120		10/16/18 12:50	4
Dibromofluoromethane (Surr)	93		77 - 120		10/16/18 12:50	4

Method: RSK-175 - Dissolved Gases (GC)

Client Sample ID: MW-109S-20181006 — **Lab Sample ID: 280-115307-5**
Date Collected: 10/06/18 11:30 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/13/18 17:19	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 17:19	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 17:19	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 17:19	1
Propane	ND		5.0	0.56	ug/L			10/13/18 17:19	1

Method: RSK-175 - Dissolved Gases (GC)

Client Sample ID: MW-112M-20181005
Date Collected: 10/05/18 15:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/13/18 17:32	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 17:32	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 17:32	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 17:32	1
Propane	ND		5.0	0.56	ug/L			10/13/18 17:32	1

Client Sample ID: MW-112MQ-20181005
Date Collected: 10/05/18 15:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/13/18 17:46	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 17:46	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 17:46	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 17:46	1
Propane	ND		5.0	0.56	ug/L			10/13/18 17:46	1

Client Sample ID: RW-4-20181007
Date Collected: 10/07/18 12:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/13/18 18:13	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 18:13	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 18:13	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 18:13	1
Propane	ND		5.0	0.56	ug/L			10/13/18 18:13	1

Client Sample ID: MW-121-20181007
Date Collected: 10/07/18 10:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**56**		5.0	0.64	ug/L			10/13/18 18:39	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 18:39	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 18:39	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 18:39	1
Propane	ND		5.0	0.56	ug/L			10/13/18 18:39	1

Client Sample ID: RW-3-20181007
Date Collected: 10/07/18 10:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**1.9**	**J**	5.0	0.64	ug/L			10/15/18 16:25	1
Ethene	ND		5.0	0.40	ug/L			10/15/18 16:25	1
Ethane	ND		5.0	0.57	ug/L			10/15/18 16:25	1
Acetylene	ND		5.0	0.73	ug/L			10/15/18 16:25	1
Propane	ND		5.0	0.56	ug/L			10/15/18 16:25	1

Client Sample ID: MW-7-20181008
Date Collected: 10/08/18 09:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**6.6**		5.0	0.64	ug/L			10/16/18 17:36	1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Client Sample ID: MW-7-20181008
Date Collected: 10/08/18 09:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethene	ND		5.0	0.40	ug/L			10/16/18 17:36	1
Ethane	ND		5.0	0.57	ug/L			10/16/18 17:36	1
Acetylene	ND		5.0	0.73	ug/L			10/16/18 17:36	1
Propane	ND		5.0	0.56	ug/L			10/16/18 17:36	1

Client Sample ID: MW-112D-20181005
Date Collected: 10/05/18 13:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/13/18 18:53	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 18:53	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 18:53	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 18:53	1
Propane	ND		5.0	0.56	ug/L			10/13/18 18:53	1

Client Sample ID: MW-109D-20181006
Date Collected: 10/06/18 09:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/13/18 19:06	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 19:06	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 19:06	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 19:06	1
Propane	ND		5.0	0.56	ug/L			10/13/18 19:06	1

Client Sample ID: MW-103S-20181009
Date Collected: 10/09/18 10:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-35
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/16/18 18:03	1
Ethene	ND		5.0	0.40	ug/L			10/16/18 18:03	1
Ethane	ND		5.0	0.57	ug/L			10/16/18 18:03	1
Acetylene	ND		5.0	0.73	ug/L			10/16/18 18:03	1
Propane	ND		5.0	0.56	ug/L			10/16/18 18:03	1

Client Sample ID: MW-103D-20181009
Date Collected: 10/09/18 14:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-36
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/16/18 18:17	1
Ethene	ND		5.0	0.40	ug/L			10/16/18 18:17	1
Ethane	ND		5.0	0.57	ug/L			10/16/18 18:17	1
Acetylene	ND		5.0	0.73	ug/L			10/16/18 18:17	1
Propane	ND		5.0	0.56	ug/L			10/16/18 18:17	1

Method: 8290 - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-1
Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		10	0.14	pg/L		10/16/18 14:34	10/24/18 08:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*89*		*40 - 135*	*10/16/18 14:34*	*10/24/18 08:49*	*1*

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-2
Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		11	0.33	pg/L		10/16/18 14:34	10/24/18 18:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*91*		*40 - 135*	*10/16/18 14:34*	*10/24/18 18:31*	*1*

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-3
Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		9.5	0.29	pg/L		10/16/18 14:34	10/24/18 19:17	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*88*		*40 - 135*	*10/16/18 14:34*	*10/24/18 19:17*	*1*

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-4
Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		10	0.30	pg/L		10/16/18 14:34	10/24/18 20:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*93*		*40 - 135*	*10/16/18 14:34*	*10/24/18 20:03*	*1*

Method: 6010C - Metals (ICP)

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**88000**		200	35	ug/L		10/13/18 14:15	10/16/18 00:41	1
Iron	ND		100	22	ug/L		10/13/18 14:15	10/16/18 00:41	1
Magnesium	**40000**		200	11	ug/L		10/13/18 14:15	10/16/18 00:41	1
Potassium	**4000**		3000	240	ug/L		10/13/18 14:15	10/16/18 00:41	1
Sodium	**59000**	**^ B**	1000	120	ug/L		10/13/18 14:15	10/16/18 00:41	1

Client Sample ID: MW-112M-20181005
Date Collected: 10/05/18 15:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**93000**		200	35	ug/L		10/13/18 14:15	10/16/18 00:56	1
Iron	**480**		100	22	ug/L		10/13/18 14:15	10/16/18 00:56	1
Magnesium	**38000**		200	11	ug/L		10/13/18 14:15	10/16/18 00:56	1
Potassium	**2500**	**J**	3000	240	ug/L		10/13/18 14:15	10/16/18 00:56	1
Sodium	**57000**	**^ B**	1000	120	ug/L		10/13/18 14:15	10/16/18 00:56	1

Method: 6010C - Metals (ICP)

Client Sample ID: MW-112MQ-20181005
Date Collected: 10/05/18 15:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	92000		200	35	ug/L		10/13/18 14:15	10/16/18 00:59	1
Iron	170		100	22	ug/L		10/13/18 14:15	10/16/18 00:59	1
Magnesium	38000		200	11	ug/L		10/13/18 14:15	10/16/18 00:59	1
Potassium	2400	J	3000	240	ug/L		10/13/18 14:15	10/16/18 00:59	1
Sodium	57000	^ B	1000	120	ug/L		10/13/18 14:15	10/16/18 00:59	1

Client Sample ID: RW-4-20181007
Date Collected: 10/07/18 12:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	150000		200	35	ug/L		10/13/18 14:15	10/16/18 01:03	1
Iron	380		100	22	ug/L		10/13/18 14:15	10/16/18 01:03	1
Magnesium	53000		200	11	ug/L		10/13/18 14:15	10/16/18 01:03	1
Potassium	4600		3000	240	ug/L		10/13/18 14:15	10/16/18 01:03	1
Sodium	70000	^ B	1000	120	ug/L		10/13/18 14:15	10/16/18 01:03	1

Client Sample ID: MW-121-20181007
Date Collected: 10/07/18 10:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	230000		200	35	ug/L		10/13/18 14:15	10/16/18 01:06	1
Iron	2600		100	22	ug/L		10/13/18 14:15	10/16/18 01:06	1
Magnesium	74000		200	11	ug/L		10/13/18 14:15	10/16/18 01:06	1
Potassium	6500		3000	240	ug/L		10/13/18 14:15	10/16/18 01:06	1
Sodium	190000	^ B	1000	120	ug/L		10/13/18 14:15	10/16/18 01:06	1

Client Sample ID: RW-7773P-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	72000		200	35	ug/L		10/13/18 14:15	10/16/18 01:24	1
Iron	77	J	100	22	ug/L		10/13/18 14:15	10/16/18 01:24	1
Magnesium	25000		200	11	ug/L		10/13/18 14:15	10/16/18 01:24	1
Potassium	6100		3000	240	ug/L		10/13/18 14:15	10/16/18 01:24	1
Sodium	33000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 01:24	1

Client Sample ID: RW-3-20181007
Date Collected: 10/07/18 10:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	120000		200	35	ug/L		10/13/18 14:15	10/16/18 01:27	1
Iron	75	J	100	22	ug/L		10/13/18 14:15	10/16/18 01:27	1
Magnesium	47000		200	11	ug/L		10/13/18 14:15	10/16/18 01:27	1
Potassium	4000		3000	240	ug/L		10/13/18 14:15	10/16/18 01:27	1
Sodium	74000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 01:27	1

Client Sample ID: MW-7-20181008
Date Collected: 10/08/18 09:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	73000		200	35	ug/L		10/13/18 14:15	10/16/18 01:31	1

Method: 6010C - Metals (ICP) (Continued)

Client Sample ID: MW-7-20181008
Date Collected: 10/08/18 09:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	22	J	100	22	ug/L		10/13/18 14:15	10/16/18 01:31	1
Magnesium	23000		200	11	ug/L		10/13/18 14:15	10/16/18 01:31	1
Potassium	2500	J	3000	240	ug/L		10/13/18 14:15	10/16/18 01:31	1
Sodium	32000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 01:31	1

Client Sample ID: MW-106D-20181008
Date Collected: 10/08/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	74000		200	35	ug/L		10/13/18 14:15	10/16/18 01:34	1
Iron	ND		100	22	ug/L		10/13/18 14:15	10/16/18 01:34	1
Magnesium	26000		200	11	ug/L		10/13/18 14:15	10/16/18 01:34	1
Potassium	6100		3000	240	ug/L		10/13/18 14:15	10/16/18 01:34	1
Sodium	34000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 01:34	1

Client Sample ID: MW-112D-20181005
Date Collected: 10/05/18 13:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	87000		200	35	ug/L		10/13/18 14:15	10/16/18 01:38	1
Iron	150		100	22	ug/L		10/13/18 14:15	10/16/18 01:38	1
Magnesium	32000		200	11	ug/L		10/13/18 14:15	10/16/18 01:38	1
Potassium	2400	J	3000	240	ug/L		10/13/18 14:15	10/16/18 01:38	1
Sodium	41000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 01:38	1

Client Sample ID: MW-4-20181005
Date Collected: 10/05/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	130000		200	35	ug/L		10/13/18 14:15	10/16/18 01:41	1
Iron	560		100	22	ug/L		10/13/18 14:15	10/16/18 01:41	1
Magnesium	51000		200	11	ug/L		10/13/18 14:15	10/16/18 01:41	1
Potassium	3200		3000	240	ug/L		10/13/18 14:15	10/16/18 01:41	1
Sodium	50000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 01:41	1

Client Sample ID: MW-109D-20181006
Date Collected: 10/06/18 09:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	110000		200	35	ug/L		10/13/18 14:15	10/16/18 01:45	1
Iron	40	J	100	22	ug/L		10/13/18 14:15	10/16/18 01:45	1
Magnesium	44000		200	11	ug/L		10/13/18 14:15	10/16/18 01:45	1
Potassium	3300		3000	240	ug/L		10/13/18 14:15	10/16/18 01:45	1
Sodium	59000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 01:45	1

Client Sample ID: MW-115D-20181008
Date Collected: 10/08/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-23
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	76000		200	35	ug/L		10/13/18 14:15	10/16/18 01:48	1
Iron	ND		100	22	ug/L		10/13/18 14:15	10/16/18 01:48	1

Method: 6010C - Metals (ICP) (Continued)

Client Sample ID: MW-115D-20181008
Date Collected: 10/08/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-23
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	28000		200	11	ug/L		10/13/18 14:15	10/16/18 01:48	1
Potassium	7600		3000	240	ug/L		10/13/18 14:15	10/16/18 01:48	1
Sodium	46000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 01:48	1

Client Sample ID: MW-6A-20181009
Date Collected: 10/09/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-24
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	74000		200	35	ug/L		10/13/18 14:15	10/16/18 01:52	1
Iron	310		100	22	ug/L		10/13/18 14:15	10/16/18 01:52	1
Magnesium	42000		200	11	ug/L		10/13/18 14:15	10/16/18 01:52	1
Potassium	2200	J	3000	240	ug/L		10/13/18 14:15	10/16/18 01:52	1
Sodium	51000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 01:52	1

Client Sample ID: MW-4A-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-25
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	87000		200	35	ug/L		10/13/18 14:15	10/16/18 01:55	1
Iron	210		100	22	ug/L		10/13/18 14:15	10/16/18 01:55	1
Magnesium	19000		200	11	ug/L		10/13/18 14:15	10/16/18 01:55	1
Potassium	3700		3000	240	ug/L		10/13/18 14:15	10/16/18 01:55	1
Sodium	63000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 01:55	1

Client Sample ID: MW-4AQ-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-26
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	89000		200	35	ug/L		10/13/18 14:15	10/16/18 02:13	1
Iron	240		100	22	ug/L		10/13/18 14:15	10/16/18 02:13	1
Magnesium	19000		200	11	ug/L		10/13/18 14:15	10/16/18 02:13	1
Potassium	3800		3000	240	ug/L		10/13/18 14:15	10/16/18 02:13	1
Sodium	63000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 02:13	1

Client Sample ID: MW-3A-20181008
Date Collected: 10/08/18 14:35
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-34
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	55000		200	35	ug/L		10/13/18 14:15	10/16/18 02:16	1
Iron	63	J	100	22	ug/L		10/13/18 14:15	10/16/18 02:16	1
Magnesium	28000		200	11	ug/L		10/13/18 14:15	10/16/18 02:16	1
Potassium	2600	J	3000	240	ug/L		10/13/18 14:15	10/16/18 02:16	1
Sodium	41000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 02:16	1

Client Sample ID: MW-103S-20181009
Date Collected: 10/09/18 10:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-35
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	82000		200	35	ug/L		10/13/18 14:15	10/16/18 02:20	1
Iron	ND		100	22	ug/L		10/13/18 14:15	10/16/18 02:20	1
Magnesium	30000		200	11	ug/L		10/13/18 14:15	10/16/18 02:20	1

Method: 6010C - Metals (ICP) (Continued)

Client Sample ID: MW-103S-20181009
Date Collected: 10/09/18 10:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-35
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	6300		3000	240	ug/L		10/13/18 14:15	10/16/18 02:20	1
Sodium	41000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 02:20	1

Client Sample ID: MW-103D-20181009
Date Collected: 10/09/18 14:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-36
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	39000		200	35	ug/L		10/13/18 14:15	10/16/18 02:23	1
Iron	200		100	22	ug/L		10/13/18 14:15	10/16/18 02:23	1
Magnesium	35000		200	11	ug/L		10/13/18 14:15	10/16/18 02:23	1
Potassium	5100		3000	240	ug/L		10/13/18 14:15	10/16/18 02:23	1
Sodium	59000	B ^	1000	120	ug/L		10/13/18 14:15	10/16/18 02:23	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.61	J ^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 19:07	1
Arsenic	0.68	J	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 19:07	1
Barium	140		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 19:07	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 19:07	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 19:07	1
Chromium	0.64	J	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:07	1
Co	ND		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 19:07	1
Copper	0.57	J	2.0	0.56	ug/L		10/13/18 08:30	10/14/18 19:07	1
Lead	ND		1.0	0.18	ug/L		10/13/18 08:30	10/14/18 19:07	1
Manganese	0.35	J	1.0	0.31	ug/L		10/13/18 08:30	10/14/18 19:07	1
Nickel	ND		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 19:07	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 19:07	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 19:07	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 19:07	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 19:07	1
Vanadium	0.74	J	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:07	1
Zinc	3.5	J B	10	2.0	ug/L		10/13/18 08:30	10/14/18 19:07	1

Client Sample ID: MW-112M-20181005
Date Collected: 10/05/18 15:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.57	J ^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 19:34	1
Arsenic	0.53	J	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 19:34	1
Barium	120		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 19:34	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 19:34	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 19:34	1
Chromium	1.8	J	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:34	1
Co	0.17	J	1.0	0.054	ug/L		10/13/18 08:30	10/14/18 19:34	1
Copper	0.94	J	2.0	0.56	ug/L		10/13/18 08:30	10/14/18 19:34	1
Lead	0.50	J	1.0	0.18	ug/L		10/13/18 08:30	10/14/18 19:34	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-112M-20181005
Date Collected: 10/05/18 15:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**13**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 19:34	1
Nickel	**0.56**	**J**	2.0	0.30	ug/L		10/13/18 08:30	10/14/18 19:34	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 19:34	1
Silver	**0.095**	**J**	5.0	0.033	ug/L		10/13/18 08:30	10/14/18 19:34	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 19:34	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 19:34	1
Vanadium	**0.73**	**J**	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:34	1
Zinc	**5.1**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 19:34	1

Client Sample ID: MW-112MQ-20181005
Date Collected: 10/05/18 15:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 19:38	1
Arsenic	**0.46**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 19:38	1
Barium	**110**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 19:38	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 19:38	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 19:38	1
Chromium	**1.7**	**J**	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:38	1
Co	**0.073**	**J**	1.0	0.054	ug/L		10/13/18 08:30	10/14/18 19:38	1
Copper	ND		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 19:38	1
Lead	**0.21**	**J**	1.0	0.18	ug/L		10/13/18 08:30	10/14/18 19:38	1
Manganese	**4.6**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 19:38	1
Nickel	**0.33**	**J**	2.0	0.30	ug/L		10/13/18 08:30	10/14/18 19:38	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 19:38	1
Silver	**0.055**	**J**	5.0	0.033	ug/L		10/13/18 08:30	10/14/18 19:38	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 19:38	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 19:38	1
Vanadium	ND		5.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:38	1
Zinc	**3.8**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 19:38	1

Client Sample ID: RW-4-20181007
Date Collected: 10/07/18 12:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 19:42	1
Arsenic	**0.65**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 19:42	1
Barium	**250**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 19:42	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 19:42	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 19:42	1
Chromium	**2.5**		2.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:42	1
Co	**0.13**	**J**	1.0	0.054	ug/L		10/13/18 08:30	10/14/18 19:42	1
Copper	**13**		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 19:42	1
Lead	**2.3**		1.0	0.18	ug/L		10/13/18 08:30	10/14/18 19:42	1
Manganese	**4.8**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 19:42	1
Nickel	**3.7**		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 19:42	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 19:42	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 19:42	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 19:42	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 19:42	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: RW-4-20181007
Date Collected: 10/07/18 12:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	**0.61**	**J**	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:42	1
Zinc	**120**	**B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 19:42	1

Client Sample ID: MW-121-20181007
Date Collected: 10/07/18 10:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 19:46	1
Arsenic	**9.0**		5.0	0.33	ug/L		10/13/18 08:30	10/14/18 19:46	1
Barium	**1500**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 19:46	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 19:46	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 19:46	1
Chromium	**2.3**		2.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:46	1
Co	**18**		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 19:46	1
Copper	**2.5**		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 19:46	1
Lead	**2.1**		1.0	0.18	ug/L		10/13/18 08:30	10/14/18 19:46	1
Manganese	**2200**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 19:46	1
Nickel	**60**		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 19:46	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 19:46	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 19:46	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 19:46	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 19:46	1
Vanadium	**2.7**	**J**	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:46	1
Zinc	**11**	**B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 19:46	1

Client Sample ID: RW-7773P-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 19:50	1
Arsenic	**1.5**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 19:50	1
Barium	**110**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 19:50	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 19:50	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 19:50	1
Chromium	**0.70**	**J**	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:50	1
Co	ND		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 19:50	1
Copper	**1.9**	**J**	2.0	0.56	ug/L		10/13/18 08:30	10/14/18 19:50	1
Lead	**0.87**	**J**	1.0	0.18	ug/L		10/13/18 08:30	10/14/18 19:50	1
Manganese	**2.6**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 19:50	1
Nickel	ND		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 19:50	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 19:50	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 19:50	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 19:50	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 19:50	1
Vanadium	**0.81**	**J**	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:50	1
Zinc	**210**	**B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 19:50	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: RW-3-20181007
Date Collected: 10/07/18 10:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 19:53	1
Arsenic	**0.57**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 19:53	1
Barium	**240**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 19:53	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 19:53	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 19:53	1
Chromium	**0.52**	**J**	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:53	1
Co	**2.7**		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 19:53	1
Copper	**3.8**		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 19:53	1
Lead	**0.50**	**J**	1.0	0.18	ug/L		10/13/18 08:30	10/14/18 19:53	1
Manganese	**1300**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 19:53	1
Nickel	**15**		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 19:53	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 19:53	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 19:53	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 19:53	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 19:53	1
Vanadium	ND		5.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:53	1
Zinc	**94**	**B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 19:53	1

Client Sample ID: MW-7-20181008
Date Collected: 10/08/18 09:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 19:57	1
Arsenic	**0.57**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 19:57	1
Barium	**360**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 19:57	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 19:57	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 19:57	1
Chromium	**0.80**	**J**	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:57	1
Co	ND		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 19:57	1
Copper	**0.80**	**J**	2.0	0.56	ug/L		10/13/18 08:30	10/14/18 19:57	1
Lead	ND		1.0	0.18	ug/L		10/13/18 08:30	10/14/18 19:57	1
Manganese	**1.7**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 19:57	1
Nickel	**0.49**	**J**	2.0	0.30	ug/L		10/13/18 08:30	10/14/18 19:57	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 19:57	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 19:57	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 19:57	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 19:57	1
Vanadium	**0.51**	**J**	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 19:57	1
Zinc	**3.9**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 19:57	1

Client Sample ID: MW-106D-20181008
Date Collected: 10/08/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 20:01	1
Arsenic	**1.6**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 20:01	1
Barium	**110**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 20:01	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 20:01	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 20:01	1
Chromium	**0.83**	**J**	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:01	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-106D-20181008
Date Collected: 10/08/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Co	ND		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 20:01	1
Copper	ND		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 20:01	1
Lead	ND		1.0	0.18	ug/L		10/13/18 08:30	10/14/18 20:01	1
Manganese	ND		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 20:01	1
Nickel	ND		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 20:01	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 20:01	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 20:01	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 20:01	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 20:01	1
Vanadium	**1.1**	**J**	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:01	1
Zinc	**2.1**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 20:01	1

Client Sample ID: MW-112D-20181005
Date Collected: 10/05/18 13:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 20:05	1
Arsenic	**0.93**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 20:05	1
Barium	**110**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 20:05	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 20:05	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 20:05	1
Chromium	**1.0**	**J**	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:05	1
Co	ND		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 20:05	1
Copper	**0.69**	**J**	2.0	0.56	ug/L		10/13/18 08:30	10/14/18 20:05	1
Lead	**0.22**	**J**	1.0	0.18	ug/L		10/13/18 08:30	10/14/18 20:05	1
Manganese	**3.6**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 20:05	1
Nickel	ND		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 20:05	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 20:05	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 20:05	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 20:05	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 20:05	1
Vanadium	**0.60**	**J**	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:05	1
Zinc	**4.1**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 20:05	1

Client Sample ID: MW-4-20181005
Date Collected: 10/05/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 20:17	1
Arsenic	**2.4**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 20:17	1
Barium	**150**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 20:17	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 20:17	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 20:17	1
Chromium	**2.5**		2.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:17	1
Co	**2.8**		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 20:17	1
Copper	ND		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 20:17	1
Lead	**0.20**	**J**	1.0	0.18	ug/L		10/13/18 08:30	10/14/18 20:17	1
Manganese	**280**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 20:17	1
Nickel	**13**		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 20:17	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 20:17	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-4-20181005
Date Collected: 10/05/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 20:17	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 20:17	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 20:17	1
Vanadium	**1.2**	**J**	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:17	1
Zinc	**5.8**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 20:17	1

Client Sample ID: MW-109D-20181006
Date Collected: 10/06/18 09:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 20:20	1
Arsenic	**0.62**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 20:20	1
Barium	**140**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 20:20	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 20:20	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 20:20	1
Chromium	**0.70**	**J**	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:20	1
Co	ND		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 20:20	1
Copper	ND		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 20:20	1
Lead	ND		1.0	0.18	ug/L		10/13/18 08:30	10/14/18 20:20	1
Manganese	**0.40**	**J**	1.0	0.31	ug/L		10/13/18 08:30	10/14/18 20:20	1
Nickel	ND		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 20:20	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 20:20	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 20:20	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 20:20	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 20:20	1
Vanadium	ND		5.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:20	1
Zinc	**3.0**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 20:20	1

Client Sample ID: MW-115D-20181008
Date Collected: 10/08/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-23
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 20:24	1
Arsenic	**1.9**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 20:24	1
Barium	**120**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 20:24	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 20:24	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 20:24	1
Chromium	**0.80**	**J**	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:24	1
Co	ND		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 20:24	1
Copper	ND		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 20:24	1
Lead	ND		1.0	0.18	ug/L		10/13/18 08:30	10/14/18 20:24	1
Manganese	**0.75**	**J**	1.0	0.31	ug/L		10/13/18 08:30	10/14/18 20:24	1
Nickel	ND		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 20:24	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 20:24	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 20:24	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 20:24	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 20:24	1
Vanadium	**1.1**	**J**	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:24	1
Zinc	**4.3**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 20:24	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: MW-6A-20181009
Date Collected: 10/09/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-24
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 20:28	1
Arsenic	**0.48**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 20:28	1
Barium	**210**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 20:28	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 20:28	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 20:28	1
Chromium	**1.1**	**J**	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:28	1
Co	**0.15**	**J**	1.0	0.054	ug/L		10/13/18 08:30	10/14/18 20:28	1
Copper	**0.68**	**J**	2.0	0.56	ug/L		10/13/18 08:30	10/14/18 20:28	1
Lead	**0.29**	**J**	1.0	0.18	ug/L		10/13/18 08:30	10/14/18 20:28	1
Manganese	**8.7**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 20:28	1
Nickel	**0.62**	**J**	2.0	0.30	ug/L		10/13/18 08:30	10/14/18 20:28	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 20:28	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 20:28	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 20:28	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 20:28	1
Vanadium	ND		5.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:28	1
Zinc	**5.7**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 20:28	1

Client Sample ID: MW-4A-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-25
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 20:32	1
Arsenic	**1.4**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 20:32	1
Barium	**190**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 20:32	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 20:32	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 20:32	1
Chromium	**0.91**	**J**	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:32	1
Co	**0.18**	**J**	1.0	0.054	ug/L		10/13/18 08:30	10/14/18 20:32	1
Copper	ND		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 20:32	1
Lead	**0.24**	**J**	1.0	0.18	ug/L		10/13/18 08:30	10/14/18 20:32	1
Manganese	**6.2**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 20:32	1
Nickel	**0.37**	**J**	2.0	0.30	ug/L		10/13/18 08:30	10/14/18 20:32	1
Selenium	**0.87**	**J**	5.0	0.70	ug/L		10/13/18 08:30	10/14/18 20:32	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 20:32	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 20:32	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 20:32	1
Vanadium	**1.0**	**J**	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:32	1
Zinc	**5.2**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 20:32	1

Client Sample ID: MW-4AQ-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-26
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 20:36	1
Arsenic	**1.4**	**J**	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 20:36	1
Barium	**190**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 20:36	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 20:36	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 20:36	1
Chromium	**0.91**	**J**	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:36	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-4AQ-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-26
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Co	0.13	J	1.0	0.054	ug/L		10/13/18 08:30	10/14/18 20:36	1
Copper	0.57	J	2.0	0.56	ug/L		10/13/18 08:30	10/14/18 20:36	1
Lead	ND		1.0	0.18	ug/L		10/13/18 08:30	10/14/18 20:36	1
Manganese	6.1		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 20:36	1
Nickel	0.45	J	2.0	0.30	ug/L		10/13/18 08:30	10/14/18 20:36	1
Selenium	0.92	J	5.0	0.70	ug/L		10/13/18 08:30	10/14/18 20:36	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 20:36	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 20:36	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 20:36	1
Vanadium	1.0	J	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:36	1
Zinc	3.7	J B	10	2.0	ug/L		10/13/18 08:30	10/14/18 20:36	1

Client Sample ID: MW-3A-20181008
Date Collected: 10/08/18 14:35
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-34
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 20:40	1
Arsenic	ND		5.0	0.33	ug/L		10/13/18 08:30	10/14/18 20:40	1
Barium	160		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 20:40	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 20:40	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 20:40	1
Chromium	0.53	J	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:40	1
Co	ND		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 20:40	1
Copper	0.66	J	2.0	0.56	ug/L		10/13/18 08:30	10/14/18 20:40	1
Lead	0.37	J	1.0	0.18	ug/L		10/13/18 08:30	10/14/18 20:40	1
Manganese	2.1		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 20:40	1
Nickel	ND		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 20:40	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 20:40	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 20:40	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 20:40	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 20:40	1
Vanadium	ND		5.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:40	1
Zinc	20	B	10	2.0	ug/L		10/13/18 08:30	10/14/18 20:40	1

Client Sample ID: MW-103S-20181009
Date Collected: 10/09/18 10:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-35
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 20:43	1
Arsenic	1.6	J	5.0	0.33	ug/L		10/13/18 08:30	10/14/18 20:43	1
Barium	120		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 20:43	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 20:43	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 20:43	1
Chromium	0.75	J	2.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:43	1
Co	ND		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 20:43	1
Copper	ND		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 20:43	1
Lead	ND		1.0	0.18	ug/L		10/13/18 08:30	10/14/18 20:43	1
Manganese	ND		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 20:43	1
Nickel	0.32	J	2.0	0.30	ug/L		10/13/18 08:30	10/14/18 20:43	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 20:43	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-103S-20181009
Date Collected: 10/09/18 10:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-35
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 20:43	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 20:43	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 20:43	1
Vanadium	**0.86**	**J**	5.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:43	1
Zinc	**3.3**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 20:43	1

Client Sample ID: MW-103D-20181009
Date Collected: 10/09/18 14:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-36
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 20:47	1
Arsenic	ND		5.0	0.33	ug/L		10/13/18 08:30	10/14/18 20:47	1
Barium	**78**		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 20:47	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 20:47	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 20:47	1
Chromium	**3.1**		2.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:47	1
Co	**3.4**		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 20:47	1
Copper	ND		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 20:47	1
Lead	**0.63**	**J**	1.0	0.18	ug/L		10/13/18 08:30	10/14/18 20:47	1
Manganese	**18**		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 20:47	1
Nickel	**22**		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 20:47	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 20:47	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 20:47	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 20:47	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 20:47	1
Vanadium	ND		5.0	0.50	ug/L		10/13/18 08:30	10/14/18 20:47	1
Zinc	**5.2**	**J B**	10	2.0	ug/L		10/13/18 08:30	10/14/18 20:47	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:10	1

Client Sample ID: MW-112M-20181005
Date Collected: 10/05/18 15:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:13	1

Client Sample ID: MW-112MQ-20181005
Date Collected: 10/05/18 15:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:19	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: RW-4-20181007 — **Lab Sample ID: 280-115307-8**
Date Collected: 10/07/18 12:40 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.032**	**J**	0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:22	1

Client Sample ID: MW-121-20181007 — **Lab Sample ID: 280-115307-9**
Date Collected: 10/07/18 10:15 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:24	1

Client Sample ID: RW-7773P-20181007 — **Lab Sample ID: 280-115307-10**
Date Collected: 10/07/18 16:05 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:26	1

Client Sample ID: RW-3-20181007 — **Lab Sample ID: 280-115307-11**
Date Collected: 10/07/18 10:45 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:28	1

Client Sample ID: MW-7-20181008 — **Lab Sample ID: 280-115307-12**
Date Collected: 10/08/18 09:50 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:30	1

Client Sample ID: MW-106D-20181008 — **Lab Sample ID: 280-115307-13**
Date Collected: 10/08/18 16:40 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:33	1

Client Sample ID: MW-112D-20181005 — **Lab Sample ID: 280-115307-14**
Date Collected: 10/05/18 13:50 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:35	1

Client Sample ID: MW-109D-20181006 — **Lab Sample ID: 280-115307-16**
Date Collected: 10/06/18 09:45 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:37	1

Client Sample ID: MW-115D-20181008 — **Lab Sample ID: 280-115307-23**
Date Collected: 10/08/18 13:05 — **Matrix: Water**
Date Received: 10/10/18 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:39	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-103S-20181009
Date Collected: 10/09/18 10:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-35
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:46	1

Client Sample ID: MW-103D-20181009
Date Collected: 10/09/18 14:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-36
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 19:48	1

General Chemistry

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.73**		0.10	0.019	mg/L			10/15/18 17:27	1
Chloride	**91**		3.0	0.25	mg/L			10/15/18 23:45	1
Sulfate	**110**		5.0	0.23	mg/L			10/15/18 23:45	1
Total Organic Carbon - Duplicates	**1.1**		1.0	0.16	mg/L			10/11/18 23:28	1
Alkalinity, Total	**280**		5.0	1.1	mg/L			10/11/18 16:23	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 14:03	1

Client Sample ID: MW-112M-20181005
Date Collected: 10/05/18 15:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.77**		0.10	0.019	mg/L			10/15/18 17:29	1
Chloride	**78**		3.0	0.25	mg/L			10/16/18 00:09	1
Sulfate	**67**		5.0	0.23	mg/L			10/16/18 00:09	1
Total Organic Carbon - Duplicates	**0.74**	**J**	1.0	0.16	mg/L			10/11/18 23:42	1
Alkalinity, Total	**340**		5.0	1.1	mg/L			10/11/18 16:34	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 14:05	1

Client Sample ID: MW-112MQ-20181005
Date Collected: 10/05/18 15:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.75**		0.10	0.019	mg/L			10/15/18 17:31	1
Chloride	**79**		3.0	0.25	mg/L			10/16/18 00:27	1
Sulfate	**66**		5.0	0.23	mg/L			10/16/18 00:27	1
Total Organic Carbon - Duplicates	**0.64**	**J**	1.0	0.16	mg/L			10/12/18 00:32	1
Alkalinity, Total	**330**		5.0	1.1	mg/L			10/11/18 16:43	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 14:14	1

Client Sample ID: RW-4-20181007
Date Collected: 10/07/18 12:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.60**		0.10	0.019	mg/L			10/15/18 17:33	1
Chloride	**160**		3.0	0.25	mg/L			10/16/18 00:46	1
Sulfate	**100**		5.0	0.23	mg/L			10/16/18 00:46	1
Total Organic Carbon - Duplicates	**1.8**		1.0	0.16	mg/L			10/12/18 00:51	1

General Chemistry (Continued)

Client Sample ID: RW-4-20181007
Date Collected: 10/07/18 12:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**400**		5.0	1.1	mg/L			10/11/18 16:53	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 11:18	10/18/18 14:46	1

Client Sample ID: MW-121-20181007
Date Collected: 10/07/18 10:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**1.4**		0.10	0.019	mg/L			10/15/18 17:47	1
Chloride	**460**		30	2.5	mg/L			10/16/18 02:01	10
Sulfate	**55**		5.0	0.23	mg/L			10/16/18 01:05	1
Total Organic Carbon - Duplicates	**16**		1.0	0.16	mg/L			10/12/18 01:10	1
Alkalinity, Total	**650**		5.0	1.1	mg/L			10/11/18 17:07	1
Cyanide, Total	ND		0.020	0.0040	mg/L		10/18/18 11:18	10/18/18 14:50	1

Client Sample ID: RW-7773P-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 11:18	10/18/18 14:52	1

Client Sample ID: RW-3-20181007
Date Collected: 10/07/18 10:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.43**		0.10	0.019	mg/L			10/15/18 17:49	1
Chloride	**170**		3.0	0.25	mg/L			10/16/18 02:20	1
Sulfate	**110**		5.0	0.23	mg/L			10/16/18 02:20	1
Total Organic Carbon - Duplicates	**2.3**		1.0	0.16	mg/L			10/12/18 01:30	1
Alkalinity, Total	**360**		5.0	1.1	mg/L			10/11/18 17:33	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 11:18	10/18/18 14:53	1

Client Sample ID: MW-7-20181008
Date Collected: 10/08/18 09:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**2.3**		0.10	0.019	mg/L			10/15/18 17:51	1
Chloride	**81**		3.0	0.25	mg/L			10/16/18 02:38	1
Sulfate	**20**		5.0	0.23	mg/L			10/16/18 02:38	1
Total Organic Carbon - Duplicates	**0.76**	**J**	1.0	0.16	mg/L			10/12/18 01:49	1
Alkalinity, Total	**210**		5.0	1.1	mg/L			10/11/18 17:41	1
Cyanide, Total	**0.0021**	**J**	0.010	0.0020	mg/L		10/19/18 09:01	10/19/18 18:29	1

Client Sample ID: MW-106D-20181008
Date Collected: 10/08/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**1.8**		0.10	0.019	mg/L			10/15/18 17:53	1
Chloride	**45**		3.0	0.25	mg/L			10/16/18 02:57	1
Sulfate	**42**		5.0	0.23	mg/L			10/16/18 02:57	1
Alkalinity, Total	**270**		5.0	1.1	mg/L			10/11/18 17:50	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/19/18 09:01	10/19/18 18:30	1

Client Sample ID: MW-112D-20181005
Date Collected: 10/05/18 13:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.1		0.10	0.019	mg/L			10/15/18 17:59	1
Chloride	82		3.0	0.25	mg/L			10/16/18 03:16	1
Sulfate	81		5.0	0.23	mg/L			10/16/18 03:16	1
Total Organic Carbon - Duplicates	1.2		1.0	0.16	mg/L			10/12/18 02:59	1
Alkalinity, Total	260		5.0	1.1	mg/L			10/11/18 17:59	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 14:15	1

Client Sample ID: MW-4-20181005
Date Collected: 10/05/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/15/18 18:05	1
Chloride	42		3.0	0.25	mg/L			10/16/18 03:35	1
Sulfate	18		5.0	0.23	mg/L			10/16/18 03:35	1
Alkalinity, Total	580		5.0	1.1	mg/L			10/11/18 18:18	1

Client Sample ID: MW-109D-20181006
Date Collected: 10/06/18 09:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.3		0.10	0.019	mg/L			10/15/18 18:19	1
Chloride	110		3.0	0.25	mg/L			10/16/18 03:53	1
Sulfate	110		5.0	0.23	mg/L			10/16/18 03:53	1
Total Organic Carbon - Duplicates	1.1		1.0	0.16	mg/L			10/12/18 04:34	1
Alkalinity, Total	310		5.0	1.1	mg/L			10/12/18 16:38	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 14:17	1

Client Sample ID: MW-115D-20181008
Date Collected: 10/08/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-23
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	2.1		0.10	0.019	mg/L			10/15/18 18:21	1
Chloride	48		3.0	0.25	mg/L			10/16/18 04:12	1
Sulfate	43		5.0	0.23	mg/L			10/16/18 04:12	1
Alkalinity, Total	300		5.0	1.1	mg/L			10/12/18 16:48	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/19/18 09:01	10/19/18 18:32	1

Client Sample ID: MW-6A-20181009
Date Collected: 10/09/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-24
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	4.9		0.10	0.019	mg/L			10/15/18 18:23	1
Chloride	150		3.0	0.25	mg/L			10/16/18 04:31	1
Sulfate	46		5.0	0.23	mg/L			10/16/18 04:31	1
Alkalinity, Total	190		5.0	1.1	mg/L			10/12/18 16:56	1

Client Sample ID: MW-4A-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-25
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	2.4		0.10	0.019	mg/L			10/15/18 18:25	1
Chloride	140		3.0	0.25	mg/L			10/16/18 04:49	1

General Chemistry (Continued)

Client Sample ID: MW-4A-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-25
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	51		5.0	0.23	mg/L			10/16/18 04:49	1
Alkalinity, Total	170		5.0	1.1	mg/L			10/12/18 17:04	1

Client Sample ID: MW-4AQ-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-26
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	2.4		0.10	0.019	mg/L			10/15/18 18:27	1
Chloride	140		3.0	0.25	mg/L			10/16/18 05:46	1
Sulfate	50		5.0	0.23	mg/L			10/16/18 05:46	1
Alkalinity, Total	180		5.0	1.1	mg/L			10/12/18 17:12	1

Client Sample ID: MW-3A-20181008
Date Collected: 10/08/18 14:35
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-34
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.0		0.10	0.019	mg/L			10/15/18 18:29	1
Chloride	57		3.0	0.25	mg/L			10/16/18 06:04	1
Sulfate	30		5.0	0.23	mg/L			10/16/18 06:04	1
Alkalinity, Total	230		5.0	1.1	mg/L			10/12/18 18:14	1

Client Sample ID: MW-103S-20181009
Date Collected: 10/09/18 10:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-35
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.8		0.10	0.019	mg/L			10/15/18 18:31	1
Chloride	63		3.0	0.25	mg/L			10/16/18 07:19	1
Sulfate	51		5.0	0.23	mg/L			10/16/18 07:19	1
Total Organic Carbon - Duplicates	1.1		1.0	0.16	mg/L			10/12/18 04:49	1
Alkalinity, Total	280		5.0	1.1	mg/L			10/12/18 18:33	1
Cyanide, Total	0.0060	J	0.010	0.0020	mg/L		10/22/18 12:42	10/22/18 18:26	1

Client Sample ID: MW-103D-20181009
Date Collected: 10/09/18 14:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-36
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.10		0.10	0.019	mg/L			10/15/18 18:33	1
Chloride	59		3.0	0.25	mg/L			10/16/18 07:38	1
Sulfate	32		5.0	0.23	mg/L			10/16/18 07:38	1
Total Organic Carbon - Duplicates	0.45	J	1.0	0.16	mg/L			10/12/18 05:07	1
Alkalinity, Total	250		5.0	1.1	mg/L			10/12/18 18:41	1
Cyanide, Total	0.086		0.010	0.0020	mg/L		10/22/18 12:42	10/22/18 18:35	1

Surrogate Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(70-127)	(80-125)	(78-120)	(77-120)
280-115307-6	MW-112M-20181005	106	97	113	104
280-115307-7	MW-112MQ-20181005	111	98	104	105
280-115307-11	RW-3-20181007	114	96	91	118
280-115307-11 - DL	RW-3-20181007	92	87	81	97
280-115307-12	MW-7-20181008	118	97	87	118
280-115307-13	MW-106D-20181008	116	96	87	120
280-115307-14	MW-112D-20181005	119	96	87	120
280-115307-14 - DL	MW-112D-20181005	98	88	80	98
280-115307-15	MW-4-20181005	98	84	83	95
280-115307-16	MW-109D-20181006	92	90	82	95
280-115307-18	MW-109S-20181006	97	86	82	98
280-115307-18 - DL	MW-109S-20181006	89	88	81	96
280-115307-19	RW-9-20181007	95	83	79	103
280-115307-19 - DL	RW-9-20181007	97	87	80	99
280-115307-20	EB-0-VOC-20181006	114	100	105	107
280-115307-21	EB-2-VOC-20181006	114	102	105	112
280-115307-22	TB-7-VOC-20181009	122	97	86	118
280-115307-23	MW-115D-20181008	124	95	85	123 X
280-115307-24	MW-6A-20181009	128 X	97	84	124 X
280-115307-25	MW-4A-20181005	99	86	79	102
280-115307-26	MW-4AQ-20181005	126	94	85	124 X
280-115307-27	EB-4-VOC-20181008	114	100	106	105
280-115307-29	RW-17-20181007	98	86	82	103
280-115307-29 - DL	RW-17-20181007	93	87	82	101
280-115307-30	EB-3-VOC-100718	98	87	81	102
280-115307-33	RW-10-20181007	90	88	79	92
280-115307-33 - DL	RW-10-20181007	93	89	84	93
280-115307-34	MW-3A-20181008	112	103	97	117
280-115307-35	MW-103S-20181009	108	101	97	112
280-115307-36	MW-103D-20181009	110	102	98	117
280-115307-37	TB-9-VOC-20181009	112	100	104	106
LCS 280-433054/4	Lab Control Sample	105	99	99	100
LCS 280-433054/6	Lab Control Sample	103	99	99	99
LCS 280-433352/32	Lab Control Sample	104	97	103	103
LCS 280-433352/4	Lab Control Sample	93	109	98	100
LCS 280-433383/17	Lab Control Sample	85	86	93	86
LCS 280-433383/4	Lab Control Sample	98	100	90	91
LCS 280-433542/30	Lab Control Sample	88	87	92	86
LCS 280-433542/4	Lab Control Sample	90	99	91	88
LCS 280-434030/4	Lab Control Sample	113	105	99	115
LCS 280-434030/6	Lab Control Sample	107	99	95	114
LCSD 280-433054/7	Lab Control Sample Dup	105	101	100	102
LCSD 280-434030/5	Lab Control Sample Dup	111	101	97	112
LCSD 280-434030/7	Lab Control Sample Dup	109	98	97	116
MB 280-433054/8	Method Blank	107	100	101	100
MB 280-433352/6	Method Blank	102	99	91	106
MB 280-433383/6	Method Blank	96	88	84	94
MB 280-433542/6	Method Blank	96	88	82	95
MB 280-434030/8	Method Blank	113	102	100	119

Surrogate Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-433054/8
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	1.99	J	10	1.9	ug/L			10/12/18 08:42	1
Acetonitrile	ND		30	9.6	ug/L			10/12/18 08:42	1
Acrolein	ND		20	2.8	ug/L			10/12/18 08:42	1
Acrylonitrile	ND		20	1.4	ug/L			10/12/18 08:42	1
Benzene	ND		1.0	0.16	ug/L			10/12/18 08:42	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/12/18 08:42	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/12/18 08:42	1
Bromoform	ND		1.0	0.19	ug/L			10/12/18 08:42	1
Bromomethane	ND		2.0	0.21	ug/L			10/12/18 08:42	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/12/18 08:42	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/12/18 08:42	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/12/18 08:42	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/12/18 08:42	1
Chloroprene	ND		1.0	0.21	ug/L			10/12/18 08:42	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/12/18 08:42	1
Chloroethane	ND		2.0	0.41	ug/L			10/12/18 08:42	1
Chloroform	ND		1.0	0.16	ug/L			10/12/18 08:42	1
Chloromethane	ND		2.0	0.30	ug/L			10/12/18 08:42	1
Allyl chloride	ND		2.0	0.17	ug/L			10/12/18 08:42	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/12/18 08:42	1
Dibromomethane	ND		1.0	0.17	ug/L			10/12/18 08:42	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/12/18 08:42	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/12/18 08:42	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/12/18 08:42	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/12/18 08:42	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/12/18 08:42	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/12/18 08:42	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/12/18 08:42	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 08:42	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/12/18 08:42	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/12/18 08:42	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 08:42	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/12/18 08:42	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/12/18 08:42	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/12/18 08:42	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/12/18 08:42	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/12/18 08:42	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/12/18 08:42	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/12/18 08:42	1
2-Hexanone	ND		5.0	1.7	ug/L			10/12/18 08:42	1
Iodomethane	ND		1.0	0.23	ug/L			10/12/18 08:42	1
Isobutyl alcohol	ND		110	37	ug/L			10/12/18 08:42	1
Methacrylonitrile	ND		10	1.6	ug/L			10/12/18 08:42	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/12/18 08:42	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/12/18 08:42	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/12/18 08:42	1
Propionitrile	ND		20	3.7	ug/L			10/12/18 08:42	1
Styrene	ND		1.0	0.17	ug/L			10/12/18 08:42	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433054/8
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 08:42	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/12/18 08:42	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/12/18 08:42	1
Toluene	ND		1.0	0.17	ug/L			10/12/18 08:42	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/12/18 08:42	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/12/18 08:42	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/12/18 08:42	1
Trichloroethene	ND		1.0	0.16	ug/L			10/12/18 08:42	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/12/18 08:42	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/12/18 08:42	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/12/18 08:42	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/12/18 08:42	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/12/18 08:42	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/12/18 08:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 127*		*10/12/18 08:42*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*10/12/18 08:42*	*1*
4-Bromofluorobenzene (Surr)	*101*		*78 - 120*		*10/12/18 08:42*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*10/12/18 08:42*	*1*

Lab Sample ID: LCS 280-433054/4
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	23.0		ug/L		115	39 - 156
Acrolein	50.0	52.1		ug/L		104	36 - 147
Acrylonitrile	50.0	50.4		ug/L		101	56 - 135
Benzene	5.00	4.60		ug/L		92	65 - 135
Chlorobromomethane	5.00	5.22		ug/L		104	65 - 135
Dichlorobromomethane	5.00	5.36		ug/L		107	65 - 135
Bromoform	5.00	5.98		ug/L		120	62 - 135
Bromomethane	5.00	5.33		ug/L		107	45 - 135
2-Butanone (MEK)	20.0	23.2		ug/L		116	44 - 177
Carbon disulfide	5.00	5.43		ug/L		109	55 - 143
Carbon tetrachloride	5.00	5.23		ug/L		105	65 - 135
Chlorobenzene	5.00	5.02		ug/L		100	65 - 135
Chlorodibromomethane	5.00	5.73		ug/L		115	65 - 135
Chloroethane	5.00	5.56		ug/L		111	46 - 136
Chloroform	5.00	4.75		ug/L		95	65 - 135
Chloromethane	5.00	5.25		ug/L		105	34 - 145
Allyl chloride	5.00	5.25		ug/L		105	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	5.13		ug/L		103	57 - 135
Dibromomethane	5.00	5.01		ug/L		100	65 - 135
1,2-Dichlorobenzene	5.00	5.22		ug/L		104	65 - 135
1,3-Dichlorobenzene	5.00	5.13		ug/L		103	65 - 135
1,4-Dichlorobenzene	5.00	4.86		ug/L		97	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433054/4
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
trans-1,4-Dichloro-2-butene	5.00	5.63		ug/L		113	53 - 135
Dichlorodifluoromethane	5.00	4.93		ug/L		99	43 - 142
1,1-Dichloroethane	5.00	4.72		ug/L		94	65 - 135
1,2-Dichloroethane	5.00	4.99		ug/L		100	65 - 135
cis-1,2-Dichloroethene	5.00	4.97		ug/L		99	65 - 135
trans-1,2-Dichloroethene	5.00	5.16		ug/L		103	65 - 135
1,1-Dichloroethene	5.00	5.17		ug/L		103	65 - 136
1,2-Dichloropropane	5.00	4.92		ug/L		98	64 - 135
1,3-Dichloropropane	5.00	5.09		ug/L		102	64 - 135
2,2-Dichloropropane	5.00	4.70		ug/L		94	65 - 135
cis-1,3-Dichloropropene	5.00	5.19		ug/L		104	65 - 135
trans-1,3-Dichloropropene	5.00	5.14		ug/L		103	65 - 135
1,1-Dichloropropene	5.00	4.60		ug/L		92	65 - 135
Ethylbenzene	5.00	4.80		ug/L		96	65 - 135
Ethyl methacrylate	5.00	4.60		ug/L		92	50 - 135
2-Hexanone	20.0	19.1		ug/L		95	57 - 139
Iodomethane	5.00	5.26		ug/L		105	65 - 142
Isobutyl alcohol	125	119		ug/L		96	55 - 135
Methylene Chloride	5.00	5.35		ug/L		107	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	20.2		ug/L		101	60 - 150
Styrene	5.00	4.73		ug/L		95	65 - 135
1,1,1,2-Tetrachloroethane	5.00	5.43		ug/L		109	65 - 135
1,1,2,2-Tetrachloroethane	5.00	5.14		ug/L		103	58 - 135
Tetrachloroethene	5.00	5.09		ug/L		102	65 - 135
Toluene	5.00	4.71		ug/L		94	65 - 135
1,2,4-Trichlorobenzene	5.00	5.20		ug/L		104	58 - 135
1,1,1-Trichloroethane	5.00	4.76		ug/L		95	65 - 135
1,1,2-Trichloroethane	5.00	5.27		ug/L		105	64 - 135
Trichloroethene	5.00	4.94		ug/L		99	65 - 135
Trichlorofluoromethane	5.00	5.02		ug/L		100	53 - 137
1,2,3-Trichloropropane	5.00	5.14		ug/L		103	65 - 135
Vinyl acetate	10.0	10.2		ug/L		102	11 - 187
Vinyl chloride	5.00	5.26		ug/L		105	40 - 137
Xylenes, Total	10.0	9.70		ug/L		97	65 - 135
1,2-Dibromoethane	5.00	5.07		ug/L		101	65 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*
Toluene-d8 (Surr)	*99*		*80 - 125*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*
Dibromofluoromethane (Surr)	*100*		*77 - 120*

Lab Sample ID: LCS 280-433054/6
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	50.0	50.6		ug/L		101	50 - 150

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433054/6
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloroprene			5.00	4.90		ug/L		98	50 - 150		
Methacrylonitrile			50.0	50.9		ug/L		102	50 - 150		
Methyl methacrylate			10.0	14.0		ug/L		140	50 - 150		
Propionitrile			50.0	63.6		ug/L		127	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 127*
Toluene-d8 (Surr)	*99*		*80 - 125*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*
Dibromofluoromethane (Surr)	*99*		*77 - 120*

Lab Sample ID: LCSD 280-433054/7
Matrix: Water
Analysis Batch: 433054

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetonitrile			50.0	57.4		ug/L		115	50 - 150	NaN	30
Chloroprene			5.00	4.99		ug/L		100	50 - 150	NaN	30
Methacrylonitrile			50.0	55.0		ug/L		110	50 - 150	NaN	30
Methyl methacrylate			10.0	15.5	*	ug/L		155	50 - 150	NaN	30
Propionitrile			50.0	65.3		ug/L		131	50 - 150	NaN	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*
Toluene-d8 (Surr)	*101*		*80 - 125*
4-Bromofluorobenzene (Surr)	*100*		*78 - 120*
Dibromofluoromethane (Surr)	*102*		*77 - 120*

Lab Sample ID: MB 280-433352/6
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/14/18 11:53	1
Acetonitrile	ND		30	9.6	ug/L			10/14/18 11:53	1
Acrolein	ND		20	2.8	ug/L			10/14/18 11:53	1
Acrylonitrile	ND		20	1.4	ug/L			10/14/18 11:53	1
Benzene	ND		1.0	0.16	ug/L			10/14/18 11:53	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/14/18 11:53	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/14/18 11:53	1
Bromoform	ND		1.0	0.19	ug/L			10/14/18 11:53	1
Bromomethane	ND		2.0	0.21	ug/L			10/14/18 11:53	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/14/18 11:53	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/14/18 11:53	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/14/18 11:53	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/14/18 11:53	1
Chloroprene	ND		1.0	0.21	ug/L			10/14/18 11:53	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/14/18 11:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433352/6
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		2.0	0.41	ug/L			10/14/18 11:53	1
Chloroform	ND		1.0	0.16	ug/L			10/14/18 11:53	1
Chloromethane	ND		2.0	0.30	ug/L			10/14/18 11:53	1
Allyl chloride	ND		2.0	0.17	ug/L			10/14/18 11:53	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/14/18 11:53	1
Dibromomethane	ND		1.0	0.17	ug/L			10/14/18 11:53	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/14/18 11:53	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/14/18 11:53	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/14/18 11:53	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/14/18 11:53	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/14/18 11:53	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/14/18 11:53	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/14/18 11:53	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 11:53	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/14/18 11:53	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/14/18 11:53	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 11:53	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/14/18 11:53	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/14/18 11:53	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/14/18 11:53	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/14/18 11:53	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/14/18 11:53	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/14/18 11:53	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/14/18 11:53	1
2-Hexanone	ND		5.0	1.7	ug/L			10/14/18 11:53	1
Iodomethane	ND		1.0	0.23	ug/L			10/14/18 11:53	1
Isobutyl alcohol	ND		110	37	ug/L			10/14/18 11:53	1
Methacrylonitrile	ND		10	1.6	ug/L			10/14/18 11:53	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/14/18 11:53	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/14/18 11:53	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/14/18 11:53	1
Propionitrile	ND		20	3.7	ug/L			10/14/18 11:53	1
Styrene	ND		1.0	0.17	ug/L			10/14/18 11:53	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 11:53	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/14/18 11:53	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/14/18 11:53	1
Toluene	ND		1.0	0.17	ug/L			10/14/18 11:53	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/14/18 11:53	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/14/18 11:53	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/14/18 11:53	1
Trichloroethene	ND		1.0	0.16	ug/L			10/14/18 11:53	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/14/18 11:53	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/14/18 11:53	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/14/18 11:53	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/14/18 11:53	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/14/18 11:53	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/14/18 11:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433352/6
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 127		10/14/18 11:53	1
Toluene-d8 (Surr)	99		80 - 125		10/14/18 11:53	1
4-Bromofluorobenzene (Surr)	91		78 - 120		10/14/18 11:53	1
Dibromofluoromethane (Surr)	106		77 - 120		10/14/18 11:53	1

Lab Sample ID: LCS 280-433352/32
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	80.0	71.8		ug/L		90	50 - 150
Chloroprene	8.00	7.26		ug/L		91	50 - 150
Methacrylonitrile	80.0	83.9		ug/L		105	50 - 150
Methyl methacrylate	16.0	12.1		ug/L		76	50 - 150
Propionitrile	80.0	80.8		ug/L		101	50 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	104		70 - 127
Toluene-d8 (Surr)	97		80 - 125
4-Bromofluorobenzene (Surr)	103		78 - 120
Dibromofluoromethane (Surr)	103		77 - 120

Lab Sample ID: LCS 280-433352/4
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	17.3		ug/L		87	39 - 156
Acrolein	50.0	51.8		ug/L		104	36 - 147
Acrylonitrile	50.0	53.5		ug/L		107	56 - 135
Benzene	5.00	4.70		ug/L		94	65 - 135
Chlorobromomethane	5.00	4.45		ug/L		89	65 - 135
Dichlorobromomethane	5.00	4.43		ug/L		89	65 - 135
Bromoform	5.00	4.07		ug/L		81	62 - 135
Bromomethane	5.00	5.11		ug/L		102	45 - 135
2-Butanone (MEK)	20.0	13.6		ug/L		68	44 - 177
Carbon disulfide	5.00	5.26		ug/L		105	55 - 143
Carbon tetrachloride	5.00	4.99		ug/L		100	65 - 135
Chlorobenzene	5.00	4.70		ug/L		94	65 - 135
Chlorodibromomethane	5.00	4.41		ug/L		88	65 - 135
Chloroethane	5.00	5.26		ug/L		105	46 - 136
Chloroform	5.00	4.48		ug/L		90	65 - 135
Chloromethane	5.00	4.84		ug/L		97	34 - 145
Allyl chloride	5.00	4.91		ug/L		98	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	4.67	J	ug/L		93	57 - 135
Dibromomethane	5.00	4.16		ug/L		83	65 - 135
1,2-Dichlorobenzene	5.00	4.60		ug/L		92	65 - 135
1,3-Dichlorobenzene	5.00	4.73		ug/L		95	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433352/4
Matrix: Water
Analysis Batch: 433352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	5.00	4.48		ug/L		90	65 - 135
trans-1,4-Dichloro-2-butene	5.00	4.56		ug/L		91	53 - 135
Dichlorodifluoromethane	5.00	4.65		ug/L		93	43 - 142
1,1-Dichloroethane	5.00	4.69		ug/L		94	65 - 135
1,2-Dichloroethane	5.00	4.27		ug/L		85	65 - 135
cis-1,2-Dichloroethene	5.00	4.41		ug/L		88	65 - 135
trans-1,2-Dichloroethene	5.00	5.34		ug/L		107	65 - 135
1,1-Dichloroethene	5.00	5.30		ug/L		106	65 - 136
1,2-Dichloropropane	5.00	4.37		ug/L		87	64 - 135
1,3-Dichloropropane	5.00	4.29		ug/L		86	64 - 135
2,2-Dichloropropane	5.00	4.73		ug/L		95	65 - 135
cis-1,3-Dichloropropene	5.00	3.74		ug/L		75	65 - 135
trans-1,3-Dichloropropene	5.00	3.83		ug/L		77	65 - 135
1,1-Dichloropropene	5.00	4.70		ug/L		94	65 - 135
Ethylbenzene	5.00	4.85		ug/L		97	65 - 135
Ethyl methacrylate	5.00	3.67		ug/L		73	50 - 135
2-Hexanone	20.0	14.7		ug/L		73	57 - 139
Iodomethane	5.00	5.48		ug/L		110	65 - 142
Isobutyl alcohol	125	102	J	ug/L		82	55 - 135
Methylene Chloride	5.00	4.89		ug/L		98	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	14.0		ug/L		70	60 - 150
Styrene	5.00	4.40		ug/L		88	65 - 135
1,1,1,2-Tetrachloroethane	5.00	4.78		ug/L		96	65 - 135
1,1,2,2-Tetrachloroethane	5.00	3.90		ug/L		78	58 - 135
Tetrachloroethene	5.00	5.18		ug/L		104	65 - 135
Toluene	5.00	4.97		ug/L		99	65 - 135
1,2,4-Trichlorobenzene	5.00	4.23		ug/L		85	58 - 135
1,1,1-Trichloroethane	5.00	4.81		ug/L		96	65 - 135
1,1,2-Trichloroethane	5.00	4.35		ug/L		87	64 - 135
Trichloroethene	5.00	4.60		ug/L		92	65 - 135
Trichlorofluoromethane	5.00	5.37		ug/L		107	53 - 137
1,2,3-Trichloropropane	5.00	3.99		ug/L		80	65 - 135
Vinyl acetate	10.0	8.26		ug/L		83	11 - 187
Vinyl chloride	5.00	4.94		ug/L		99	40 - 137
Xylenes, Total	10.0	9.40		ug/L		94	65 - 135
1,2-Dibromoethane	5.00	4.18		ug/L		84	65 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 127*
Toluene-d8 (Surr)	*109*		*80 - 125*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*
Dibromofluoromethane (Surr)	*100*		*77 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433383/6
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/15/18 11:50	1
Acetonitrile	ND		30	9.6	ug/L			10/15/18 11:50	1
Acrolein	ND		20	2.8	ug/L			10/15/18 11:50	1
Acrylonitrile	ND		20	1.4	ug/L			10/15/18 11:50	1
Benzene	ND		1.0	0.16	ug/L			10/15/18 11:50	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/15/18 11:50	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/15/18 11:50	1
Bromoform	ND		1.0	0.19	ug/L			10/15/18 11:50	1
Bromomethane	ND		2.0	0.21	ug/L			10/15/18 11:50	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/15/18 11:50	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/15/18 11:50	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/15/18 11:50	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/15/18 11:50	1
Chloroprene	ND		1.0	0.21	ug/L			10/15/18 11:50	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/15/18 11:50	1
Chloroethane	ND		2.0	0.41	ug/L			10/15/18 11:50	1
Chloroform	ND		1.0	0.16	ug/L			10/15/18 11:50	1
Chloromethane	ND		2.0	0.30	ug/L			10/15/18 11:50	1
Allyl chloride	ND		2.0	0.17	ug/L			10/15/18 11:50	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/15/18 11:50	1
Dibromomethane	ND		1.0	0.17	ug/L			10/15/18 11:50	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/15/18 11:50	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/15/18 11:50	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/15/18 11:50	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/15/18 11:50	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/15/18 11:50	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/15/18 11:50	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/15/18 11:50	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 11:50	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 11:50	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/15/18 11:50	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 11:50	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/15/18 11:50	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 11:50	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/15/18 11:50	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/15/18 11:50	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/15/18 11:50	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/15/18 11:50	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/15/18 11:50	1
2-Hexanone	ND		5.0	1.7	ug/L			10/15/18 11:50	1
Iodomethane	ND		1.0	0.23	ug/L			10/15/18 11:50	1
Isobutyl alcohol	ND		110	37	ug/L			10/15/18 11:50	1
Methacrylonitrile	ND		10	1.6	ug/L			10/15/18 11:50	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/15/18 11:50	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/15/18 11:50	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/15/18 11:50	1
Propionitrile	ND		20	3.7	ug/L			10/15/18 11:50	1
Styrene	ND		1.0	0.17	ug/L			10/15/18 11:50	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433383/6
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 11:50	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 11:50	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/15/18 11:50	1
Toluene	ND		1.0	0.17	ug/L			10/15/18 11:50	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/15/18 11:50	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/15/18 11:50	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/15/18 11:50	1
Trichloroethene	ND		1.0	0.16	ug/L			10/15/18 11:50	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/15/18 11:50	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/15/18 11:50	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/15/18 11:50	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/15/18 11:50	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/15/18 11:50	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/15/18 11:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 127*		*10/15/18 11:50*	*1*
Toluene-d8 (Surr)	*88*		*80 - 125*		*10/15/18 11:50*	*1*
4-Bromofluorobenzene (Surr)	*84*		*78 - 120*		*10/15/18 11:50*	*1*
Dibromofluoromethane (Surr)	*94*		*77 - 120*		*10/15/18 11:50*	*1*

Lab Sample ID: LCS 280-433383/17
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	80.0	71.3		ug/L		89	50 - 150
Chloroprene	8.00	6.14		ug/L		77	50 - 150
Methacrylonitrile	80.0	81.1		ug/L		101	50 - 150
Methyl methacrylate	16.0	11.9		ug/L		74	50 - 150
Propionitrile	80.0	77.7		ug/L		97	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 127*
Toluene-d8 (Surr)	*86*		*80 - 125*
4-Bromofluorobenzene (Surr)	*93*		*78 - 120*
Dibromofluoromethane (Surr)	*86*		*77 - 120*

Lab Sample ID: LCS 280-433383/4
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	23.4		ug/L		117	39 - 156
Acrolein	50.0	59.1		ug/L		118	36 - 147
Acrylonitrile	50.0	64.8		ug/L		130	56 - 135
Benzene	5.00	4.58		ug/L		92	65 - 135
Chlorobromomethane	5.00	4.99		ug/L		100	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433383/4
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorobromomethane	5.00	4.94		ug/L		99	65 - 135
Bromoform	5.00	5.42		ug/L		108	62 - 135
Bromomethane	5.00	4.99		ug/L		100	45 - 135
2-Butanone (MEK)	20.0	17.5		ug/L		87	44 - 177
Carbon disulfide	5.00	4.84		ug/L		97	55 - 143
Carbon tetrachloride	5.00	4.80		ug/L		96	65 - 135
Chlorobenzene	5.00	4.63		ug/L		93	65 - 135
Chlorodibromomethane	5.00	5.24		ug/L		105	65 - 135
Chloroethane	5.00	4.80		ug/L		96	46 - 136
Chloroform	5.00	4.69		ug/L		94	65 - 135
Chloromethane	5.00	4.60		ug/L		92	34 - 145
Allyl chloride	5.00	4.66		ug/L		93	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	5.39		ug/L		108	57 - 135
Dibromomethane	5.00	5.17		ug/L		103	65 - 135
1,2-Dichlorobenzene	5.00	4.64		ug/L		93	65 - 135
1,3-Dichlorobenzene	5.00	4.38		ug/L		88	65 - 135
1,4-Dichlorobenzene	5.00	4.35		ug/L		87	65 - 135
trans-1,4-Dichloro-2-butene	5.00	5.14		ug/L		103	53 - 135
Dichlorodifluoromethane	5.00	4.57		ug/L		91	43 - 142
1,1-Dichloroethane	5.00	4.59		ug/L		92	65 - 135
1,2-Dichloroethane	5.00	5.15		ug/L		103	65 - 135
cis-1,2-Dichloroethene	5.00	4.42		ug/L		88	65 - 135
trans-1,2-Dichloroethene	5.00	5.30		ug/L		106	65 - 135
1,1-Dichloroethene	5.00	5.03		ug/L		101	65 - 136
1,2-Dichloropropane	5.00	4.80		ug/L		96	64 - 135
1,3-Dichloropropane	5.00	4.74		ug/L		95	64 - 135
2,2-Dichloropropane	5.00	4.41		ug/L		88	65 - 135
cis-1,3-Dichloropropene	5.00	3.67		ug/L		73	65 - 135
trans-1,3-Dichloropropene	5.00	4.07		ug/L		81	65 - 135
1,1-Dichloropropene	5.00	4.37		ug/L		87	65 - 135
Ethylbenzene	5.00	4.37		ug/L		87	65 - 135
Ethyl methacrylate	5.00	4.05		ug/L		81	50 - 135
2-Hexanone	20.0	16.9		ug/L		85	57 - 139
Iodomethane	5.00	5.57		ug/L		111	65 - 142
Isobutyl alcohol	125	102	J	ug/L		82	55 - 135
Methylene Chloride	5.00	5.22		ug/L		104	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	16.9		ug/L		85	60 - 150
Styrene	5.00	4.38		ug/L		88	65 - 135
1,1,1,2-Tetrachloroethane	5.00	4.78		ug/L		96	65 - 135
1,1,2,2-Tetrachloroethane	5.00	4.54		ug/L		91	58 - 135
Tetrachloroethene	5.00	4.71		ug/L		94	65 - 135
Toluene	5.00	4.86		ug/L		97	65 - 135
1,2,4-Trichlorobenzene	5.00	4.18		ug/L		84	58 - 135
1,1,1-Trichloroethane	5.00	4.67		ug/L		93	65 - 135
1,1,2-Trichloroethane	5.00	5.22		ug/L		104	64 - 135
Trichloroethene	5.00	4.36		ug/L		87	65 - 135
Trichlorofluoromethane	5.00	5.29		ug/L		106	53 - 137
1,2,3-Trichloropropane	5.00	4.66		ug/L		93	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433383/4
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl acetate	10.0	7.80		ug/L		78	11 - 187
Vinyl chloride	5.00	4.48		ug/L		90	40 - 137
Xylenes, Total	10.0	8.43		ug/L		84	65 - 135
1,2-Dibromoethane	5.00	4.99		ug/L		100	65 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 127*
Toluene-d8 (Surr)	*100*		*80 - 125*
4-Bromofluorobenzene (Surr)	*90*		*78 - 120*
Dibromofluoromethane (Surr)	*91*		*77 - 120*

Lab Sample ID: MB 280-433542/6
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/16/18 09:59	1
Acetonitrile	ND		30	9.6	ug/L			10/16/18 09:59	1
Acrolein	ND		20	2.8	ug/L			10/16/18 09:59	1
Acrylonitrile	ND		20	1.4	ug/L			10/16/18 09:59	1
Benzene	ND		1.0	0.16	ug/L			10/16/18 09:59	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/16/18 09:59	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/16/18 09:59	1
Bromoform	ND		1.0	0.19	ug/L			10/16/18 09:59	1
Bromomethane	ND		2.0	0.21	ug/L			10/16/18 09:59	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/16/18 09:59	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/16/18 09:59	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/16/18 09:59	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/16/18 09:59	1
Chloroprene	ND		1.0	0.21	ug/L			10/16/18 09:59	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/16/18 09:59	1
Chloroethane	ND		2.0	0.41	ug/L			10/16/18 09:59	1
Chloroform	ND		1.0	0.16	ug/L			10/16/18 09:59	1
Chloromethane	ND		2.0	0.30	ug/L			10/16/18 09:59	1
Allyl chloride	ND		2.0	0.17	ug/L			10/16/18 09:59	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/16/18 09:59	1
Dibromomethane	ND		1.0	0.17	ug/L			10/16/18 09:59	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/16/18 09:59	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/16/18 09:59	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/16/18 09:59	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/16/18 09:59	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/16/18 09:59	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/16/18 09:59	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/16/18 09:59	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 09:59	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 09:59	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/16/18 09:59	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 09:59	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433542/6
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/16/18 09:59	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 09:59	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/16/18 09:59	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/16/18 09:59	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/16/18 09:59	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/16/18 09:59	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/16/18 09:59	1
2-Hexanone	ND		5.0	1.7	ug/L			10/16/18 09:59	1
Iodomethane	ND		1.0	0.23	ug/L			10/16/18 09:59	1
Isobutyl alcohol	ND		110	37	ug/L			10/16/18 09:59	1
Methacrylonitrile	ND		10	1.6	ug/L			10/16/18 09:59	1
Methylene Chloride	0.433	J	2.0	0.32	ug/L			10/16/18 09:59	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/16/18 09:59	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/16/18 09:59	1
Propionitrile	ND		20	3.7	ug/L			10/16/18 09:59	1
Styrene	ND		1.0	0.17	ug/L			10/16/18 09:59	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 09:59	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 09:59	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/16/18 09:59	1
Toluene	ND		1.0	0.17	ug/L			10/16/18 09:59	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/16/18 09:59	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/16/18 09:59	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/16/18 09:59	1
Trichloroethene	ND		1.0	0.16	ug/L			10/16/18 09:59	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/16/18 09:59	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/16/18 09:59	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/16/18 09:59	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/16/18 09:59	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/16/18 09:59	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/16/18 09:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 127*		*10/16/18 09:59*	*1*
Toluene-d8 (Surr)	*88*		*80 - 125*		*10/16/18 09:59*	*1*
4-Bromofluorobenzene (Surr)	*82*		*78 - 120*		*10/16/18 09:59*	*1*
Dibromofluoromethane (Surr)	*95*		*77 - 120*		*10/16/18 09:59*	*1*

Lab Sample ID: LCS 280-433542/30
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	40.0	36.2		ug/L		90	50 - 150
Chloroprene	4.00	2.81		ug/L		70	50 - 150
Methacrylonitrile	40.0	38.4		ug/L		96	50 - 150
Methyl methacrylate	8.00	5.68		ug/L		71	50 - 150
Propionitrile	40.0	48.3		ug/L		121	50 - 150

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433542/30
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 127*
Toluene-d8 (Surr)	*87*		*80 - 125*
4-Bromofluorobenzene (Surr)	*92*		*78 - 120*
Dibromofluoromethane (Surr)	*86*		*77 - 120*

Lab Sample ID: LCS 280-433542/4
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	21.3		ug/L		107	39 - 156
Acrolein	50.0	57.4		ug/L		115	36 - 147
Acrylonitrile	50.0	57.2		ug/L		114	56 - 135
Benzene	5.00	4.56		ug/L		91	65 - 135
Chlorobromomethane	5.00	4.97		ug/L		99	65 - 135
Dichlorobromomethane	5.00	4.66		ug/L		93	65 - 135
Bromoform	5.00	4.86		ug/L		97	62 - 135
Bromomethane	5.00	5.04		ug/L		101	45 - 135
2-Butanone (MEK)	20.0	14.2		ug/L		71	44 - 177
Carbon disulfide	5.00	4.88		ug/L		98	55 - 143
Carbon tetrachloride	5.00	4.75		ug/L		95	65 - 135
Chlorobenzene	5.00	4.55		ug/L		91	65 - 135
Chlorodibromomethane	5.00	4.89		ug/L		98	65 - 135
Chloroethane	5.00	4.82		ug/L		96	46 - 136
Chloroform	5.00	4.62		ug/L		92	65 - 135
Chloromethane	5.00	4.57		ug/L		91	34 - 145
Allyl chloride	5.00	4.67		ug/L		93	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	4.88	J	ug/L		98	57 - 135
Dibromomethane	5.00	4.83		ug/L		97	65 - 135
1,2-Dichlorobenzene	5.00	4.53		ug/L		91	65 - 135
1,3-Dichlorobenzene	5.00	4.40		ug/L		88	65 - 135
1,4-Dichlorobenzene	5.00	4.30		ug/L		86	65 - 135
trans-1,4-Dichloro-2-butene	5.00	4.61		ug/L		92	53 - 135
Dichlorodifluoromethane	5.00	4.22		ug/L		84	43 - 142
1,1-Dichloroethane	5.00	4.55		ug/L		91	65 - 135
1,2-Dichloroethane	5.00	4.79		ug/L		96	65 - 135
cis-1,2-Dichloroethene	5.00	4.40		ug/L		88	65 - 135
trans-1,2-Dichloroethene	5.00	5.19		ug/L		104	65 - 135
1,1-Dichloroethene	5.00	5.10		ug/L		102	65 - 136
1,2-Dichloropropane	5.00	4.84		ug/L		97	64 - 135
1,3-Dichloropropane	5.00	4.48		ug/L		90	64 - 135
2,2-Dichloropropane	5.00	4.64		ug/L		93	65 - 135
cis-1,3-Dichloropropene	5.00	3.74		ug/L		75	65 - 135
trans-1,3-Dichloropropene	5.00	4.00		ug/L		80	65 - 135
1,1-Dichloropropene	5.00	4.38		ug/L		88	65 - 135
Ethylbenzene	5.00	4.35		ug/L		87	65 - 135
Ethyl methacrylate	5.00	3.91		ug/L		78	50 - 135
2-Hexanone	20.0	15.6		ug/L		78	57 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433542/4
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iodomethane	5.00	5.50		ug/L		110	65 - 142
Isobutyl alcohol	125	106	J	ug/L		84	55 - 135
Methylene Chloride	5.00	5.53		ug/L		111	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	15.3		ug/L		77	60 - 150
Styrene	5.00	4.30		ug/L		86	65 - 135
1,1,1,2-Tetrachloroethane	5.00	4.73		ug/L		95	65 - 135
1,1,2,2-Tetrachloroethane	5.00	4.14		ug/L		83	58 - 135
Tetrachloroethene	5.00	4.74		ug/L		95	65 - 135
Toluene	5.00	4.93		ug/L		99	65 - 135
1,2,4-Trichlorobenzene	5.00	4.02		ug/L		80	58 - 135
1,1,1-Trichloroethane	5.00	4.64		ug/L		93	65 - 135
1,1,2-Trichloroethane	5.00	4.91		ug/L		98	64 - 135
Trichloroethene	5.00	4.33		ug/L		87	65 - 135
Trichlorofluoromethane	5.00	5.20		ug/L		104	53 - 137
1,2,3-Trichloropropane	5.00	4.38		ug/L		88	65 - 135
Vinyl acetate	10.0	8.29		ug/L		83	11 - 187
Vinyl chloride	5.00	4.56		ug/L		91	40 - 137
Xylenes, Total	10.0	8.67		ug/L		87	65 - 135
1,2-Dibromoethane	5.00	4.53		ug/L		91	65 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 127*
Toluene-d8 (Surr)	*99*		*80 - 125*
4-Bromofluorobenzene (Surr)	*91*		*78 - 120*
Dibromofluoromethane (Surr)	*88*		*77 - 120*

Lab Sample ID: MB 280-434030/8
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/18/18 20:54	1
Acetonitrile	ND		30	9.6	ug/L			10/18/18 20:54	1
Acrolein	ND		20	2.8	ug/L			10/18/18 20:54	1
Acrylonitrile	ND		20	1.4	ug/L			10/18/18 20:54	1
Benzene	ND		1.0	0.16	ug/L			10/18/18 20:54	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/18/18 20:54	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/18/18 20:54	1
Bromoform	ND		1.0	0.19	ug/L			10/18/18 20:54	1
Bromomethane	ND		2.0	0.21	ug/L			10/18/18 20:54	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/18/18 20:54	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/18/18 20:54	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/18/18 20:54	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/18/18 20:54	1
Chloroprene	ND		1.0	0.21	ug/L			10/18/18 20:54	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/18/18 20:54	1
Chloroethane	ND		2.0	0.41	ug/L			10/18/18 20:54	1
Chloroform	ND		1.0	0.16	ug/L			10/18/18 20:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-434030/8
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		2.0	0.30	ug/L			10/18/18 20:54	1
Allyl chloride	ND		2.0	0.17	ug/L			10/18/18 20:54	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/18/18 20:54	1
Dibromomethane	ND		1.0	0.17	ug/L			10/18/18 20:54	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/18/18 20:54	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/18/18 20:54	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/18/18 20:54	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/18/18 20:54	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/18/18 20:54	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/18/18 20:54	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/18/18 20:54	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/18/18 20:54	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/18/18 20:54	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/18/18 20:54	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/18/18 20:54	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/18/18 20:54	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/18/18 20:54	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/18/18 20:54	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/18/18 20:54	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/18/18 20:54	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/18/18 20:54	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/18/18 20:54	1
2-Hexanone	ND		5.0	1.7	ug/L			10/18/18 20:54	1
Iodomethane	ND		1.0	0.23	ug/L			10/18/18 20:54	1
Isobutyl alcohol	ND		110	37	ug/L			10/18/18 20:54	1
Methacrylonitrile	ND		10	1.6	ug/L			10/18/18 20:54	1
Methylene Chloride	0.933	J	2.0	0.32	ug/L			10/18/18 20:54	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/18/18 20:54	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/18/18 20:54	1
Propionitrile	ND		20	3.7	ug/L			10/18/18 20:54	1
Styrene	ND		1.0	0.17	ug/L			10/18/18 20:54	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/18/18 20:54	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/18/18 20:54	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/18/18 20:54	1
Toluene	ND		1.0	0.17	ug/L			10/18/18 20:54	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/18/18 20:54	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/18/18 20:54	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/18/18 20:54	1
Trichloroethene	ND		1.0	0.16	ug/L			10/18/18 20:54	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/18/18 20:54	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/18/18 20:54	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/18/18 20:54	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/18/18 20:54	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/18/18 20:54	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/18/18 20:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 127*		*10/18/18 20:54*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-434030/8
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		80 - 125		10/18/18 20:54	1
4-Bromofluorobenzene (Surr)	100		78 - 120		10/18/18 20:54	1
Dibromofluoromethane (Surr)	119		77 - 120		10/18/18 20:54	1

Lab Sample ID: LCS 280-434030/4
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	26.1		ug/L		131	39 - 156
Acrolein	50.0	54.4		ug/L		109	36 - 147
Acrylonitrile	50.0	56.2		ug/L		112	56 - 135
Benzene	5.00	5.34		ug/L		107	65 - 135
Chlorobromomethane	5.00	5.84		ug/L		117	65 - 135
Dichlorobromomethane	5.00	5.62		ug/L		112	65 - 135
Bromoform	5.00	5.67		ug/L		113	62 - 135
Bromomethane	5.00	5.79		ug/L		116	45 - 135
2-Butanone (MEK)	20.0	26.2		ug/L		131	44 - 177
Carbon disulfide	5.00	6.13		ug/L		123	55 - 143
Carbon tetrachloride	5.00	5.24		ug/L		105	65 - 135
Chlorobenzene	5.00	5.18		ug/L		104	65 - 135
Chlorodibromomethane	5.00	5.40		ug/L		108	65 - 135
Chloroethane	5.00	6.03		ug/L		121	46 - 136
Chloroform	5.00	5.22		ug/L		104	65 - 135
Chloromethane	5.00	6.47		ug/L		129	34 - 145
Allyl chloride	5.00	5.68		ug/L		114	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	4.72	J	ug/L		94	57 - 135
Dibromomethane	5.00	5.63		ug/L		113	65 - 135
1,2-Dichlorobenzene	5.00	4.82		ug/L		96	65 - 135
1,3-Dichlorobenzene	5.00	5.10		ug/L		102	65 - 135
1,4-Dichlorobenzene	5.00	4.74		ug/L		95	65 - 135
trans-1,4-Dichloro-2-butene	5.00	4.87		ug/L		97	53 - 135
Dichlorodifluoromethane	5.00	5.40		ug/L		108	43 - 142
1,1-Dichloroethane	5.00	5.29		ug/L		106	65 - 135
1,2-Dichloroethane	5.00	5.40		ug/L		108	65 - 135
cis-1,2-Dichloroethene	5.00	5.68		ug/L		114	65 - 135
trans-1,2-Dichloroethene	5.00	5.73		ug/L		115	65 - 135
1,1-Dichloroethene	5.00	5.77		ug/L		115	65 - 136
1,2-Dichloropropane	5.00	5.50		ug/L		110	64 - 135
1,3-Dichloropropane	5.00	4.95		ug/L		99	64 - 135
2,2-Dichloropropane	5.00	4.90		ug/L		98	65 - 135
cis-1,3-Dichloropropene	5.00	4.95		ug/L		99	65 - 135
trans-1,3-Dichloropropene	5.00	5.29		ug/L		106	65 - 135
1,1-Dichloropropene	5.00	5.00		ug/L		100	65 - 135
Ethylbenzene	5.00	4.93		ug/L		99	65 - 135
Ethyl methacrylate	5.00	4.34		ug/L		87	50 - 135
2-Hexanone	20.0	17.9		ug/L		89	57 - 139
Iodomethane	5.00	6.15		ug/L		123	65 - 142

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-434030/4
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Isobutyl alcohol	125	117		ug/L		93	55 - 135
Methylene Chloride	5.00	6.29		ug/L		126	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	21.0		ug/L		105	60 - 150
Styrene	5.00	4.65		ug/L		93	65 - 135
1,1,1,2-Tetrachloroethane	5.00	5.25		ug/L		105	65 - 135
1,1,2,2-Tetrachloroethane	5.00	5.08		ug/L		102	58 - 135
Tetrachloroethene	5.00	5.01		ug/L		100	65 - 135
Toluene	5.00	5.30		ug/L		106	65 - 135
1,2,4-Trichlorobenzene	5.00	4.94		ug/L		99	58 - 135
1,1,1-Trichloroethane	5.00	4.86		ug/L		97	65 - 135
1,1,2-Trichloroethane	5.00	5.51		ug/L		110	64 - 135
Trichloroethene	5.00	5.65		ug/L		113	65 - 135
Trichlorofluoromethane	5.00	4.90		ug/L		98	53 - 137
1,2,3-Trichloropropane	5.00	4.74		ug/L		95	65 - 135
Vinyl acetate	10.0	10.5		ug/L		105	11 - 187
Vinyl chloride	5.00	6.00		ug/L		120	40 - 137
Xylenes, Total	10.0	9.58		ug/L		96	65 - 135
1,2-Dibromoethane	5.00	5.01		ug/L		100	65 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 127*
Toluene-d8 (Surr)	*105*		*80 - 125*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*
Dibromofluoromethane (Surr)	*115*		*77 - 120*

Lab Sample ID: LCS 280-434030/6
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	50.0	57.4		ug/L		115	50 - 150
Chloroprene	5.00	4.69		ug/L		94	50 - 150
Methacrylonitrile	50.0	49.2		ug/L		98	50 - 150
Methyl methacrylate	10.0	13.8		ug/L		138	50 - 150
Propionitrile	50.0	62.9		ug/L		126	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 127*
Toluene-d8 (Surr)	*99*		*80 - 125*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*
Dibromofluoromethane (Surr)	*114*		*77 - 120*

Lab Sample ID: LCSD 280-434030/5
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	22.4		ug/L		112	39 - 156	15	23

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-434030/5
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acrolein	50.0	50.1		ug/L		100	36 - 147	8	30
Acrylonitrile	50.0	50.9		ug/L		102	56 - 135	10	30
Benzene	5.00	4.88		ug/L		98	65 - 135	9	20
Chlorobromomethane	5.00	5.64		ug/L		113	65 - 135	3	29
Dichlorobromomethane	5.00	5.36		ug/L		107	65 - 135	5	20
Bromoform	5.00	5.45		ug/L		109	62 - 135	4	27
Bromomethane	5.00	5.22		ug/L		104	45 - 135	10	33
2-Butanone (MEK)	20.0	22.4		ug/L		112	44 - 177	16	32
Carbon disulfide	5.00	5.68		ug/L		114	55 - 143	8	20
Carbon tetrachloride	5.00	5.01		ug/L		100	65 - 135	4	21
Chlorobenzene	5.00	4.84		ug/L		97	65 - 135	7	20
Chlorodibromomethane	5.00	5.11		ug/L		102	65 - 135	6	20
Chloroethane	5.00	5.30		ug/L		106	46 - 136	13	25
Chloroform	5.00	4.88		ug/L		98	65 - 135	7	20
Chloromethane	5.00	5.83		ug/L		117	34 - 145	10	24
Allyl chloride	5.00	5.17		ug/L		103	50 - 135	9	30
1,2-Dibromo-3-Chloropropane	5.00	5.03		ug/L		101	57 - 135	6	22
Dibromomethane	5.00	5.11		ug/L		102	65 - 135	10	26
1,2-Dichlorobenzene	5.00	4.59		ug/L		92	65 - 135	5	20
1,3-Dichlorobenzene	5.00	4.63		ug/L		93	65 - 135	9	20
1,4-Dichlorobenzene	5.00	4.38		ug/L		88	65 - 135	8	23
trans-1,4-Dichloro-2-butene	5.00	4.27		ug/L		85	53 - 135	13	25
Dichlorodifluoromethane	5.00	4.95		ug/L		99	43 - 142	9	30
1,1-Dichloroethane	5.00	4.83		ug/L		97	65 - 135	9	21
1,2-Dichloroethane	5.00	4.83		ug/L		97	65 - 135	11	20
cis-1,2-Dichloroethene	5.00	5.18		ug/L		104	65 - 135	9	20
trans-1,2-Dichloroethene	5.00	5.37		ug/L		107	65 - 135	7	24
1,1-Dichloroethene	5.00	5.32		ug/L		106	65 - 136	8	20
1,2-Dichloropropane	5.00	5.18		ug/L		104	64 - 135	6	20
1,3-Dichloropropane	5.00	4.58		ug/L		92	64 - 135	8	20
2,2-Dichloropropane	5.00	4.61		ug/L		92	65 - 135	6	20
cis-1,3-Dichloropropene	5.00	4.47		ug/L		89	65 - 135	10	26
trans-1,3-Dichloropropene	5.00	5.06		ug/L		101	65 - 135	5	26
1,1-Dichloropropene	5.00	4.60		ug/L		92	65 - 135	8	21
Ethylbenzene	5.00	4.58		ug/L		92	65 - 135	7	20
Ethyl methacrylate	5.00	3.84		ug/L		77	50 - 135	12	30
2-Hexanone	20.0	15.7		ug/L		79	57 - 139	13	25
Iodomethane	5.00	5.79		ug/L		116	65 - 142	6	25
Isobutyl alcohol	125	109	J	ug/L		87	55 - 135	7	30
Methylene Chloride	5.00	5.67		ug/L		113	54 - 141	10	26
4-Methyl-2-pentanone (MIBK)	20.0	18.1		ug/L		91	60 - 150	15	22
Styrene	5.00	4.41		ug/L		88	65 - 135	5	26
1,1,1,2-Tetrachloroethane	5.00	4.91		ug/L		98	65 - 135	7	20
1,1,2,2-Tetrachloroethane	5.00	4.47		ug/L		89	58 - 135	13	20
Tetrachloroethene	5.00	4.74		ug/L		95	65 - 135	5	20
Toluene	5.00	4.99		ug/L		100	65 - 135	6	20
1,2,4-Trichlorobenzene	5.00	4.72		ug/L		94	58 - 135	5	25
1,1,1-Trichloroethane	5.00	4.58		ug/L		92	65 - 135	6	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-434030/5
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloroethane			5.00	5.37		ug/L		107	64 - 135	3	27
Trichloroethene			5.00	5.27		ug/L		105	65 - 135	7	20
Trichlorofluoromethane			5.00	4.65		ug/L		93	53 - 137	5	27
1,2,3-Trichloropropane			5.00	4.40		ug/L		88	65 - 135	7	23
Vinyl acetate			10.0	9.52		ug/L		95	11 - 187	10	24
Vinyl chloride			5.00	5.53		ug/L		111	40 - 137	8	24
Xylenes, Total			10.0	8.78		ug/L		88	65 - 135	9	20
1,2-Dibromoethane			5.00	4.65		ug/L		93	65 - 135	7	27

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 127*
Toluene-d8 (Surr)	*101*		*80 - 125*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*
Dibromofluoromethane (Surr)	*112*		*77 - 120*

Lab Sample ID: LCSD 280-434030/7
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetonitrile			50.0	60.4		ug/L		121	50 - 150	5	30
Chloroprene			5.00	4.95		ug/L		99	50 - 150	6	30
Methacrylonitrile			50.0	50.6		ug/L		101	50 - 150	3	30
Methyl methacrylate			10.0	14.1		ug/L		141	50 - 150	2	30
Propionitrile			50.0	60.1		ug/L		120	50 - 150	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 127*
Toluene-d8 (Surr)	*98*		*80 - 125*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*
Dibromofluoromethane (Surr)	*116*		*77 - 120*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 280-433305/4
Matrix: Water
Analysis Batch: 433305

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/13/18 15:18	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 15:18	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 15:18	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 15:18	1
Propane	ND		5.0	0.56	ug/L			10/13/18 15:18	1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 280-433305/2
Matrix: Water
Analysis Batch: 433305

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	73.0	70.1		ug/L		96	75 - 125
Ethene	128	136		ug/L		107	75 - 125
Ethane	137	151		ug/L		111	75 - 125
Acetylene	119	114		ug/L		96	75 - 125
Propane	201	211		ug/L		105	75 - 125

Lab Sample ID: LCSD 280-433305/3
Matrix: Water
Analysis Batch: 433305

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	73.0	68.7		ug/L		94	75 - 125	2	20
Ethene	128	133		ug/L		104	75 - 125	2	20
Ethane	137	148		ug/L		108	75 - 125	2	20
Acetylene	119	115		ug/L		97	75 - 125	1	20
Propane	201	207		ug/L		103	75 - 125	2	20

Lab Sample ID: 280-115307-8 DU
Matrix: Water
Analysis Batch: 433305

Client Sample ID: RW-4-20181007
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Methane	ND		ND		ug/L		NC	20
Ethene	ND		ND		ug/L		NC	20
Ethane	ND		ND		ug/L		NC	20
Acetylene	ND		ND		ug/L		NC	20
Propane	ND		ND		ug/L		NC	20

Lab Sample ID: MB 280-433444/31
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/15/18 19:35	1
Ethene	ND		5.0	0.40	ug/L			10/15/18 19:35	1
Ethane	ND		5.0	0.57	ug/L			10/15/18 19:35	1
Acetylene	ND		5.0	0.73	ug/L			10/15/18 19:35	1
Propane	ND		5.0	0.56	ug/L			10/15/18 19:35	1

Lab Sample ID: MB 280-433444/4
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/15/18 12:39	1
Ethene	ND		5.0	0.40	ug/L			10/15/18 12:39	1
Ethane	ND		5.0	0.57	ug/L			10/15/18 12:39	1
Acetylene	ND		5.0	0.73	ug/L			10/15/18 12:39	1
Propane	ND		5.0	0.56	ug/L			10/15/18 12:39	1

Lab Sample ID: LCS 280-433444/2
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	73.0	68.2		ug/L		93	75 - 125
Ethene	128	137		ug/L		107	75 - 125
Ethane	137	150		ug/L		109	75 - 125
Acetylene	119	119		ug/L		100	75 - 125
Propane	201	211		ug/L		105	75 - 125

Lab Sample ID: LCS 280-433444/29
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	73.0	70.4		ug/L		96	75 - 125
Ethene	128	135		ug/L		106	75 - 125
Ethane	137	152		ug/L		111	75 - 125
Acetylene	119	122		ug/L		103	75 - 125
Propane	201	214		ug/L		106	75 - 125

Lab Sample ID: LCSD 280-433444/3
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	73.0	66.2		ug/L		91	75 - 125	3	20
Ethene	128	132		ug/L		103	75 - 125	3	20
Ethane	137	145		ug/L		106	75 - 125	3	20
Acetylene	119	116		ug/L		98	75 - 125	2	20
Propane	201	205		ug/L		102	75 - 125	3	20

Lab Sample ID: LCSD 280-433444/30
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	73.0	69.0		ug/L		94	75 - 125	2	20
Ethene	128	132		ug/L		103	75 - 125	2	20
Ethane	137	149		ug/L		109	75 - 125	2	20
Acetylene	119	115		ug/L		97	75 - 125	6	20
Propane	201	210		ug/L		104	75 - 125	2	20

Lab Sample ID: 280-115307-11 DU
Matrix: Water
Analysis Batch: 433444

Client Sample ID: RW-3-20181007
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Methane	1.9	J	1.87	J	ug/L		2	20
Ethene	ND		ND		ug/L		NC	20
Ethane	ND		ND		ug/L		NC	20
Acetylene	ND		ND		ug/L		NC	20
Propane	ND		ND		ug/L		NC	20

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: 280-115307-16 DU
Matrix: Water
Analysis Batch: 433444

Client Sample ID: MW-109D-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Methane	ND		ND		ug/L		NC	20
Ethene	ND		ND		ug/L		NC	20
Ethane	ND		ND		ug/L		NC	20
Acetylene	ND		ND		ug/L		NC	20
Propane	ND		ND		ug/L		NC	20

Lab Sample ID: MB 280-433615/4
Matrix: Water
Analysis Batch: 433615

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/16/18 14:02	1
Ethene	ND		5.0	0.40	ug/L			10/16/18 14:02	1
Ethane	ND		5.0	0.57	ug/L			10/16/18 14:02	1
Acetylene	ND		5.0	0.73	ug/L			10/16/18 14:02	1
Propane	ND		5.0	0.56	ug/L			10/16/18 14:02	1

Lab Sample ID: LCS 280-433615/2
Matrix: Water
Analysis Batch: 433615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	73.0	65.0		ug/L		89	75 - 125
Ethene	128	133		ug/L		104	75 - 125
Ethane	137	142		ug/L		104	75 - 125
Acetylene	119	114		ug/L		96	75 - 125
Propane	201	199		ug/L		99	75 - 125

Lab Sample ID: LCSD 280-433615/3
Matrix: Water
Analysis Batch: 433615

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	73.0	66.5		ug/L		91	75 - 125	2	20
Ethene	128	133		ug/L		104	75 - 125	0	20
Ethane	137	145		ug/L		106	75 - 125	2	20
Acetylene	119	116		ug/L		98	75 - 125	2	20
Propane	201	204		ug/L		101	75 - 125	2	20

Lab Sample ID: 280-115307-12 DU
Matrix: Water
Analysis Batch: 433615

Client Sample ID: MW-7-20181008
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Methane	6.6		6.93		ug/L		5	20
Ethene	ND		ND		ug/L		NC	20
Ethane	ND		ND		ug/L		NC	20
Acetylene	ND		ND		ug/L		NC	20
Propane	ND		ND		ug/L		NC	20

Method: 8290 - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-252699/1-A
Matrix: Water
Analysis Batch: 254635

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 252699

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		10	0.15	pg/L		10/16/18 14:34	10/24/18 05:45	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*91*		*40 - 135*	*10/16/18 14:34*	*10/24/18 05:45*	*1*

Lab Sample ID: LCS 320-252699/2-A
Matrix: Water
Analysis Batch: 254635

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 252699

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	200	223		pg/L		111	72 - 128

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*85*		*40 - 135*

Lab Sample ID: LCSD 320-252699/3-A
Matrix: Water
Analysis Batch: 254635

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 252699

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,3,7,8-TCDD	200	219		pg/L		110	72 - 128	1	20

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*89*		*40 - 135*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-432959/1-A
Matrix: Water
Analysis Batch: 433544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432959

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		200	35	ug/L		10/13/18 14:15	10/16/18 00:35	1
Iron	ND		100	22	ug/L		10/13/18 14:15	10/16/18 00:35	1
Magnesium	ND		200	11	ug/L		10/13/18 14:15	10/16/18 00:35	1
Potassium	ND		3000	240	ug/L		10/13/18 14:15	10/16/18 00:35	1
Sodium	208	J ^	1000	120	ug/L		10/13/18 14:15	10/16/18 00:35	1

Lab Sample ID: LCS 280-432959/2-A
Matrix: Water
Analysis Batch: 433544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432959

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	52300		ug/L		105	90 - 111
Iron	10000	10400		ug/L		104	89 - 115
Magnesium	50000	51300		ug/L		103	90 - 113
Potassium	50000	52700		ug/L		105	89 - 114
Sodium	50000	52100	^	ug/L		104	90 - 115

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 280-115307-5 MS
Matrix: Water
Analysis Batch: 433544

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 432959

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	88000		50000	132000		ug/L		87	48 - 153
Iron	ND		10000	9800		ug/L		98	52 - 155
Magnesium	40000		50000	87000		ug/L		93	62 - 146
Potassium	4000		50000	54400		ug/L		101	76 - 132
Sodium	59000	^ B	50000	109000	^	ug/L		100	70 - 203

Lab Sample ID: 280-115307-5 MSD
Matrix: Water
Analysis Batch: 433544

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 432959

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	88000		50000	139000		ug/L		102	48 - 153	5	20
Iron	ND		10000	10400		ug/L		104	52 - 155	6	20
Magnesium	40000		50000	91200		ug/L		102	62 - 146	5	20
Potassium	4000		50000	56800		ug/L		106	76 - 132	4	20
Sodium	59000	^ B	50000	114000	^	ug/L		111	70 - 203	5	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-432958/1-A
Matrix: Water
Analysis Batch: 433400

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432958

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^	2.0	0.40	ug/L		10/13/18 08:30	10/14/18 18:59	1
Arsenic	ND		5.0	0.33	ug/L		10/13/18 08:30	10/14/18 18:59	1
Barium	ND		1.0	0.29	ug/L		10/13/18 08:30	10/14/18 18:59	1
Beryllium	ND		1.0	0.080	ug/L		10/13/18 08:30	10/14/18 18:59	1
Cadmium	ND		1.0	0.27	ug/L		10/13/18 08:30	10/14/18 18:59	1
Chromium	ND		2.0	0.50	ug/L		10/13/18 08:30	10/14/18 18:59	1
Co	ND		1.0	0.054	ug/L		10/13/18 08:30	10/14/18 18:59	1
Copper	ND		2.0	0.56	ug/L		10/13/18 08:30	10/14/18 18:59	1
Lead	ND		1.0	0.18	ug/L		10/13/18 08:30	10/14/18 18:59	1
Manganese	ND		1.0	0.31	ug/L		10/13/18 08:30	10/14/18 18:59	1
Nickel	ND		2.0	0.30	ug/L		10/13/18 08:30	10/14/18 18:59	1
Selenium	ND		5.0	0.70	ug/L		10/13/18 08:30	10/14/18 18:59	1
Silver	ND		5.0	0.033	ug/L		10/13/18 08:30	10/14/18 18:59	1
Thallium	ND		1.0	0.050	ug/L		10/13/18 08:30	10/14/18 18:59	1
Tin	ND		10	0.77	ug/L		10/13/18 08:30	10/14/18 18:59	1
Vanadium	ND		5.0	0.50	ug/L		10/13/18 08:30	10/14/18 18:59	1
Zinc	2.41	J	10	2.0	ug/L		10/13/18 08:30	10/14/18 18:59	1

Lab Sample ID: LCS 280-432958/2-A
Matrix: Water
Analysis Batch: 433400

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432958

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	39.4	^	ug/L		98	86 - 110

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 280-432958/2-A
Matrix: Water
Analysis Batch: 433400

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432958

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	40.0	35.8		ug/L		90	80 - 106
Barium	40.0	42.1		ug/L		105	88 - 113
Beryllium	40.0	38.0		ug/L		95	82 - 113
Cadmium	40.0	40.8		ug/L		102	85 - 111
Chromium	40.0	41.1		ug/L		103	87 - 115
Co	40.0	40.8		ug/L		102	89 - 113
Copper	40.0	41.1		ug/L		103	87 - 114
Lead	40.0	40.7		ug/L		102	91 - 113
Manganese	40.0	42.0		ug/L		105	90 - 114
Nickel	40.0	41.0		ug/L		102	87 - 116
Selenium	40.0	35.5		ug/L		89	80 - 113
Silver	40.0	41.7		ug/L		104	85 - 117
Thallium	40.0	40.1		ug/L		100	90 - 111
Tin	40.0	40.8		ug/L		102	88 - 113
Vanadium	40.0	39.5		ug/L		99	85 - 113
Zinc	40.0	39.8		ug/L		99	81 - 120

Lab Sample ID: 280-115307-5 MS
Matrix: Water
Analysis Batch: 433400

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 432958

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.61	J ^	40.0	42.4	^	ug/L		104	85 - 115
Arsenic	0.68	J	40.0	36.2		ug/L		89	85 - 117
Barium	140		40.0	175		ug/L		99	85 - 118
Beryllium	ND		40.0	39.3		ug/L		98	80 - 125
Cadmium	ND		40.0	38.0		ug/L		95	85 - 115
Chromium	0.64	J	40.0	41.0		ug/L		101	84 - 121
Co	ND		40.0	39.5		ug/L		99	85 - 120
Copper	0.57	J	40.0	39.0		ug/L		96	85 - 119
Lead	ND		40.0	39.2		ug/L		98	85 - 118
Manganese	0.35	J	40.0	40.2		ug/L		100	85 - 117
Nickel	ND		40.0	38.4		ug/L		96	85 - 119
Selenium	ND		40.0	36.6		ug/L		92	77 - 122
Silver	ND		40.0	40.2		ug/L		101	85 - 115
Thallium	ND		40.0	38.9		ug/L		97	85 - 118
Tin	ND		40.0	40.4		ug/L		101	77 - 115
Vanadium	0.74	J	40.0	40.5		ug/L		99	85 - 120
Zinc	3.5	J B	40.0	39.9		ug/L		91	83 - 122

Lab Sample ID: 280-115307-5 MSD
Matrix: Water
Analysis Batch: 433400

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 432958

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.61	J ^	40.0	42.3	^	ug/L		104	85 - 115	0	20
Arsenic	0.68	J	40.0	36.8		ug/L		90	85 - 117	2	20
Barium	140		40.0	175		ug/L		100	85 - 118	0	20
Beryllium	ND		40.0	39.2		ug/L		98	80 - 125	0	20

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 280-115307-5 MSD
Matrix: Water
Analysis Batch: 433400

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 432958

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		40.0	38.9		ug/L		97	85 - 115	2	20
Chromium	0.64	J	40.0	41.0		ug/L		101	84 - 121	0	20
Co	ND		40.0	39.4		ug/L		98	85 - 120	0	20
Copper	0.57	J	40.0	39.3		ug/L		97	85 - 119	1	20
Lead	ND		40.0	39.3		ug/L		98	85 - 118	0	20
Manganese	0.35	J	40.0	41.2		ug/L		102	85 - 117	2	20
Nickel	ND		40.0	39.0		ug/L		98	85 - 119	2	20
Selenium	ND		40.0	36.5		ug/L		91	77 - 122	0	20
Silver	ND		40.0	40.8		ug/L		102	85 - 115	1	20
Thallium	ND		40.0	39.3		ug/L		98	85 - 118	1	20
Tin	ND		40.0	41.7		ug/L		104	77 - 115	3	20
Vanadium	0.74	J	40.0	42.4		ug/L		104	85 - 120	5	20
Zinc	3.5	J B	40.0	39.6		ug/L		90	83 - 122	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-433330/1-A
Matrix: Water
Analysis Batch: 433525

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433330

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/15/18 12:45	10/15/18 18:35	1

Lab Sample ID: LCS 280-433330/2-A
Matrix: Water
Analysis Batch: 433525

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433330

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.96		ug/L		99	84 - 120

Lab Sample ID: LCSD 280-433330/3-A
Matrix: Water
Analysis Batch: 433525

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433330

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	5.00	4.87		ug/L		97	84 - 120	2	15

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 280-433511/22
Matrix: Water
Analysis Batch: 433511

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/15/18 16:41	1

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: MB 280-433511/60
Matrix: Water
Analysis Batch: 433511

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/15/18 17:57	1

Lab Sample ID: LCS 280-433511/21
Matrix: Water
Analysis Batch: 433511

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	5.00	5.08		mg/L		102	90 - 110

Lab Sample ID: LCS 280-433511/59
Matrix: Water
Analysis Batch: 433511

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	5.00	5.18		mg/L		104	90 - 110

Lab Sample ID: 280-115307-14 MS
Matrix: Water
Analysis Batch: 433511

Client Sample ID: MW-112D-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	1.1		4.00	5.07		mg/L		100	90 - 110

Lab Sample ID: 280-115307-14 MSD
Matrix: Water
Analysis Batch: 433511

Client Sample ID: MW-112D-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	1.1		4.00	5.12		mg/L		102	90 - 110	1	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-433433/6
Matrix: Water
Analysis Batch: 433433

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	0.25	mg/L			10/15/18 14:21	1
Sulfate	ND		5.0	0.23	mg/L			10/15/18 14:21	1

Lab Sample ID: LCS 280-433433/4
Matrix: Water
Analysis Batch: 433433

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	95.3		mg/L		95	90 - 110
Sulfate	100	100		mg/L		100	90 - 110

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 280-433433/5
Matrix: Water
Analysis Batch: 433433

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	95.3		mg/L		95	90 - 110	0	10
Sulfate	100	99.7		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-433433/3
Matrix: Water
Analysis Batch: 433433

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.71	J	mg/L		108	50 - 150
Sulfate	2.50	2.65	J	mg/L		106	50 - 150

Lab Sample ID: 280-115307-34 MS
Matrix: Water
Analysis Batch: 433433

Client Sample ID: MW-3A-20181008
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	57		25.0	85.2		mg/L		115	80 - 120
Sulfate	30		25.0	58.6		mg/L		115	80 - 120

Lab Sample ID: 280-115307-34 MSD
Matrix: Water
Analysis Batch: 433433

Client Sample ID: MW-3A-20181008
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	57		25.0	85.3		mg/L		115	80 - 120	0	20
Sulfate	30		25.0	58.7		mg/L		115	80 - 120	0	20

Lab Sample ID: 280-115307-34 DU
Matrix: Water
Analysis Batch: 433433

Client Sample ID: MW-3A-20181008
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	57		56.5		mg/L		0.05	15
Sulfate	30		29.9		mg/L		0.1	15

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-433135/35
Matrix: Water
Analysis Batch: 433135

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.16	mg/L			10/12/18 02:26	1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: MB 280-433135/4
Matrix: Water
Analysis Batch: 433135

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.16	mg/L			10/11/18 15:50	1

Lab Sample ID: LCS 280-433135/3
Matrix: Water
Analysis Batch: 433135

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	25.0	25.1		mg/L		100	88 - 112
TOC Result 2	25.0	25.1		mg/L		100	88 - 112
TOC Result 1	25.0	25.1		mg/L		100	88 - 112

Lab Sample ID: LCS 280-433135/34
Matrix: Water
Analysis Batch: 433135

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	25.0	24.6		mg/L		98	88 - 112
TOC Result 2	25.0	24.7		mg/L		99	88 - 112
TOC Result 1	25.0	24.4		mg/L		98	88 - 112

Lab Sample ID: 280-115307-14 MS
Matrix: Water
Analysis Batch: 433135

Client Sample ID: MW-112D-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	1.2		25.0	25.5		mg/L		97	88 - 112
TOC Result 2	1.2		25.0	25.3		mg/L		96	88 - 112
TOC Result 1	1.1		25.0	25.6		mg/L		98	88 - 112

Lab Sample ID: 280-115307-14 MSD
Matrix: Water
Analysis Batch: 433135

Client Sample ID: MW-112D-20181005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	1.2		25.0	26.0		mg/L		99	88 - 112	2	15
TOC Result 2	1.2		25.0	26.5		mg/L		101	88 - 112	4	15
TOC Result 1	1.1		25.0	25.5		mg/L		98	88 - 112	0	15

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-433030/5
Matrix: Water
Analysis Batch: 433030

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/11/18 15:05	1

Lab Sample ID: LCS 280-433030/4
Matrix: Water
Analysis Batch: 433030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity, Total			200	210		mg/L		105	90 - 110		

Lab Sample ID: MB 280-433267/17
Matrix: Water
Analysis Batch: 433267

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/12/18 18:05	1

Lab Sample ID: MB 280-433267/4
Matrix: Water
Analysis Batch: 433267

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/12/18 16:13	1

Lab Sample ID: LCS 280-433267/16
Matrix: Water
Analysis Batch: 433267

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity, Total			200	201		mg/L		100	90 - 110		

Lab Sample ID: LCS 280-433267/3
Matrix: Water
Analysis Batch: 433267

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity, Total			200	195		mg/L		98	90 - 110		

Lab Sample ID: 280-115307-34 DU
Matrix: Water
Analysis Batch: 433267

Client Sample ID: MW-3A-20181008
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity, Total	230			228		mg/L				0.1	10

Method: SM 4500 CN E - Cyanide, Total

Lab Sample ID: MB 280-433909/4-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433909

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 13:56	1

Lab Sample ID: HLCS 280-433909/1-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433909

Analyte			Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			0.350	0.336		mg/L		96	90 - 110		

Lab Sample ID: LCS 280-433909/3-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0976		mg/L		98	90 - 110

Lab Sample ID: LLCS 280-433909/2-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0963		mg/L		96	90 - 110

Lab Sample ID: MB 280-433946/4-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433946

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 11:18	10/18/18 14:44	1

Lab Sample ID: HLCS 280-433946/1-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433946

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.336		mg/L		96	90 - 110

Lab Sample ID: LCS 280-433946/3-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433946

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.100		mg/L		100	90 - 110

Lab Sample ID: LLCS 280-433946/2-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433946

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0959		mg/L		96	90 - 110

Lab Sample ID: 280-115307-8 MS
Matrix: Water
Analysis Batch: 434011

Client Sample ID: RW-4-20181007
Prep Type: Total/NA
Prep Batch: 433946

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		0.100	0.102		mg/L		102	90 - 110

Lab Sample ID: 280-115307-8 MSD
Matrix: Water
Analysis Batch: 434011

Client Sample ID: RW-4-20181007
Prep Type: Total/NA
Prep Batch: 433946

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		0.100	0.103		mg/L		103	90 - 110	1	20

Method: SM 4500 CN E - Cyanide, Total (Continued)

Lab Sample ID: MB 280-434101/4-A
Matrix: Water
Analysis Batch: 434316

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434101

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/19/18 09:01	10/19/18 17:43	1

Lab Sample ID: HLCS 280-434101/1-A
Matrix: Water
Analysis Batch: 434316

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434101

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.368		mg/L		105	90 - 110

Lab Sample ID: LCS 280-434101/3-A
Matrix: Water
Analysis Batch: 434316

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434101

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.109		mg/L		109	90 - 110

Lab Sample ID: LLCS 280-434101/2-A
Matrix: Water
Analysis Batch: 434316

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434101

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.102		mg/L		102	90 - 110

Lab Sample ID: MB 280-434401/4-A
Matrix: Water
Analysis Batch: 434431

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434401

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/22/18 12:42	10/22/18 18:14	1

Lab Sample ID: HLCS 280-434401/1-A
Matrix: Water
Analysis Batch: 434431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434401

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.349		mg/L		100	90 - 110

Lab Sample ID: LCS 280-434401/3-A
Matrix: Water
Analysis Batch: 434431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434401

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.101		mg/L		101	90 - 110

Lab Sample ID: LLCS 280-434401/2-A
Matrix: Water
Analysis Batch: 434431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434401

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0997		mg/L		100	90 - 110

GC/MS VOA

Analysis Batch: 433054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-6	MW-112M-20181005	Total/NA	Water	8260B	
280-115307-7	MW-112MQ-20181005	Total/NA	Water	8260B	
280-115307-20	EB-0-VOC-20181006	Total/NA	Water	8260B	
280-115307-21	EB-2-VOC-20181006	Total/NA	Water	8260B	
280-115307-27	EB-4-VOC-20181008	Total/NA	Water	8260B	
280-115307-37	TB-9-VOC-20181009	Total/NA	Water	8260B	
MB 280-433054/8	Method Blank	Total/NA	Water	8260B	
LCS 280-433054/4	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-433054/6	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-433054/7	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 433352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-11	RW-3-20181007	Total/NA	Water	8260B	
280-115307-12	MW-7-20181008	Total/NA	Water	8260B	
280-115307-13	MW-106D-20181008	Total/NA	Water	8260B	
280-115307-14	MW-112D-20181005	Total/NA	Water	8260B	
280-115307-22	TB-7-VOC-20181009	Total/NA	Water	8260B	
280-115307-23	MW-115D-20181008	Total/NA	Water	8260B	
280-115307-24	MW-6A-20181009	Total/NA	Water	8260B	
280-115307-26	MW-4AQ-20181005	Total/NA	Water	8260B	
MB 280-433352/6	Method Blank	Total/NA	Water	8260B	
LCS 280-433352/32	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-433352/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 433383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-11 - DL	RW-3-20181007	Total/NA	Water	8260B	
280-115307-14 - DL	MW-112D-20181005	Total/NA	Water	8260B	
280-115307-15	MW-4-20181005	Total/NA	Water	8260B	
280-115307-18	MW-109S-20181006	Total/NA	Water	8260B	
280-115307-18 - DL	MW-109S-20181006	Total/NA	Water	8260B	
280-115307-19	RW-9-20181007	Total/NA	Water	8260B	
280-115307-19 - DL	RW-9-20181007	Total/NA	Water	8260B	
280-115307-25	MW-4A-20181005	Total/NA	Water	8260B	
280-115307-29	RW-17-20181007	Total/NA	Water	8260B	
280-115307-29 - DL	RW-17-20181007	Total/NA	Water	8260B	
280-115307-30	EB-3-VOC-100718	Total/NA	Water	8260B	
280-115307-33	RW-10-20181007	Total/NA	Water	8260B	
MB 280-433383/6	Method Blank	Total/NA	Water	8260B	
LCS 280-433383/17	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-433383/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 433542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-16	MW-109D-20181006	Total/NA	Water	8260B	
280-115307-33 - DL	RW-10-20181007	Total/NA	Water	8260B	
MB 280-433542/6	Method Blank	Total/NA	Water	8260B	
LCS 280-433542/30	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-433542/4	Lab Control Sample	Total/NA	Water	8260B	

GC/MS VOA (Continued)

Analysis Batch: 434030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-34	MW-3A-20181008	Total/NA	Water	8260B	
280-115307-35	MW-103S-20181009	Total/NA	Water	8260B	
280-115307-36	MW-103D-20181009	Total/NA	Water	8260B	
MB 280-434030/8	Method Blank	Total/NA	Water	8260B	
LCS 280-434030/4	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-434030/6	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-434030/5	Lab Control Sample Dup	Total/NA	Water	8260B	
LCSD 280-434030/7	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 433305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	RSK-175	
280-115307-6	MW-112M-20181005	Total/NA	Water	RSK-175	
280-115307-7	MW-112MQ-20181005	Total/NA	Water	RSK-175	
280-115307-8	RW-4-20181007	Total/NA	Water	RSK-175	
280-115307-9	MW-121-20181007	Total/NA	Water	RSK-175	
280-115307-14	MW-112D-20181005	Total/NA	Water	RSK-175	
280-115307-16	MW-109D-20181006	Total/NA	Water	RSK-175	
MB 280-433305/4	Method Blank	Total/NA	Water	RSK-175	
LCS 280-433305/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 280-433305/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	
280-115307-8 DU	RW-4-20181007	Total/NA	Water	RSK-175	

Analysis Batch: 433444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-11	RW-3-20181007	Total/NA	Water	RSK-175	
MB 280-433444/31	Method Blank	Total/NA	Water	RSK-175	
MB 280-433444/4	Method Blank	Total/NA	Water	RSK-175	
LCS 280-433444/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 280-433444/29	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 280-433444/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 280-433444/30	Lab Control Sample Dup	Total/NA	Water	RSK-175	
280-115307-11 DU	RW-3-20181007	Total/NA	Water	RSK-175	
280-115307-16 DU	MW-109D-20181006	Total/NA	Water	RSK-175	

Analysis Batch: 433615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-12	MW-7-20181008	Total/NA	Water	RSK-175	
280-115307-35	MW-103S-20181009	Total/NA	Water	RSK-175	
280-115307-36	MW-103D-20181009	Total/NA	Water	RSK-175	
MB 280-433615/4	Method Blank	Total/NA	Water	RSK-175	
LCS 280-433615/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 280-433615/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	
280-115307-12 DU	MW-7-20181008	Total/NA	Water	RSK-175	

Specialty Organics

Prep Batch: 252699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-1	MW-12-20181008	Total/NA	Water	8290	
280-115307-2	MW-9-20181007	Total/NA	Water	8290	
280-115307-3	INJ-1R-20181006	Total/NA	Water	8290	
280-115307-4	MW-8-20181007	Total/NA	Water	8290	
MB 320-252699/1-A	Method Blank	Total/NA	Water	8290	
LCS 320-252699/2-A	Lab Control Sample	Total/NA	Water	8290	
LCSD 320-252699/3-A	Lab Control Sample Dup	Total/NA	Water	8290	

Analysis Batch: 254635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-1	MW-12-20181008	Total/NA	Water	8290	252699
MB 320-252699/1-A	Method Blank	Total/NA	Water	8290	252699
LCS 320-252699/2-A	Lab Control Sample	Total/NA	Water	8290	252699
LCSD 320-252699/3-A	Lab Control Sample Dup	Total/NA	Water	8290	252699

Analysis Batch: 254638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-2	MW-9-20181007	Total/NA	Water	8290	252699
280-115307-3	INJ-1R-20181006	Total/NA	Water	8290	252699
280-115307-4	MW-8-20181007	Total/NA	Water	8290	252699

Metals

Prep Batch: 432958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	3020A	
280-115307-6	MW-112M-20181005	Total/NA	Water	3020A	
280-115307-7	MW-112MQ-20181005	Total/NA	Water	3020A	
280-115307-8	RW-4-20181007	Total/NA	Water	3020A	
280-115307-9	MW-121-20181007	Total/NA	Water	3020A	
280-115307-10	RW-7773P-20181007	Total/NA	Water	3020A	
280-115307-11	RW-3-20181007	Total/NA	Water	3020A	
280-115307-12	MW-7-20181008	Total/NA	Water	3020A	
280-115307-13	MW-106D-20181008	Total/NA	Water	3020A	
280-115307-14	MW-112D-20181005	Total/NA	Water	3020A	
280-115307-15	MW-4-20181005	Total/NA	Water	3020A	
280-115307-16	MW-109D-20181006	Total/NA	Water	3020A	
280-115307-23	MW-115D-20181008	Total/NA	Water	3020A	
280-115307-24	MW-6A-20181009	Total/NA	Water	3020A	
280-115307-25	MW-4A-20181005	Total/NA	Water	3020A	
280-115307-26	MW-4AQ-20181005	Total/NA	Water	3020A	
280-115307-34	MW-3A-20181008	Total/NA	Water	3020A	
280-115307-35	MW-103S-20181009	Total/NA	Water	3020A	
280-115307-36	MW-103D-20181009	Total/NA	Water	3020A	
MB 280-432958/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-432958/2-A	Lab Control Sample	Total/NA	Water	3020A	
280-115307-5 MS	MW-109S-20181006	Total/NA	Water	3020A	
280-115307-5 MSD	MW-109S-20181006	Total/NA	Water	3020A	

Metals (Continued)

Prep Batch: 432959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	3010A	
280-115307-6	MW-112M-20181005	Total/NA	Water	3010A	
280-115307-7	MW-112MQ-20181005	Total/NA	Water	3010A	
280-115307-8	RW-4-20181007	Total/NA	Water	3010A	
280-115307-9	MW-121-20181007	Total/NA	Water	3010A	
280-115307-10	RW-7773P-20181007	Total/NA	Water	3010A	
280-115307-11	RW-3-20181007	Total/NA	Water	3010A	
280-115307-12	MW-7-20181008	Total/NA	Water	3010A	
280-115307-13	MW-106D-20181008	Total/NA	Water	3010A	
280-115307-14	MW-112D-20181005	Total/NA	Water	3010A	
280-115307-15	MW-4-20181005	Total/NA	Water	3010A	
280-115307-16	MW-109D-20181006	Total/NA	Water	3010A	
280-115307-23	MW-115D-20181008	Total/NA	Water	3010A	
280-115307-24	MW-6A-20181009	Total/NA	Water	3010A	
280-115307-25	MW-4A-20181005	Total/NA	Water	3010A	
280-115307-26	MW-4AQ-20181005	Total/NA	Water	3010A	
280-115307-34	MW-3A-20181008	Total/NA	Water	3010A	
280-115307-35	MW-103S-20181009	Total/NA	Water	3010A	
280-115307-36	MW-103D-20181009	Total/NA	Water	3010A	
MB 280-432959/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-432959/2-A	Lab Control Sample	Total/NA	Water	3010A	
280-115307-5 MS	MW-109S-20181006	Total/NA	Water	3010A	
280-115307-5 MSD	MW-109S-20181006	Total/NA	Water	3010A	

Prep Batch: 433330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	7470A	
280-115307-6	MW-112M-20181005	Total/NA	Water	7470A	
280-115307-7	MW-112MQ-20181005	Total/NA	Water	7470A	
280-115307-8	RW-4-20181007	Total/NA	Water	7470A	
280-115307-9	MW-121-20181007	Total/NA	Water	7470A	
280-115307-10	RW-7773P-20181007	Total/NA	Water	7470A	
280-115307-11	RW-3-20181007	Total/NA	Water	7470A	
280-115307-12	MW-7-20181008	Total/NA	Water	7470A	
280-115307-13	MW-106D-20181008	Total/NA	Water	7470A	
280-115307-14	MW-112D-20181005	Total/NA	Water	7470A	
280-115307-16	MW-109D-20181006	Total/NA	Water	7470A	
280-115307-23	MW-115D-20181008	Total/NA	Water	7470A	
280-115307-35	MW-103S-20181009	Total/NA	Water	7470A	
280-115307-36	MW-103D-20181009	Total/NA	Water	7470A	
MB 280-433330/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-433330/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-433330/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 433400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	6020B	432958
280-115307-6	MW-112M-20181005	Total/NA	Water	6020B	432958
280-115307-7	MW-112MQ-20181005	Total/NA	Water	6020B	432958
280-115307-8	RW-4-20181007	Total/NA	Water	6020B	432958
280-115307-9	MW-121-20181007	Total/NA	Water	6020B	432958

Metals (Continued)

Analysis Batch: 433400 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-10	RW-7773P-20181007	Total/NA	Water	6020B	432958
280-115307-11	RW-3-20181007	Total/NA	Water	6020B	432958
280-115307-12	MW-7-20181008	Total/NA	Water	6020B	432958
280-115307-13	MW-106D-20181008	Total/NA	Water	6020B	432958
280-115307-14	MW-112D-20181005	Total/NA	Water	6020B	432958
280-115307-15	MW-4-20181005	Total/NA	Water	6020B	432958
280-115307-16	MW-109D-20181006	Total/NA	Water	6020B	432958
280-115307-23	MW-115D-20181008	Total/NA	Water	6020B	432958
280-115307-24	MW-6A-20181009	Total/NA	Water	6020B	432958
280-115307-25	MW-4A-20181005	Total/NA	Water	6020B	432958
280-115307-26	MW-4AQ-20181005	Total/NA	Water	6020B	432958
280-115307-34	MW-3A-20181008	Total/NA	Water	6020B	432958
280-115307-35	MW-103S-20181009	Total/NA	Water	6020B	432958
280-115307-36	MW-103D-20181009	Total/NA	Water	6020B	432958
MB 280-432958/1-A	Method Blank	Total/NA	Water	6020B	432958
LCS 280-432958/2-A	Lab Control Sample	Total/NA	Water	6020B	432958
280-115307-5 MS	MW-109S-20181006	Total/NA	Water	6020B	432958
280-115307-5 MSD	MW-109S-20181006	Total/NA	Water	6020B	432958

Analysis Batch: 433525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	7470A	433330
280-115307-6	MW-112M-20181005	Total/NA	Water	7470A	433330
280-115307-7	MW-112MQ-20181005	Total/NA	Water	7470A	433330
280-115307-8	RW-4-20181007	Total/NA	Water	7470A	433330
280-115307-9	MW-121-20181007	Total/NA	Water	7470A	433330
280-115307-10	RW-7773P-20181007	Total/NA	Water	7470A	433330
280-115307-11	RW-3-20181007	Total/NA	Water	7470A	433330
280-115307-12	MW-7-20181008	Total/NA	Water	7470A	433330
280-115307-13	MW-106D-20181008	Total/NA	Water	7470A	433330
280-115307-14	MW-112D-20181005	Total/NA	Water	7470A	433330
280-115307-16	MW-109D-20181006	Total/NA	Water	7470A	433330
280-115307-23	MW-115D-20181008	Total/NA	Water	7470A	433330
280-115307-35	MW-103S-20181009	Total/NA	Water	7470A	433330
280-115307-36	MW-103D-20181009	Total/NA	Water	7470A	433330
MB 280-433330/1-A	Method Blank	Total/NA	Water	7470A	433330
LCS 280-433330/2-A	Lab Control Sample	Total/NA	Water	7470A	433330
LCSD 280-433330/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	433330

Analysis Batch: 433544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	6010C	432959
280-115307-6	MW-112M-20181005	Total/NA	Water	6010C	432959
280-115307-7	MW-112MQ-20181005	Total/NA	Water	6010C	432959
280-115307-8	RW-4-20181007	Total/NA	Water	6010C	432959
280-115307-9	MW-121-20181007	Total/NA	Water	6010C	432959
280-115307-10	RW-7773P-20181007	Total/NA	Water	6010C	432959
280-115307-11	RW-3-20181007	Total/NA	Water	6010C	432959
280-115307-12	MW-7-20181008	Total/NA	Water	6010C	432959
280-115307-13	MW-106D-20181008	Total/NA	Water	6010C	432959
280-115307-14	MW-112D-20181005	Total/NA	Water	6010C	432959

Metals (Continued)

Analysis Batch: 433544 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-15	MW-4-20181005	Total/NA	Water	6010C	432959
280-115307-16	MW-109D-20181006	Total/NA	Water	6010C	432959
280-115307-23	MW-115D-20181008	Total/NA	Water	6010C	432959
280-115307-24	MW-6A-20181009	Total/NA	Water	6010C	432959
280-115307-25	MW-4A-20181005	Total/NA	Water	6010C	432959
280-115307-26	MW-4AQ-20181005	Total/NA	Water	6010C	432959
280-115307-34	MW-3A-20181008	Total/NA	Water	6010C	432959
280-115307-35	MW-103S-20181009	Total/NA	Water	6010C	432959
280-115307-36	MW-103D-20181009	Total/NA	Water	6010C	432959
MB 280-432959/1-A	Method Blank	Total/NA	Water	6010C	432959
LCS 280-432959/2-A	Lab Control Sample	Total/NA	Water	6010C	432959
280-115307-5 MS	MW-109S-20181006	Total/NA	Water	6010C	432959
280-115307-5 MSD	MW-109S-20181006	Total/NA	Water	6010C	432959

General Chemistry

Analysis Batch: 433030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	SM 2320B	
280-115307-6	MW-112M-20181005	Total/NA	Water	SM 2320B	
280-115307-7	MW-112MQ-20181005	Total/NA	Water	SM 2320B	
280-115307-8	RW-4-20181007	Total/NA	Water	SM 2320B	
280-115307-9	MW-121-20181007	Total/NA	Water	SM 2320B	
280-115307-11	RW-3-20181007	Total/NA	Water	SM 2320B	
280-115307-12	MW-7-20181008	Total/NA	Water	SM 2320B	
280-115307-13	MW-106D-20181008	Total/NA	Water	SM 2320B	
280-115307-14	MW-112D-20181005	Total/NA	Water	SM 2320B	
280-115307-15	MW-4-20181005	Total/NA	Water	SM 2320B	
MB 280-433030/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-433030/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 433135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	9060A	
280-115307-6	MW-112M-20181005	Total/NA	Water	9060A	
280-115307-7	MW-112MQ-20181005	Total/NA	Water	9060A	
280-115307-8	RW-4-20181007	Total/NA	Water	9060A	
280-115307-9	MW-121-20181007	Total/NA	Water	9060A	
280-115307-11	RW-3-20181007	Total/NA	Water	9060A	
280-115307-12	MW-7-20181008	Total/NA	Water	9060A	
280-115307-14	MW-112D-20181005	Total/NA	Water	9060A	
280-115307-16	MW-109D-20181006	Total/NA	Water	9060A	
280-115307-35	MW-103S-20181009	Total/NA	Water	9060A	
280-115307-36	MW-103D-20181009	Total/NA	Water	9060A	
MB 280-433135/35	Method Blank	Total/NA	Water	9060A	
MB 280-433135/4	Method Blank	Total/NA	Water	9060A	
LCS 280-433135/3	Lab Control Sample	Total/NA	Water	9060A	
LCS 280-433135/34	Lab Control Sample	Total/NA	Water	9060A	
280-115307-14 MS	MW-112D-20181005	Total/NA	Water	9060A	
280-115307-14 MSD	MW-112D-20181005	Total/NA	Water	9060A	

General Chemistry (Continued)

Analysis Batch: 433267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-16	MW-109D-20181006	Total/NA	Water	SM 2320B	
280-115307-23	MW-115D-20181008	Total/NA	Water	SM 2320B	
280-115307-24	MW-6A-20181009	Total/NA	Water	SM 2320B	
280-115307-25	MW-4A-20181005	Total/NA	Water	SM 2320B	
280-115307-26	MW-4AQ-20181005	Total/NA	Water	SM 2320B	
280-115307-34	MW-3A-20181008	Total/NA	Water	SM 2320B	
280-115307-35	MW-103S-20181009	Total/NA	Water	SM 2320B	
280-115307-36	MW-103D-20181009	Total/NA	Water	SM 2320B	
MB 280-433267/17	Method Blank	Total/NA	Water	SM 2320B	
MB 280-433267/4	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-433267/16	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 280-433267/3	Lab Control Sample	Total/NA	Water	SM 2320B	
280-115307-34 DU	MW-3A-20181008	Total/NA	Water	SM 2320B	

Analysis Batch: 433433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	9056A	
280-115307-6	MW-112M-20181005	Total/NA	Water	9056A	
280-115307-7	MW-112MQ-20181005	Total/NA	Water	9056A	
280-115307-8	RW-4-20181007	Total/NA	Water	9056A	
280-115307-9	MW-121-20181007	Total/NA	Water	9056A	
280-115307-9	MW-121-20181007	Total/NA	Water	9056A	
280-115307-11	RW-3-20181007	Total/NA	Water	9056A	
280-115307-12	MW-7-20181008	Total/NA	Water	9056A	
280-115307-13	MW-106D-20181008	Total/NA	Water	9056A	
280-115307-14	MW-112D-20181005	Total/NA	Water	9056A	
280-115307-15	MW-4-20181005	Total/NA	Water	9056A	
280-115307-16	MW-109D-20181006	Total/NA	Water	9056A	
280-115307-23	MW-115D-20181008	Total/NA	Water	9056A	
280-115307-24	MW-6A-20181009	Total/NA	Water	9056A	
280-115307-25	MW-4A-20181005	Total/NA	Water	9056A	
280-115307-26	MW-4AQ-20181005	Total/NA	Water	9056A	
280-115307-34	MW-3A-20181008	Total/NA	Water	9056A	
280-115307-35	MW-103S-20181009	Total/NA	Water	9056A	
280-115307-36	MW-103D-20181009	Total/NA	Water	9056A	
MB 280-433433/6	Method Blank	Total/NA	Water	9056A	
LCS 280-433433/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-433433/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-433433/3	Lab Control Sample	Total/NA	Water	9056A	
280-115307-34 MS	MW-3A-20181008	Total/NA	Water	9056A	
280-115307-34 MSD	MW-3A-20181008	Total/NA	Water	9056A	
280-115307-34 DU	MW-3A-20181008	Total/NA	Water	9056A	

Analysis Batch: 433511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	353.2	
280-115307-6	MW-112M-20181005	Total/NA	Water	353.2	
280-115307-7	MW-112MQ-20181005	Total/NA	Water	353.2	
280-115307-8	RW-4-20181007	Total/NA	Water	353.2	
280-115307-9	MW-121-20181007	Total/NA	Water	353.2	
280-115307-11	RW-3-20181007	Total/NA	Water	353.2	

General Chemistry (Continued)

Analysis Batch: 433511 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-12	MW-7-20181008	Total/NA	Water	353.2	
280-115307-13	MW-106D-20181008	Total/NA	Water	353.2	
280-115307-14	MW-112D-20181005	Total/NA	Water	353.2	
280-115307-15	MW-4-20181005	Total/NA	Water	353.2	
280-115307-16	MW-109D-20181006	Total/NA	Water	353.2	
280-115307-23	MW-115D-20181008	Total/NA	Water	353.2	
280-115307-24	MW-6A-20181009	Total/NA	Water	353.2	
280-115307-25	MW-4A-20181005	Total/NA	Water	353.2	
280-115307-26	MW-4AQ-20181005	Total/NA	Water	353.2	
280-115307-34	MW-3A-20181008	Total/NA	Water	353.2	
280-115307-35	MW-103S-20181009	Total/NA	Water	353.2	
280-115307-36	MW-103D-20181009	Total/NA	Water	353.2	
MB 280-433511/22	Method Blank	Total/NA	Water	353.2	
MB 280-433511/60	Method Blank	Total/NA	Water	353.2	
LCS 280-433511/21	Lab Control Sample	Total/NA	Water	353.2	
LCS 280-433511/59	Lab Control Sample	Total/NA	Water	353.2	
280-115307-14 MS	MW-112D-20181005	Total/NA	Water	353.2	
280-115307-14 MSD	MW-112D-20181005	Total/NA	Water	353.2	

Prep Batch: 433909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	SM 4500 CN C	
280-115307-6	MW-112M-20181005	Total/NA	Water	SM 4500 CN C	
280-115307-7	MW-112MQ-20181005	Total/NA	Water	SM 4500 CN C	
280-115307-14	MW-112D-20181005	Total/NA	Water	SM 4500 CN C	
280-115307-16	MW-109D-20181006	Total/NA	Water	SM 4500 CN C	
MB 280-433909/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-433909/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-433909/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-433909/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	

Prep Batch: 433946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-8	RW-4-20181007	Total/NA	Water	SM 4500 CN C	
280-115307-9	MW-121-20181007	Total/NA	Water	SM 4500 CN C	
280-115307-10	RW-7773P-20181007	Total/NA	Water	SM 4500 CN C	
280-115307-11	RW-3-20181007	Total/NA	Water	SM 4500 CN C	
MB 280-433946/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-433946/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-433946/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-433946/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
280-115307-8 MS	RW-4-20181007	Total/NA	Water	SM 4500 CN C	
280-115307-8 MSD	RW-4-20181007	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 434011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-5	MW-109S-20181006	Total/NA	Water	SM 4500 CN E	433909
280-115307-6	MW-112M-20181005	Total/NA	Water	SM 4500 CN E	433909
280-115307-7	MW-112MQ-20181005	Total/NA	Water	SM 4500 CN E	433909
280-115307-8	RW-4-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115307-9	MW-121-20181007	Total/NA	Water	SM 4500 CN E	433946

General Chemistry (Continued)

Analysis Batch: 434011 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-10	RW-7773P-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115307-11	RW-3-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115307-14	MW-112D-20181005	Total/NA	Water	SM 4500 CN E	433909
280-115307-16	MW-109D-20181006	Total/NA	Water	SM 4500 CN E	433909
MB 280-433909/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	433909
MB 280-433946/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	433946
HLCS 280-433909/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433909
HLCS 280-433946/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433946
LCS 280-433909/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433909
LCS 280-433946/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433946
LLCS 280-433909/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433909
LLCS 280-433946/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433946
280-115307-8 MS	RW-4-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115307-8 MSD	RW-4-20181007	Total/NA	Water	SM 4500 CN E	433946

Prep Batch: 434101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-12	MW-7-20181008	Total/NA	Water	SM 4500 CN C	
280-115307-13	MW-106D-20181008	Total/NA	Water	SM 4500 CN C	
280-115307-23	MW-115D-20181008	Total/NA	Water	SM 4500 CN C	
MB 280-434101/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-434101/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-434101/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-434101/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 434316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-12	MW-7-20181008	Total/NA	Water	SM 4500 CN E	434101
280-115307-13	MW-106D-20181008	Total/NA	Water	SM 4500 CN E	434101
280-115307-23	MW-115D-20181008	Total/NA	Water	SM 4500 CN E	434101
MB 280-434101/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	434101
HLCS 280-434101/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434101
LCS 280-434101/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434101
LLCS 280-434101/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434101

Prep Batch: 434401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-35	MW-103S-20181009	Total/NA	Water	SM 4500 CN C	
280-115307-36	MW-103D-20181009	Total/NA	Water	SM 4500 CN C	
MB 280-434401/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-434401/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-434401/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-434401/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 434431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115307-35	MW-103S-20181009	Total/NA	Water	SM 4500 CN E	434401
280-115307-36	MW-103D-20181009	Total/NA	Water	SM 4500 CN E	434401
MB 280-434401/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	434401
HLCS 280-434401/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434401
LCS 280-434401/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434401

General Chemistry (Continued)

Analysis Batch: 434431 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LLCS 280-434401/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434401

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8290			987.1 mL	20 uL	252699	10/16/18 14:34	A1A	TAL SAC
Total/NA	Analysis	8290		1			254635	10/24/18 08:49	AS	TAL SAC

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8290			938.3 mL	20 uL	252699	10/16/18 14:34	A1A	TAL SAC
Total/NA	Analysis	8290		1			254638	10/24/18 18:31	SMA	TAL SAC

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8290			1052.9 mL	20 uL	252699	10/16/18 14:34	A1A	TAL SAC
Total/NA	Analysis	8290		1			254638	10/24/18 19:17	SMA	TAL SAC

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8290			972.1 mL	20 uL	252699	10/16/18 14:34	A1A	TAL SAC
Total/NA	Analysis	8290		1			254638	10/24/18 20:03	SMA	TAL SAC

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 17:19	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 00:41	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 19:07	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:10	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 17:27	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/15/18 23:45	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433135	10/11/18 23:28	LPL	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Client Sample ID: MW-109S-20181006

Date Collected: 10/06/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2320B		1			433030	10/11/18 16:23	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:03	RK	TAL DEN

Client Sample ID: MW-112M-20181005

Date Collected: 10/05/18 15:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		4	20 mL	20 mL	433054	10/12/18 13:05	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 17:32	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 00:56	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 19:34	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:13	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 17:29	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 00:09	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433135	10/11/18 23:42	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433030	10/11/18 16:34	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:05	RK	TAL DEN

Client Sample ID: MW-112MQ-20181005

Date Collected: 10/05/18 15:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		4	20 mL	20 mL	433054	10/12/18 13:27	MD	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 17:46	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 00:59	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 19:38	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:19	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 17:31	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 00:27	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433135	10/12/18 00:32	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433030	10/11/18 16:43	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Client Sample ID: MW-112MQ-20181005

Date Collected: 10/05/18 15:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:14	RK	TAL DEN

Client Sample ID: RW-4-20181007

Date Collected: 10/07/18 12:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 18:13	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:03	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 19:42	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:22	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 17:33	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 00:46	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433135	10/12/18 00:51	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433030	10/11/18 16:53	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433946	10/18/18 11:18	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:46	RK	TAL DEN

Client Sample ID: MW-121-20181007

Date Collected: 10/07/18 10:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 18:39	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:06	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 19:46	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:24	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 17:47	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 01:05	A1D	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	433433	10/16/18 02:01	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433135	10/12/18 01:10	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433030	10/11/18 17:07	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			25 mL	50 mL	433946	10/18/18 11:18	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:50	RK	TAL DEN

Client Sample ID: RW-7773P-20181007

Lab Sample ID: 280-115307-10

Date Collected: 10/07/18 16:05

Matrix: Water

Date Received: 10/10/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:24	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 19:50	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:26	THP	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433946	10/18/18 11:18	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:52	RK	TAL DEN

Client Sample ID: RW-3-20181007

Lab Sample ID: 280-115307-11

Date Collected: 10/07/18 10:45

Matrix: Water

Date Received: 10/10/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433352	10/14/18 14:42	DPI	TAL DEN
Total/NA	Analysis	8260B	DL	4	20 mL	20 mL	433383	10/15/18 13:01	DPI	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433444	10/15/18 16:25	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:27	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 19:53	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:28	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 17:49	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 02:20	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433135	10/12/18 01:30	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433030	10/11/18 17:33	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433946	10/18/18 11:18	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:53	RK	TAL DEN

Client Sample ID: MW-7-20181008

Lab Sample ID: 280-115307-12

Date Collected: 10/08/18 09:50

Matrix: Water

Date Received: 10/10/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433352	10/14/18 15:03	DPI	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433615	10/16/18 17:36	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:31	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 19:57	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Client Sample ID: MW-7-20181008

Date Collected: 10/08/18 09:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7470A		1			433525	10/15/18 19:30	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 17:51	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 02:38	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433135	10/12/18 01:49	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433030	10/11/18 17:41	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	434101	10/19/18 09:01	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434316	10/19/18 18:29	RK	TAL DEN

Client Sample ID: MW-106D-20181008

Date Collected: 10/08/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433352	10/14/18 15:24	DPI	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:34	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 20:01	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:33	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 17:53	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 02:57	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			433030	10/11/18 17:50	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	434101	10/19/18 09:01	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434316	10/19/18 18:30	RK	TAL DEN

Client Sample ID: MW-112D-20181005

Date Collected: 10/05/18 13:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433352	10/14/18 15:45	DPI	TAL DEN
Total/NA	Analysis	8260B	DL	10	20 mL	20 mL	433383	10/15/18 13:22	DPI	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 18:53	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:38	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 20:05	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:35	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 17:59	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 03:16	A1D	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Client Sample ID: MW-112D-20181005

Date Collected: 10/05/18 13:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1			433135	10/12/18 02:59	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433030	10/11/18 17:59	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:15	RK	TAL DEN

Client Sample ID: MW-4-20181005

Date Collected: 10/05/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433383	10/15/18 14:26	DPI	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:41	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 20:17	LMT	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 18:05	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 03:35	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			433030	10/11/18 18:18	SGB	TAL DEN

Client Sample ID: MW-109D-20181006

Date Collected: 10/06/18 09:45
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433542	10/16/18 12:28	DPI	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 19:06	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:45	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 20:20	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:37	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 18:19	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 03:53	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433135	10/12/18 04:34	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 16:38	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:17	RK	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:50
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433383	10/15/18 15:30	DPI	TAL DEN
Total/NA	Analysis	8260B	DL	4	20 mL	20 mL	433383	10/15/18 15:51	DPI	TAL DEN

Client Sample ID: RW-9-20181007
Date Collected: 10/07/18 12:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-19
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433383	10/15/18 16:12	DPI	TAL DEN
Total/NA	Analysis	8260B	DL	10	20 mL	20 mL	433383	10/15/18 16:33	DPI	TAL DEN

Client Sample ID: EB-0-VOC-20181006
Date Collected: 10/06/18 09:20
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433054	10/12/18 16:23	MD	TAL DEN

Client Sample ID: EB-2-VOC-20181006
Date Collected: 10/06/18 09:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-21
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433054	10/12/18 16:45	MD	TAL DEN

Client Sample ID: TB-7-VOC-20181009
Date Collected: 10/09/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-22
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433352	10/14/18 17:31	DPI	TAL DEN

Client Sample ID: MW-115D-20181008
Date Collected: 10/08/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-23
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433352	10/14/18 17:52	DPI	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:48	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 20:24	LMT	TAL DEN

TestAmerica Denver

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Client Sample ID: MW-115D-20181008

Date Collected: 10/08/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-23

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:39	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 18:21	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 04:12	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 16:48	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	434101	10/19/18 09:01	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434316	10/19/18 18:32	RK	TAL DEN

Client Sample ID: MW-6A-20181009

Date Collected: 10/09/18 16:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-24

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433352	10/14/18 18:13	DPI	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:52	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 20:28	LMT	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 18:23	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 04:31	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 16:56	SGB	TAL DEN

Client Sample ID: MW-4A-20181005

Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-25

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433383	10/15/18 16:54	DPI	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 01:55	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 20:32	LMT	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 18:25	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 04:49	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 17:04	SGB	TAL DEN

Client Sample ID: MW-4AQ-20181005

Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-26

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433352	10/14/18 18:55	DPI	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Client Sample ID: MW-4AQ-20181005
Date Collected: 10/05/18 13:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-26
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 02:13	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 20:36	LMT	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 18:27	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 05:46	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 17:12	SGB	TAL DEN

Client Sample ID: EB-4-VOC-20181008
Date Collected: 10/08/18 14:55
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-27
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433054	10/12/18 17:06	MD	TAL DEN

Client Sample ID: RW-17-20181007
Date Collected: 10/07/18 11:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-29
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433383	10/15/18 17:15	DPI	TAL DEN
Total/NA	Analysis	8260B	DL	4	20 mL	20 mL	433383	10/15/18 17:36	DPI	TAL DEN

Client Sample ID: EB-3-VOC-100718
Date Collected: 10/07/18 09:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-30
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433383	10/15/18 17:58	DPI	TAL DEN

Client Sample ID: RW-10-20181007
Date Collected: 10/07/18 11:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-33
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433383	10/15/18 12:12	DPI	TAL DEN
Total/NA	Analysis	8260B	DL	4	20 mL	20 mL	433542	10/16/18 12:50	DPI	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Client Sample ID: MW-3A-20181008

Date Collected: 10/08/18 14:35
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-34

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	434030	10/18/18 23:48	FCN	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 02:16	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 20:40	LMT	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 18:29	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 06:04	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 18:14	SGB	TAL DEN

Client Sample ID: MW-103S-20181009

Date Collected: 10/09/18 10:05
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-35

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	434030	10/19/18 00:09	FCN	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433615	10/16/18 18:03	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 02:20	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 20:43	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:46	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 18:31	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 07:19	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433135	10/12/18 04:49	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 18:33	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	434401	10/22/18 12:42	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434431	10/22/18 18:26	RK	TAL DEN

Client Sample ID: MW-103D-20181009

Date Collected: 10/09/18 14:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-36

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	434030	10/19/18 00:31	FCN	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433615	10/16/18 18:17	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432959	10/13/18 14:15	DAL	TAL DEN
Total/NA	Analysis	6010C		1			433544	10/16/18 02:23	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432958	10/13/18 08:30	THP	TAL DEN
Total/NA	Analysis	6020B		1			433400	10/14/18 20:47	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433330	10/15/18 12:45	THP	TAL DEN
Total/NA	Analysis	7470A		1			433525	10/15/18 19:48	THP	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Client Sample ID: MW-103D-20181009

Date Collected: 10/09/18 14:10
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-36

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	353.2		1	100 mL	100 mL	433511	10/15/18 18:33	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	433433	10/16/18 07:38	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433135	10/12/18 05:07	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 18:41	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	434401	10/22/18 12:42	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434431	10/22/18 18:35	RK	TAL DEN

Client Sample ID: TB-9-VOC-20181009

Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115307-37

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433054	10/12/18 17:28	MD	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Laboratory: TestAmerica Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19
A2LA	ISO/IEC 17025		2907.01	10-31-19
Alabama	State Program	4	40730	09-30-12 *
Alaska (UST)	State Program	10	UST-30	01-08-19
Arizona	State Program	9	AZ0713	12-20-18
Arkansas DEQ	State Program	6	88-0687	06-01-19
California	State Program	9	2513	01-18-19
Connecticut	State Program	1	PH-0686	09-30-20
Florida	NELAP	4	E87667	06-30-19
Georgia	State Program	4	N/A	01-08-19 *
Illinois	NELAP	5	200017	04-30-19
Iowa	State Program	7	370	12-01-18
Kansas	NELAP	7	E-10166	04-30-19
Louisiana	NELAP	6	02096	06-30-19
Maine	State Program	1	CO0002	03-03-19
Minnesota	NELAP	5	8-999-405	12-31-18
Nevada	State Program	9	CO0026	07-31-19
New Hampshire	NELAP	1	205310	04-28-19
New Jersey	NELAP	2	CO004	06-30-19
New York	NELAP	2	11964	04-01-19
North Carolina (WW/SW)	State Program	4	358	12-31-18
North Dakota	State Program	8	R-034	01-08-19
Oklahoma	State Program	6	8614	08-31-19
Oregon	NELAP	10	4025	01-08-19
Pennsylvania	NELAP	3	68-00664	07-31-19
South Carolina	State Program	4	72002001	01-08-19
Texas	NELAP	6	T104704183-17-14	09-30-19
US Fish & Wildlife	Federal			07-31-19
USDA	Federal			03-26-21
Utah	NELAP	8	CO00026	07-31-19
Virginia	NELAP	3	460232	06-14-19
Washington	State Program	10	C583	08-03-19
West Virginia DEP	State Program	3	354	12-31-18
Wisconsin	State Program	5	999615430	08-31-19 *
Wyoming (UST)	A2LA	8	2907.01	10-31-19

Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD ELAP		L2468	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: CDM Smith, Inc. TestAmerica Job ID: 280-115307-1
Project/Site: Bannock Ft. Hall Mine LF, Idaho

Laboratory: TestAmerica Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Illinois	NELAP	5	200060	03-17-19
Kansas	NELAP	7	E-10375	10-31-18 *
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-18-19
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	03-31-19
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-19
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	12-31-20
Utah	NELAP	8	CA00044	02-28-19
Vermont	State Program	1	VT-4040	04-30-19
Virginia	NELAP	3	460278	03-14-19
Washington	State Program	10	C581	05-05-19
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Lesh	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-12-20181008	10/8/18	1010	G	W										2									2	
MW-9-20181007	10/7/18	14:00	G	W										2									2	
IWJ-4R-20181006	10/6/18	18:00	G	W										2									2	
MW-8-20181007	10/7/18	10:35	G	W										2									2	

280-115307 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level FOUR Data Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10/10/18 0900	TAOEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		1.1, 0.9, 0.8, 1.7, 4.9, 4.6, 3.5 +0.7 transfer JAC

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kayla Gulp	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify), Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/8020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-1095-20181006	10/6/18	1130	G	W				1							1	1		1	1	1	3	1		
MW-112M-20181006	10/6/18	1510	G	W				1							1	1		1	1	1	3	1		
MW-112MD-20181005	10/5/18	1515	G	W				1							1	1		1	1	1	3	1		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
		10/9/18 1430			10/10/18 0900	TASEN
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Lepsch	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify), Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Wwater, Ssolid, Owaste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S	X	
RW-4-20181007	10/7/18	12:40	G	W				1							1	1		1	1	1	3	1	9	
MW-121-20181007	10/7/18	10:15	G	W				1							1	1		1	1	1	3	1	9	
RW-7773P-20181007	10/7/18	NOS	G	W				1							1	1							3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level TWO

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/9/18 1600			10/10/18 0900	WDFW
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
Preservation Code:							A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
PW-3-20181007	10/7/18	1045	G	W				1							1	1		1	1	1	3	1	9	
MW-7-20181008	10/8/18	0950	G	W				1							1	1		1	1	1	3	1	9	
MW-10D-20181008	10/8/18	1440	G	W				1							1	1		1	1	1			5	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level TWO

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/9/18 1600			10/10/18 0900	TAOEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kona Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-112D-20181005	10/5/18	1350	G	W			3	1							1	1		1	1	1	3	1	12	
MW-4-20181005	10/5/18	1500	G	W			3	1										1	1	1			6	
MW-109D-20181006	10/6/18	0945	G	W			3	1							1	1		1	1	1	3	1	12	
MW-112MD-20181005	10/5/18	1515	G	W			3																	
MW-112M-20181005	10/5/18	510	G	W			3																	
MW-109S-20181006	10/6/18	1150	G	W			3																	
RW-9-20181007	10/7/18	1230	G	W			3																	
EB-0-VOC-20181006	10/6/18	920	G	W			3																	
EB-2-VOC-20181006	10/6/18	915	G	W			3																	
TB-7-VOC-20181009	10/9/18	1130	G	W			2																	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level IV

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	10/9/18 1600		Received by:	10/10/18 0900	TAEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kaleb N	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-9057	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-115D-20181008	10/8/18	1305	W	G			3	1							1	1		1	1	1			8	
MW-6A-20181009	10/9/18	1440	W	G			3	1										1	1	1			6	
MW-4A-20181005	10/5/18	1305	W	G			3	1										1	1	1			6	
MW-4AQ-20181005	10/5/18	1305	W	G			3	1										1	1	1			6	
EB-4-VOC-20181009	10/9/18	1455	W	G			3																3	
MW-106D-20181008	10/8/18	1640	W	G			3																3	
RW-7-20181004	10/7/18	1130	W	G			3																3	
EB-3-VOC-10071B	10/7/18	905	W	G			3																3	
RW-3-20181007	10/7/18	1045	W	G			3																3	
MW-7-20181008	10/8/18	950	W	G			3																3	
RW-10-20181007	10/7/18	1115	W	G			3																3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10/10/18 0900	TAOEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kayla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-3A-20181008	10/8/18	1435	G	W			3	1										1	1	1			6	
MW-1035-20181009	10/9/18	1005	G	W			3	1							1	1		1	1	1	3	1	12	
MW-103D-20181009	10/9/18	1410	G	W			3	1							1	1		1	1	1	3	1	12	
TB-9-002-20181009	10/9/18	1500	G	W			2																2	

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level IV

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10/10/18 0900	TAPEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bieniulis, Dylan T	Carrier Tracking No(s):	COC No: 280-457861.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: dylan.bieniulis@testamericainc.com	State of Origin: Idaho	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 280-115307-1
Address: 880 Riverside Parkway,	Due Date Requested: 10/26/2018			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: 28018772			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8290/8290_P_Sep (MOD) 2,3,7,8 - TCDD only	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-12-20181008 (280-115307-1)	10/8/18	10:10 Mountain		Water			X	2	
MW-9-20181007 (280-115307-2)	10/7/18	14:00 Mountain		Water			X	2	
INJ-1R-20181006 (280-115307-3)	10/6/18	18:00 Mountain		Water			X	2	
MW-8-20181007 (280-115307-4)	10/7/18	10:35 Mountain		Water			X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	10/7/2018 1809	TALSPK		10-12-18 935	TA-Sac
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes ☐ No	Custody Seal No.: 678917	Cooler Temperature(s) °C and Other Remarks: 1.9

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: CDM Smith, Inc.

Job Number: 280-115307-1

Login Number: 115307
List Number: 1
Creator: Rhoades, Joseph P

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	False	Refer to Job Narrative for details.
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: CDM Smith, Inc.

Job Number: 280-115307-1

Login Number: 115307
List Number: 2
Creator: Gooch, Mayce

List Source: TestAmerica Sacramento
List Creation: 10/12/18 03:10 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	678917
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.9C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115307-1

Method: 8290 - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (40-135)							
280-115307-1	MW-12-20181008	89							
280-115307-2	MW-9-20181007	91							
280-115307-3	INJ-1R-20181006	88							
280-115307-4	MW-8-20181007	93							
LCS 320-252699/2-A	Lab Control Sample	85							
LCSD 320-252699/3-A	Lab Control Sample Dup	89							
MB 320-252699/1-A	Method Blank	91							

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Sample Receiving Notes

280-115307 Field Sheet

Job: —

Tracking # 4467 6850 1443 SO / PO / FO / 2-Day / SAT / Ground / UPS / Courier / Drop Off / GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK-2 / AK-3 / AK-5 / AK-6 / HACCP / Other _____ (+0.7°C)

Ice — Wet — Gel _____ Other _____

Cooler Custody Seal: 678917

Sample Custody Seal: —

Cooler ID: —

Temp: Observed 1.9 Corrected 1.9

From: Temp Blank ☐ Sample ☐

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace?	☐	☐	☐
Alkalinity has no headspace?	☐	☐	☐
CoC is complete w/o discrepancies?	☐	☐	☐
Samples received within holding time?	☐	☐	☐
Sample preservatives verified?	☐	☐	☐
Cooler compromised/tampered with?	☐	☐	☐
Samples compromised/tampered with?	☐	☐	☐
Samples w/o discrepancies?	☐	☐	☐
Sample containers have legible labels?	☐	☐	☐
Containers are not broken or leaking?	☐	☐	☐
Sample date/times are provided.	☐	☐	☐
Appropriate containers are used?	☐	☐	☐
Sample bottles are completely filled?	☐	☐	☐
Zero headspace?*	☐	☐	☐
Multiphasic samples are not present?	☐	☐	☐
Sample temp OK?	☐	☐	☐
Sample out of temp?	☐	☐	☐

Initials: MG Date: 10-12-18

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

W24E
cart

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115369-1
Client Project/Site: Bannock Ft. Hall Mine LF, Idaho

For:
CDM Smith, Inc.
14432 S.E. Eastgate Way
Suite 100
Bellevue, Washington 98007-6493

Attn: Mary Lou Fox

Authorized for release by:
11/8/2018 7:38:29 PM

Dylan Bieniulis, Project Manager I
(303)736-0100
dylan.bieniulis@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions 3
Case Narrative 5
Detection Summary 11
Method Summary 20
Sample Summary 21
Client Sample Results 22
Surrogate Summary 83
QC Sample Results 87
QC Association 141
Chronicle 152
Certification Summary 162
Chain of Custody 163
Receipt Checklists 172

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115369-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: CDM Smith, Inc.

Project: Bannock Ft. Hall Mine LF, Idaho

Report Number: 280-115369-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/10/2018 4:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 9 coolers at receipt time were 0.8º C, 1.1º C, 1.4º C, 1.5º C, 1.9º C, 2.7º C, 3.3º C, 3.4º C and 4.0º C.

The laboratory did not receive any unpreserved sample volume to perform the 9056A Anions (Cl and SO4) and 2320B Alkalinity analyses requested for MW-5A-20181008 (280-115369-21) on the chain of custody. The laboratory did not log the analyses due to insufficient volume received. The client was notified on 10/11/2018.

The laboratory received two HCl preserved trip blank VOA vials labeled as TB-5-VOC-20181009 that were not listed on the chain of custody. The laboratory logged the containers as TB-5-VOC-20181009 (280-115369-23) for 8260B VOCs and with a collection date/time per the information on the container labels and will proceed unless instructed otherwise. The client was notified on 10/11/2018.

Three of three HCl preserved VOA vials for the requested 8260B VOCs analysis for RW-7773P-20181007 (280-115369-7) were received with a headspace bubble greater than 6 mm in diameter. Analytical results may be biased low due to headspace. The laboratory will proceed with the requested analysis unless instructed otherwise. The client was notified on 10/11/2018.

There was no sample collection time listed on the container label of the 250 mL amber glass bottle of sulfuric acid preserved sample volume received for the requested 353.2 Nitrate/Nitrite analysis or the container label of the 250 mL amber glass bottle of sulfuric acid preserved sample volume received for the requested 9060A TOC analysis for RW-9-20181007 (280-115369-11). The laboratory logged the sample collection time of the containers per the chain of custody. The client was notified on 10/11/2018.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples MW-106S-20181007 (280-115369-1), MW-110D-20181007 (280-115369-2), MW-115S-20181008 (280-115369-3), TB-6-VOC-20181009 (280-115369-4), RW-4-20181007 (280-115369-5), MW-121-20181007 (280-115369-6), RW-7773P-20181007 (280-115369-7), EB-4-VOC-20181007 (280-115369-8), INF-COM-20181007 (280-115369-9), MW-102S-20181006 (280-115369-13), MW-110S-20181006 (280-115369-14), RW-15-20181006 (280-115369-15), MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18), INJ-1R-20181006 (280-115369-19), MW-109S-20181006 (280-115369-20), MW-5A-20181008 (280-115369-21), TB-8-VOC-20181009 (280-115369-22) and TB-5-VOC-20181009 (280-115369-23) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/15/2018, 10/16/2018, 10/17/2018, 10/18/2018 and 10/19/2018.

Job ID: 280-115369-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Methylene Chloride was detected in method blank MB 280-433542/6 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Methylene Chloride was detected in method blank MB 280-434030/8 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Methylene Chloride was detected in method blank MB 280-434216/8 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Trichloroethene failed the recovery criteria low for the MS of sample MW-109S-20181006MS (280-115369-20) in batch 280-433383. Trichloroethene failed the recovery criteria low for the MSD of sample MW-109S-20181006MSD (280-115369-20) in batch 280-433383. The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. The associated laboratory control sample (LCS) met acceptance criteria. Trichloroethene failed the recovery criteria low for the MS of sample MW-110D-20181007MS (280-115369-2) in batch 280-433681. Trichloroethene failed the recovery criteria low for the MSD of sample MW-110D-20181007MSD (280-115369-2) in batch 280-433681. Refer to the QC report for details.

The continuing calibration verification (CCV) associated with batch 280-434030 recovered above the upper control limit for methyl methacrylate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

The continuing calibration verification (CCV) associated with batch 280-434216 recovered above the upper control limit for methyl methacrylate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

The following volatile sample was analyzed with significant headspace in the sample container: RW-7773P-20181007 (280-115369-7). Significant headspace is defined as a bubble greater than 6 mm in diameter.

The following volatile sample was analyzed with significant headspace in the sample container: MW-106S-20181007 (280-115369-1). Significant headspace is defined as a bubble greater than 6 mm in diameter.

Samples RW-4-20181007 (280-115369-5)[4X], MW-110S-20181006 (280-115369-14)[4X], RW-15-20181006 (280-115369-15)[10X] and MW-109S-20181006 (280-115369-20)[4X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18) and INJ-1R-20181006 (280-115369-19) were analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 10/12/2018 and analyzed on 10/17/2018 and 10/18/2018.

Internal standard (ISTD) response for Naphthalene-d8 for the following sample was outside acceptance criteria: (CCV 280-433965/6). This ISTD does not correspond to any of the requested target compounds; therefore, the data have been reported.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DISSOLVED GASES

Samples MW-110D-20181007 (280-115369-2), RW-10-20181007 (280-115369-10), RW-9-20181007 (280-115369-11), RW-17-20181007 (280-115369-12), MW-102S-20181006 (280-115369-13), MW-110S-20181006 (280-115369-14), RW-15-20181006 (280-115369-15) and MW-109S-20181006 (280-115369-20) were analyzed for dissolved gases in accordance with RSK_175. The samples were analyzed on 10/13/2018 and 10/15/2018.

Analytes Acetylene/Ethane co-elute on one of the columns used for this analysis. As a result, there are no results reported for the %Difference in the concentration on the Form X.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHLORINATED PESTICIDES

Job ID: 280-115369-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18) and INJ-1R-20181006 (280-115369-19) were analyzed for chlorinated pesticides in accordance with SW 846 8081A. The samples were prepared on 10/11/2018 and analyzed on 10/31/2018.

TestAmerica Denver's practice for the reporting of dual column data in packages requiring forms and/or raw data is to report the surrogates from both columns, and the preferred result for any given target analyte from the analyst selected column. The preferred results for target analytes and surrogates are reported as PRIMARY on the Sample Datasheets.

Isodrin was detected in method blank MB 280-433037/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The laboratory control sample (LCS) for preparation batch 280-433037 and analytical batch 280-435706 recovered outside control limits for the following analytes: Endosulfan II. This analyte was biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. Refer to the QC report for details.

The following samples required a mercury clean-up, via EPA Method 3660A, to reduce matrix interferences caused by sulfur (preparation batch 280-433037 and analytical batch 280-435706): MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18), INJ-1R-20181006 (280-115369-19), (LCS 280-433037/2-A), (LCSD 280-433037/3-A) and (MB 280-433037/1-A).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18) and INJ-1R-20181006 (280-115369-19) were analyzed for polychlorinated biphenyls (PCBs) in accordance with SW 846 8082A. The samples were prepared on 10/11/2018 and analyzed on 10/27/2018.

TestAmerica Denver's practice for the reporting of dual column data in packages requiring forms and/or raw data is to report the surrogates from both columns, and the preferred result for any given target analyte from the analyst selected column. The preferred results for target analytes and surrogates are reported as PRIMARY on the Sample Datasheets.

The following samples required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences (preparation batch 280-433037 and analytical batch 280-435087): MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18), INJ-1R-20181006 (280-115369-19), (LCS 280-433037/4-A), (MB 280-433037/1-A), (280-115304-A-5-A), (280-115304-C-5-A MS) and (280-115304-B-5-A MSD).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ORGANOPHOSPHORUS PESTICIDES

Samples MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18) and INJ-1R-20181006 (280-115369-19) were analyzed for organophosphorus pesticides in accordance with EPA SW-846 Method 8141A. The samples were prepared on 10/11/2018 and analyzed on 10/13/2018 and 10/14/2018.

TestAmerica Denver's practice for the reporting of dual column data in packages requiring forms and/or raw data is to report the surrogates from both columns, and the preferred result for any given target analyte from the analyst selected column. The preferred results for target analytes and surrogates are reported as PRIMARY on the Sample Datasheets. Analytes Atrazine/Propazine, Phosmet/EPN, and Bolstar/Famphur co-elute on one of the columns used for this analysis. As a result, there are no results reported for the %Difference in the concentration on the Form X.

The surrogate recovery for the method blank (MB 280-433004/1-A) associated with preparation batch 280-433004 and analytical batch 280-433298 was outside control limits low for Chlormefos. All associated samples were ND for all target compounds with surrogate recoveries in control; therefore, the data is being reported. Refer to the QC report for details.

The continuing calibration verification (CCV) associated with batch 280-433298 recovered outside acceptance criteria, low biased, for

Job ID: 280-115369-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Famphur, Dimethoate and Chlormefos on one column. The compounds were in control on the other column. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported from the column in control.

The surrogate Triphenylphosphate recovery for the following samples was outside acceptance limits (low biased) on the front column: MW-12-20181008 (280-115369-17). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHLORINATED HERBICIDES

Samples MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18) and INJ-1R-20181006 (280-115369-19) were analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 10/12/2018 and analyzed on 10/16/2018.

TestAmerica Denver's practice for the reporting of dual column data in packages requiring forms and/or raw data is to report the surrogates from both columns, and the preferred result for any given target analyte from the analyst selected column. The preferred results for target analytes and surrogates are reported as PRIMARY on the Sample Datasheets. Analytes 2,4-DB/dinoseb co-elute on one of the columns used for this analysis. As a result, there are no results reported for the %Difference in the concentration on the Form X.

The continuing calibration verification (CCV) associated with batch 280-433454 recovered above the upper control limit for Dinoseb on the front column. The back column was in control. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported from the back (in control) column. Affected samples: MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18), INJ-1R-20181006 (280-115369-19), (CCV 280-433454/25), (LCS 280-433061/2-A), (LCSD 280-433061/3-A) and (MB 280-433061/1-A)

The following sample formed emulsions during the extraction procedure: MW-9-20181007 (280-115369-16). The emulsions were broken up using a pour back for the third MeCl2 rinse only.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP)

Samples MW-106S-20181007 (280-115369-1), MW-110D-20181007 (280-115369-2), MW-115S-20181008 (280-115369-3), RW-10-20181007 (280-115369-10), RW-9-20181007 (280-115369-11), RW-17-20181007 (280-115369-12), MW-102S-20181006 (280-115369-13), MW-110S-20181006 (280-115369-14), RW-15-20181006 (280-115369-15), MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18), INJ-1R-20181006 (280-115369-19), MW-109S-20181006 (280-115369-20) and MW-5A-20181008 (280-115369-21) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 10/15/2018 and analyzed on 10/16/2018.

Calcium and Iron were detected in method blank MB 280-432967/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP/MS)

Samples MW-106S-20181007 (280-115369-1), MW-110D-20181007 (280-115369-2), MW-115S-20181008 (280-115369-3), RW-10-20181007 (280-115369-10), RW-9-20181007 (280-115369-11), RW-17-20181007 (280-115369-12), MW-102S-20181006 (280-115369-13), MW-110S-20181006 (280-115369-14), RW-15-20181006 (280-115369-15), MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18), INJ-1R-20181006 (280-115369-19), MW-109S-20181006 (280-115369-20) and MW-5A-20181008 (280-115369-21) were analyzed for Total Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 10/16/2018 and 10/23/2018 and analyzed on 10/17/2018 and 10/24/2018.

Barium and Zinc were detected in method blank MB 280-432968/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the

Job ID: 280-115369-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

MDL and/or RL, the result has been flagged.

Manganese was detected in method blank MB 280-432968/1-A greater than one-half the reporting limit (RL). Associated samples either less than the RL or greater than 10x the amount found in the method blank were not re-analyzed. Samples RW-17-20181007 (280-115369-12), MW-102S-20181006 (280-115369-13), and MW-8-20181007 (280-115369-18) were re-analyzed in prep batch 434398. Manganese was detected in method blank MB 280-434398/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY

Samples MW-106S-20181007 (280-115369-1), MW-110D-20181007 (280-115369-2), MW-115S-20181008 (280-115369-3), RW-10-20181007 (280-115369-10), RW-9-20181007 (280-115369-11), RW-17-20181007 (280-115369-12), MW-102S-20181006 (280-115369-13), MW-110S-20181006 (280-115369-14), RW-15-20181006 (280-115369-15), MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18), INJ-1R-20181006 (280-115369-19), MW-109S-20181006 (280-115369-20) and MW-5A-20181008 (280-115369-21) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 10/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ALKALINITY

Samples MW-106S-20181007 (280-115369-1), MW-110D-20181007 (280-115369-2), MW-115S-20181008 (280-115369-3), RW-10-20181007 (280-115369-10), RW-9-20181007 (280-115369-11), RW-17-20181007 (280-115369-12), MW-102S-20181006 (280-115369-13), MW-110S-20181006 (280-115369-14), RW-15-20181006 (280-115369-15), MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18), INJ-1R-20181006 (280-115369-19) and MW-109S-20181006 (280-115369-20) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 10/12/2018 and 10/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

NITRATE-NITRITE AS NITROGEN

Samples MW-106S-20181007 (280-115369-1), MW-110D-20181007 (280-115369-2), MW-115S-20181008 (280-115369-3), RW-10-20181007 (280-115369-10), RW-9-20181007 (280-115369-11), RW-17-20181007 (280-115369-12), MW-102S-20181006 (280-115369-13), MW-110S-20181006 (280-115369-14), RW-15-20181006 (280-115369-15), MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18), INJ-1R-20181006 (280-115369-19), MW-109S-20181006 (280-115369-20) and MW-5A-20181008 (280-115369-21) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 10/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL AND AMENABLE CYANIDE

Samples MW-106S-20181007 (280-115369-1), MW-110D-20181007 (280-115369-2), MW-115S-20181008 (280-115369-3), RW-10-20181007 (280-115369-10), RW-9-20181007 (280-115369-11), RW-17-20181007 (280-115369-12), MW-102S-20181006 (280-115369-13), MW-110S-20181006 (280-115369-14), RW-15-20181006 (280-115369-15), MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18), INJ-1R-20181006 (280-115369-19) and MW-109S-20181006 (280-115369-20) were analyzed for total and amenable cyanide in accordance with SM20 4500 CN E. The samples were prepared and analyzed on 10/18/2018, 10/19/2018 and 10/22/2018.

Cyanide, Total failed the recovery criteria low for the MS of sample MW-109S-20181006MS (280-115369-20) in batch 280-434011. Cyanide, Total failed the recovery criteria low for the MSD of sample MW-109S-20181006MSD (280-115369-20) in batch 280-434011. Sample matrix interference are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-115369-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

ANIONS (28 DAYS)

Samples MW-106S-20181007 (280-115369-1), MW-110D-20181007 (280-115369-2), MW-115S-20181008 (280-115369-3), RW-10-20181007 (280-115369-10), RW-9-20181007 (280-115369-11), RW-17-20181007 (280-115369-12), MW-102S-20181006 (280-115369-13), MW-110S-20181006 (280-115369-14), RW-15-20181006 (280-115369-15), MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18), INJ-1R-20181006 (280-115369-19) and MW-109S-20181006 (280-115369-20) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 10/23/2018.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Samples MW-110S-20181006 (280-115369-14)[2X] and MW-9-20181007 (280-115369-16)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL ORGANIC CARBON

Samples MW-110D-20181007 (280-115369-2), RW-10-20181007 (280-115369-10), RW-9-20181007 (280-115369-11), RW-17-20181007 (280-115369-12), MW-102S-20181006 (280-115369-13), MW-110S-20181006 (280-115369-14), RW-15-20181006 (280-115369-15), INJ-1R-20181006 (280-115369-19) and MW-109S-20181006 (280-115369-20) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060A. The samples were analyzed on 10/12/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SULFIDE

Samples MW-9-20181007 (280-115369-16), MW-12-20181008 (280-115369-17), MW-8-20181007 (280-115369-18) and INJ-1R-20181006 (280-115369-19) were analyzed for sulfide in accordance with SM20 4500 S2 D. The samples were analyzed on 10/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: MW-106S-20181007 — Lab Sample ID: 280-115369-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.9	J	10	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.33	J B	2.0	0.32	ug/L	1		8260B	Total/NA
Calcium	76000	B	200	35	ug/L	1		6010C	Total/NA
Magnesium	26000		200	11	ug/L	1		6010C	Total/NA
Potassium	6300		3000	240	ug/L	1		6010C	Total/NA
Sodium	35000		1000	120	ug/L	1		6010C	Total/NA
Antimony	0.45	J	2.0	0.40	ug/L	1		6020B	Total/NA
Arsenic	1.6	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	110	B	1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.92	J	2.0	0.50	ug/L	1		6020B	Total/NA
Manganese	0.43	J B	1.0	0.31	ug/L	1		6020B	Total/NA
Vanadium	1.2	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	2.9	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	1.7		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	45		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	41		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	260		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-110D-20181007 — Lab Sample ID: 280-115369-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dichlorodifluoromethane	1.1	J	2.0	0.31	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.2		1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.61	J	1.0	0.20	ug/L	1		8260B	Total/NA
Toluene	0.23	J	1.0	0.17	ug/L	1		8260B	Total/NA
Trichloroethene	8.5	F1	1.0	0.16	ug/L	1		8260B	Total/NA
Calcium	98000	B	200	35	ug/L	1		6010C	Total/NA
Iron	69	J B	100	22	ug/L	1		6010C	Total/NA
Magnesium	31000		200	11	ug/L	1		6010C	Total/NA
Potassium	6100		3000	240	ug/L	1		6010C	Total/NA
Sodium	36000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.3	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	180	B	1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.65	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.099	J	1.0	0.054	ug/L	1		6020B	Total/NA
Manganese	25	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	0.87	J	2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	1.8	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	7.8	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.23		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	110		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	71		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	0.85	J	1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	240		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-115S-20181008 — Lab Sample ID: 280-115369-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.35	J	1.0	0.16	ug/L	1		8260B	Total/NA
Calcium	73000	B	200	35	ug/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-115S-20181008 (Continued) — Lab Sample ID: 280-115369-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	29000		200	11	ug/L	1		6010C	Total/NA
Potassium	7800		3000	240	ug/L	1		6010C	Total/NA
Sodium	54000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	2.0	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	140	B	1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.0	J	2.0	0.50	ug/L	1		6020B	Total/NA
Vanadium	1.5	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	2.5	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	2.6		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	53		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	44		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	300		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0055	J	0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: TB-6-VOC-20181009 — Lab Sample ID: 280-115369-4

No Detections.

Client Sample ID: RW-4-20181007 — Lab Sample ID: 280-115369-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.55	J	1.0	0.16	ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	0.23	J	1.0	0.15	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.65	J	1.0	0.22	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	8.7		1.0	0.15	ug/L	1		8260B	Total/NA
1,2-Dichloropropane	0.21	J	1.0	0.18	ug/L	1		8260B	Total/NA
Tetrachloroethene	16		1.0	0.20	ug/L	1		8260B	Total/NA
1,1,1-Trichloroethane	0.17	J	1.0	0.16	ug/L	1		8260B	Total/NA
Trichloroethene	140	E	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.37	J	1.0	0.10	ug/L	1		8260B	Total/NA
Trichloroethene - DL	110		4.0	0.64	ug/L	4		8260B	Total/NA

Client Sample ID: MW-121-20181007 — Lab Sample ID: 280-115369-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	6.9	J	10	1.9	ug/L	1		8260B	Total/NA
Benzene	0.61	J	1.0	0.16	ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	0.45	J	1.0	0.15	ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	0.21	J	1.0	0.16	ug/L	1		8260B	Total/NA
Dichlorodifluoromethane	0.64	J	2.0	0.31	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.58	J	1.0	0.22	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.5		1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.78	J	1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	4.0		1.0	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: RW-7773P-20181007 — Lab Sample ID: 280-115369-7

No Detections.

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: EB-4-VOC-20181007 — Lab Sample ID: 280-115369-8

No Detections.

Client Sample ID: INF-COM-20181007 — Lab Sample ID: 280-115369-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.1	J	10	1.9	ug/L	1		8260B	Total/NA
Benzene	0.33	J	1.0	0.16	ug/L	1		8260B	Total/NA
Chloroform	0.29	J	1.0	0.16	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.84	J	1.0	0.15	ug/L	1		8260B	Total/NA
Methylene Chloride	0.61	J B	2.0	0.32	ug/L	1		8260B	Total/NA
4-Methyl-2-pentanone (MIBK)	2.4	J	5.0	0.98	ug/L	1		8260B	Total/NA
Tetrachloroethene	1.5		1.0	0.20	ug/L	1		8260B	Total/NA
Toluene	0.30	J	1.0	0.17	ug/L	1		8260B	Total/NA
Trichloroethene	10		1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.15	J	1.0	0.10	ug/L	1		8260B	Total/NA

Client Sample ID: RW-10-20181007 — Lab Sample ID: 280-115369-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	89000	B	200	35	ug/L	1		6010C	Total/NA
Iron	1800	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	38000		200	11	ug/L	1		6010C	Total/NA
Potassium	3700		3000	240	ug/L	1		6010C	Total/NA
Sodium	63000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.1	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	170	B	1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.2	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.80	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	30		2.0	0.56	ug/L	1		6020B	Total/NA
Lead	7.8		1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	26	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	4.3		2.0	0.30	ug/L	1		6020B	Total/NA
Tin	1.2	J	10	0.77	ug/L	1		6020B	Total/NA
Vanadium	1.8	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	270	B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.93		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	100		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	110		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.3		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	290		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: RW-9-20181007 — Lab Sample ID: 280-115369-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	3.1	J	5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	170000	B	200	35	ug/L	1		6010C	Total/NA
Iron	920	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	54000		200	11	ug/L	1		6010C	Total/NA
Potassium	5100		3000	240	ug/L	1		6010C	Total/NA
Sodium	90000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.94	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	51	B	1.0	0.29	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: RW-9-20181007 (Continued) — Lab Sample ID: 280-115369-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	1.2		1.0	0.27	ug/L	1		6020B	Total/NA
Co	4.8		1.0	0.054	ug/L	1		6020B	Total/NA
Copper	54		2.0	0.56	ug/L	1		6020B	Total/NA
Lead	6.6		1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	9400	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	25		2.0	0.30	ug/L	1		6020B	Total/NA
Thallium	0.42	J	1.0	0.050	ug/L	1		6020B	Total/NA
Tin	1.0	J	10	0.77	ug/L	1		6020B	Total/NA
Vanadium	2.3	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	210	B	10	2.0	ug/L	1		6020B	Total/NA
Chloride	200		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	95		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	3.0		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	530		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0022	J	0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: RW-17-20181007 — Lab Sample ID: 280-115369-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	3.9	J	5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	100000	B	200	35	ug/L	1		6010C	Total/NA
Iron	180	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	41000		200	11	ug/L	1		6010C	Total/NA
Potassium	3700		3000	240	ug/L	1		6010C	Total/NA
Sodium	63000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.57	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	190	B	1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.2	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.16	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	14		2.0	0.56	ug/L	1		6020B	Total/NA
Lead	1.8		1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	2.6	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	2.4		2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	0.79	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	27	B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.73		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	120		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	110		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.3		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	300		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-102S-20181006 — Lab Sample ID: 280-115369-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	51000	B	200	35	ug/L	1		6010C	Total/NA
Iron	150	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	25000		200	11	ug/L	1		6010C	Total/NA
Potassium	5000		3000	240	ug/L	1		6010C	Total/NA
Sodium	33000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.3	J	5.0	0.33	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-102S-20181006 (Continued) — Lab Sample ID: 280-115369-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	35	B	1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.89	J	2.0	0.50	ug/L	1		6020B	Total/NA
Manganese	1.7	B	1.0	0.31	ug/L	1		6020B	Total/NA
Zinc	3.2	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.29		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	46		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	73		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	0.40	J	1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	190		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-110S-20181006 — Lab Sample ID: 280-115369-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.32	J	1.0	0.16	ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	0.72	J	1.0	0.15	ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	0.36	J	1.0	0.16	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.99	J	1.0	0.22	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	22		1.0	0.15	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.15	J	1.0	0.15	ug/L	1		8260B	Total/NA
1,2-Dichloropropane	0.67	J	1.0	0.18	ug/L	1		8260B	Total/NA
Styrene	0.44	J	1.0	0.17	ug/L	1		8260B	Total/NA
Tetrachloroethene	4.1		1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	89	E	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	6.7		1.0	0.10	ug/L	1		8260B	Total/NA
Trichloroethene - DL	76		4.0	0.64	ug/L	4		8260B	Total/NA
Methane	85		5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	150000	B	200	35	ug/L	1		6010C	Total/NA
Magnesium	54000		200	11	ug/L	1		6010C	Total/NA
Potassium	4000		3000	240	ug/L	1		6010C	Total/NA
Sodium	90000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.75	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	260	B	1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.65	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.95	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.94	J	2.0	0.56	ug/L	1		6020B	Total/NA
Manganese	1500	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	6.0		2.0	0.30	ug/L	1		6020B	Total/NA
Thallium	0.17	J	1.0	0.050	ug/L	1		6020B	Total/NA
Zinc	3.3	J B	10	2.0	ug/L	1		6020B	Total/NA
Chloride	230		6.0	0.51	mg/L	2		9056A	Total/NA
Sulfate	96		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	3.8		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	420		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: RW-15-20181006 — Lab Sample ID: 280-115369-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.7	J	10	1.9	ug/L	1		8260B	Total/NA
Chloroform	0.60	J	1.0	0.16	ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	0.50	J	1.0	0.15	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: RW-15-20181006 (Continued)

Lab Sample ID: 280-115369-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dichlorobenzene	0.24	J	1.0	0.16	ug/L	1		8260B	Total/NA
Dichlorodifluoromethane	0.41	J	2.0	0.31	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.64	J	1.0	0.22	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	12		1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	19		1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	140	E	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	3.3		1.0	0.10	ug/L	1		8260B	Total/NA
Trichloroethene - DL	100		10	1.6	ug/L	10		8260B	Total/NA
Methane	43		5.0	0.64	ug/L	1		RSK-175	Total/NA
Calcium	120000	B	200	35	ug/L	1		6010C	Total/NA
Magnesium	46000		200	11	ug/L	1		6010C	Total/NA
Potassium	3900		3000	240	ug/L	1		6010C	Total/NA
Sodium	74000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.66	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	210	B	1.0	0.29	ug/L	1		6020B	Total/NA
Co	0.10	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	15		2.0	0.56	ug/L	1		6020B	Total/NA
Lead	1.8		1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	200	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	5.9		2.0	0.30	ug/L	1		6020B	Total/NA
Thallium	0.074	J	1.0	0.050	ug/L	1		6020B	Total/NA
Vanadium	0.77	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	58	B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.39		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	150		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	110		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	1.9		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	320		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-9-20181007

Lab Sample ID: 280-115369-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.53	J	1.0	0.10	ug/L	1		8260B	Total/NA
Calcium	310000	B	200	35	ug/L	1		6010C	Total/NA
Iron	430	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	220000		200	11	ug/L	1		6010C	Total/NA
Potassium	5300		3000	240	ug/L	1		6010C	Total/NA
Sodium	470000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.3	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	28	B	1.0	0.29	ug/L	1		6020B	Total/NA
Co	3.7		1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.95	J	2.0	0.56	ug/L	1		6020B	Total/NA
Manganese	2100	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	33		2.0	0.30	ug/L	1		6020B	Total/NA
Zinc	1600	B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.021	J	0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	880		60	5.1	mg/L	20		9056A	Total/NA
Sulfate	1200		100	4.6	mg/L	20		9056A	Total/NA
Alkalinity, Total	380		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Sulfide	0.011	J	0.050	0.0070	mg/L	1		SM 4500 S2 D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: MW-12-20181008 — Lab Sample ID: 280-115369-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	59000	B	200	35	ug/L	1		6010C	Total/NA
Magnesium	15000		200	11	ug/L	1		6010C	Total/NA
Potassium	1000	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	32000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.49	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	54	B	1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.93	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	3.3		1.0	0.054	ug/L	1		6020B	Total/NA
Manganese	0.48	J B	1.0	0.31	ug/L	1		6020B	Total/NA
Zinc	2.7	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	1.3		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	55		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	14		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	180		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0048	J	0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: MW-8-20181007 — Lab Sample ID: 280-115369-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	57000	B	200	35	ug/L	1		6010C	Total/NA
Iron	110	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	19000		200	11	ug/L	1		6010C	Total/NA
Potassium	620	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	46000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	3.3	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	34	B	1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.76	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.14	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.58	J	2.0	0.56	ug/L	1		6020B	Total/NA
Manganese	4.0	B	1.0	0.31	ug/L	1		6020B	Total/NA
Vanadium	0.54	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	4.3	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	2.8		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	33		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	31		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	230		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: INJ-1R-20181006 — Lab Sample ID: 280-115369-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.3	J	10	1.9	ug/L	1		8260B	Total/NA
Trichloroethene	0.61	J	1.0	0.16	ug/L	1		8260B	Total/NA
Calcium	100000	B	200	35	ug/L	1		6010C	Total/NA
Magnesium	41000		200	11	ug/L	1		6010C	Total/NA
Potassium	5000		3000	240	ug/L	1		6010C	Total/NA
Sodium	64000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.59	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	180	B	1.0	0.29	ug/L	1		6020B	Total/NA
Co	0.082	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	8.9		2.0	0.56	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: INJ-1R-20181006 (Continued) — Lab Sample ID: 280-115369-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	1.1		1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	120	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	3.1		2.0	0.30	ug/L	1		6020B	Total/NA
Thallium	0.050	J	1.0	0.050	ug/L	1		6020B	Total/NA
Vanadium	0.60	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	54	B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.65		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	130		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	110		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	2.3		1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	300		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-109S-20181006 — Lab Sample ID: 280-115369-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.84	J	1.0	0.16	ug/L	1		8260B	Total/NA
Tetrachloroethene	32		1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	120	E	1.0	0.16	ug/L	1		8260B	Total/NA
Trichloroethene - DL	120		4.0	0.64	ug/L	4		8260B	Total/NA
Calcium	86000	B	200	35	ug/L	1		6010C	Total/NA
Iron	29	J B	100	22	ug/L	1		6010C	Total/NA
Magnesium	39000		200	11	ug/L	1		6010C	Total/NA
Potassium	3900		3000	240	ug/L	1		6010C	Total/NA
Sodium	58000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	0.86	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	130	B	1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.69	J	2.0	0.50	ug/L	1		6020B	Total/NA
Vanadium	0.59	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	2.2	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.70		0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	91		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	110		5.0	0.23	mg/L	1		9056A	Total/NA
Total Organic Carbon - Duplicates	0.91	J	1.0	0.16	mg/L	1		9060A	Total/NA
Alkalinity, Total	260		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-5A-20181008 — Lab Sample ID: 280-115369-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	59000	B	200	35	ug/L	1		6010C	Total/NA
Iron	360	B	100	22	ug/L	1		6010C	Total/NA
Magnesium	16000		200	11	ug/L	1		6010C	Total/NA
Potassium	1300	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	42000		1000	120	ug/L	1		6010C	Total/NA
Antimony	1.1	J	2.0	0.40	ug/L	1		6020B	Total/NA
Arsenic	1.4	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	54	B	1.0	0.29	ug/L	1		6020B	Total/NA
Beryllium	0.17	J	1.0	0.080	ug/L	1		6020B	Total/NA
Chromium	1.9	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.18	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	0.75	J	2.0	0.56	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-5A-20181008 (Continued) — Lab Sample ID: 280-115369-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	6.0	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	0.54	J	2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	0.65	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	4.6	J B	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.87		0.10	0.019	mg/L	1		353.2	Total/NA

Client Sample ID: TB-8-VOC-20181009 — Lab Sample ID: 280-115369-22

No Detections.

Client Sample ID: TB-5-VOC-20181009 — Lab Sample ID: 280-115369-23

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL DEN
RSK-175	Dissolved Gases (GC)	RSK	TAL DEN
8081A	Organochlorine Pesticides (GC)	SW846	TAL DEN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL DEN
8141A	Organophosphorous Pesticides (GC)	SW846	TAL DEN
8151A	Herbicides (GC)	SW846	TAL DEN
6010C	Metals (ICP)	SW846	TAL DEN
6020B	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
9060A	Organic Carbon, Total (TOC)	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 4500 CN E	Cyanide, Total	SM	TAL DEN
SM 4500 S2 D	Sulfide, Total	SM	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
3520C	Liquid-Liquid Extraction (Continuous)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
8151A	Extraction (Herbicides)	SW846	TAL DEN
SM 4500 CN C	Cyanide, Distillation	SM	TAL DEN

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115369-1	MW-106S-20181007	Water	10/07/18 16:05	10/10/18 16:50
280-115369-2	MW-110D-20181007	Water	10/07/18 13:25	10/10/18 16:50
280-115369-3	MW-115S-20181008	Water	10/08/18 14:45	10/10/18 16:50
280-115369-4	TB-6-VOC-20181009	Water	10/09/18 11:15	10/10/18 16:50
280-115369-5	RW-4-20181007	Water	10/07/18 12:40	10/10/18 16:50
280-115369-6	MW-121-20181007	Water	10/07/18 10:15	10/10/18 16:50
280-115369-7	RW-7773P-20181007	Water	10/07/18 16:05	10/10/18 16:50
280-115369-8	EB-4-VOC-20181007	Water	10/07/18 16:56	10/10/18 16:50
280-115369-9	INF-COM-20181007	Water	10/07/18 16:30	10/10/18 16:50
280-115369-10	RW-10-20181007	Water	10/07/18 11:15	10/10/18 16:50
280-115369-11	RW-9-20181007	Water	10/07/18 12:30	10/10/18 16:50
280-115369-12	RW-17-20181007	Water	10/07/18 11:30	10/10/18 16:50
280-115369-13	MW-102S-20181006	Water	10/06/18 16:00	10/10/18 16:50
280-115369-14	MW-110S-20181006	Water	10/06/18 15:45	10/10/18 16:50
280-115369-15	RW-15-20181006	Water	10/06/18 17:50	10/10/18 16:50
280-115369-16	MW-9-20181007	Water	10/07/18 14:00	10/10/18 16:50
280-115369-17	MW-12-20181008	Water	10/08/18 10:10	10/10/18 16:50
280-115369-18	MW-8-20181007	Water	10/07/18 10:35	10/10/18 16:50
280-115369-19	INJ-1R-20181006	Water	10/06/18 18:00	10/10/18 16:50
280-115369-20	MW-109S-20181006	Water	10/06/18 11:30	10/10/18 16:50
280-115369-21	MW-5A-20181008	Water	10/08/18 12:40	10/10/18 16:50
280-115369-22	TB-8-VOC-20181009	Water	10/09/18 14:38	10/10/18 16:50
280-115369-23	TB-5-VOC-20181009	Water	10/09/18 08:30	10/10/18 16:50

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: MW-106S-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**2.9**	**J**	10	1.9	ug/L			10/19/18 21:01	1
Acetonitrile	ND		30	9.6	ug/L			10/19/18 21:01	1
Acrolein	ND		20	2.8	ug/L			10/19/18 21:01	1
Acrylonitrile	ND		20	1.4	ug/L			10/19/18 21:01	1
Benzene	ND		1.0	0.16	ug/L			10/19/18 21:01	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/19/18 21:01	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/19/18 21:01	1
Bromoform	ND		1.0	0.19	ug/L			10/19/18 21:01	1
Bromomethane	ND		2.0	0.21	ug/L			10/19/18 21:01	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/19/18 21:01	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/19/18 21:01	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/19/18 21:01	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/19/18 21:01	1
Chloroprene	ND		1.0	0.21	ug/L			10/19/18 21:01	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/19/18 21:01	1
Chloroethane	ND		2.0	0.41	ug/L			10/19/18 21:01	1
Chloroform	ND		1.0	0.16	ug/L			10/19/18 21:01	1
Chloromethane	ND		2.0	0.30	ug/L			10/19/18 21:01	1
Allyl chloride	ND		2.0	0.17	ug/L			10/19/18 21:01	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/19/18 21:01	1
Dibromomethane	ND		1.0	0.17	ug/L			10/19/18 21:01	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/19/18 21:01	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/19/18 21:01	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/19/18 21:01	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/19/18 21:01	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/19/18 21:01	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/19/18 21:01	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/19/18 21:01	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/19/18 21:01	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/19/18 21:01	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/19/18 21:01	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/19/18 21:01	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/19/18 21:01	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/19/18 21:01	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/19/18 21:01	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/19/18 21:01	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/19/18 21:01	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/19/18 21:01	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/19/18 21:01	1
2-Hexanone	ND		5.0	1.7	ug/L			10/19/18 21:01	1
Iodomethane	ND		1.0	0.23	ug/L			10/19/18 21:01	1
Isobutyl alcohol	ND		110	37	ug/L			10/19/18 21:01	1
Methacrylonitrile	ND		10	1.6	ug/L			10/19/18 21:01	1
Methylene Chloride	**0.33**	**J B**	2.0	0.32	ug/L			10/19/18 21:01	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/19/18 21:01	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/19/18 21:01	1
Propionitrile	ND		20	3.7	ug/L			10/19/18 21:01	1
Styrene	ND		1.0	0.17	ug/L			10/19/18 21:01	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/19/18 21:01	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-106S-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/19/18 21:01	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/19/18 21:01	1
Toluene	ND		1.0	0.17	ug/L			10/19/18 21:01	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/19/18 21:01	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/19/18 21:01	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/19/18 21:01	1
Trichloroethene	ND		1.0	0.16	ug/L			10/19/18 21:01	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/19/18 21:01	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/19/18 21:01	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/19/18 21:01	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/19/18 21:01	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/19/18 21:01	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/19/18 21:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 127*		*10/19/18 21:01*	*1*
Toluene-d8 (Surr)	*101*		*80 - 125*		*10/19/18 21:01*	*1*
4-Bromofluorobenzene (Surr)	*96*		*78 - 120*		*10/19/18 21:01*	*1*
Dibromofluoromethane (Surr)	*119*		*77 - 120*		*10/19/18 21:01*	*1*

Client Sample ID: MW-110D-20181007
Date Collected: 10/07/18 13:25
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/16/18 23:47	1
Acetonitrile	ND		30	9.6	ug/L			10/16/18 23:47	1
Acrolein	ND		20	2.8	ug/L			10/16/18 23:47	1
Acrylonitrile	ND		20	1.4	ug/L			10/16/18 23:47	1
Benzene	ND		1.0	0.16	ug/L			10/16/18 23:47	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/16/18 23:47	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/16/18 23:47	1
Bromoform	ND		1.0	0.19	ug/L			10/16/18 23:47	1
Bromomethane	ND		2.0	0.21	ug/L			10/16/18 23:47	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/16/18 23:47	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/16/18 23:47	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/16/18 23:47	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/16/18 23:47	1
Chloroprene	ND		1.0	0.21	ug/L			10/16/18 23:47	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/16/18 23:47	1
Chloroethane	ND		2.0	0.41	ug/L			10/16/18 23:47	1
Chloroform	ND		1.0	0.16	ug/L			10/16/18 23:47	1
Chloromethane	ND		2.0	0.30	ug/L			10/16/18 23:47	1
Allyl chloride	ND		2.0	0.17	ug/L			10/16/18 23:47	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/16/18 23:47	1
Dibromomethane	ND		1.0	0.17	ug/L			10/16/18 23:47	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/16/18 23:47	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/16/18 23:47	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/16/18 23:47	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/16/18 23:47	1
Dichlorodifluoromethane	**1.1**	**J**	2.0	0.31	ug/L			10/16/18 23:47	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-110D-20181007
Date Collected: 10/07/18 13:25
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/16/18 23:47	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/16/18 23:47	1
cis-1,2-Dichloroethene	**1.2**		1.0	0.15	ug/L			10/16/18 23:47	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 23:47	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/16/18 23:47	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 23:47	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/16/18 23:47	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 23:47	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/16/18 23:47	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/16/18 23:47	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/16/18 23:47	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/16/18 23:47	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/16/18 23:47	1
2-Hexanone	ND		5.0	1.7	ug/L			10/16/18 23:47	1
Iodomethane	ND		1.0	0.23	ug/L			10/16/18 23:47	1
Isobutyl alcohol	ND		110	37	ug/L			10/16/18 23:47	1
Methacrylonitrile	ND		10	1.6	ug/L			10/16/18 23:47	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/16/18 23:47	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/16/18 23:47	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/16/18 23:47	1
Propionitrile	ND		20	3.7	ug/L			10/16/18 23:47	1
Styrene	ND		1.0	0.17	ug/L			10/16/18 23:47	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 23:47	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 23:47	1
Tetrachloroethene	**0.61**	**J**	1.0	0.20	ug/L			10/16/18 23:47	1
Toluene	**0.23**	**J**	1.0	0.17	ug/L			10/16/18 23:47	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/16/18 23:47	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/16/18 23:47	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/16/18 23:47	1
Trichloroethene	**8.5**	**F1**	1.0	0.16	ug/L			10/16/18 23:47	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/16/18 23:47	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/16/18 23:47	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/16/18 23:47	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/16/18 23:47	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/16/18 23:47	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/16/18 23:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 127*		*10/16/18 23:47*	*1*
Toluene-d8 (Surr)	*92*		*80 - 125*		*10/16/18 23:47*	*1*
4-Bromofluorobenzene (Surr)	*108*		*78 - 120*		*10/16/18 23:47*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*10/16/18 23:47*	*1*

Client Sample ID: MW-115S-20181008
Date Collected: 10/08/18 14:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/17/18 00:46	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 00:46	1
Acrolein	ND		20	2.8	ug/L			10/17/18 00:46	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-115S-20181008
Date Collected: 10/08/18 14:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 00:46	1
Benzene	ND		1.0	0.16	ug/L			10/17/18 00:46	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 00:46	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 00:46	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 00:46	1
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 00:46	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 00:46	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 00:46	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 00:46	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 00:46	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 00:46	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 00:46	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 00:46	1
Chloroform	ND		1.0	0.16	ug/L			10/17/18 00:46	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 00:46	1
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 00:46	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 00:46	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 00:46	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/17/18 00:46	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 00:46	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/17/18 00:46	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 00:46	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/17/18 00:46	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/17/18 00:46	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 00:46	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 00:46	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 00:46	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 00:46	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 00:46	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 00:46	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 00:46	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 00:46	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 00:46	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 00:46	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 00:46	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 00:46	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 00:46	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 00:46	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 00:46	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 00:46	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 00:46	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 00:46	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 00:46	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 00:46	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 00:46	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 00:46	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 00:46	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/17/18 00:46	1
Toluene	ND		1.0	0.17	ug/L			10/17/18 00:46	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-115S-20181008
Date Collected: 10/08/18 14:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 00:46	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/17/18 00:46	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 00:46	1
Trichloroethene	**0.35**	**J**	1.0	0.16	ug/L			10/17/18 00:46	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 00:46	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 00:46	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 00:46	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/17/18 00:46	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 00:46	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 00:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 127*		*10/17/18 00:46*	*1*
Toluene-d8 (Surr)	*96*		*80 - 125*		*10/17/18 00:46*	*1*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*		*10/17/18 00:46*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 120*		*10/17/18 00:46*	*1*

Client Sample ID: TB-6-VOC-20181009
Date Collected: 10/09/18 11:15
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/17/18 01:06	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 01:06	1
Acrolein	ND		20	2.8	ug/L			10/17/18 01:06	1
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 01:06	1
Benzene	ND		1.0	0.16	ug/L			10/17/18 01:06	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 01:06	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 01:06	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 01:06	1
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 01:06	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 01:06	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 01:06	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 01:06	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 01:06	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 01:06	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 01:06	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 01:06	1
Chloroform	ND		1.0	0.16	ug/L			10/17/18 01:06	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 01:06	1
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 01:06	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 01:06	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 01:06	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/17/18 01:06	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 01:06	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/17/18 01:06	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 01:06	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/17/18 01:06	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/17/18 01:06	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 01:06	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 01:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-6-VOC-20181009
Date Collected: 10/09/18 11:15
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 01:06	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 01:06	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 01:06	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 01:06	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 01:06	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 01:06	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 01:06	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 01:06	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 01:06	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 01:06	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 01:06	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 01:06	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 01:06	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 01:06	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 01:06	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 01:06	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 01:06	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 01:06	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 01:06	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 01:06	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 01:06	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/17/18 01:06	1
Toluene	ND		1.0	0.17	ug/L			10/17/18 01:06	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 01:06	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/17/18 01:06	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 01:06	1
Trichloroethene	ND		1.0	0.16	ug/L			10/17/18 01:06	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 01:06	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 01:06	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 01:06	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/17/18 01:06	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 01:06	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 01:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 127*		*10/17/18 01:06*	*1*
Toluene-d8 (Surr)	*94*		*80 - 125*		*10/17/18 01:06*	*1*
4-Bromofluorobenzene (Surr)	*110*		*78 - 120*		*10/17/18 01:06*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*10/17/18 01:06*	*1*

Client Sample ID: RW-4-20181007
Date Collected: 10/07/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/17/18 01:25	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 01:25	1
Acrolein	ND		20	2.8	ug/L			10/17/18 01:25	1
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 01:25	1
Benzene	ND		1.0	0.16	ug/L			10/17/18 01:25	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 01:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RW-4-20181007
Date Collected: 10/07/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 01:25	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 01:25	1
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 01:25	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 01:25	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 01:25	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 01:25	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 01:25	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 01:25	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 01:25	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 01:25	1
Chloroform	**0.55**	**J**	1.0	0.16	ug/L			10/17/18 01:25	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 01:25	1
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 01:25	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 01:25	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 01:25	1
1,2-Dichlorobenzene	**0.23**	**J**	1.0	0.15	ug/L			10/17/18 01:25	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 01:25	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/17/18 01:25	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 01:25	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/17/18 01:25	1
1,1-Dichloroethane	**0.65**	**J**	1.0	0.22	ug/L			10/17/18 01:25	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 01:25	1
cis-1,2-Dichloroethene	**8.7**		1.0	0.15	ug/L			10/17/18 01:25	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 01:25	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 01:25	1
1,2-Dichloropropane	**0.21**	**J**	1.0	0.18	ug/L			10/17/18 01:25	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 01:25	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 01:25	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 01:25	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 01:25	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 01:25	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 01:25	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 01:25	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 01:25	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 01:25	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 01:25	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 01:25	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 01:25	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 01:25	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 01:25	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 01:25	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 01:25	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 01:25	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 01:25	1
Tetrachloroethene	**16**		1.0	0.20	ug/L			10/17/18 01:25	1
Toluene	ND		1.0	0.17	ug/L			10/17/18 01:25	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 01:25	1
1,1,1-Trichloroethane	**0.17**	**J**	1.0	0.16	ug/L			10/17/18 01:25	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 01:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RW-4-20181007
Date Collected: 10/07/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**140**	**E**	1.0	0.16	ug/L			10/17/18 01:25	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 01:25	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 01:25	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 01:25	1
Vinyl chloride	**0.37**	**J**	1.0	0.10	ug/L			10/17/18 01:25	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 01:25	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 01:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 127*		*10/17/18 01:25*	*1*
Toluene-d8 (Surr)	*99*		*80 - 125*		*10/17/18 01:25*	*1*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*		*10/17/18 01:25*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*10/17/18 01:25*	*1*

Client Sample ID: MW-121-20181007
Date Collected: 10/07/18 10:15
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**6.9**	**J**	10	1.9	ug/L			10/17/18 02:04	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 02:04	1
Acrolein	ND		20	2.8	ug/L			10/17/18 02:04	1
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 02:04	1
Benzene	**0.61**	**J**	1.0	0.16	ug/L			10/17/18 02:04	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 02:04	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 02:04	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 02:04	1
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 02:04	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 02:04	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 02:04	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 02:04	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 02:04	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 02:04	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 02:04	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 02:04	1
Chloroform	ND		1.0	0.16	ug/L			10/17/18 02:04	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 02:04	1
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 02:04	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 02:04	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 02:04	1
1,2-Dichlorobenzene	**0.45**	**J**	1.0	0.15	ug/L			10/17/18 02:04	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 02:04	1
1,4-Dichlorobenzene	**0.21**	**J**	1.0	0.16	ug/L			10/17/18 02:04	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 02:04	1
Dichlorodifluoromethane	**0.64**	**J**	2.0	0.31	ug/L			10/17/18 02:04	1
1,1-Dichloroethane	**0.58**	**J**	1.0	0.22	ug/L			10/17/18 02:04	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 02:04	1
cis-1,2-Dichloroethene	**1.5**		1.0	0.15	ug/L			10/17/18 02:04	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 02:04	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 02:04	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 02:04	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-121-20181007
Date Collected: 10/07/18 10:15
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 02:04	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 02:04	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 02:04	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 02:04	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 02:04	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 02:04	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 02:04	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 02:04	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 02:04	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 02:04	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 02:04	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 02:04	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 02:04	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 02:04	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 02:04	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 02:04	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 02:04	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 02:04	1
Tetrachloroethene	**0.78**	**J**	1.0	0.20	ug/L			10/17/18 02:04	1
Toluene	ND		1.0	0.17	ug/L			10/17/18 02:04	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 02:04	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/17/18 02:04	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 02:04	1
Trichloroethene	**4.0**		1.0	0.16	ug/L			10/17/18 02:04	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 02:04	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 02:04	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 02:04	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/17/18 02:04	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 02:04	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 02:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 127*		*10/17/18 02:04*	*1*
Toluene-d8 (Surr)	*94*		*80 - 125*		*10/17/18 02:04*	*1*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*		*10/17/18 02:04*	*1*
Dibromofluoromethane (Surr)	*119*		*77 - 120*		*10/17/18 02:04*	*1*

Client Sample ID: RW-7773P-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/17/18 02:24	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 02:24	1
Acrolein	ND		20	2.8	ug/L			10/17/18 02:24	1
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 02:24	1
Benzene	ND		1.0	0.16	ug/L			10/17/18 02:24	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 02:24	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 02:24	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 02:24	1
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 02:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RW-7773P-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 02:24	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 02:24	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 02:24	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 02:24	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 02:24	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 02:24	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 02:24	1
Chloroform	ND		1.0	0.16	ug/L			10/17/18 02:24	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 02:24	1
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 02:24	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 02:24	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 02:24	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/17/18 02:24	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 02:24	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/17/18 02:24	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 02:24	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/17/18 02:24	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/17/18 02:24	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 02:24	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 02:24	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 02:24	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 02:24	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 02:24	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 02:24	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 02:24	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 02:24	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 02:24	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 02:24	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 02:24	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 02:24	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 02:24	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 02:24	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 02:24	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 02:24	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 02:24	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 02:24	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 02:24	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 02:24	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 02:24	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 02:24	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 02:24	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/17/18 02:24	1
Toluene	ND		1.0	0.17	ug/L			10/17/18 02:24	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 02:24	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/17/18 02:24	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 02:24	1
Trichloroethene	ND		1.0	0.16	ug/L			10/17/18 02:24	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 02:24	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 02:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RW-7773P-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 02:24	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/17/18 02:24	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 02:24	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 02:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 127*		*10/17/18 02:24*	*1*
Toluene-d8 (Surr)	*98*		*80 - 125*		*10/17/18 02:24*	*1*
4-Bromofluorobenzene (Surr)	*101*		*78 - 120*		*10/17/18 02:24*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*10/17/18 02:24*	*1*

Client Sample ID: EB-4-VOC-20181007
Date Collected: 10/07/18 16:56
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/17/18 02:43	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 02:43	1
Acrolein	ND		20	2.8	ug/L			10/17/18 02:43	1
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 02:43	1
Benzene	ND		1.0	0.16	ug/L			10/17/18 02:43	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 02:43	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 02:43	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 02:43	1
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 02:43	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 02:43	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 02:43	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 02:43	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 02:43	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 02:43	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 02:43	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 02:43	1
Chloroform	ND		1.0	0.16	ug/L			10/17/18 02:43	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 02:43	1
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 02:43	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 02:43	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 02:43	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/17/18 02:43	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 02:43	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/17/18 02:43	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 02:43	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/17/18 02:43	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/17/18 02:43	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 02:43	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 02:43	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 02:43	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 02:43	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 02:43	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 02:43	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 02:43	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 02:43	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-4-VOC-20181007
Date Collected: 10/07/18 16:56
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 02:43	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 02:43	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 02:43	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 02:43	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 02:43	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 02:43	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 02:43	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 02:43	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 02:43	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 02:43	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 02:43	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 02:43	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 02:43	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 02:43	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 02:43	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/17/18 02:43	1
Toluene	ND		1.0	0.17	ug/L			10/17/18 02:43	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 02:43	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/17/18 02:43	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 02:43	1
Trichloroethene	ND		1.0	0.16	ug/L			10/17/18 02:43	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 02:43	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 02:43	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 02:43	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/17/18 02:43	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 02:43	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 02:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*		*10/17/18 02:43*	*1*
Toluene-d8 (Surr)	*94*		*80 - 125*		*10/17/18 02:43*	*1*
4-Bromofluorobenzene (Surr)	*109*		*78 - 120*		*10/17/18 02:43*	*1*
Dibromofluoromethane (Surr)	*106*		*77 - 120*		*10/17/18 02:43*	*1*

Client Sample ID: INF-COM-20181007
Date Collected: 10/07/18 16:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**4.1**	**J**	10	1.9	ug/L			10/18/18 23:26	1
Acetonitrile	ND		30	9.6	ug/L			10/18/18 23:26	1
Acrolein	ND		20	2.8	ug/L			10/18/18 23:26	1
Acrylonitrile	ND		20	1.4	ug/L			10/18/18 23:26	1
Benzene	**0.33**	**J**	1.0	0.16	ug/L			10/18/18 23:26	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/18/18 23:26	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/18/18 23:26	1
Bromoform	ND		1.0	0.19	ug/L			10/18/18 23:26	1
Bromomethane	ND		2.0	0.21	ug/L			10/18/18 23:26	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/18/18 23:26	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/18/18 23:26	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/18/18 23:26	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: INF-COM-20181007
Date Collected: 10/07/18 16:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		1.0	0.17	ug/L			10/18/18 23:26	1
Chloroprene	ND		1.0	0.21	ug/L			10/18/18 23:26	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/18/18 23:26	1
Chloroethane	ND		2.0	0.41	ug/L			10/18/18 23:26	1
Chloroform	**0.29**	**J**	1.0	0.16	ug/L			10/18/18 23:26	1
Chloromethane	ND		2.0	0.30	ug/L			10/18/18 23:26	1
Allyl chloride	ND		2.0	0.17	ug/L			10/18/18 23:26	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/18/18 23:26	1
Dibromomethane	ND		1.0	0.17	ug/L			10/18/18 23:26	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/18/18 23:26	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/18/18 23:26	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/18/18 23:26	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/18/18 23:26	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/18/18 23:26	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/18/18 23:26	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/18/18 23:26	1
cis-1,2-Dichloroethene	**0.84**	**J**	1.0	0.15	ug/L			10/18/18 23:26	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/18/18 23:26	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/18/18 23:26	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/18/18 23:26	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/18/18 23:26	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/18/18 23:26	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/18/18 23:26	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/18/18 23:26	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/18/18 23:26	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/18/18 23:26	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/18/18 23:26	1
2-Hexanone	ND		5.0	1.7	ug/L			10/18/18 23:26	1
Iodomethane	ND		1.0	0.23	ug/L			10/18/18 23:26	1
Isobutyl alcohol	ND		110	37	ug/L			10/18/18 23:26	1
Methacrylonitrile	ND		10	1.6	ug/L			10/18/18 23:26	1
Methylene Chloride	**0.61**	**J B**	2.0	0.32	ug/L			10/18/18 23:26	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/18/18 23:26	1
4-Methyl-2-pentanone (MIBK)	**2.4**	**J**	5.0	0.98	ug/L			10/18/18 23:26	1
Propionitrile	ND		20	3.7	ug/L			10/18/18 23:26	1
Styrene	ND		1.0	0.17	ug/L			10/18/18 23:26	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/18/18 23:26	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/18/18 23:26	1
Tetrachloroethene	**1.5**		1.0	0.20	ug/L			10/18/18 23:26	1
Toluene	**0.30**	**J**	1.0	0.17	ug/L			10/18/18 23:26	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/18/18 23:26	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/18/18 23:26	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/18/18 23:26	1
Trichloroethene	**10**		1.0	0.16	ug/L			10/18/18 23:26	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/18/18 23:26	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/18/18 23:26	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/18/18 23:26	1
Vinyl chloride	**0.15**	**J**	1.0	0.10	ug/L			10/18/18 23:26	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/18/18 23:26	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: INF-COM-20181007
Date Collected: 10/07/18 16:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/18/18 23:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*		*10/18/18 23:26*	*1*
Toluene-d8 (Surr)	*98*		*80 - 125*		*10/18/18 23:26*	*1*
4-Bromofluorobenzene (Surr)	*86*		*78 - 120*		*10/18/18 23:26*	*1*
Dibromofluoromethane (Surr)	*114*		*77 - 120*		*10/18/18 23:26*	*1*

Client Sample ID: MW-102S-20181006
Date Collected: 10/06/18 16:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/16/18 13:32	1
Acetonitrile	ND		30	9.6	ug/L			10/16/18 13:32	1
Acrolein	ND		20	2.8	ug/L			10/16/18 13:32	1
Acrylonitrile	ND		20	1.4	ug/L			10/16/18 13:32	1
Benzene	ND		1.0	0.16	ug/L			10/16/18 13:32	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/16/18 13:32	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/16/18 13:32	1
Bromoform	ND		1.0	0.19	ug/L			10/16/18 13:32	1
Bromomethane	ND		2.0	0.21	ug/L			10/16/18 13:32	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/16/18 13:32	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/16/18 13:32	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/16/18 13:32	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/16/18 13:32	1
Chloroprene	ND		1.0	0.21	ug/L			10/16/18 13:32	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/16/18 13:32	1
Chloroethane	ND		2.0	0.41	ug/L			10/16/18 13:32	1
Chloroform	ND		1.0	0.16	ug/L			10/16/18 13:32	1
Chloromethane	ND		2.0	0.30	ug/L			10/16/18 13:32	1
Allyl chloride	ND		2.0	0.17	ug/L			10/16/18 13:32	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/16/18 13:32	1
Dibromomethane	ND		1.0	0.17	ug/L			10/16/18 13:32	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/16/18 13:32	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/16/18 13:32	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/16/18 13:32	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/16/18 13:32	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/16/18 13:32	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/16/18 13:32	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/16/18 13:32	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 13:32	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 13:32	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/16/18 13:32	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 13:32	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/16/18 13:32	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 13:32	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/16/18 13:32	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/16/18 13:32	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/16/18 13:32	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/16/18 13:32	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-102S-20181006
Date Collected: 10/06/18 16:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/16/18 13:32	1
2-Hexanone	ND		5.0	1.7	ug/L			10/16/18 13:32	1
Iodomethane	ND		1.0	0.23	ug/L			10/16/18 13:32	1
Isobutyl alcohol	ND		110	37	ug/L			10/16/18 13:32	1
Methacrylonitrile	ND		10	1.6	ug/L			10/16/18 13:32	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/16/18 13:32	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/16/18 13:32	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/16/18 13:32	1
Propionitrile	ND		20	3.7	ug/L			10/16/18 13:32	1
Styrene	ND		1.0	0.17	ug/L			10/16/18 13:32	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 13:32	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 13:32	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/16/18 13:32	1
Toluene	ND		1.0	0.17	ug/L			10/16/18 13:32	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/16/18 13:32	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/16/18 13:32	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/16/18 13:32	1
Trichloroethene	ND		1.0	0.16	ug/L			10/16/18 13:32	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/16/18 13:32	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/16/18 13:32	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/16/18 13:32	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/16/18 13:32	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/16/18 13:32	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/16/18 13:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 127*		*10/16/18 13:32*	*1*
Toluene-d8 (Surr)	*88*		*80 - 125*		*10/16/18 13:32*	*1*
4-Bromofluorobenzene (Surr)	*85*		*78 - 120*		*10/16/18 13:32*	*1*
Dibromofluoromethane (Surr)	*98*		*77 - 120*		*10/16/18 13:32*	*1*

Client Sample ID: MW-110S-20181006
Date Collected: 10/06/18 15:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/16/18 13:53	1
Acetonitrile	ND		30	9.6	ug/L			10/16/18 13:53	1
Acrolein	ND		20	2.8	ug/L			10/16/18 13:53	1
Acrylonitrile	ND		20	1.4	ug/L			10/16/18 13:53	1
Benzene	**0.32**	**J**	1.0	0.16	ug/L			10/16/18 13:53	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/16/18 13:53	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/16/18 13:53	1
Bromoform	ND		1.0	0.19	ug/L			10/16/18 13:53	1
Bromomethane	ND		2.0	0.21	ug/L			10/16/18 13:53	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/16/18 13:53	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/16/18 13:53	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/16/18 13:53	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/16/18 13:53	1
Chloroprene	ND		1.0	0.21	ug/L			10/16/18 13:53	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/16/18 13:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-110S-20181006
Date Collected: 10/06/18 15:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		2.0	0.41	ug/L			10/16/18 13:53	1
Chloroform	ND		1.0	0.16	ug/L			10/16/18 13:53	1
Chloromethane	ND		2.0	0.30	ug/L			10/16/18 13:53	1
Allyl chloride	ND		2.0	0.17	ug/L			10/16/18 13:53	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/16/18 13:53	1
Dibromomethane	ND		1.0	0.17	ug/L			10/16/18 13:53	1
1,2-Dichlorobenzene	**0.72**	**J**	1.0	0.15	ug/L			10/16/18 13:53	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/16/18 13:53	1
1,4-Dichlorobenzene	**0.36**	**J**	1.0	0.16	ug/L			10/16/18 13:53	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/16/18 13:53	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/16/18 13:53	1
1,1-Dichloroethane	**0.99**	**J**	1.0	0.22	ug/L			10/16/18 13:53	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/16/18 13:53	1
cis-1,2-Dichloroethene	**22**		1.0	0.15	ug/L			10/16/18 13:53	1
trans-1,2-Dichloroethene	**0.15**	**J**	1.0	0.15	ug/L			10/16/18 13:53	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/16/18 13:53	1
1,2-Dichloropropane	**0.67**	**J**	1.0	0.18	ug/L			10/16/18 13:53	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/16/18 13:53	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 13:53	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/16/18 13:53	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/16/18 13:53	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/16/18 13:53	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/16/18 13:53	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/16/18 13:53	1
2-Hexanone	ND		5.0	1.7	ug/L			10/16/18 13:53	1
Iodomethane	ND		1.0	0.23	ug/L			10/16/18 13:53	1
Isobutyl alcohol	ND		110	37	ug/L			10/16/18 13:53	1
Methacrylonitrile	ND		10	1.6	ug/L			10/16/18 13:53	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/16/18 13:53	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/16/18 13:53	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/16/18 13:53	1
Propionitrile	ND		20	3.7	ug/L			10/16/18 13:53	1
Styrene	**0.44**	**J**	1.0	0.17	ug/L			10/16/18 13:53	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 13:53	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 13:53	1
Tetrachloroethene	**4.1**		1.0	0.20	ug/L			10/16/18 13:53	1
Toluene	ND		1.0	0.17	ug/L			10/16/18 13:53	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/16/18 13:53	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/16/18 13:53	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/16/18 13:53	1
Trichloroethene	**89**	**E**	1.0	0.16	ug/L			10/16/18 13:53	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/16/18 13:53	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/16/18 13:53	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/16/18 13:53	1
Vinyl chloride	**6.7**		1.0	0.10	ug/L			10/16/18 13:53	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/16/18 13:53	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/16/18 13:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 127*		*10/16/18 13:53*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-110S-20181006
Date Collected: 10/06/18 15:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-14
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*88*		*80 - 125*		*10/16/18 13:53*	*1*
4-Bromofluorobenzene (Surr)	*80*		*78 - 120*		*10/16/18 13:53*	*1*
Dibromofluoromethane (Surr)	*96*		*77 - 120*		*10/16/18 13:53*	*1*

Client Sample ID: RW-15-20181006
Date Collected: 10/06/18 17:50
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**2.7**	**J**	10	1.9	ug/L			10/16/18 14:36	1
Acetonitrile	ND		30	9.6	ug/L			10/16/18 14:36	1
Acrolein	ND		20	2.8	ug/L			10/16/18 14:36	1
Acrylonitrile	ND		20	1.4	ug/L			10/16/18 14:36	1
Benzene	ND		1.0	0.16	ug/L			10/16/18 14:36	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/16/18 14:36	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/16/18 14:36	1
Bromoform	ND		1.0	0.19	ug/L			10/16/18 14:36	1
Bromomethane	ND		2.0	0.21	ug/L			10/16/18 14:36	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/16/18 14:36	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/16/18 14:36	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/16/18 14:36	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/16/18 14:36	1
Chloroprene	ND		1.0	0.21	ug/L			10/16/18 14:36	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/16/18 14:36	1
Chloroethane	ND		2.0	0.41	ug/L			10/16/18 14:36	1
Chloroform	**0.60**	**J**	1.0	0.16	ug/L			10/16/18 14:36	1
Chloromethane	ND		2.0	0.30	ug/L			10/16/18 14:36	1
Allyl chloride	ND		2.0	0.17	ug/L			10/16/18 14:36	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/16/18 14:36	1
Dibromomethane	ND		1.0	0.17	ug/L			10/16/18 14:36	1
1,2-Dichlorobenzene	**0.50**	**J**	1.0	0.15	ug/L			10/16/18 14:36	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/16/18 14:36	1
1,4-Dichlorobenzene	**0.24**	**J**	1.0	0.16	ug/L			10/16/18 14:36	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/16/18 14:36	1
Dichlorodifluoromethane	**0.41**	**J**	2.0	0.31	ug/L			10/16/18 14:36	1
1,1-Dichloroethane	**0.64**	**J**	1.0	0.22	ug/L			10/16/18 14:36	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/16/18 14:36	1
cis-1,2-Dichloroethene	**12**		1.0	0.15	ug/L			10/16/18 14:36	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 14:36	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/16/18 14:36	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 14:36	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/16/18 14:36	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 14:36	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/16/18 14:36	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/16/18 14:36	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/16/18 14:36	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/16/18 14:36	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/16/18 14:36	1
2-Hexanone	ND		5.0	1.7	ug/L			10/16/18 14:36	1
Iodomethane	ND		1.0	0.23	ug/L			10/16/18 14:36	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RW-15-20181006
Date Collected: 10/06/18 17:50
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isobutyl alcohol	ND		110	37	ug/L			10/16/18 14:36	1
Methacrylonitrile	ND		10	1.6	ug/L			10/16/18 14:36	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/16/18 14:36	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/16/18 14:36	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/16/18 14:36	1
Propionitrile	ND		20	3.7	ug/L			10/16/18 14:36	1
Styrene	ND		1.0	0.17	ug/L			10/16/18 14:36	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 14:36	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 14:36	1
Tetrachloroethene	**19**		1.0	0.20	ug/L			10/16/18 14:36	1
Toluene	ND		1.0	0.17	ug/L			10/16/18 14:36	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/16/18 14:36	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/16/18 14:36	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/16/18 14:36	1
Trichloroethene	**140**	**E**	1.0	0.16	ug/L			10/16/18 14:36	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/16/18 14:36	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/16/18 14:36	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/16/18 14:36	1
Vinyl chloride	**3.3**		1.0	0.10	ug/L			10/16/18 14:36	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/16/18 14:36	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/16/18 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 127*		*10/16/18 14:36*	*1*
Toluene-d8 (Surr)	*86*		*80 - 125*		*10/16/18 14:36*	*1*
4-Bromofluorobenzene (Surr)	*81*		*78 - 120*		*10/16/18 14:36*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 120*		*10/16/18 14:36*	*1*

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/17/18 03:23	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 03:23	1
Acrolein	ND		20	2.8	ug/L			10/17/18 03:23	1
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 03:23	1
Benzene	ND		1.0	0.16	ug/L			10/17/18 03:23	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 03:23	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 03:23	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 03:23	1
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 03:23	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 03:23	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 03:23	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 03:23	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 03:23	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 03:23	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 03:23	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 03:23	1
Chloroform	ND		1.0	0.16	ug/L			10/17/18 03:23	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 03:23	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 03:23	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 03:23	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 03:23	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/17/18 03:23	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 03:23	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/17/18 03:23	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 03:23	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/17/18 03:23	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/17/18 03:23	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 03:23	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 03:23	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 03:23	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 03:23	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 03:23	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 03:23	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 03:23	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 03:23	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 03:23	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 03:23	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 03:23	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 03:23	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 03:23	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 03:23	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 03:23	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 03:23	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 03:23	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 03:23	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 03:23	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 03:23	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 03:23	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 03:23	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 03:23	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/17/18 03:23	1
Toluene	ND		1.0	0.17	ug/L			10/17/18 03:23	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 03:23	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/17/18 03:23	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 03:23	1
Trichloroethene	ND		1.0	0.16	ug/L			10/17/18 03:23	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 03:23	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 03:23	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 03:23	1
Vinyl chloride	**0.53**	**J**	1.0	0.10	ug/L			10/17/18 03:23	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 03:23	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 03:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*		*10/17/18 03:23*	*1*
Toluene-d8 (Surr)	*95*		*80 - 125*		*10/17/18 03:23*	*1*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*		*10/17/18 03:23*	*1*
Dibromofluoromethane (Surr)	*106*		*77 - 120*		*10/17/18 03:23*	*1*

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/17/18 03:42	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 03:42	1
Acrolein	ND		20	2.8	ug/L			10/17/18 03:42	1
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 03:42	1
Benzene	ND		1.0	0.16	ug/L			10/17/18 03:42	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 03:42	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 03:42	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 03:42	1
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 03:42	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 03:42	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 03:42	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 03:42	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 03:42	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 03:42	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 03:42	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 03:42	1
Chloroform	ND		1.0	0.16	ug/L			10/17/18 03:42	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 03:42	1
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 03:42	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 03:42	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 03:42	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/17/18 03:42	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 03:42	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/17/18 03:42	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 03:42	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/17/18 03:42	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/17/18 03:42	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 03:42	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 03:42	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 03:42	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 03:42	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 03:42	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 03:42	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 03:42	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 03:42	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 03:42	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 03:42	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 03:42	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 03:42	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 03:42	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 03:42	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 03:42	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 03:42	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 03:42	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 03:42	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 03:42	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 03:42	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 03:42	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 03:42	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 03:42	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/17/18 03:42	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0	0.17	ug/L			10/17/18 03:42	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 03:42	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/17/18 03:42	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 03:42	1
Trichloroethene	ND		1.0	0.16	ug/L			10/17/18 03:42	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 03:42	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 03:42	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 03:42	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/17/18 03:42	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 03:42	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 03:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 127*		*10/17/18 03:42*	*1*
Toluene-d8 (Surr)	*96*		*80 - 125*		*10/17/18 03:42*	*1*
4-Bromofluorobenzene (Surr)	*93*		*78 - 120*		*10/17/18 03:42*	*1*
Dibromofluoromethane (Surr)	*106*		*77 - 120*		*10/17/18 03:42*	*1*

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/17/18 04:02	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 04:02	1
Acrolein	ND		20	2.8	ug/L			10/17/18 04:02	1
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 04:02	1
Benzene	ND		1.0	0.16	ug/L			10/17/18 04:02	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 04:02	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 04:02	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 04:02	1
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 04:02	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 04:02	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 04:02	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 04:02	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 04:02	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 04:02	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 04:02	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 04:02	1
Chloroform	ND		1.0	0.16	ug/L			10/17/18 04:02	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 04:02	1
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 04:02	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 04:02	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 04:02	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/17/18 04:02	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 04:02	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/17/18 04:02	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 04:02	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/17/18 04:02	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/17/18 04:02	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 04:02	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 04:02	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 04:02	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 04:02	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 04:02	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 04:02	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 04:02	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 04:02	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 04:02	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 04:02	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 04:02	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 04:02	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 04:02	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 04:02	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 04:02	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 04:02	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 04:02	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 04:02	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 04:02	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 04:02	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 04:02	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 04:02	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 04:02	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/17/18 04:02	1
Toluene	ND		1.0	0.17	ug/L			10/17/18 04:02	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 04:02	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/17/18 04:02	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 04:02	1
Trichloroethene	ND		1.0	0.16	ug/L			10/17/18 04:02	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 04:02	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 04:02	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 04:02	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/17/18 04:02	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 04:02	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 04:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 127*		*10/17/18 04:02*	*1*
Toluene-d8 (Surr)	*95*		*80 - 125*		*10/17/18 04:02*	*1*
4-Bromofluorobenzene (Surr)	*101*		*78 - 120*		*10/17/18 04:02*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*10/17/18 04:02*	*1*

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**2.3**	**J**	10	1.9	ug/L			10/16/18 15:18	1
Acetonitrile	ND		30	9.6	ug/L			10/16/18 15:18	1
Acrolein	ND		20	2.8	ug/L			10/16/18 15:18	1
Acrylonitrile	ND		20	1.4	ug/L			10/16/18 15:18	1
Benzene	ND		1.0	0.16	ug/L			10/16/18 15:18	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobromomethane	ND		1.0	0.10	ug/L			10/16/18 15:18	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/16/18 15:18	1
Bromoform	ND		1.0	0.19	ug/L			10/16/18 15:18	1
Bromomethane	ND		2.0	0.21	ug/L			10/16/18 15:18	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/16/18 15:18	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/16/18 15:18	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/16/18 15:18	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/16/18 15:18	1
Chloroprene	ND		1.0	0.21	ug/L			10/16/18 15:18	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/16/18 15:18	1
Chloroethane	ND		2.0	0.41	ug/L			10/16/18 15:18	1
Chloroform	ND		1.0	0.16	ug/L			10/16/18 15:18	1
Chloromethane	ND		2.0	0.30	ug/L			10/16/18 15:18	1
Allyl chloride	ND		2.0	0.17	ug/L			10/16/18 15:18	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/16/18 15:18	1
Dibromomethane	ND		1.0	0.17	ug/L			10/16/18 15:18	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/16/18 15:18	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/16/18 15:18	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/16/18 15:18	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/16/18 15:18	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/16/18 15:18	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/16/18 15:18	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/16/18 15:18	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 15:18	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 15:18	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/16/18 15:18	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 15:18	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/16/18 15:18	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 15:18	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/16/18 15:18	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/16/18 15:18	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/16/18 15:18	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/16/18 15:18	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/16/18 15:18	1
2-Hexanone	ND		5.0	1.7	ug/L			10/16/18 15:18	1
Iodomethane	ND		1.0	0.23	ug/L			10/16/18 15:18	1
Isobutyl alcohol	ND		110	37	ug/L			10/16/18 15:18	1
Methacrylonitrile	ND		10	1.6	ug/L			10/16/18 15:18	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/16/18 15:18	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/16/18 15:18	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/16/18 15:18	1
Propionitrile	ND		20	3.7	ug/L			10/16/18 15:18	1
Styrene	ND		1.0	0.17	ug/L			10/16/18 15:18	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 15:18	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 15:18	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/16/18 15:18	1
Toluene	ND		1.0	0.17	ug/L			10/16/18 15:18	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/16/18 15:18	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/16/18 15:18	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/16/18 15:18	1
Trichloroethene	**0.61**	**J**	1.0	0.16	ug/L			10/16/18 15:18	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/16/18 15:18	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/16/18 15:18	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/16/18 15:18	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/16/18 15:18	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/16/18 15:18	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/16/18 15:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 127*		*10/16/18 15:18*	*1*
Toluene-d8 (Surr)	*87*		*80 - 125*		*10/16/18 15:18*	*1*
4-Bromofluorobenzene (Surr)	*79*		*78 - 120*		*10/16/18 15:18*	*1*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*10/16/18 15:18*	*1*

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/15/18 18:19	1
Acetonitrile	ND		30	9.6	ug/L			10/15/18 18:19	1
Acrolein	ND		20	2.8	ug/L			10/15/18 18:19	1
Acrylonitrile	ND		20	1.4	ug/L			10/15/18 18:19	1
Benzene	ND		1.0	0.16	ug/L			10/15/18 18:19	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/15/18 18:19	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/15/18 18:19	1
Bromoform	ND		1.0	0.19	ug/L			10/15/18 18:19	1
Bromomethane	ND		2.0	0.21	ug/L			10/15/18 18:19	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/15/18 18:19	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/15/18 18:19	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/15/18 18:19	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/15/18 18:19	1
Chloroprene	ND		1.0	0.21	ug/L			10/15/18 18:19	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/15/18 18:19	1
Chloroethane	ND		2.0	0.41	ug/L			10/15/18 18:19	1
Chloroform	**0.84**	**J**	1.0	0.16	ug/L			10/15/18 18:19	1
Chloromethane	ND		2.0	0.30	ug/L			10/15/18 18:19	1
Allyl chloride	ND		2.0	0.17	ug/L			10/15/18 18:19	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/15/18 18:19	1
Dibromomethane	ND		1.0	0.17	ug/L			10/15/18 18:19	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/15/18 18:19	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/15/18 18:19	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/15/18 18:19	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/15/18 18:19	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/15/18 18:19	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/15/18 18:19	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/15/18 18:19	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 18:19	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 18:19	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/15/18 18:19	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 18:19	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/15/18 18:19	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 18:19	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/15/18 18:19	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/15/18 18:19	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/15/18 18:19	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/15/18 18:19	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/15/18 18:19	1
2-Hexanone	ND		5.0	1.7	ug/L			10/15/18 18:19	1
Iodomethane	ND		1.0	0.23	ug/L			10/15/18 18:19	1
Isobutyl alcohol	ND		110	37	ug/L			10/15/18 18:19	1
Methacrylonitrile	ND		10	1.6	ug/L			10/15/18 18:19	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/15/18 18:19	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/15/18 18:19	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/15/18 18:19	1
Propionitrile	ND		20	3.7	ug/L			10/15/18 18:19	1
Styrene	ND		1.0	0.17	ug/L			10/15/18 18:19	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 18:19	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 18:19	1
Tetrachloroethene	**32**		1.0	0.20	ug/L			10/15/18 18:19	1
Toluene	ND		1.0	0.17	ug/L			10/15/18 18:19	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/15/18 18:19	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/15/18 18:19	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/15/18 18:19	1
Trichloroethene	**120**	**E**	1.0	0.16	ug/L			10/15/18 18:19	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/15/18 18:19	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/15/18 18:19	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/15/18 18:19	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/15/18 18:19	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/15/18 18:19	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/15/18 18:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 127*		*10/15/18 18:19*	*1*
Toluene-d8 (Surr)	*86*		*80 - 125*		*10/15/18 18:19*	*1*
4-Bromofluorobenzene (Surr)	*82*		*78 - 120*		*10/15/18 18:19*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 120*		*10/15/18 18:19*	*1*

Client Sample ID: MW-5A-20181008
Date Collected: 10/08/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/17/18 04:21	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 04:21	1
Acrolein	ND		20	2.8	ug/L			10/17/18 04:21	1
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 04:21	1
Benzene	ND		1.0	0.16	ug/L			10/17/18 04:21	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 04:21	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 04:21	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 04:21	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-5A-20181008
Date Collected: 10/08/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 04:21	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 04:21	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 04:21	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 04:21	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 04:21	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 04:21	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 04:21	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 04:21	1
Chloroform	ND		1.0	0.16	ug/L			10/17/18 04:21	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 04:21	1
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 04:21	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 04:21	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 04:21	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/17/18 04:21	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 04:21	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/17/18 04:21	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 04:21	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/17/18 04:21	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/17/18 04:21	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 04:21	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 04:21	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 04:21	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 04:21	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 04:21	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 04:21	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 04:21	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 04:21	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 04:21	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 04:21	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 04:21	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 04:21	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 04:21	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 04:21	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 04:21	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 04:21	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 04:21	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 04:21	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 04:21	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 04:21	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 04:21	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 04:21	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 04:21	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/17/18 04:21	1
Toluene	ND		1.0	0.17	ug/L			10/17/18 04:21	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 04:21	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/17/18 04:21	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 04:21	1
Trichloroethene	ND		1.0	0.16	ug/L			10/17/18 04:21	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 04:21	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-5A-20181008
Date Collected: 10/08/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 04:21	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 04:21	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/17/18 04:21	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 04:21	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 04:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 127*		*10/17/18 04:21*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*10/17/18 04:21*	*1*
4-Bromofluorobenzene (Surr)	*100*		*78 - 120*		*10/17/18 04:21*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*10/17/18 04:21*	*1*

Client Sample ID: TB-8-VOC-20181009
Date Collected: 10/09/18 14:38
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-22
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/17/18 04:41	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 04:41	1
Acrolein	ND		20	2.8	ug/L			10/17/18 04:41	1
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 04:41	1
Benzene	ND		1.0	0.16	ug/L			10/17/18 04:41	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 04:41	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 04:41	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 04:41	1
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 04:41	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 04:41	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 04:41	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 04:41	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 04:41	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 04:41	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 04:41	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 04:41	1
Chloroform	ND		1.0	0.16	ug/L			10/17/18 04:41	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 04:41	1
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 04:41	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 04:41	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 04:41	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/17/18 04:41	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 04:41	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/17/18 04:41	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 04:41	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/17/18 04:41	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/17/18 04:41	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 04:41	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 04:41	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 04:41	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 04:41	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 04:41	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 04:41	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 04:41	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-8-VOC-20181009
Date Collected: 10/09/18 14:38
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-22
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 04:41	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 04:41	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 04:41	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 04:41	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 04:41	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 04:41	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 04:41	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 04:41	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 04:41	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 04:41	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 04:41	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 04:41	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 04:41	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 04:41	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 04:41	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 04:41	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/17/18 04:41	1
Toluene	ND		1.0	0.17	ug/L			10/17/18 04:41	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 04:41	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/17/18 04:41	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 04:41	1
Trichloroethene	ND		1.0	0.16	ug/L			10/17/18 04:41	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 04:41	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 04:41	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 04:41	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/17/18 04:41	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 04:41	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 04:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 127*		*10/17/18 04:41*	*1*
Toluene-d8 (Surr)	*96*		*80 - 125*		*10/17/18 04:41*	*1*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*		*10/17/18 04:41*	*1*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*10/17/18 04:41*	*1*

Client Sample ID: TB-5-VOC-20181009
Date Collected: 10/09/18 08:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-23
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/17/18 05:00	1
Acetonitrile	ND		30	9.6	ug/L			10/17/18 05:00	1
Acrolein	ND		20	2.8	ug/L			10/17/18 05:00	1
Acrylonitrile	ND		20	1.4	ug/L			10/17/18 05:00	1
Benzene	ND		1.0	0.16	ug/L			10/17/18 05:00	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/17/18 05:00	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/17/18 05:00	1
Bromoform	ND		1.0	0.19	ug/L			10/17/18 05:00	1
Bromomethane	ND		2.0	0.21	ug/L			10/17/18 05:00	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/17/18 05:00	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/17/18 05:00	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-5-VOC-20181009
Date Collected: 10/09/18 08:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-23
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/17/18 05:00	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/17/18 05:00	1
Chloroprene	ND		1.0	0.21	ug/L			10/17/18 05:00	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/17/18 05:00	1
Chloroethane	ND		2.0	0.41	ug/L			10/17/18 05:00	1
Chloroform	ND		1.0	0.16	ug/L			10/17/18 05:00	1
Chloromethane	ND		2.0	0.30	ug/L			10/17/18 05:00	1
Allyl chloride	ND		2.0	0.17	ug/L			10/17/18 05:00	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/17/18 05:00	1
Dibromomethane	ND		1.0	0.17	ug/L			10/17/18 05:00	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/17/18 05:00	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/17/18 05:00	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/17/18 05:00	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/17/18 05:00	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/17/18 05:00	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/17/18 05:00	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/17/18 05:00	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 05:00	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/17/18 05:00	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/17/18 05:00	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 05:00	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/17/18 05:00	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/17/18 05:00	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/17/18 05:00	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/17/18 05:00	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/17/18 05:00	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/17/18 05:00	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/17/18 05:00	1
2-Hexanone	ND		5.0	1.7	ug/L			10/17/18 05:00	1
Iodomethane	ND		1.0	0.23	ug/L			10/17/18 05:00	1
Isobutyl alcohol	ND		110	37	ug/L			10/17/18 05:00	1
Methacrylonitrile	ND		10	1.6	ug/L			10/17/18 05:00	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/17/18 05:00	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/17/18 05:00	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/17/18 05:00	1
Propionitrile	ND		20	3.7	ug/L			10/17/18 05:00	1
Styrene	ND		1.0	0.17	ug/L			10/17/18 05:00	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 05:00	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/17/18 05:00	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/17/18 05:00	1
Toluene	ND		1.0	0.17	ug/L			10/17/18 05:00	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/17/18 05:00	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/17/18 05:00	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/17/18 05:00	1
Trichloroethene	ND		1.0	0.16	ug/L			10/17/18 05:00	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/17/18 05:00	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/17/18 05:00	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/17/18 05:00	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/17/18 05:00	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-5-VOC-20181009
Date Collected: 10/09/18 08:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-23
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		2.0	0.19	ug/L			10/17/18 05:00	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/17/18 05:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*70 - 127*		*10/17/18 05:00*	*1*
Toluene-d8 (Surr)	*99*		*80 - 125*		*10/17/18 05:00*	*1*
4-Bromofluorobenzene (Surr)	*103*		*78 - 120*		*10/17/18 05:00*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 120*		*10/17/18 05:00*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: RW-4-20181007
Date Collected: 10/07/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**110**		4.0	0.64	ug/L			10/17/18 01:45	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 127*		*10/17/18 01:45*	*4*
Toluene-d8 (Surr)	*94*		*80 - 125*		*10/17/18 01:45*	*4*
4-Bromofluorobenzene (Surr)	*105*		*78 - 120*		*10/17/18 01:45*	*4*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*10/17/18 01:45*	*4*

Client Sample ID: MW-110S-20181006
Date Collected: 10/06/18 15:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**76**		4.0	0.64	ug/L			10/16/18 14:15	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 127*		*10/16/18 14:15*	*4*
Toluene-d8 (Surr)	*88*		*80 - 125*		*10/16/18 14:15*	*4*
4-Bromofluorobenzene (Surr)	*83*		*78 - 120*		*10/16/18 14:15*	*4*
Dibromofluoromethane (Surr)	*98*		*77 - 120*		*10/16/18 14:15*	*4*

Client Sample ID: RW-15-20181006
Date Collected: 10/06/18 17:50
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**100**		10	1.6	ug/L			10/16/18 14:57	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 127*		*10/16/18 14:57*	*10*
Toluene-d8 (Surr)	*88*		*80 - 125*		*10/16/18 14:57*	*10*
4-Bromofluorobenzene (Surr)	*85*		*78 - 120*		*10/16/18 14:57*	*10*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*10/16/18 14:57*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	120		4.0	0.64	ug/L			10/16/18 15:40	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 127*		*10/16/18 15:40*	*4*
Toluene-d8 (Surr)	*86*		*80 - 125*		*10/16/18 15:40*	*4*
4-Bromofluorobenzene (Surr)	*83*		*78 - 120*		*10/16/18 15:40*	*4*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*10/16/18 15:40*	*4*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		11	1.9	ug/L		10/12/18 11:51	10/17/18 22:08	1
1,3,5-Trinitrobenzene	ND		56	4.5	ug/L		10/12/18 11:51	10/17/18 22:08	1
1,3-Dinitrobenzene	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
1,4-Naphthoquinone	ND		56	15	ug/L		10/12/18 11:51	10/17/18 22:08	1
1-Naphthylamine	ND		11	3.5	ug/L		10/12/18 11:51	10/17/18 22:08	1
2,3,4,6-Tetrachlorophenol	ND		56	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
2,4,5-Trichlorophenol	ND		11	0.50	ug/L		10/12/18 11:51	10/17/18 22:08	1
2,4,6-Trichlorophenol	ND		11	0.32	ug/L		10/12/18 11:51	10/17/18 22:08	1
2,4-Dichlorophenol	ND		11	0.72	ug/L		10/12/18 11:51	10/17/18 22:08	1
2,4-Dimethylphenol	ND		11	0.65	ug/L		10/12/18 11:51	10/17/18 22:08	1
2,4-Dinitrophenol	ND		34	11	ug/L		10/12/18 11:51	10/17/18 22:08	1
2,4-Dinitrotoluene	ND		11	1.9	ug/L		10/12/18 11:51	10/17/18 22:08	1
2,6-Dichlorophenol	ND		11	1.5	ug/L		10/12/18 11:51	10/17/18 22:08	1
2,6-Dinitrotoluene	ND		11	2.1	ug/L		10/12/18 11:51	10/17/18 22:08	1
2-Acetylaminofluorene	ND		110	7.8	ug/L		10/12/18 11:51	10/17/18 22:08	1
2-Chloronaphthalene	ND		4.5	0.29	ug/L		10/12/18 11:51	10/17/18 22:08	1
2-Chlorophenol	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
2-Methylnaphthalene	ND		4.5	0.32	ug/L		10/12/18 11:51	10/17/18 22:08	1
2-Methylphenol	ND		11	1.1	ug/L		10/12/18 11:51	10/17/18 22:08	1
2-Naphthylamine	ND		11	3.5	ug/L		10/12/18 11:51	10/17/18 22:08	1
2-Nitroaniline	ND		11	1.9	ug/L		10/12/18 11:51	10/17/18 22:08	1
2-Nitrophenol	ND		11	0.44	ug/L		10/12/18 11:51	10/17/18 22:08	1
3 & 4 Methylphenol	ND		11	0.28	ug/L		10/12/18 11:51	10/17/18 22:08	1
3,3'-Dichlorobenzidine	ND		56	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
3,3'-Dimethylbenzidine	ND		22	4.5	ug/L		10/12/18 11:51	10/17/18 22:08	1
3-Methylcholanthrene	ND		22	1.9	ug/L		10/12/18 11:51	10/17/18 22:08	1
3-Nitroaniline	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
4,6-Dinitro-2-methylphenol	ND		56	4.5	ug/L		10/12/18 11:51	10/17/18 22:08	1
4-Aminobiphenyl	ND		56	5.0	ug/L		10/12/18 11:51	10/17/18 22:08	1
4-Bromophenyl phenyl ether	ND		11	0.48	ug/L		10/12/18 11:51	10/17/18 22:08	1
4-Chloro-3-methylphenol	ND		11	2.7	ug/L		10/12/18 11:51	10/17/18 22:08	1
4-Chloroaniline	ND		11	2.4	ug/L		10/12/18 11:51	10/17/18 22:08	1
4-Chlorophenyl phenyl ether	ND		11	1.9	ug/L		10/12/18 11:51	10/17/18 22:08	1
4-Nitroaniline	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
4-Nitrophenol	ND		11	1.4	ug/L		10/12/18 11:51	10/17/18 22:08	1
5-Nitro-o-toluidine	ND		22	1.6	ug/L		10/12/18 11:51	10/17/18 22:08	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
7,12-Dimethylbenz(a)anthracene	ND		22	1.7	ug/L		10/12/18 11:51	10/17/18 22:08	1
a,a-Dimethylphenethylamine	ND		56	22	ug/L		10/12/18 11:51	10/17/18 22:08	1
Acenaphthene	ND		4.5	0.31	ug/L		10/12/18 11:51	10/17/18 22:08	1
Acenaphthylene	ND		4.5	0.55	ug/L		10/12/18 11:51	10/17/18 22:08	1
Acetophenone	ND		11	0.27	ug/L		10/12/18 11:51	10/17/18 22:08	1
Anthracene	ND		4.5	0.47	ug/L		10/12/18 11:51	10/17/18 22:08	1
Benzo[a]anthracene	ND		4.5	0.39	ug/L		10/12/18 11:51	10/17/18 22:08	1
Benzo[a]pyrene	ND		4.5	0.35	ug/L		10/12/18 11:51	10/17/18 22:08	1
Benzo[b]fluoranthene	ND		4.5	0.59	ug/L		10/12/18 11:51	10/17/18 22:08	1
Benzo[g,h,i]perylene	ND		4.5	0.56	ug/L		10/12/18 11:51	10/17/18 22:08	1
Benzo[k]fluoranthene	ND		4.5	0.52	ug/L		10/12/18 11:51	10/17/18 22:08	1
Benzyl alcohol	ND		11	0.26	ug/L		10/12/18 11:51	10/17/18 22:08	1
Bis(2-chloroethoxy)methane	ND		11	1.1	ug/L		10/12/18 11:51	10/17/18 22:08	1
Bis(2-chloroethyl)ether	ND		11	0.46	ug/L		10/12/18 11:51	10/17/18 22:08	1
Bis(2-ethylhexyl) phthalate	ND		11	0.63	ug/L		10/12/18 11:51	10/17/18 22:08	1
bis(chloroisopropyl) ether	ND		11	0.31	ug/L		10/12/18 11:51	10/17/18 22:08	1
Butyl benzyl phthalate	ND		4.5	1.1	ug/L		10/12/18 11:51	10/17/18 22:08	1
Chlorobenzilate	ND		11	0.74	ug/L		10/12/18 11:51	10/17/18 22:08	1
Chrysene	ND		4.5	0.60	ug/L		10/12/18 11:51	10/17/18 22:08	1
Diallate	ND		6.3	0.63	ug/L		10/12/18 11:51	10/17/18 22:08	1
Dibenz(a,h)anthracene	ND		4.5	0.57	ug/L		10/12/18 11:51	10/17/18 22:08	1
Dibenzofuran	ND		4.5	0.32	ug/L		10/12/18 11:51	10/17/18 22:08	1
Diethyl phthalate	ND		4.5	0.43	ug/L		10/12/18 11:51	10/17/18 22:08	1
Dimethyl phthalate	ND		4.5	0.24	ug/L		10/12/18 11:51	10/17/18 22:08	1
Di-n-butyl phthalate	ND		4.5	1.3	ug/L		10/12/18 11:51	10/17/18 22:08	1
Di-n-octyl phthalate	ND		4.5	0.39	ug/L		10/12/18 11:51	10/17/18 22:08	1
Diphenylamine	ND		11	1.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
Ethyl methanesulfonate	ND		11	1.1	ug/L		10/12/18 11:51	10/17/18 22:08	1
Fluoranthene	ND		4.5	0.22	ug/L		10/12/18 11:51	10/17/18 22:08	1
Fluorene	ND		4.5	0.35	ug/L		10/12/18 11:51	10/17/18 22:08	1
Hexachlorobenzene	ND		11	0.74	ug/L		10/12/18 11:51	10/17/18 22:08	1
Hexachlorobutadiene	ND		11	3.7	ug/L		10/12/18 11:51	10/17/18 22:08	1
Hexachlorocyclopentadiene	ND		56	11	ug/L		10/12/18 11:51	10/17/18 22:08	1
Hexachloroethane	ND		11	2.4	ug/L		10/12/18 11:51	10/17/18 22:08	1
Hexachloropropene	ND		110	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
Indeno[1,2,3-cd]pyrene	ND		4.5	0.73	ug/L		10/12/18 11:51	10/17/18 22:08	1
Isophorone	ND		11	0.24	ug/L		10/12/18 11:51	10/17/18 22:08	1
Isosafrole	ND		3.9	1.1	ug/L		10/12/18 11:51	10/17/18 22:08	1
Methapyrilene	ND		56	22	ug/L		10/12/18 11:51	10/17/18 22:08	1
Methyl methanesulfonate	ND		11	1.1	ug/L		10/12/18 11:51	10/17/18 22:08	1
Naphthalene	ND		4.5	0.32	ug/L		10/12/18 11:51	10/17/18 22:08	1
Nitrobenzene	ND		11	0.91	ug/L		10/12/18 11:51	10/17/18 22:08	1
N-Nitrosodiethylamine	ND		11	1.9	ug/L		10/12/18 11:51	10/17/18 22:08	1
N-Nitrosodimethylamine	ND		11	0.32	ug/L		10/12/18 11:51	10/17/18 22:08	1
N-Nitrosodi-n-butylamine	ND		11	1.4	ug/L		10/12/18 11:51	10/17/18 22:08	1
N-Nitrosodi-n-propylamine	ND		11	0.39	ug/L		10/12/18 11:51	10/17/18 22:08	1
n-Nitrosodiphenylamine(as diphenylamine)	ND		11	0.49	ug/L		10/12/18 11:51	10/17/18 22:08	1
N-Nitrosomethylethylamine	ND		11	2.0	ug/L		10/12/18 11:51	10/17/18 22:08	1
N-Nitrosopiperidine	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosopyrrolidine	ND		11	0.90	ug/L		10/12/18 11:51	10/17/18 22:08	1
o,o',o''-Triethylphosphorothioate	ND		56	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
o-Toluidine	ND		11	1.6	ug/L		10/12/18 11:51	10/17/18 22:08	1
p-Dimethylamino azobenzene	ND		22	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
Pentachlorobenzene	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
Pentachloronitrobenzene	ND		56	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
Pentachlorophenol	ND		56	22	ug/L		10/12/18 11:51	10/17/18 22:08	1
Phenacetin	ND		22	1.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
Phenanthrene	ND		4.5	0.29	ug/L		10/12/18 11:51	10/17/18 22:08	1
Phenol	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
p-Phenylene diamine	ND		110	5.6	ug/L		10/12/18 11:51	10/17/18 22:08	1
Pronamide	ND		22	2.2	ug/L		10/12/18 11:51	10/17/18 22:08	1
Pyrene	ND		11	0.41	ug/L		10/12/18 11:51	10/17/18 22:08	1
Safrole, Total	ND		22	1.3	ug/L		10/12/18 11:51	10/17/18 22:08	1
Thionazin	ND		56	0.97	ug/L		10/12/18 11:51	10/17/18 22:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*76*		*48 - 135*	*10/12/18 11:51*	*10/17/18 22:08*	*1*
2-Fluorobiphenyl	*79*		*48 - 135*	*10/12/18 11:51*	*10/17/18 22:08*	*1*
2-Fluorophenol	*82*		*41 - 135*	*10/12/18 11:51*	*10/17/18 22:08*	*1*
Nitrobenzene-d5	*78*		*42 - 135*	*10/12/18 11:51*	*10/17/18 22:08*	*1*
Phenol-d5	*83*		*46 - 135*	*10/12/18 11:51*	*10/17/18 22:08*	*1*
Terphenyl-d14	*84*		*20 - 135*	*10/12/18 11:51*	*10/17/18 22:08*	*1*

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		11	2.0	ug/L		10/12/18 11:51	10/18/18 18:31	1
1,3,5-Trinitrobenzene	ND		57	4.6	ug/L		10/12/18 11:51	10/18/18 18:31	1
1,3-Dinitrobenzene	ND		11	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
1,4-Naphthoquinone	ND		57	16	ug/L		10/12/18 11:51	10/18/18 18:31	1
1-Naphthylamine	ND		11	3.5	ug/L		10/12/18 11:51	10/18/18 18:31	1
2,3,4,6-Tetrachlorophenol	ND		57	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
2,4,5-Trichlorophenol	ND		11	0.51	ug/L		10/12/18 11:51	10/18/18 18:31	1
2,4,6-Trichlorophenol	ND		11	0.33	ug/L		10/12/18 11:51	10/18/18 18:31	1
2,4-Dichlorophenol	ND		11	0.73	ug/L		10/12/18 11:51	10/18/18 18:31	1
2,4-Dimethylphenol	ND		11	0.66	ug/L		10/12/18 11:51	10/18/18 18:31	1
2,4-Dinitrophenol	ND		34	11	ug/L		10/12/18 11:51	10/18/18 18:31	1
2,4-Dinitrotoluene	ND		11	1.9	ug/L		10/12/18 11:51	10/18/18 18:31	1
2,6-Dichlorophenol	ND		11	1.5	ug/L		10/12/18 11:51	10/18/18 18:31	1
2,6-Dinitrotoluene	ND		11	2.2	ug/L		10/12/18 11:51	10/18/18 18:31	1
2-Acetylaminofluorene	ND		110	8.0	ug/L		10/12/18 11:51	10/18/18 18:31	1
2-Chloronaphthalene	ND		4.6	0.30	ug/L		10/12/18 11:51	10/18/18 18:31	1
2-Chlorophenol	ND		11	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
2-Methylnaphthalene	ND		4.6	0.33	ug/L		10/12/18 11:51	10/18/18 18:31	1
2-Methylphenol	ND		11	1.1	ug/L		10/12/18 11:51	10/18/18 18:31	1
2-Naphthylamine	ND		11	3.5	ug/L		10/12/18 11:51	10/18/18 18:31	1
2-Nitroaniline	ND		11	2.0	ug/L		10/12/18 11:51	10/18/18 18:31	1
2-Nitrophenol	ND		11	0.45	ug/L		10/12/18 11:51	10/18/18 18:31	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	ND		11	0.29	ug/L		10/12/18 11:51	10/18/18 18:31	1
3,3'-Dichlorobenzidine	ND		57	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
3,3'-Dimethylbenzidine	ND		23	4.6	ug/L		10/12/18 11:51	10/18/18 18:31	1
3-Methylcholanthrene	ND		23	1.9	ug/L		10/12/18 11:51	10/18/18 18:31	1
3-Nitroaniline	ND		11	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
4,6-Dinitro-2-methylphenol	ND		57	4.6	ug/L		10/12/18 11:51	10/18/18 18:31	1
4-Aminobiphenyl	ND		57	5.1	ug/L		10/12/18 11:51	10/18/18 18:31	1
4-Bromophenyl phenyl ether	ND		11	0.49	ug/L		10/12/18 11:51	10/18/18 18:31	1
4-Chloro-3-methylphenol	ND		11	2.8	ug/L		10/12/18 11:51	10/18/18 18:31	1
4-Chloroaniline	ND		11	2.4	ug/L		10/12/18 11:51	10/18/18 18:31	1
4-Chlorophenyl phenyl ether	ND		11	1.9	ug/L		10/12/18 11:51	10/18/18 18:31	1
4-Nitroaniline	ND		11	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
4-Nitrophenol	ND		11	1.4	ug/L		10/12/18 11:51	10/18/18 18:31	1
5-Nitro-o-toluidine	ND		23	1.6	ug/L		10/12/18 11:51	10/18/18 18:31	1
7,12-Dimethylbenz(a)anthracene	ND		23	1.8	ug/L		10/12/18 11:51	10/18/18 18:31	1
a,a-Dimethylphenethylamine	ND		57	23	ug/L		10/12/18 11:51	10/18/18 18:31	1
Acenaphthene	ND		4.6	0.32	ug/L		10/12/18 11:51	10/18/18 18:31	1
Acenaphthylene	ND		4.6	0.56	ug/L		10/12/18 11:51	10/18/18 18:31	1
Acetophenone	ND		11	0.27	ug/L		10/12/18 11:51	10/18/18 18:31	1
Anthracene	ND		4.6	0.48	ug/L		10/12/18 11:51	10/18/18 18:31	1
Benzo[a]anthracene	ND		4.6	0.40	ug/L		10/12/18 11:51	10/18/18 18:31	1
Benzo[a]pyrene	ND		4.6	0.35	ug/L		10/12/18 11:51	10/18/18 18:31	1
Benzo[b]fluoranthene	ND		4.6	0.61	ug/L		10/12/18 11:51	10/18/18 18:31	1
Benzo[g,h,i]perylene	ND		4.6	0.57	ug/L		10/12/18 11:51	10/18/18 18:31	1
Benzo[k]fluoranthene	ND		4.6	0.53	ug/L		10/12/18 11:51	10/18/18 18:31	1
Benzyl alcohol	ND		11	0.26	ug/L		10/12/18 11:51	10/18/18 18:31	1
Bis(2-chloroethoxy)methane	ND		11	1.1	ug/L		10/12/18 11:51	10/18/18 18:31	1
Bis(2-chloroethyl)ether	ND		11	0.47	ug/L		10/12/18 11:51	10/18/18 18:31	1
Bis(2-ethylhexyl) phthalate	ND		11	0.64	ug/L		10/12/18 11:51	10/18/18 18:31	1
bis(chloroisopropyl) ether	ND		11	0.32	ug/L		10/12/18 11:51	10/18/18 18:31	1
Butyl benzyl phthalate	ND		4.6	1.1	ug/L		10/12/18 11:51	10/18/18 18:31	1
Chlorobenzilate	ND		11	0.75	ug/L		10/12/18 11:51	10/18/18 18:31	1
Chrysene	ND		4.6	0.62	ug/L		10/12/18 11:51	10/18/18 18:31	1
Diallate	ND		6.4	0.64	ug/L		10/12/18 11:51	10/18/18 18:31	1
Dibenz(a,h)anthracene	ND		4.6	0.58	ug/L		10/12/18 11:51	10/18/18 18:31	1
Dibenzofuran	ND		4.6	0.33	ug/L		10/12/18 11:51	10/18/18 18:31	1
Diethyl phthalate	ND		4.6	0.43	ug/L		10/12/18 11:51	10/18/18 18:31	1
Dimethyl phthalate	ND		4.6	0.24	ug/L		10/12/18 11:51	10/18/18 18:31	1
Di-n-butyl phthalate	ND		4.6	1.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
Di-n-octyl phthalate	ND		4.6	0.40	ug/L		10/12/18 11:51	10/18/18 18:31	1
Diphenylamine	ND		11	1.2	ug/L		10/12/18 11:51	10/18/18 18:31	1
Ethyl methanesulfonate	ND		11	1.1	ug/L		10/12/18 11:51	10/18/18 18:31	1
Fluoranthene	ND		4.6	0.23	ug/L		10/12/18 11:51	10/18/18 18:31	1
Fluorene	ND		4.6	0.35	ug/L		10/12/18 11:51	10/18/18 18:31	1
Hexachlorobenzene	ND		11	0.76	ug/L		10/12/18 11:51	10/18/18 18:31	1
Hexachlorobutadiene	ND		11	3.8	ug/L		10/12/18 11:51	10/18/18 18:31	1
Hexachlorocyclopentadiene	ND		57	11	ug/L		10/12/18 11:51	10/18/18 18:31	1
Hexachloroethane	ND		11	2.4	ug/L		10/12/18 11:51	10/18/18 18:31	1
Hexachloropropene	ND		110	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	ND		4.6	0.74	ug/L		10/12/18 11:51	10/18/18 18:31	1
Isophorone	ND		11	0.24	ug/L		10/12/18 11:51	10/18/18 18:31	1
Isosafrole	ND		4.0	1.1	ug/L		10/12/18 11:51	10/18/18 18:31	1
Methapyrilene	ND		57	23	ug/L		10/12/18 11:51	10/18/18 18:31	1
Methyl methanesulfonate	ND		11	1.1	ug/L		10/12/18 11:51	10/18/18 18:31	1
Naphthalene	ND		4.6	0.33	ug/L		10/12/18 11:51	10/18/18 18:31	1
Nitrobenzene	ND		11	0.93	ug/L		10/12/18 11:51	10/18/18 18:31	1
N-Nitrosodiethylamine	ND		11	2.0	ug/L		10/12/18 11:51	10/18/18 18:31	1
N-Nitrosodimethylamine	ND		11	0.33	ug/L		10/12/18 11:51	10/18/18 18:31	1
N-Nitrosodi-n-butylamine	ND		11	1.4	ug/L		10/12/18 11:51	10/18/18 18:31	1
N-Nitrosodi-n-propylamine	ND		11	0.40	ug/L		10/12/18 11:51	10/18/18 18:31	1
n-Nitrosodiphenylamine(as diphenylamine)	ND		11	0.50	ug/L		10/12/18 11:51	10/18/18 18:31	1
N-Nitrosomethylethylamine	ND		11	2.0	ug/L		10/12/18 11:51	10/18/18 18:31	1
N-Nitrosopiperidine	ND		11	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
N-Nitrosopyrrolidine	ND		11	0.92	ug/L		10/12/18 11:51	10/18/18 18:31	1
o,o',o''-Triethylphosphorothioate	ND		57	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
o-Toluidine	ND		11	1.6	ug/L		10/12/18 11:51	10/18/18 18:31	1
p-Dimethylamino azobenzene	ND		23	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
Pentachlorobenzene	ND		11	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
Pentachloronitrobenzene	ND		57	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
Pentachlorophenol	ND		57	23	ug/L		10/12/18 11:51	10/18/18 18:31	1
Phenacetin	ND		23	1.2	ug/L		10/12/18 11:51	10/18/18 18:31	1
Phenanthrene	ND		4.6	0.30	ug/L		10/12/18 11:51	10/18/18 18:31	1
Phenol	ND		11	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
p-Phenylene diamine	ND		110	5.7	ug/L		10/12/18 11:51	10/18/18 18:31	1
Pronamide	ND		23	2.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
Pyrene	ND		11	0.42	ug/L		10/12/18 11:51	10/18/18 18:31	1
Safrole, Total	ND		23	1.3	ug/L		10/12/18 11:51	10/18/18 18:31	1
Thionazin	ND		57	0.99	ug/L		10/12/18 11:51	10/18/18 18:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*71*		*48 - 135*	*10/12/18 11:51*	*10/18/18 18:31*	*1*
2-Fluorobiphenyl	*74*		*48 - 135*	*10/12/18 11:51*	*10/18/18 18:31*	*1*
2-Fluorophenol	*71*		*41 - 135*	*10/12/18 11:51*	*10/18/18 18:31*	*1*
Nitrobenzene-d5	*73*		*42 - 135*	*10/12/18 11:51*	*10/18/18 18:31*	*1*
Phenol-d5	*75*		*46 - 135*	*10/12/18 11:51*	*10/18/18 18:31*	*1*
Terphenyl-d14	*85*		*20 - 135*	*10/12/18 11:51*	*10/18/18 18:31*	*1*

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		11	1.9	ug/L		10/12/18 11:51	10/17/18 23:02	1
1,3,5-Trinitrobenzene	ND		55	4.4	ug/L		10/12/18 11:51	10/17/18 23:02	1
1,3-Dinitrobenzene	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
1,4-Naphthoquinone	ND		55	15	ug/L		10/12/18 11:51	10/17/18 23:02	1
1-Naphthylamine	ND		11	3.4	ug/L		10/12/18 11:51	10/17/18 23:02	1
2,3,4,6-Tetrachlorophenol	ND		55	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
2,4,5-Trichlorophenol	ND		11	0.49	ug/L		10/12/18 11:51	10/17/18 23:02	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	ND		11	0.32	ug/L		10/12/18 11:51	10/17/18 23:02	1
2,4-Dichlorophenol	ND		11	0.70	ug/L		10/12/18 11:51	10/17/18 23:02	1
2,4-Dimethylphenol	ND		11	0.64	ug/L		10/12/18 11:51	10/17/18 23:02	1
2,4-Dinitrophenol	ND		33	11	ug/L		10/12/18 11:51	10/17/18 23:02	1
2,4-Dinitrotoluene	ND		11	1.8	ug/L		10/12/18 11:51	10/17/18 23:02	1
2,6-Dichlorophenol	ND		11	1.5	ug/L		10/12/18 11:51	10/17/18 23:02	1
2,6-Dinitrotoluene	ND		11	2.1	ug/L		10/12/18 11:51	10/17/18 23:02	1
2-Acetylaminofluorene	ND		110	7.7	ug/L		10/12/18 11:51	10/17/18 23:02	1
2-Chloronaphthalene	ND		4.4	0.29	ug/L		10/12/18 11:51	10/17/18 23:02	1
2-Chlorophenol	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
2-Methylnaphthalene	ND		4.4	0.32	ug/L		10/12/18 11:51	10/17/18 23:02	1
2-Methylphenol	ND		11	1.1	ug/L		10/12/18 11:51	10/17/18 23:02	1
2-Naphthylamine	ND		11	3.4	ug/L		10/12/18 11:51	10/17/18 23:02	1
2-Nitroaniline	ND		11	1.9	ug/L		10/12/18 11:51	10/17/18 23:02	1
2-Nitrophenol	ND		11	0.43	ug/L		10/12/18 11:51	10/17/18 23:02	1
3 & 4 Methylphenol	ND		11	0.27	ug/L		10/12/18 11:51	10/17/18 23:02	1
3,3'-Dichlorobenzidine	ND		55	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
3,3'-Dimethylbenzidine	ND		22	4.4	ug/L		10/12/18 11:51	10/17/18 23:02	1
3-Methylcholanthrene	ND		22	1.9	ug/L		10/12/18 11:51	10/17/18 23:02	1
3-Nitroaniline	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
4,6-Dinitro-2-methylphenol	ND		55	4.4	ug/L		10/12/18 11:51	10/17/18 23:02	1
4-Aminobiphenyl	ND		55	4.9	ug/L		10/12/18 11:51	10/17/18 23:02	1
4-Bromophenyl phenyl ether	ND		11	0.47	ug/L		10/12/18 11:51	10/17/18 23:02	1
4-Chloro-3-methylphenol	ND		11	2.6	ug/L		10/12/18 11:51	10/17/18 23:02	1
4-Chloroaniline	ND		11	2.4	ug/L		10/12/18 11:51	10/17/18 23:02	1
4-Chlorophenyl phenyl ether	ND		11	1.8	ug/L		10/12/18 11:51	10/17/18 23:02	1
4-Nitroaniline	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
4-Nitrophenol	ND		11	1.4	ug/L		10/12/18 11:51	10/17/18 23:02	1
5-Nitro-o-toluidine	ND		22	1.5	ug/L		10/12/18 11:51	10/17/18 23:02	1
7,12-Dimethylbenz(a)anthracene	ND		22	1.7	ug/L		10/12/18 11:51	10/17/18 23:02	1
a,a-Dimethylphenethylamine	ND		55	22	ug/L		10/12/18 11:51	10/17/18 23:02	1
Acenaphthene	ND		4.4	0.31	ug/L		10/12/18 11:51	10/17/18 23:02	1
Acenaphthylene	ND		4.4	0.54	ug/L		10/12/18 11:51	10/17/18 23:02	1
Acetophenone	ND		11	0.26	ug/L		10/12/18 11:51	10/17/18 23:02	1
Anthracene	ND		4.4	0.46	ug/L		10/12/18 11:51	10/17/18 23:02	1
Benzo[a]anthracene	ND		4.4	0.38	ug/L		10/12/18 11:51	10/17/18 23:02	1
Benzo[a]pyrene	ND		4.4	0.34	ug/L		10/12/18 11:51	10/17/18 23:02	1
Benzo[b]fluoranthene	ND		4.4	0.58	ug/L		10/12/18 11:51	10/17/18 23:02	1
Benzo[g,h,i]perylene	ND		4.4	0.55	ug/L		10/12/18 11:51	10/17/18 23:02	1
Benzo[k]fluoranthene	ND		4.4	0.51	ug/L		10/12/18 11:51	10/17/18 23:02	1
Benzyl alcohol	ND		11	0.25	ug/L		10/12/18 11:51	10/17/18 23:02	1
Bis(2-chloroethoxy)methane	ND		11	1.1	ug/L		10/12/18 11:51	10/17/18 23:02	1
Bis(2-chloroethyl)ether	ND		11	0.45	ug/L		10/12/18 11:51	10/17/18 23:02	1
Bis(2-ethylhexyl) phthalate	ND		11	0.62	ug/L		10/12/18 11:51	10/17/18 23:02	1
bis(chloroisopropyl) ether	ND		11	0.31	ug/L		10/12/18 11:51	10/17/18 23:02	1
Butyl benzyl phthalate	ND		4.4	1.1	ug/L		10/12/18 11:51	10/17/18 23:02	1
Chlorobenzilate	ND		11	0.72	ug/L		10/12/18 11:51	10/17/18 23:02	1
Chrysene	ND		4.4	0.59	ug/L		10/12/18 11:51	10/17/18 23:02	1
Diallate	ND		6.2	0.62	ug/L		10/12/18 11:51	10/17/18 23:02	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		4.4	0.56	ug/L		10/12/18 11:51	10/17/18 23:02	1
Dibenzofuran	ND		4.4	0.32	ug/L		10/12/18 11:51	10/17/18 23:02	1
Diethyl phthalate	ND		4.4	0.42	ug/L		10/12/18 11:51	10/17/18 23:02	1
Dimethyl phthalate	ND		4.4	0.23	ug/L		10/12/18 11:51	10/17/18 23:02	1
Di-n-butyl phthalate	ND		4.4	1.3	ug/L		10/12/18 11:51	10/17/18 23:02	1
Di-n-octyl phthalate	ND		4.4	0.38	ug/L		10/12/18 11:51	10/17/18 23:02	1
Diphenylamine	ND		11	1.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
Ethyl methanesulfonate	ND		11	1.0	ug/L		10/12/18 11:51	10/17/18 23:02	1
Fluoranthene	ND		4.4	0.22	ug/L		10/12/18 11:51	10/17/18 23:02	1
Fluorene	ND		4.4	0.34	ug/L		10/12/18 11:51	10/17/18 23:02	1
Hexachlorobenzene	ND		11	0.72	ug/L		10/12/18 11:51	10/17/18 23:02	1
Hexachlorobutadiene	ND		11	3.6	ug/L		10/12/18 11:51	10/17/18 23:02	1
Hexachlorocyclopentadiene	ND		55	11	ug/L		10/12/18 11:51	10/17/18 23:02	1
Hexachloroethane	ND		11	2.3	ug/L		10/12/18 11:51	10/17/18 23:02	1
Hexachloropropene	ND		110	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
Indeno[1,2,3-cd]pyrene	ND		4.4	0.71	ug/L		10/12/18 11:51	10/17/18 23:02	1
Isophorone	ND		11	0.23	ug/L		10/12/18 11:51	10/17/18 23:02	1
Isosafrole	ND		3.8	1.1	ug/L		10/12/18 11:51	10/17/18 23:02	1
Methapyrilene	ND		55	22	ug/L		10/12/18 11:51	10/17/18 23:02	1
Methyl methanesulfonate	ND		11	1.1	ug/L		10/12/18 11:51	10/17/18 23:02	1
Naphthalene	ND		4.4	0.32	ug/L		10/12/18 11:51	10/17/18 23:02	1
Nitrobenzene	ND		11	0.89	ug/L		10/12/18 11:51	10/17/18 23:02	1
N-Nitrosodiethylamine	ND		11	1.9	ug/L		10/12/18 11:51	10/17/18 23:02	1
N-Nitrosodimethylamine	ND		11	0.32	ug/L		10/12/18 11:51	10/17/18 23:02	1
N-Nitrosodi-n-butylamine	ND		11	1.3	ug/L		10/12/18 11:51	10/17/18 23:02	1
N-Nitrosodi-n-propylamine	ND		11	0.38	ug/L		10/12/18 11:51	10/17/18 23:02	1
n-Nitrosodiphenylamine(as diphenylamine)	ND		11	0.48	ug/L		10/12/18 11:51	10/17/18 23:02	1
N-Nitrosomethylethylamine	ND		11	1.9	ug/L		10/12/18 11:51	10/17/18 23:02	1
N-Nitrosopiperidine	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
N-Nitrosopyrrolidine	ND		11	0.88	ug/L		10/12/18 11:51	10/17/18 23:02	1
o,o',o''-Triethylphosphorothioate	ND		55	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
o-Toluidine	ND		11	1.5	ug/L		10/12/18 11:51	10/17/18 23:02	1
p-Dimethylamino azobenzene	ND		22	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
Pentachlorobenzene	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
Pentachloronitrobenzene	ND		55	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
Pentachlorophenol	ND		55	22	ug/L		10/12/18 11:51	10/17/18 23:02	1
Phenacetin	ND		22	1.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
Phenanthrene	ND		4.4	0.29	ug/L		10/12/18 11:51	10/17/18 23:02	1
Phenol	ND		11	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
p-Phenylene diamine	ND		110	5.5	ug/L		10/12/18 11:51	10/17/18 23:02	1
Pronamide	ND		22	2.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
Pyrene	ND		11	0.41	ug/L		10/12/18 11:51	10/17/18 23:02	1
Safrole, Total	ND		22	1.2	ug/L		10/12/18 11:51	10/17/18 23:02	1
Thionazin	ND		55	0.95	ug/L		10/12/18 11:51	10/17/18 23:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*72*		*48 - 135*	*10/12/18 11:51*	*10/17/18 23:02*	*1*
2-Fluorobiphenyl	*82*		*48 - 135*	*10/12/18 11:51*	*10/17/18 23:02*	*1*
2-Fluorophenol	*80*		*41 - 135*	*10/12/18 11:51*	*10/17/18 23:02*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*79*		*42 - 135*	*10/12/18 11:51*	*10/17/18 23:02*	*1*
Phenol-d5	*82*		*46 - 135*	*10/12/18 11:51*	*10/17/18 23:02*	*1*
Terphenyl-d14	*86*		*20 - 135*	*10/12/18 11:51*	*10/17/18 23:02*	*1*

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		10	1.7	ug/L		10/12/18 11:51	10/17/18 23:30	1
1,3,5-Trinitrobenzene	ND		50	4.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
1,3-Dinitrobenzene	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
1,4-Naphthoquinone	ND		50	14	ug/L		10/12/18 11:51	10/17/18 23:30	1
1-Naphthylamine	ND		10	3.1	ug/L		10/12/18 11:51	10/17/18 23:30	1
2,3,4,6-Tetrachlorophenol	ND		50	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
2,4,5-Trichlorophenol	ND		10	0.45	ug/L		10/12/18 11:51	10/17/18 23:30	1
2,4,6-Trichlorophenol	ND		10	0.29	ug/L		10/12/18 11:51	10/17/18 23:30	1
2,4-Dichlorophenol	ND		10	0.64	ug/L		10/12/18 11:51	10/17/18 23:30	1
2,4-Dimethylphenol	ND		10	0.58	ug/L		10/12/18 11:51	10/17/18 23:30	1
2,4-Dinitrophenol	ND		30	10	ug/L		10/12/18 11:51	10/17/18 23:30	1
2,4-Dinitrotoluene	ND		10	1.7	ug/L		10/12/18 11:51	10/17/18 23:30	1
2,6-Dichlorophenol	ND		10	1.4	ug/L		10/12/18 11:51	10/17/18 23:30	1
2,6-Dinitrotoluene	ND		10	1.9	ug/L		10/12/18 11:51	10/17/18 23:30	1
2-Acetylaminofluorene	ND		100	7.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
2-Chloronaphthalene	ND		4.0	0.26	ug/L		10/12/18 11:51	10/17/18 23:30	1
2-Chlorophenol	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
2-Methylnaphthalene	ND		4.0	0.29	ug/L		10/12/18 11:51	10/17/18 23:30	1
2-Methylphenol	ND		10	0.99	ug/L		10/12/18 11:51	10/17/18 23:30	1
2-Naphthylamine	ND		10	3.1	ug/L		10/12/18 11:51	10/17/18 23:30	1
2-Nitroaniline	ND		10	1.7	ug/L		10/12/18 11:51	10/17/18 23:30	1
2-Nitrophenol	ND		10	0.39	ug/L		10/12/18 11:51	10/17/18 23:30	1
3 & 4 Methylphenol	ND		10	0.25	ug/L		10/12/18 11:51	10/17/18 23:30	1
3,3'-Dichlorobenzidine	ND		50	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
3,3'-Dimethylbenzidine	ND		20	4.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
3-Methylcholanthrene	ND		20	1.7	ug/L		10/12/18 11:51	10/17/18 23:30	1
3-Nitroaniline	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
4,6-Dinitro-2-methylphenol	ND		50	4.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
4-Aminobiphenyl	ND		50	4.5	ug/L		10/12/18 11:51	10/17/18 23:30	1
4-Bromophenyl phenyl ether	ND		10	0.43	ug/L		10/12/18 11:51	10/17/18 23:30	1
4-Chloro-3-methylphenol	ND		10	2.4	ug/L		10/12/18 11:51	10/17/18 23:30	1
4-Chloroaniline	ND		10	2.2	ug/L		10/12/18 11:51	10/17/18 23:30	1
4-Chlorophenyl phenyl ether	ND		10	1.7	ug/L		10/12/18 11:51	10/17/18 23:30	1
4-Nitroaniline	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
4-Nitrophenol	ND		10	1.2	ug/L		10/12/18 11:51	10/17/18 23:30	1
5-Nitro-o-toluidine	ND		20	1.4	ug/L		10/12/18 11:51	10/17/18 23:30	1
7,12-Dimethylbenz(a)anthracene	ND		20	1.6	ug/L		10/12/18 11:51	10/17/18 23:30	1
a,a-Dimethylphenethylamine	ND		50	20	ug/L		10/12/18 11:51	10/17/18 23:30	1
Acenaphthene	ND		4.0	0.28	ug/L		10/12/18 11:51	10/17/18 23:30	1
Acenaphthylene	ND		4.0	0.49	ug/L		10/12/18 11:51	10/17/18 23:30	1
Acetophenone	ND		10	0.24	ug/L		10/12/18 11:51	10/17/18 23:30	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		4.0	0.42	ug/L		10/12/18 11:51	10/17/18 23:30	1
Benzo[a]anthracene	ND		4.0	0.35	ug/L		10/12/18 11:51	10/17/18 23:30	1
Benzo[a]pyrene	ND		4.0	0.31	ug/L		10/12/18 11:51	10/17/18 23:30	1
Benzo[b]fluoranthene	ND		4.0	0.53	ug/L		10/12/18 11:51	10/17/18 23:30	1
Benzo[g,h,i]perylene	ND		4.0	0.50	ug/L		10/12/18 11:51	10/17/18 23:30	1
Benzo[k]fluoranthene	ND		4.0	0.46	ug/L		10/12/18 11:51	10/17/18 23:30	1
Benzyl alcohol	ND		10	0.23	ug/L		10/12/18 11:51	10/17/18 23:30	1
Bis(2-chloroethoxy)methane	ND		10	0.98	ug/L		10/12/18 11:51	10/17/18 23:30	1
Bis(2-chloroethyl)ether	ND		10	0.41	ug/L		10/12/18 11:51	10/17/18 23:30	1
Bis(2-ethylhexyl) phthalate	ND		10	0.56	ug/L		10/12/18 11:51	10/17/18 23:30	1
bis(chloroisopropyl) ether	ND		10	0.28	ug/L		10/12/18 11:51	10/17/18 23:30	1
Butyl benzyl phthalate	ND		4.0	1.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
Chlorobenzilate	ND		10	0.66	ug/L		10/12/18 11:51	10/17/18 23:30	1
Chrysene	ND		4.0	0.54	ug/L		10/12/18 11:51	10/17/18 23:30	1
Diallate	ND		5.6	0.56	ug/L		10/12/18 11:51	10/17/18 23:30	1
Dibenz(a,h)anthracene	ND		4.0	0.51	ug/L		10/12/18 11:51	10/17/18 23:30	1
Dibenzofuran	ND		4.0	0.29	ug/L		10/12/18 11:51	10/17/18 23:30	1
Diethyl phthalate	ND		4.0	0.38	ug/L		10/12/18 11:51	10/17/18 23:30	1
Dimethyl phthalate	ND		4.0	0.21	ug/L		10/12/18 11:51	10/17/18 23:30	1
Di-n-butyl phthalate	ND		4.0	1.2	ug/L		10/12/18 11:51	10/17/18 23:30	1
Di-n-octyl phthalate	ND		4.0	0.35	ug/L		10/12/18 11:51	10/17/18 23:30	1
Diphenylamine	ND		10	1.1	ug/L		10/12/18 11:51	10/17/18 23:30	1
Ethyl methanesulfonate	ND		10	0.95	ug/L		10/12/18 11:51	10/17/18 23:30	1
Fluoranthene	ND		4.0	0.20	ug/L		10/12/18 11:51	10/17/18 23:30	1
Fluorene	ND		4.0	0.31	ug/L		10/12/18 11:51	10/17/18 23:30	1
Hexachlorobenzene	ND		10	0.66	ug/L		10/12/18 11:51	10/17/18 23:30	1
Hexachlorobutadiene	ND		10	3.3	ug/L		10/12/18 11:51	10/17/18 23:30	1
Hexachlorocyclopentadiene	ND		50	10	ug/L		10/12/18 11:51	10/17/18 23:30	1
Hexachloroethane	ND		10	2.1	ug/L		10/12/18 11:51	10/17/18 23:30	1
Hexachloropropene	ND		100	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
Indeno[1,2,3-cd]pyrene	ND		4.0	0.65	ug/L		10/12/18 11:51	10/17/18 23:30	1
Isophorone	ND		10	0.21	ug/L		10/12/18 11:51	10/17/18 23:30	1
Isosafrole	ND		3.5	1.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
Methapyrilene	ND		50	20	ug/L		10/12/18 11:51	10/17/18 23:30	1
Methyl methanesulfonate	ND		10	1.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
Naphthalene	ND		4.0	0.29	ug/L		10/12/18 11:51	10/17/18 23:30	1
Nitrobenzene	ND		10	0.81	ug/L		10/12/18 11:51	10/17/18 23:30	1
N-Nitrosodiethylamine	ND		10	1.7	ug/L		10/12/18 11:51	10/17/18 23:30	1
N-Nitrosodimethylamine	ND		10	0.29	ug/L		10/12/18 11:51	10/17/18 23:30	1
N-Nitrosodi-n-butylamine	ND		10	1.2	ug/L		10/12/18 11:51	10/17/18 23:30	1
N-Nitrosodi-n-propylamine	ND		10	0.35	ug/L		10/12/18 11:51	10/17/18 23:30	1
n-Nitrosodiphenylamine(as diphenylamine)	ND		10	0.44	ug/L		10/12/18 11:51	10/17/18 23:30	1
N-Nitrosomethylethylamine	ND		10	1.8	ug/L		10/12/18 11:51	10/17/18 23:30	1
N-Nitrosopiperidine	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
N-Nitrosopyrrolidine	ND		10	0.81	ug/L		10/12/18 11:51	10/17/18 23:30	1
o,o',o''-Triethylphosphorothioate	ND		50	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
o-Toluidine	ND		10	1.4	ug/L		10/12/18 11:51	10/17/18 23:30	1
p-Dimethylamino azobenzene	ND		20	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
Pentachlorobenzene	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachloronitrobenzene	ND		50	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
Pentachlorophenol	ND		50	20	ug/L		10/12/18 11:51	10/17/18 23:30	1
Phenacetin	ND		20	1.1	ug/L		10/12/18 11:51	10/17/18 23:30	1
Phenanthrene	ND		4.0	0.26	ug/L		10/12/18 11:51	10/17/18 23:30	1
Phenol	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
p-Phenylene diamine	ND		100	5.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
Pronamide	ND		20	2.0	ug/L		10/12/18 11:51	10/17/18 23:30	1
Pyrene	ND		10	0.37	ug/L		10/12/18 11:51	10/17/18 23:30	1
Safrole, Total	ND		20	1.1	ug/L		10/12/18 11:51	10/17/18 23:30	1
Thionazin	ND		50	0.87	ug/L		10/12/18 11:51	10/17/18 23:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*72*		*48 - 135*	*10/12/18 11:51*	*10/17/18 23:30*	*1*
2-Fluorobiphenyl	*75*		*48 - 135*	*10/12/18 11:51*	*10/17/18 23:30*	*1*
2-Fluorophenol	*73*		*41 - 135*	*10/12/18 11:51*	*10/17/18 23:30*	*1*
Nitrobenzene-d5	*71*		*42 - 135*	*10/12/18 11:51*	*10/17/18 23:30*	*1*
Phenol-d5	*73*		*46 - 135*	*10/12/18 11:51*	*10/17/18 23:30*	*1*
Terphenyl-d14	*62*		*20 - 135*	*10/12/18 11:51*	*10/17/18 23:30*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Client Sample ID: MW-110D-20181007
Date Collected: 10/07/18 13:25
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/15/18 18:00	1
Ethene	ND		5.0	0.40	ug/L			10/15/18 18:00	1
Ethane	ND		5.0	0.57	ug/L			10/15/18 18:00	1
Acetylene	ND		5.0	0.73	ug/L			10/15/18 18:00	1
Propane	ND		5.0	0.56	ug/L			10/15/18 18:00	1

Client Sample ID: RW-10-20181007
Date Collected: 10/07/18 11:15
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/15/18 18:14	1
Ethene	ND		5.0	0.40	ug/L			10/15/18 18:14	1
Ethane	ND		5.0	0.57	ug/L			10/15/18 18:14	1
Acetylene	ND		5.0	0.73	ug/L			10/15/18 18:14	1
Propane	ND		5.0	0.56	ug/L			10/15/18 18:14	1

Client Sample ID: RW-9-20181007
Date Collected: 10/07/18 12:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**3.1**	**J**	5.0	0.64	ug/L			10/15/18 18:27	1
Ethene	ND		5.0	0.40	ug/L			10/15/18 18:27	1
Ethane	ND		5.0	0.57	ug/L			10/15/18 18:27	1
Acetylene	ND		5.0	0.73	ug/L			10/15/18 18:27	1
Propane	ND		5.0	0.56	ug/L			10/15/18 18:27	1

Method: RSK-175 - Dissolved Gases (GC)

Client Sample ID: RW-17-20181007
Date Collected: 10/07/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**3.9**	**J**	5.0	0.64	ug/L			10/15/18 18:41	1
Ethene	ND		5.0	0.40	ug/L			10/15/18 18:41	1
Ethane	ND		5.0	0.57	ug/L			10/15/18 18:41	1
Acetylene	ND		5.0	0.73	ug/L			10/15/18 18:41	1
Propane	ND		5.0	0.56	ug/L			10/15/18 18:41	1

Client Sample ID: MW-102S-20181006
Date Collected: 10/06/18 16:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/13/18 19:20	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 19:20	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 19:20	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 19:20	1
Propane	ND		5.0	0.56	ug/L			10/13/18 19:20	1

Client Sample ID: MW-110S-20181006
Date Collected: 10/06/18 15:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**85**		5.0	0.64	ug/L			10/13/18 19:33	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 19:33	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 19:33	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 19:33	1
Propane	ND		5.0	0.56	ug/L			10/13/18 19:33	1

Client Sample ID: RW-15-20181006
Date Collected: 10/06/18 17:50
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**43**		5.0	0.64	ug/L			10/13/18 19:47	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 19:47	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 19:47	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 19:47	1
Propane	ND		5.0	0.56	ug/L			10/13/18 19:47	1

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/13/18 20:00	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 20:00	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 20:00	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 20:00	1
Propane	ND		5.0	0.56	ug/L			10/13/18 20:00	1

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.051	0.0078	ug/L		10/11/18 21:18	10/31/18 18:27	1
4,4'-DDE	ND		0.051	0.0076	ug/L		10/11/18 21:18	10/31/18 18:27	1
4,4'-DDT	ND		0.051	0.015	ug/L		10/11/18 21:18	10/31/18 18:27	1
Aldrin	ND		0.051	0.0060	ug/L		10/11/18 21:18	10/31/18 18:27	1
alpha-BHC	ND		0.051	0.0054	ug/L		10/11/18 21:18	10/31/18 18:27	1
beta-BHC	ND		0.051	0.0088	ug/L		10/11/18 21:18	10/31/18 18:27	1
delta-BHC	ND		0.051	0.0059	ug/L		10/11/18 21:18	10/31/18 18:27	1
Dieldrin	ND		0.051	0.0064	ug/L		10/11/18 21:18	10/31/18 18:27	1
Endosulfan I	ND		0.051	0.0059	ug/L		10/11/18 21:18	10/31/18 18:27	1
Endosulfan II	ND	*	0.051	0.0071	ug/L		10/11/18 21:18	10/31/18 18:27	1
Endosulfan sulfate	ND		0.051	0.0058	ug/L		10/11/18 21:18	10/31/18 18:27	1
Endrin	ND		0.051	0.0080	ug/L		10/11/18 21:18	10/31/18 18:27	1
Endrin aldehyde	ND		0.051	0.0089	ug/L		10/11/18 21:18	10/31/18 18:27	1
gamma-BHC (Lindane)	ND		0.051	0.0070	ug/L		10/11/18 21:18	10/31/18 18:27	1
Heptachlor	ND		0.051	0.0078	ug/L		10/11/18 21:18	10/31/18 18:27	1
Heptachlor epoxide	ND		0.051	0.0076	ug/L		10/11/18 21:18	10/31/18 18:27	1
Kepone	ND		1.0	0.35	ug/L		10/11/18 21:18	10/31/18 18:27	1
Methoxychlor	ND		0.10	0.013	ug/L		10/11/18 21:18	10/31/18 18:27	1
Toxaphene	ND		2.0	0.37	ug/L		10/11/18 21:18	10/31/18 18:27	1
Isodrin	ND		0.10	0.0039	ug/L		10/11/18 21:18	10/31/18 18:27	1
Technical Chlordane	ND		0.51	0.14	ug/L		10/11/18 21:18	10/31/18 18:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*63*		*34 - 122*	*10/11/18 21:18*	*10/31/18 18:27*	*1*
Tetrachloro-m-xylene	*76*		*28 - 115*	*10/11/18 21:18*	*10/31/18 18:27*	*1*

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.053	0.0082	ug/L		10/11/18 21:18	10/31/18 18:45	1
4,4'-DDE	ND		0.053	0.0080	ug/L		10/11/18 21:18	10/31/18 18:45	1
4,4'-DDT	ND		0.053	0.016	ug/L		10/11/18 21:18	10/31/18 18:45	1
Aldrin	ND		0.053	0.0063	ug/L		10/11/18 21:18	10/31/18 18:45	1
alpha-BHC	ND		0.053	0.0056	ug/L		10/11/18 21:18	10/31/18 18:45	1
beta-BHC	ND		0.053	0.0093	ug/L		10/11/18 21:18	10/31/18 18:45	1
delta-BHC	ND		0.053	0.0062	ug/L		10/11/18 21:18	10/31/18 18:45	1
Dieldrin	ND		0.053	0.0067	ug/L		10/11/18 21:18	10/31/18 18:45	1
Endosulfan I	ND		0.053	0.0062	ug/L		10/11/18 21:18	10/31/18 18:45	1
Endosulfan II	ND	*	0.053	0.0075	ug/L		10/11/18 21:18	10/31/18 18:45	1
Endosulfan sulfate	ND		0.053	0.0061	ug/L		10/11/18 21:18	10/31/18 18:45	1
Endrin	ND		0.053	0.0084	ug/L		10/11/18 21:18	10/31/18 18:45	1
Endrin aldehyde	ND		0.053	0.0094	ug/L		10/11/18 21:18	10/31/18 18:45	1
gamma-BHC (Lindane)	ND		0.053	0.0073	ug/L		10/11/18 21:18	10/31/18 18:45	1
Heptachlor	ND		0.053	0.0082	ug/L		10/11/18 21:18	10/31/18 18:45	1
Heptachlor epoxide	ND		0.053	0.0080	ug/L		10/11/18 21:18	10/31/18 18:45	1
Kepone	ND		1.1	0.37	ug/L		10/11/18 21:18	10/31/18 18:45	1
Methoxychlor	ND		0.11	0.014	ug/L		10/11/18 21:18	10/31/18 18:45	1
Toxaphene	ND		2.1	0.39	ug/L		10/11/18 21:18	10/31/18 18:45	1
Isodrin	ND		0.11	0.0042	ug/L		10/11/18 21:18	10/31/18 18:45	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Technical Chlordane	ND		0.53	0.15	ug/L		10/11/18 21:18	10/31/18 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*86*		*34 - 122*	*10/11/18 21:18*	*10/31/18 18:45*	*1*
Tetrachloro-m-xylene	*78*		*28 - 115*	*10/11/18 21:18*	*10/31/18 18:45*	*1*

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.050	0.0077	ug/L		10/11/18 21:18	10/31/18 19:02	1
4,4'-DDE	ND		0.050	0.0075	ug/L		10/11/18 21:18	10/31/18 19:02	1
4,4'-DDT	ND		0.050	0.015	ug/L		10/11/18 21:18	10/31/18 19:02	1
Aldrin	ND		0.050	0.0059	ug/L		10/11/18 21:18	10/31/18 19:02	1
alpha-BHC	ND		0.050	0.0053	ug/L		10/11/18 21:18	10/31/18 19:02	1
beta-BHC	ND		0.050	0.0087	ug/L		10/11/18 21:18	10/31/18 19:02	1
delta-BHC	ND		0.050	0.0058	ug/L		10/11/18 21:18	10/31/18 19:02	1
Dieldrin	ND		0.050	0.0063	ug/L		10/11/18 21:18	10/31/18 19:02	1
Endosulfan I	ND		0.050	0.0058	ug/L		10/11/18 21:18	10/31/18 19:02	1
Endosulfan II	ND	*	0.050	0.0070	ug/L		10/11/18 21:18	10/31/18 19:02	1
Endosulfan sulfate	ND		0.050	0.0057	ug/L		10/11/18 21:18	10/31/18 19:02	1
Endrin	ND		0.050	0.0079	ug/L		10/11/18 21:18	10/31/18 19:02	1
Endrin aldehyde	ND		0.050	0.0088	ug/L		10/11/18 21:18	10/31/18 19:02	1
gamma-BHC (Lindane)	ND		0.050	0.0069	ug/L		10/11/18 21:18	10/31/18 19:02	1
Heptachlor	ND		0.050	0.0077	ug/L		10/11/18 21:18	10/31/18 19:02	1
Heptachlor epoxide	ND		0.050	0.0075	ug/L		10/11/18 21:18	10/31/18 19:02	1
Kepone	ND		1.0	0.35	ug/L		10/11/18 21:18	10/31/18 19:02	1
Methoxychlor	ND		0.10	0.013	ug/L		10/11/18 21:18	10/31/18 19:02	1
Toxaphene	ND		2.0	0.37	ug/L		10/11/18 21:18	10/31/18 19:02	1
Isodrin	ND		0.10	0.0039	ug/L		10/11/18 21:18	10/31/18 19:02	1
Technical Chlordane	ND		0.50	0.14	ug/L		10/11/18 21:18	10/31/18 19:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*91*		*34 - 122*	*10/11/18 21:18*	*10/31/18 19:02*	*1*
Tetrachloro-m-xylene	*80*		*28 - 115*	*10/11/18 21:18*	*10/31/18 19:02*	*1*

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.048	0.0073	ug/L		10/11/18 21:18	10/31/18 19:19	1
4,4'-DDE	ND		0.048	0.0071	ug/L		10/11/18 21:18	10/31/18 19:19	1
4,4'-DDT	ND		0.048	0.014	ug/L		10/11/18 21:18	10/31/18 19:19	1
Aldrin	ND		0.048	0.0056	ug/L		10/11/18 21:18	10/31/18 19:19	1
alpha-BHC	ND		0.048	0.0050	ug/L		10/11/18 21:18	10/31/18 19:19	1
beta-BHC	ND		0.048	0.0083	ug/L		10/11/18 21:18	10/31/18 19:19	1
delta-BHC	ND		0.048	0.0055	ug/L		10/11/18 21:18	10/31/18 19:19	1
Dieldrin	ND		0.048	0.0060	ug/L		10/11/18 21:18	10/31/18 19:19	1
Endosulfan I	ND		0.048	0.0055	ug/L		10/11/18 21:18	10/31/18 19:19	1
Endosulfan II	ND	*	0.048	0.0067	ug/L		10/11/18 21:18	10/31/18 19:19	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan sulfate	ND		0.048	0.0054	ug/L		10/11/18 21:18	10/31/18 19:19	1
Endrin	ND		0.048	0.0075	ug/L		10/11/18 21:18	10/31/18 19:19	1
Endrin aldehyde	ND		0.048	0.0084	ug/L		10/11/18 21:18	10/31/18 19:19	1
gamma-BHC (Lindane)	ND		0.048	0.0066	ug/L		10/11/18 21:18	10/31/18 19:19	1
Heptachlor	ND		0.048	0.0073	ug/L		10/11/18 21:18	10/31/18 19:19	1
Heptachlor epoxide	ND		0.048	0.0071	ug/L		10/11/18 21:18	10/31/18 19:19	1
Kepone	ND		0.95	0.33	ug/L		10/11/18 21:18	10/31/18 19:19	1
Methoxychlor	ND		0.095	0.012	ug/L		10/11/18 21:18	10/31/18 19:19	1
Toxaphene	ND		1.9	0.35	ug/L		10/11/18 21:18	10/31/18 19:19	1
Isodrin	ND		0.095	0.0037	ug/L		10/11/18 21:18	10/31/18 19:19	1
Technical Chlordane	ND		0.48	0.13	ug/L		10/11/18 21:18	10/31/18 19:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*98*		*34 - 122*	*10/11/18 21:18*	*10/31/18 19:19*	*1*
Tetrachloro-m-xylene	*78*		*28 - 115*	*10/11/18 21:18*	*10/31/18 19:19*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		1.0	0.22	ug/L		10/11/18 21:18	10/27/18 00:06	1
PCB-1016	ND		1.0	0.13	ug/L		10/11/18 21:18	10/27/18 00:06	1
PCB-1232	ND		1.0	0.17	ug/L		10/11/18 21:18	10/27/18 00:06	1
PCB-1242	ND		1.0	0.11	ug/L		10/11/18 21:18	10/27/18 00:06	1
PCB-1248	ND		1.0	0.093	ug/L		10/11/18 21:18	10/27/18 00:06	1
PCB-1254	ND		1.0	0.12	ug/L		10/11/18 21:18	10/27/18 00:06	1
PCB-1260	ND		1.0	0.16	ug/L		10/11/18 21:18	10/27/18 00:06	1
Polychlorinated biphenyls, Total	ND		1.0	0.086	ug/L		10/11/18 21:18	10/27/18 00:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*94*		*25 - 120*	*10/11/18 21:18*	*10/27/18 00:06*	*1*
DCB Decachlorobiphenyl	*69*		*30 - 136*	*10/11/18 21:18*	*10/27/18 00:06*	*1*

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		1.1	0.23	ug/L		10/11/18 21:18	10/27/18 00:27	1
PCB-1016	ND		1.1	0.13	ug/L		10/11/18 21:18	10/27/18 00:27	1
PCB-1232	ND		1.1	0.18	ug/L		10/11/18 21:18	10/27/18 00:27	1
PCB-1242	ND		1.1	0.11	ug/L		10/11/18 21:18	10/27/18 00:27	1
PCB-1248	ND		1.1	0.097	ug/L		10/11/18 21:18	10/27/18 00:27	1
PCB-1254	ND		1.1	0.12	ug/L		10/11/18 21:18	10/27/18 00:27	1
PCB-1260	ND		1.1	0.17	ug/L		10/11/18 21:18	10/27/18 00:27	1
Polychlorinated biphenyls, Total	ND		1.1	0.090	ug/L		10/11/18 21:18	10/27/18 00:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*92*		*25 - 120*	*10/11/18 21:18*	*10/27/18 00:27*	*1*
DCB Decachlorobiphenyl	*90*		*30 - 136*	*10/11/18 21:18*	*10/27/18 00:27*	*1*

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		1.0	0.21	ug/L		10/11/18 21:18	10/27/18 00:48	1
PCB-1016	ND		1.0	0.12	ug/L		10/11/18 21:18	10/27/18 00:48	1
PCB-1232	ND		1.0	0.17	ug/L		10/11/18 21:18	10/27/18 00:48	1
PCB-1242	ND		1.0	0.10	ug/L		10/11/18 21:18	10/27/18 00:48	1
PCB-1248	ND		1.0	0.092	ug/L		10/11/18 21:18	10/27/18 00:48	1
PCB-1254	ND		1.0	0.11	ug/L		10/11/18 21:18	10/27/18 00:48	1
PCB-1260	ND		1.0	0.16	ug/L		10/11/18 21:18	10/27/18 00:48	1
Polychlorinated biphenyls, Total	ND		1.0	0.085	ug/L		10/11/18 21:18	10/27/18 00:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*94*		*25 - 120*	*10/11/18 21:18*	*10/27/18 00:48*	*1*
DCB Decachlorobiphenyl	*103*		*30 - 136*	*10/11/18 21:18*	*10/27/18 00:48*	*1*

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		0.95	0.20	ug/L		10/11/18 21:18	10/27/18 01:09	1
PCB-1016	ND		0.95	0.12	ug/L		10/11/18 21:18	10/27/18 01:09	1
PCB-1232	ND		0.95	0.16	ug/L		10/11/18 21:18	10/27/18 01:09	1
PCB-1242	ND		0.95	0.099	ug/L		10/11/18 21:18	10/27/18 01:09	1
PCB-1248	ND		0.95	0.087	ug/L		10/11/18 21:18	10/27/18 01:09	1
PCB-1254	ND		0.95	0.11	ug/L		10/11/18 21:18	10/27/18 01:09	1
PCB-1260	ND		0.95	0.15	ug/L		10/11/18 21:18	10/27/18 01:09	1
Polychlorinated biphenyls, Total	ND		0.95	0.080	ug/L		10/11/18 21:18	10/27/18 01:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*96*		*25 - 120*	*10/11/18 21:18*	*10/27/18 01:09*	*1*
DCB Decachlorobiphenyl	*111*		*30 - 136*	*10/11/18 21:18*	*10/27/18 01:09*	*1*

Method: 8141A - Organophosphorous Pesticides (GC)

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethoate	ND		1.5	0.46	ug/L		10/11/18 17:12	10/13/18 23:53	1
Disulfoton	ND		1.0	0.33	ug/L		10/11/18 17:12	10/13/18 23:53	1
Famphur	ND		1.0	0.18	ug/L		10/11/18 17:12	10/13/18 23:53	1
Methyl parathion	ND		4.1	0.14	ug/L		10/11/18 17:12	10/13/18 23:53	1
Parathion	ND		1.0	0.15	ug/L		10/11/18 17:12	10/13/18 23:53	1
Phorate	ND		1.2	0.16	ug/L		10/11/18 17:12	10/13/18 23:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Triphenylphosphate	*60*		*60 - 154*	*10/11/18 17:12*	*10/13/18 23:53*	*1*
Chlormefos	*62*		*49 - 171*	*10/11/18 17:12*	*10/13/18 23:53*	*1*

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethoate	ND		1.6	0.49	ug/L		10/11/18 17:12	10/14/18 00:32	1
Disulfoton	ND		1.1	0.35	ug/L		10/11/18 17:12	10/14/18 00:32	1

Method: 8141A - Organophosphorous Pesticides (GC) (Continued)

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Famphur	ND		1.1	0.19	ug/L		10/11/18 17:12	10/14/18 00:32	1
Methyl parathion	ND		4.3	0.15	ug/L		10/11/18 17:12	10/14/18 00:32	1
Parathion	ND		1.1	0.16	ug/L		10/11/18 17:12	10/14/18 00:32	1
Phorate	ND		1.3	0.17	ug/L		10/11/18 17:12	10/14/18 00:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Triphenylphosphate	*70*		*60 - 154*	*10/11/18 17:12*	*10/14/18 00:32*	*1*
Chlormefos	*69*		*49 - 171*	*10/11/18 17:12*	*10/14/18 00:32*	*1*

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethoate	ND		1.5	0.45	ug/L		10/11/18 17:12	10/14/18 01:11	1
Disulfoton	ND		0.99	0.32	ug/L		10/11/18 17:12	10/14/18 01:11	1
Famphur	ND		0.99	0.18	ug/L		10/11/18 17:12	10/14/18 01:11	1
Methyl parathion	ND		4.0	0.14	ug/L		10/11/18 17:12	10/14/18 01:11	1
Parathion	ND		0.99	0.14	ug/L		10/11/18 17:12	10/14/18 01:11	1
Phorate	ND		1.2	0.15	ug/L		10/11/18 17:12	10/14/18 01:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Triphenylphosphate	*66*		*60 - 154*	*10/11/18 17:12*	*10/14/18 01:11*	*1*
Chlormefos	*79*		*49 - 171*	*10/11/18 17:12*	*10/14/18 01:11*	*1*

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethoate	ND		1.5	0.44	ug/L		10/11/18 17:12	10/14/18 01:50	1
Disulfoton	ND		0.97	0.31	ug/L		10/11/18 17:12	10/14/18 01:50	1
Famphur	ND		0.97	0.17	ug/L		10/11/18 17:12	10/14/18 01:50	1
Methyl parathion	ND		3.9	0.14	ug/L		10/11/18 17:12	10/14/18 01:50	1
Parathion	ND		0.97	0.14	ug/L		10/11/18 17:12	10/14/18 01:50	1
Phorate	ND		1.2	0.15	ug/L		10/11/18 17:12	10/14/18 01:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Triphenylphosphate	*62*		*60 - 154*	*10/11/18 17:12*	*10/14/18 01:50*	*1*
Chlormefos	*60*		*49 - 171*	*10/11/18 17:12*	*10/14/18 01:50*	*1*

Method: 8151A - Herbicides (GC)

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		4.1	0.21	ug/L		10/12/18 07:48	10/16/18 05:26	1
Dinoseb	ND		1.0	0.46	ug/L		10/12/18 07:48	10/16/18 05:26	1
2,4,5-T	ND		1.0	0.19	ug/L		10/12/18 07:48	10/16/18 05:26	1
Silvex (2,4,5-TP)	ND		1.0	0.17	ug/L		10/12/18 07:48	10/16/18 05:26	1

Method: 8151A - Herbicides (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	76		39 - 135	10/12/18 07:48	10/16/18 05:26	1

Client Sample ID: MW-12-20181008 — **Lab Sample ID: 280-115369-17**
Date Collected: 10/08/18 10:10 — **Matrix: Water**
Date Received: 10/10/18 16:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		4.0	0.21	ug/L		10/12/18 07:48	10/16/18 05:42	1
Dinoseb	ND		1.0	0.45	ug/L		10/12/18 07:48	10/16/18 05:42	1
2,4,5-T	ND		1.0	0.19	ug/L		10/12/18 07:48	10/16/18 05:42	1
Silvex (2,4,5-TP)	ND		1.0	0.17	ug/L		10/12/18 07:48	10/16/18 05:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	75		39 - 135	10/12/18 07:48	10/16/18 05:42	1

Client Sample ID: MW-8-20181007 — **Lab Sample ID: 280-115369-18**
Date Collected: 10/07/18 10:35 — **Matrix: Water**
Date Received: 10/10/18 16:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		4.2	0.22	ug/L		10/12/18 07:48	10/16/18 05:57	1
Dinoseb	ND		1.1	0.48	ug/L		10/12/18 07:48	10/16/18 05:57	1
2,4,5-T	ND		1.1	0.20	ug/L		10/12/18 07:48	10/16/18 05:57	1
Silvex (2,4,5-TP)	ND		1.1	0.18	ug/L		10/12/18 07:48	10/16/18 05:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	76		39 - 135	10/12/18 07:48	10/16/18 05:57	1

Client Sample ID: INJ-1R-20181006 — **Lab Sample ID: 280-115369-19**
Date Collected: 10/06/18 18:00 — **Matrix: Water**
Date Received: 10/10/18 16:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		3.8	0.20	ug/L		10/12/18 07:48	10/16/18 06:13	1
Dinoseb	ND		0.95	0.43	ug/L		10/12/18 07:48	10/16/18 06:13	1
2,4,5-T	ND		0.95	0.18	ug/L		10/12/18 07:48	10/16/18 06:13	1
Silvex (2,4,5-TP)	ND		0.95	0.16	ug/L		10/12/18 07:48	10/16/18 06:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	84		39 - 135	10/12/18 07:48	10/16/18 06:13	1

Method: 6010C - Metals (ICP)

Client Sample ID: MW-106S-20181007 — **Lab Sample ID: 280-115369-1**
Date Collected: 10/07/18 16:05 — **Matrix: Water**
Date Received: 10/10/18 16:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**76000**	**B**	200	35	ug/L		10/15/18 08:25	10/16/18 16:37	1
Iron	ND		100	22	ug/L		10/15/18 08:25	10/16/18 16:37	1
Magnesium	**26000**		200	11	ug/L		10/15/18 08:25	10/16/18 16:37	1
Potassium	**6300**		3000	240	ug/L		10/15/18 08:25	10/16/18 16:37	1
Sodium	**35000**		1000	120	ug/L		10/15/18 08:25	10/16/18 16:37	1

Method: 6010C - Metals (ICP)

Client Sample ID: MW-110D-20181007
Date Collected: 10/07/18 13:25
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	98000	B	200	35	ug/L		10/15/18 08:25	10/16/18 16:41	1
Iron	69	J B	100	22	ug/L		10/15/18 08:25	10/16/18 16:41	1
Magnesium	31000		200	11	ug/L		10/15/18 08:25	10/16/18 16:41	1
Potassium	6100		3000	240	ug/L		10/15/18 08:25	10/16/18 16:41	1
Sodium	36000		1000	120	ug/L		10/15/18 08:25	10/16/18 16:41	1

Client Sample ID: MW-115S-20181008
Date Collected: 10/08/18 14:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	73000	B	200	35	ug/L		10/15/18 08:25	10/16/18 16:44	1
Iron	ND		100	22	ug/L		10/15/18 08:25	10/16/18 16:44	1
Magnesium	29000		200	11	ug/L		10/15/18 08:25	10/16/18 16:44	1
Potassium	7800		3000	240	ug/L		10/15/18 08:25	10/16/18 16:44	1
Sodium	54000		1000	120	ug/L		10/15/18 08:25	10/16/18 16:44	1

Client Sample ID: RW-10-20181007
Date Collected: 10/07/18 11:15
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	89000	B	200	35	ug/L		10/15/18 08:25	10/16/18 16:47	1
Iron	1800	B	100	22	ug/L		10/15/18 08:25	10/16/18 16:47	1
Magnesium	38000		200	11	ug/L		10/15/18 08:25	10/16/18 16:47	1
Potassium	3700		3000	240	ug/L		10/15/18 08:25	10/16/18 16:47	1
Sodium	63000		1000	120	ug/L		10/15/18 08:25	10/16/18 16:47	1

Client Sample ID: RW-9-20181007
Date Collected: 10/07/18 12:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	170000	B	200	35	ug/L		10/15/18 08:25	10/16/18 16:51	1
Iron	920	B	100	22	ug/L		10/15/18 08:25	10/16/18 16:51	1
Magnesium	54000		200	11	ug/L		10/15/18 08:25	10/16/18 16:51	1
Potassium	5100		3000	240	ug/L		10/15/18 08:25	10/16/18 16:51	1
Sodium	90000		1000	120	ug/L		10/15/18 08:25	10/16/18 16:51	1

Client Sample ID: RW-17-20181007
Date Collected: 10/07/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100000	B	200	35	ug/L		10/15/18 08:25	10/16/18 16:54	1
Iron	180	B	100	22	ug/L		10/15/18 08:25	10/16/18 16:54	1
Magnesium	41000		200	11	ug/L		10/15/18 08:25	10/16/18 16:54	1
Potassium	3700		3000	240	ug/L		10/15/18 08:25	10/16/18 16:54	1
Sodium	63000		1000	120	ug/L		10/15/18 08:25	10/16/18 16:54	1

Client Sample ID: MW-102S-20181006
Date Collected: 10/06/18 16:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	51000	B	200	35	ug/L		10/15/18 08:25	10/16/18 16:58	1

Method: 6010C - Metals (ICP) (Continued)

Client Sample ID: MW-102S-20181006
Date Collected: 10/06/18 16:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	150	B	100	22	ug/L		10/15/18 08:25	10/16/18 16:58	1
Magnesium	25000		200	11	ug/L		10/15/18 08:25	10/16/18 16:58	1
Potassium	5000		3000	240	ug/L		10/15/18 08:25	10/16/18 16:58	1
Sodium	33000		1000	120	ug/L		10/15/18 08:25	10/16/18 16:58	1

Client Sample ID: MW-110S-20181006
Date Collected: 10/06/18 15:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	150000	B	200	35	ug/L		10/15/18 08:25	10/16/18 17:01	1
Iron	ND		100	22	ug/L		10/15/18 08:25	10/16/18 17:01	1
Magnesium	54000		200	11	ug/L		10/15/18 08:25	10/16/18 17:01	1
Potassium	4000		3000	240	ug/L		10/15/18 08:25	10/16/18 17:01	1
Sodium	90000		1000	120	ug/L		10/15/18 08:25	10/16/18 17:01	1

Client Sample ID: RW-15-20181006
Date Collected: 10/06/18 17:50
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	120000	B	200	35	ug/L		10/15/18 08:25	10/16/18 17:04	1
Iron	ND		100	22	ug/L		10/15/18 08:25	10/16/18 17:04	1
Magnesium	46000		200	11	ug/L		10/15/18 08:25	10/16/18 17:04	1
Potassium	3900		3000	240	ug/L		10/15/18 08:25	10/16/18 17:04	1
Sodium	74000		1000	120	ug/L		10/15/18 08:25	10/16/18 17:04	1

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	310000	B	200	35	ug/L		10/15/18 08:25	10/16/18 17:08	1
Iron	430	B	100	22	ug/L		10/15/18 08:25	10/16/18 17:08	1
Magnesium	220000		200	11	ug/L		10/15/18 08:25	10/16/18 17:08	1
Potassium	5300		3000	240	ug/L		10/15/18 08:25	10/16/18 17:08	1
Sodium	470000		1000	120	ug/L		10/15/18 08:25	10/16/18 17:08	1

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	59000	B	200	35	ug/L		10/15/18 08:25	10/16/18 17:25	1
Iron	ND		100	22	ug/L		10/15/18 08:25	10/16/18 17:25	1
Magnesium	15000		200	11	ug/L		10/15/18 08:25	10/16/18 17:25	1
Potassium	1000	J	3000	240	ug/L		10/15/18 08:25	10/16/18 17:25	1
Sodium	32000		1000	120	ug/L		10/15/18 08:25	10/16/18 17:25	1

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	57000	B	200	35	ug/L		10/15/18 08:25	10/16/18 17:28	1
Iron	110	B	100	22	ug/L		10/15/18 08:25	10/16/18 17:28	1

Method: 6010C - Metals (ICP) (Continued)

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	19000		200	11	ug/L		10/15/18 08:25	10/16/18 17:28	1
Potassium	620	J	3000	240	ug/L		10/15/18 08:25	10/16/18 17:28	1
Sodium	46000		1000	120	ug/L		10/15/18 08:25	10/16/18 17:28	1

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100000	B	200	35	ug/L		10/15/18 08:25	10/16/18 17:32	1
Iron	ND		100	22	ug/L		10/15/18 08:25	10/16/18 17:32	1
Magnesium	41000		200	11	ug/L		10/15/18 08:25	10/16/18 17:32	1
Potassium	5000		3000	240	ug/L		10/15/18 08:25	10/16/18 17:32	1
Sodium	64000		1000	120	ug/L		10/15/18 08:25	10/16/18 17:32	1

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	86000	B	200	35	ug/L		10/15/18 08:25	10/16/18 17:35	1
Iron	29	J B	100	22	ug/L		10/15/18 08:25	10/16/18 17:35	1
Magnesium	39000		200	11	ug/L		10/15/18 08:25	10/16/18 17:35	1
Potassium	3900		3000	240	ug/L		10/15/18 08:25	10/16/18 17:35	1
Sodium	58000		1000	120	ug/L		10/15/18 08:25	10/16/18 17:35	1

Client Sample ID: MW-5A-20181008
Date Collected: 10/08/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	59000	B	200	35	ug/L		10/15/18 08:25	10/16/18 17:52	1
Iron	360	B	100	22	ug/L		10/15/18 08:25	10/16/18 17:52	1
Magnesium	16000		200	11	ug/L		10/15/18 08:25	10/16/18 17:52	1
Potassium	1300	J	3000	240	ug/L		10/15/18 08:25	10/16/18 17:52	1
Sodium	42000		1000	120	ug/L		10/15/18 08:25	10/16/18 17:52	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: MW-106S-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.45	J	2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:01	1
Arsenic	1.6	J	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:01	1
Barium	110	B	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:01	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:01	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:01	1
Chromium	0.92	J	2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:01	1
Co	ND		1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:01	1
Copper	ND		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:01	1
Lead	ND		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:01	1
Manganese	0.43	J B	1.0	0.31	ug/L		10/16/18 16:45	10/17/18 01:01	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-106S-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:01	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:01	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:01	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:01	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 01:01	1
Vanadium	**1.2**	**J**	5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:01	1
Zinc	**2.9**	**J B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:01	1

Client Sample ID: MW-110D-20181007
Date Collected: 10/07/18 13:25
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:05	1
Arsenic	**1.3**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:05	1
Barium	**180**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:05	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:05	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:05	1
Chromium	**0.65**	**J**	2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:05	1
Co	**0.099**	**J**	1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:05	1
Copper	ND		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:05	1
Lead	ND		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:05	1
Manganese	**25**	**B**	1.0	0.31	ug/L		10/16/18 16:45	10/17/18 01:05	1
Nickel	**0.87**	**J**	2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:05	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:05	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:05	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:05	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 01:05	1
Vanadium	**1.8**	**J**	5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:05	1
Zinc	**7.8**	**J B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:05	1

Client Sample ID: MW-115S-20181008
Date Collected: 10/08/18 14:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:09	1
Arsenic	**2.0**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:09	1
Barium	**140**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:09	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:09	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:09	1
Chromium	**1.0**	**J**	2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:09	1
Co	ND		1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:09	1
Copper	ND		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:09	1
Lead	ND		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:09	1
Manganese	ND		1.0	0.31	ug/L		10/16/18 16:45	10/17/18 01:09	1
Nickel	ND		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:09	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:09	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:09	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:09	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 01:09	1
Vanadium	**1.5**	**J**	5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:09	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-115S-20181008
Date Collected: 10/08/18 14:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	**2.5**	**J B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:09	1

Client Sample ID: RW-10-20181007
Date Collected: 10/07/18 11:15
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:12	1
Arsenic	**1.1**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:12	1
Barium	**170**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:12	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:12	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:12	1
Chromium	**1.2**	**J**	2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:12	1
Co	**0.80**	**J**	1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:12	1
Copper	**30**		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:12	1
Lead	**7.8**		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:12	1
Manganese	**26**	**B**	1.0	0.31	ug/L		10/16/18 16:45	10/17/18 01:12	1
Nickel	**4.3**		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:12	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:12	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:12	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:12	1
Tin	**1.2**	**J**	10	0.77	ug/L		10/16/18 16:45	10/17/18 01:12	1
Vanadium	**1.8**	**J**	5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:12	1
Zinc	**270**	**B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:12	1

Client Sample ID: RW-9-20181007
Date Collected: 10/07/18 12:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:16	1
Arsenic	**0.94**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:16	1
Barium	**51**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:16	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:16	1
Cadmium	**1.2**		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:16	1
Chromium	ND		2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:16	1
Co	**4.8**		1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:16	1
Copper	**54**		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:16	1
Lead	**6.6**		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:16	1
Manganese	**9400**	**B**	1.0	0.31	ug/L		10/16/18 16:45	10/17/18 01:16	1
Nickel	**25**		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:16	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:16	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:16	1
Thallium	**0.42**	**J**	1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:16	1
Tin	**1.0**	**J**	10	0.77	ug/L		10/16/18 16:45	10/17/18 01:16	1
Vanadium	**2.3**	**J**	5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:16	1
Zinc	**210**	**B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:16	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: RW-17-20181007
Date Collected: 10/07/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:20	1
Arsenic	**0.57**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:20	1
Barium	**190**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:20	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:20	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:20	1
Chromium	**1.2**	**J**	2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:20	1
Co	**0.16**	**J**	1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:20	1
Copper	**14**		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:20	1
Lead	**1.8**		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:20	1
Manganese	**2.6**	**B**	1.0	0.31	ug/L		10/23/18 06:00	10/24/18 04:24	1
Nickel	**2.4**		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:20	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:20	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:20	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:20	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 01:20	1
Vanadium	**0.79**	**J**	5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:20	1
Zinc	**27**	**B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:20	1

Client Sample ID: MW-102S-20181006
Date Collected: 10/06/18 16:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:36	1
Arsenic	**1.3**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:36	1
Barium	**35**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:36	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:36	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:36	1
Chromium	**0.89**	**J**	2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:36	1
Co	ND		1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:36	1
Copper	ND		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:36	1
Lead	ND		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:36	1
Manganese	**1.7**	**B**	1.0	0.31	ug/L		10/23/18 06:00	10/24/18 04:28	1
Nickel	ND		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:36	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:36	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:36	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:36	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 01:36	1
Vanadium	ND		5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:36	1
Zinc	**3.2**	**J B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:36	1

Client Sample ID: MW-110S-20181006
Date Collected: 10/06/18 15:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:39	1
Arsenic	**0.75**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:39	1
Barium	**260**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:39	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:39	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:39	1
Chromium	**0.65**	**J**	2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:39	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-110S-20181006
Date Collected: 10/06/18 15:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Co	0.95	J	1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:39	1
Copper	0.94	J	2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:39	1
Lead	ND		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:39	1
Manganese	1500	B	1.0	0.31	ug/L		10/16/18 16:45	10/17/18 01:39	1
Nickel	6.0		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:39	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:39	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:39	1
Thallium	0.17	J	1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:39	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 01:39	1
Vanadium	ND		5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:39	1
Zinc	3.3	J B	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:39	1

Client Sample ID: RW-15-20181006
Date Collected: 10/06/18 17:50
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:43	1
Arsenic	0.66	J	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:43	1
Barium	210	B	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:43	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:43	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:43	1
Chromium	ND		2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:43	1
Co	0.10	J	1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:43	1
Copper	15		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:43	1
Lead	1.8		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:43	1
Manganese	200	B	1.0	0.31	ug/L		10/16/18 16:45	10/17/18 01:43	1
Nickel	5.9		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:43	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:43	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:43	1
Thallium	0.074	J	1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:43	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 01:43	1
Vanadium	0.77	J	5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:43	1
Zinc	58	B	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:43	1

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:47	1
Arsenic	1.3	J	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:47	1
Barium	28	B	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:47	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:47	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:47	1
Chromium	ND		2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:47	1
Co	3.7		1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:47	1
Copper	0.95	J	2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:47	1
Lead	ND		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:47	1
Manganese	2100	B	1.0	0.31	ug/L		10/16/18 16:45	10/17/18 01:47	1
Nickel	33		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:47	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:47	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:47	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:47	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 01:47	1
Vanadium	ND		5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:47	1
Zinc	**1600**	**B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:47	1

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:51	1
Arsenic	**0.49**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:51	1
Barium	**54**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:51	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:51	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:51	1
Chromium	**0.93**	**J**	2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:51	1
Co	**3.3**		1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:51	1
Copper	ND		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:51	1
Lead	ND		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:51	1
Manganese	**0.48**	**J B**	1.0	0.31	ug/L		10/16/18 16:45	10/17/18 01:51	1
Nickel	ND		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:51	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:51	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:51	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:51	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 01:51	1
Vanadium	ND		5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:51	1
Zinc	**2.7**	**J B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:51	1

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:55	1
Arsenic	**3.3**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:55	1
Barium	**34**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:55	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:55	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:55	1
Chromium	**0.76**	**J**	2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:55	1
Co	**0.14**	**J**	1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:55	1
Copper	**0.58**	**J**	2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:55	1
Lead	ND		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:55	1
Manganese	**4.0**	**B**	1.0	0.31	ug/L		10/23/18 06:00	10/24/18 04:31	1
Nickel	ND		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:55	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:55	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:55	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:55	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 01:55	1
Vanadium	**0.54**	**J**	5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:55	1
Zinc	**4.3**	**J B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:55	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 01:59	1
Arsenic	**0.59**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 01:59	1
Barium	**180**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 01:59	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 01:59	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 01:59	1
Chromium	ND		2.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:59	1
Co	**0.082**	**J**	1.0	0.054	ug/L		10/16/18 16:45	10/17/18 01:59	1
Copper	**8.9**		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 01:59	1
Lead	**1.1**		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 01:59	1
Manganese	**120**	**B**	1.0	0.31	ug/L		10/16/18 16:45	10/17/18 01:59	1
Nickel	**3.1**		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 01:59	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 01:59	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 01:59	1
Thallium	**0.050**	**J**	1.0	0.050	ug/L		10/16/18 16:45	10/17/18 01:59	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 01:59	1
Vanadium	**0.60**	**J**	5.0	0.50	ug/L		10/16/18 16:45	10/17/18 01:59	1
Zinc	**54**	**B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 01:59	1

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 02:14	1
Arsenic	**0.86**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 02:14	1
Barium	**130**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 02:14	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 02:14	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 02:14	1
Chromium	**0.69**	**J**	2.0	0.50	ug/L		10/16/18 16:45	10/17/18 02:14	1
Co	ND		1.0	0.054	ug/L		10/16/18 16:45	10/17/18 02:14	1
Copper	ND		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 02:14	1
Lead	ND		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 02:14	1
Manganese	ND		1.0	0.31	ug/L		10/16/18 16:45	10/17/18 02:14	1
Nickel	ND		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 02:14	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 02:14	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 02:14	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 02:14	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 02:14	1
Vanadium	**0.59**	**J**	5.0	0.50	ug/L		10/16/18 16:45	10/17/18 02:14	1
Zinc	**2.2**	**J B**	10	2.0	ug/L		10/16/18 16:45	10/17/18 02:14	1

Client Sample ID: MW-5A-20181008
Date Collected: 10/08/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**1.1**	**J**	2.0	0.40	ug/L		10/16/18 16:45	10/17/18 02:33	1
Arsenic	**1.4**	**J**	5.0	0.33	ug/L		10/16/18 16:45	10/17/18 02:33	1
Barium	**54**	**B**	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 02:33	1
Beryllium	**0.17**	**J**	1.0	0.080	ug/L		10/16/18 16:45	10/17/18 02:33	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 02:33	1
Chromium	**1.9**	**J**	2.0	0.50	ug/L		10/16/18 16:45	10/17/18 02:33	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: MW-5A-20181008
Date Collected: 10/08/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Co	0.18	J	1.0	0.054	ug/L		10/16/18 16:45	10/17/18 02:33	1
Copper	0.75	J	2.0	0.56	ug/L		10/16/18 16:45	10/17/18 02:33	1
Lead	ND		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 02:33	1
Manganese	6.0	B	1.0	0.31	ug/L		10/16/18 16:45	10/17/18 02:33	1
Nickel	0.54	J	2.0	0.30	ug/L		10/16/18 16:45	10/17/18 02:33	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 02:33	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 02:33	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 02:33	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 02:33	1
Vanadium	0.65	J	5.0	0.50	ug/L		10/16/18 16:45	10/17/18 02:33	1
Zinc	4.6	J B	10	2.0	ug/L		10/16/18 16:45	10/17/18 02:33	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-106S-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:16	1

Client Sample ID: MW-110D-20181007
Date Collected: 10/07/18 13:25
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:18	1

Client Sample ID: MW-115S-20181008
Date Collected: 10/08/18 14:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:20	1

Client Sample ID: RW-10-20181007
Date Collected: 10/07/18 11:15
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:22	1

Client Sample ID: RW-9-20181007
Date Collected: 10/07/18 12:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:25	1

Client Sample ID: RW-17-20181007
Date Collected: 10/07/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:27	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-102S-20181006
Date Collected: 10/06/18 16:00
Date Received: 10/10/18 16:50
Lab Sample ID: 280-115369-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:29	1

Client Sample ID: MW-110S-20181006
Date Collected: 10/06/18 15:45
Date Received: 10/10/18 16:50
Lab Sample ID: 280-115369-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:31	1

Client Sample ID: RW-15-20181006
Date Collected: 10/06/18 17:50
Date Received: 10/10/18 16:50
Lab Sample ID: 280-115369-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:38	1

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50
Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:40	1

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50
Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:42	1

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50
Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:45	1

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50
Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:47	1

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 16:50
Lab Sample ID: 280-115369-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:49	1

Client Sample ID: MW-5A-20181008
Date Collected: 10/08/18 12:40
Date Received: 10/10/18 16:50
Lab Sample ID: 280-115369-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:56	1

General Chemistry

Client Sample ID: MW-106S-20181007
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.7		0.10	0.019	mg/L			10/16/18 20:52	1
Chloride	45		3.0	0.25	mg/L			10/23/18 01:49	1
Sulfate	41		5.0	0.23	mg/L			10/23/18 01:49	1
Alkalinity, Total	260		5.0	1.1	mg/L			10/12/18 18:49	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 11:18	10/18/18 15:04	1

Client Sample ID: MW-110D-20181007
Date Collected: 10/07/18 13:25
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.23		0.10	0.019	mg/L			10/16/18 20:54	1
Chloride	110		3.0	0.25	mg/L			10/23/18 02:08	1
Sulfate	71		5.0	0.23	mg/L			10/23/18 02:08	1
Total Organic Carbon - Duplicates	0.85	J	1.0	0.16	mg/L			10/12/18 15:57	1
Alkalinity, Total	240		5.0	1.1	mg/L			10/12/18 18:58	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 11:18	10/18/18 15:05	1

Client Sample ID: MW-115S-20181008
Date Collected: 10/08/18 14:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	2.6		0.10	0.019	mg/L			10/16/18 20:56	1
Chloride	53		3.0	0.25	mg/L			10/23/18 03:04	1
Sulfate	44		5.0	0.23	mg/L			10/23/18 03:04	1
Alkalinity, Total	300		5.0	1.1	mg/L			10/12/18 19:08	1
Cyanide, Total	0.0055	J	0.010	0.0020	mg/L		10/19/18 09:01	10/19/18 18:33	1

Client Sample ID: RW-10-20181007
Date Collected: 10/07/18 11:15
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.93		0.10	0.019	mg/L			10/16/18 20:58	1
Chloride	100		3.0	0.25	mg/L			10/23/18 03:23	1
Sulfate	110		5.0	0.23	mg/L			10/23/18 03:23	1
Total Organic Carbon - Duplicates	1.3		1.0	0.16	mg/L			10/12/18 16:16	1
Alkalinity, Total	290		5.0	1.1	mg/L			10/12/18 19:17	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 11:18	10/18/18 15:07	1

Client Sample ID: RW-9-20181007
Date Collected: 10/07/18 12:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/16/18 21:00	1
Chloride	200		3.0	0.25	mg/L			10/23/18 03:42	1
Sulfate	95		5.0	0.23	mg/L			10/23/18 03:42	1
Total Organic Carbon - Duplicates	3.0		1.0	0.16	mg/L			10/12/18 16:33	1
Alkalinity, Total	530		5.0	1.1	mg/L			10/12/18 19:30	1
Cyanide, Total	0.0022	J	0.010	0.0020	mg/L		10/18/18 11:18	10/18/18 15:08	1

General Chemistry

Client Sample ID: RW-17-20181007
Date Collected: 10/07/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.73**		0.10	0.019	mg/L			10/16/18 21:02	1
Chloride	**120**		3.0	0.25	mg/L			10/23/18 04:00	1
Sulfate	**110**		5.0	0.23	mg/L			10/23/18 04:00	1
Total Organic Carbon - Duplicates	**1.3**		1.0	0.16	mg/L			10/12/18 16:50	1
Alkalinity, Total	**300**		5.0	1.1	mg/L			10/12/18 19:39	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 11:18	10/18/18 15:10	1

Client Sample ID: MW-102S-20181006
Date Collected: 10/06/18 16:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.29**		0.10	0.019	mg/L			10/16/18 21:04	1
Chloride	**46**		3.0	0.25	mg/L			10/23/18 04:19	1
Sulfate	**73**		5.0	0.23	mg/L			10/23/18 04:19	1
Total Organic Carbon - Duplicates	**0.40**	**J**	1.0	0.16	mg/L			10/12/18 17:10	1
Alkalinity, Total	**190**		5.0	1.1	mg/L			10/13/18 20:11	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 14:18	1

Client Sample ID: MW-110S-20181006
Date Collected: 10/06/18 15:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/16/18 21:18	1
Chloride	**230**		6.0	0.51	mg/L			10/23/18 23:49	2
Sulfate	**96**		5.0	0.23	mg/L			10/23/18 04:38	1
Total Organic Carbon - Duplicates	**3.8**		1.0	0.16	mg/L			10/12/18 17:25	1
Alkalinity, Total	**420**		5.0	1.1	mg/L			10/13/18 21:12	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 14:20	1

Client Sample ID: RW-15-20181006
Date Collected: 10/06/18 17:50
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.39**		0.10	0.019	mg/L			10/16/18 21:20	1
Chloride	**150**		3.0	0.25	mg/L			10/23/18 04:57	1
Sulfate	**110**		5.0	0.23	mg/L			10/23/18 04:57	1
Total Organic Carbon - Duplicates	**1.9**		1.0	0.16	mg/L			10/12/18 18:16	1
Alkalinity, Total	**320**		5.0	1.1	mg/L			10/13/18 19:26	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 14:21	1

Client Sample ID: MW-9-20181007
Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.021**	**J**	0.10	0.019	mg/L			10/16/18 21:22	1
Chloride	**880**		60	5.1	mg/L			10/23/18 05:34	20
Sulfate	**1200**		100	4.6	mg/L			10/23/18 05:34	20
Alkalinity, Total	**380**		5.0	1.1	mg/L			10/13/18 19:37	1
Cyanide, Total	ND		0.020	0.0040	mg/L		10/18/18 11:18	10/18/18 15:11	1
Sulfide	**0.011**	**J**	0.050	0.0070	mg/L			10/13/18 09:32	1

General Chemistry

Client Sample ID: MW-12-20181008
Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.3		0.10	0.019	mg/L			10/16/18 21:28	1
Chloride	55		3.0	0.25	mg/L			10/23/18 05:53	1
Sulfate	14		5.0	0.23	mg/L			10/23/18 05:53	1
Alkalinity, Total	180		5.0	1.1	mg/L			10/13/18 19:45	1
Cyanide, Total	0.0048	J	0.010	0.0020	mg/L		10/22/18 08:21	10/22/18 16:00	1
Sulfide	ND		0.050	0.0070	mg/L			10/13/18 09:32	1

Client Sample ID: MW-8-20181007
Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	2.8		0.10	0.019	mg/L			10/16/18 21:30	1
Chloride	33		3.0	0.25	mg/L			10/23/18 06:49	1
Sulfate	31		5.0	0.23	mg/L			10/23/18 06:49	1
Alkalinity, Total	230		5.0	1.1	mg/L			10/13/18 19:53	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 11:18	10/18/18 15:13	1
Sulfide	ND		0.050	0.0070	mg/L			10/13/18 09:32	1

Client Sample ID: INJ-1R-20181006
Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.65		0.10	0.019	mg/L			10/16/18 21:32	1
Chloride	130		3.0	0.25	mg/L			10/23/18 07:08	1
Sulfate	110		5.0	0.23	mg/L			10/23/18 07:08	1
Total Organic Carbon - Duplicates	2.3		1.0	0.16	mg/L			10/12/18 18:36	1
Alkalinity, Total	300		5.0	1.1	mg/L			10/13/18 21:02	1
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 14:23	1
Sulfide	ND		0.050	0.0070	mg/L			10/13/18 09:32	1

Client Sample ID: MW-109S-20181006
Date Collected: 10/06/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.70		0.10	0.019	mg/L			10/16/18 20:46	1
Chloride	91		3.0	0.25	mg/L			10/23/18 07:26	1
Sulfate	110		5.0	0.23	mg/L			10/23/18 07:26	1
Total Organic Carbon - Duplicates	0.91	J	1.0	0.16	mg/L			10/12/18 14:54	1
Alkalinity, Total	260		5.0	1.1	mg/L			10/13/18 20:52	1
Cyanide, Total	ND	F1	0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 14:24	1

Client Sample ID: MW-5A-20181008
Date Collected: 10/08/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.87		0.10	0.019	mg/L			10/16/18 21:34	1

Surrogate Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(70-127)	(80-125)	(78-120)	(77-120)
280-115369-1	MW-106S-20181007	113	101	96	119
280-115369-2	MW-110D-20181007	113	92	108	102
280-115369-2 MS	MW-110D-20181007	95	97	95	91
280-115369-2 MSD	MW-110D-20181007	108	93	95	96
280-115369-3	MW-115S-20181008	102	96	105	99
280-115369-4	TB-6-VOC-20181009	113	94	110	101
280-115369-5	RW-4-20181007	102	99	98	100
280-115369-5 - DL	RW-4-20181007	110	94	105	102
280-115369-6	MW-121-20181007	112	94	99	119
280-115369-7	RW-7773P-20181007	103	98	101	100
280-115369-8	EB-4-VOC-20181007	114	94	109	106
280-115369-9	INF-COM-20181007	114	98	86	114
280-115369-13	MW-102S-20181006	100	88	85	98
280-115369-14	MW-110S-20181006	95	88	80	96
280-115369-14 - DL	MW-110S-20181006	97	88	83	98
280-115369-15	RW-15-20181006	97	86	81	99
280-115369-15 - DL	RW-15-20181006	100	88	85	103
280-115369-16	MW-9-20181007	114	95	95	106
280-115369-17	MW-12-20181008	113	96	93	106
280-115369-18	MW-8-20181007	109	95	101	102
280-115369-19	INJ-1R-20181006	102	87	79	103
280-115369-20	MW-109S-20181006	98	86	82	99
280-115369-20 - DL	MW-109S-20181006	102	86	83	105
280-115369-20 MS	MW-109S-20181006	91	98	87	92
280-115369-20 MS	MW-109S-20181006	87	86	87	90
280-115369-20 MSD	MW-109S-20181006	89	100	89	90
280-115369-20 MSD	MW-109S-20181006	88	85	87	89
280-115369-21	MW-5A-20181008	107	97	100	102
280-115369-22	TB-8-VOC-20181009	110	96	105	103
280-115369-23	TB-5-VOC-20181009	117	99	103	104
LCS 280-433383/17	Lab Control Sample	85	86	93	86
LCS 280-433383/4	Lab Control Sample	98	100	90	91
LCS 280-433542/30	Lab Control Sample	88	87	92	86
LCS 280-433542/4	Lab Control Sample	90	99	91	88
LCS 280-433681/11	Lab Control Sample	104	93	107	101
LCS 280-433681/5	Lab Control Sample	101	104	101	98
LCS 280-434030/4	Lab Control Sample	113	105	99	115
LCS 280-434030/6	Lab Control Sample	107	99	95	114
LCS 280-434216/4	Lab Control Sample	106	99	96	112
LCS 280-434216/6	Lab Control Sample	111	101	97	119
LCSD 280-433681/12	Lab Control Sample Dup	101	94	109	99
LCSD 280-433681/6	Lab Control Sample Dup	104	102	100	99
LCSD 280-434030/5	Lab Control Sample Dup	111	101	97	112
LCSD 280-434030/7	Lab Control Sample Dup	109	98	97	116
LCSD 280-434216/5	Lab Control Sample Dup	111	102	95	116
LCSD 280-434216/7	Lab Control Sample Dup	114	99	96	118
MB 280-433383/6	Method Blank	96	88	84	94
MB 280-433542/6	Method Blank	96	88	82	95
MB 280-433681/7	Method Blank	105	100	102	101

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(70-127)	(80-125)	(78-120)	(77-120)
MB 280-434030/8	Method Blank	113	102	100	119
MB 280-434216/8	Method Blank	119	100	99	120

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	PHL	TPHL
Lab Sample ID	Client Sample ID	(48-135)	(48-135)	(41-135)	(42-135)	(46-135)	(20-135)
280-115369-16	MW-9-20181007	76	79	82	78	83	84
280-115369-17	MW-12-20181008	71	74	71	73	75	85
280-115369-18	MW-8-20181007	72	82	80	79	82	86
280-115369-19	INJ-1R-20181006	72	75	73	71	73	62
LCS 280-433120/2-A	Lab Control Sample	73	73	81	88	81	78
LCS 280-433120/4-A	Lab Control Sample	71	82	94	81	94	83
LCSD 280-433120/3-A	Lab Control Sample Dup	77	80	84	80	76	77
LCSD 280-433120/5-A	Lab Control Sample Dup	74	78	83	73	87	85
MB 280-433120/1-A	Method Blank	67	76	90	77	80	83

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPHL = Terphenyl-d14

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCBP1	TCX1
Lab Sample ID	Client Sample ID	(34-122)	(28-115)
280-115369-16	MW-9-20181007	63	76
280-115369-17	MW-12-20181008	86	78
280-115369-18	MW-8-20181007	91	80
280-115369-19	INJ-1R-20181006	98	78
LCS 280-433037/2-A	Lab Control Sample	86	86
LCSD 280-433037/3-A	Lab Control Sample Dup	84	78
MB 280-433037/1-A	Method Blank	94	81

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
TCX = Tetrachloro-m-xylene

Surrogate Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX2	DCBP2
Lab Sample ID	Client Sample ID	(25-120)	(30-136)
280-115369-16	MW-9-20181007	94	69
280-115369-17	MW-12-20181008	92	90
280-115369-18	MW-8-20181007	94	103
280-115369-19	INJ-1R-20181006	96	111
LCS 280-433037/4-A	Lab Control Sample	95	87
MB 280-433037/1-A	Method Blank	93	93

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCBP = DCB Decachlorobiphenyl

Method: 8141A - Organophosphorous Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TPP1	CMF1
Lab Sample ID	Client Sample ID	(60-154)	(49-171)
280-115369-16	MW-9-20181007	60	62
280-115369-18	MW-8-20181007	66	79
280-115369-19	INJ-1R-20181006	62	60
LCS 280-433004/2-A	Lab Control Sample	84	64
LCSD 280-433004/3-A	Lab Control Sample Dup	86	73

Surrogate Legend

TPP = Triphenylphosphate

CMF = Chlormefos

Method: 8141A - Organophosphorous Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TPP2	CMF1
Lab Sample ID	Client Sample ID	(60-154)	(49-171)
280-115369-17	MW-12-20181008	70	69
MB 280-433004/1-A	Method Blank	82	26 X

Surrogate Legend

TPP = Triphenylphosphate

CMF = Chlormefos

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DCPAA1
Lab Sample ID	Client Sample ID	(39-135)
280-115369-16	MW-9-20181007	76
280-115369-17	MW-12-20181008	75
280-115369-18	MW-8-20181007	76
280-115369-19	INJ-1R-20181006	84

Surrogate Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Method: 8151A - Herbicides (GC) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	DCPAA1 (39-135)							
LCS 280-433061/2-A	Lab Control Sample	79							
LCSD 280-433061/3-A	Lab Control Sample Dup	78							
MB 280-433061/1-A	Method Blank	78							

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-433383/6
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/15/18 11:50	1
Acetonitrile	ND		30	9.6	ug/L			10/15/18 11:50	1
Acrolein	ND		20	2.8	ug/L			10/15/18 11:50	1
Acrylonitrile	ND		20	1.4	ug/L			10/15/18 11:50	1
Benzene	ND		1.0	0.16	ug/L			10/15/18 11:50	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/15/18 11:50	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/15/18 11:50	1
Bromoform	ND		1.0	0.19	ug/L			10/15/18 11:50	1
Bromomethane	ND		2.0	0.21	ug/L			10/15/18 11:50	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/15/18 11:50	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/15/18 11:50	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/15/18 11:50	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/15/18 11:50	1
Chloroprene	ND		1.0	0.21	ug/L			10/15/18 11:50	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/15/18 11:50	1
Chloroethane	ND		2.0	0.41	ug/L			10/15/18 11:50	1
Chloroform	ND		1.0	0.16	ug/L			10/15/18 11:50	1
Chloromethane	ND		2.0	0.30	ug/L			10/15/18 11:50	1
Allyl chloride	ND		2.0	0.17	ug/L			10/15/18 11:50	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/15/18 11:50	1
Dibromomethane	ND		1.0	0.17	ug/L			10/15/18 11:50	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/15/18 11:50	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/15/18 11:50	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/15/18 11:50	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/15/18 11:50	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/15/18 11:50	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/15/18 11:50	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/15/18 11:50	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 11:50	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/15/18 11:50	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/15/18 11:50	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 11:50	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/15/18 11:50	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/15/18 11:50	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/15/18 11:50	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/15/18 11:50	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/15/18 11:50	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/15/18 11:50	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/15/18 11:50	1
2-Hexanone	ND		5.0	1.7	ug/L			10/15/18 11:50	1
Iodomethane	ND		1.0	0.23	ug/L			10/15/18 11:50	1
Isobutyl alcohol	ND		110	37	ug/L			10/15/18 11:50	1
Methacrylonitrile	ND		10	1.6	ug/L			10/15/18 11:50	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/15/18 11:50	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/15/18 11:50	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/15/18 11:50	1
Propionitrile	ND		20	3.7	ug/L			10/15/18 11:50	1
Styrene	ND		1.0	0.17	ug/L			10/15/18 11:50	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433383/6
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 11:50	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/15/18 11:50	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/15/18 11:50	1
Toluene	ND		1.0	0.17	ug/L			10/15/18 11:50	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/15/18 11:50	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/15/18 11:50	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/15/18 11:50	1
Trichloroethene	ND		1.0	0.16	ug/L			10/15/18 11:50	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/15/18 11:50	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/15/18 11:50	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/15/18 11:50	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/15/18 11:50	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/15/18 11:50	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/15/18 11:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 127*		*10/15/18 11:50*	*1*
Toluene-d8 (Surr)	*88*		*80 - 125*		*10/15/18 11:50*	*1*
4-Bromofluorobenzene (Surr)	*84*		*78 - 120*		*10/15/18 11:50*	*1*
Dibromofluoromethane (Surr)	*94*		*77 - 120*		*10/15/18 11:50*	*1*

Lab Sample ID: LCS 280-433383/17
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	80.0	71.3		ug/L		89	50 - 150
Chloroprene	8.00	6.14		ug/L		77	50 - 150
Methacrylonitrile	80.0	81.1		ug/L		101	50 - 150
Methyl methacrylate	16.0	11.9		ug/L		74	50 - 150
Propionitrile	80.0	77.7		ug/L		97	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 127*
Toluene-d8 (Surr)	*86*		*80 - 125*
4-Bromofluorobenzene (Surr)	*93*		*78 - 120*
Dibromofluoromethane (Surr)	*86*		*77 - 120*

Lab Sample ID: LCS 280-433383/4
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	23.4		ug/L		117	39 - 156
Acrolein	50.0	59.1		ug/L		118	36 - 147
Acrylonitrile	50.0	64.8		ug/L		130	56 - 135
Benzene	5.00	4.58		ug/L		92	65 - 135
Chlorobromomethane	5.00	4.99		ug/L		100	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433383/4
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorobromomethane	5.00	4.94		ug/L		99	65 - 135
Bromoform	5.00	5.42		ug/L		108	62 - 135
Bromomethane	5.00	4.99		ug/L		100	45 - 135
2-Butanone (MEK)	20.0	17.5		ug/L		87	44 - 177
Carbon disulfide	5.00	4.84		ug/L		97	55 - 143
Carbon tetrachloride	5.00	4.80		ug/L		96	65 - 135
Chlorobenzene	5.00	4.63		ug/L		93	65 - 135
Chlorodibromomethane	5.00	5.24		ug/L		105	65 - 135
Chloroethane	5.00	4.80		ug/L		96	46 - 136
Chloroform	5.00	4.69		ug/L		94	65 - 135
Chloromethane	5.00	4.60		ug/L		92	34 - 145
Allyl chloride	5.00	4.66		ug/L		93	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	5.39		ug/L		108	57 - 135
Dibromomethane	5.00	5.17		ug/L		103	65 - 135
1,2-Dichlorobenzene	5.00	4.64		ug/L		93	65 - 135
1,3-Dichlorobenzene	5.00	4.38		ug/L		88	65 - 135
1,4-Dichlorobenzene	5.00	4.35		ug/L		87	65 - 135
trans-1,4-Dichloro-2-butene	5.00	5.14		ug/L		103	53 - 135
Dichlorodifluoromethane	5.00	4.57		ug/L		91	43 - 142
1,1-Dichloroethane	5.00	4.59		ug/L		92	65 - 135
1,2-Dichloroethane	5.00	5.15		ug/L		103	65 - 135
cis-1,2-Dichloroethene	5.00	4.42		ug/L		88	65 - 135
trans-1,2-Dichloroethene	5.00	5.30		ug/L		106	65 - 135
1,1-Dichloroethene	5.00	5.03		ug/L		101	65 - 136
1,2-Dichloropropane	5.00	4.80		ug/L		96	64 - 135
1,3-Dichloropropane	5.00	4.74		ug/L		95	64 - 135
2,2-Dichloropropane	5.00	4.41		ug/L		88	65 - 135
cis-1,3-Dichloropropene	5.00	3.67		ug/L		73	65 - 135
trans-1,3-Dichloropropene	5.00	4.07		ug/L		81	65 - 135
1,1-Dichloropropene	5.00	4.37		ug/L		87	65 - 135
Ethylbenzene	5.00	4.37		ug/L		87	65 - 135
Ethyl methacrylate	5.00	4.05		ug/L		81	50 - 135
2-Hexanone	20.0	16.9		ug/L		85	57 - 139
Iodomethane	5.00	5.57		ug/L		111	65 - 142
Isobutyl alcohol	125	102	J	ug/L		82	55 - 135
Methylene Chloride	5.00	5.22		ug/L		104	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	16.9		ug/L		85	60 - 150
Styrene	5.00	4.38		ug/L		88	65 - 135
1,1,1,2-Tetrachloroethane	5.00	4.78		ug/L		96	65 - 135
1,1,2,2-Tetrachloroethane	5.00	4.54		ug/L		91	58 - 135
Tetrachloroethene	5.00	4.71		ug/L		94	65 - 135
Toluene	5.00	4.86		ug/L		97	65 - 135
1,2,4-Trichlorobenzene	5.00	4.18		ug/L		84	58 - 135
1,1,1-Trichloroethane	5.00	4.67		ug/L		93	65 - 135
1,1,2-Trichloroethane	5.00	5.22		ug/L		104	64 - 135
Trichloroethene	5.00	4.36		ug/L		87	65 - 135
Trichlorofluoromethane	5.00	5.29		ug/L		106	53 - 137
1,2,3-Trichloropropane	5.00	4.66		ug/L		93	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433383/4
Matrix: Water
Analysis Batch: 433383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Vinyl acetate			10.0	7.80		ug/L		78	11 - 187		
Vinyl chloride			5.00	4.48		ug/L		90	40 - 137		
Xylenes, Total			10.0	8.43		ug/L		84	65 - 135		
1,2-Dibromoethane			5.00	4.99		ug/L		100	65 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 127*
Toluene-d8 (Surr)	*100*		*80 - 125*
4-Bromofluorobenzene (Surr)	*90*		*78 - 120*
Dibromofluoromethane (Surr)	*91*		*77 - 120*

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 433383

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acetone	ND		20.0	22.0		ug/L		110	39 - 156		
Acrolein	ND		50.0	58.2		ug/L		116	36 - 147		
Acrylonitrile	ND		50.0	58.7		ug/L		117	56 - 135		
Benzene	ND		5.00	4.51		ug/L		90	65 - 135		
Chlorobromomethane	ND		5.00	5.12		ug/L		102	65 - 135		
Dichlorobromomethane	ND		5.00	4.97		ug/L		99	65 - 135		
Bromoform	ND		5.00	5.26		ug/L		105	62 - 135		
Bromomethane	ND		5.00	5.37		ug/L		107	45 - 135		
2-Butanone (MEK)	ND		20.0	15.6		ug/L		78	44 - 177		
Carbon disulfide	ND		5.00	5.19		ug/L		104	55 - 143		
Carbon tetrachloride	ND		5.00	5.03		ug/L		101	65 - 135		
Chlorobenzene	ND		5.00	4.66		ug/L		93	65 - 135		
Chlorodibromomethane	ND		5.00	5.24		ug/L		105	65 - 135		
Chloroethane	ND		5.00	5.29		ug/L		106	46 - 136		
Chloroform	0.84	J	5.00	5.55		ug/L		94	65 - 135		
Chloromethane	ND		5.00	5.16		ug/L		103	34 - 145		
Allyl chloride	ND		5.00	4.83		ug/L		97	50 - 135		
1,2-Dibromo-3-Chloropropane	ND		5.00	5.34		ug/L		107	57 - 135		
Dibromomethane	ND		5.00	4.87		ug/L		97	65 - 135		
1,2-Dichlorobenzene	ND		5.00	4.53		ug/L		91	65 - 135		
1,3-Dichlorobenzene	ND		5.00	4.30		ug/L		86	65 - 135		
1,4-Dichlorobenzene	ND		5.00	4.29		ug/L		86	65 - 135		
trans-1,4-Dichloro-2-butene	ND		5.00	4.51		ug/L		90	53 - 135		
Dichlorodifluoromethane	ND		5.00	5.22		ug/L		104	43 - 142		
1,1-Dichloroethane	ND		5.00	4.69		ug/L		94	65 - 135		
1,2-Dichloroethane	ND		5.00	4.80		ug/L		96	65 - 135		
cis-1,2-Dichloroethene	ND		5.00	4.31		ug/L		86	65 - 135		
trans-1,2-Dichloroethene	ND		5.00	5.53		ug/L		111	65 - 135		
1,1-Dichloroethene	ND		5.00	5.27		ug/L		105	65 - 136		
1,2-Dichloropropane	ND		5.00	4.77		ug/L		95	64 - 135		
1,3-Dichloropropane	ND		5.00	4.71		ug/L		94	64 - 135		
2,2-Dichloropropane	ND		5.00	4.22		ug/L		84	65 - 135		

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 433383

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,3-Dichloropropene	ND		5.00	3.38		ug/L		68	65 - 135
trans-1,3-Dichloropropene	ND		5.00	3.92		ug/L		78	65 - 135
1,1-Dichloropropene	ND		5.00	4.27		ug/L		85	65 - 135
Ethylbenzene	ND		5.00	4.40		ug/L		88	65 - 135
Ethyl methacrylate	ND		5.00	3.78		ug/L		76	50 - 135
2-Hexanone	ND		20.0	16.3		ug/L		82	57 - 139
Iodomethane	ND		5.00	5.76		ug/L		115	65 - 142
Isobutyl alcohol	ND		125	102	J	ug/L		82	55 - 135
Methylene Chloride	ND		5.00	5.57		ug/L		111	54 - 141
4-Methyl-2-pentanone (MIBK)	ND		20.0	15.0		ug/L		75	60 - 150
Styrene	ND		5.00	4.22		ug/L		84	65 - 135
1,1,1,2-Tetrachloroethane	ND		5.00	4.98		ug/L		100	65 - 135
1,1,2,2-Tetrachloroethane	ND		5.00	4.48		ug/L		90	58 - 135
Tetrachloroethene	32		5.00	37.0	4	ug/L		91	65 - 135
Toluene	ND		5.00	4.90		ug/L		98	65 - 135
1,2,4-Trichlorobenzene	ND		5.00	4.08		ug/L		82	58 - 135
1,1,1-Trichloroethane	ND		5.00	4.83		ug/L		97	65 - 135
1,1,2-Trichloroethane	ND		5.00	5.11		ug/L		102	64 - 135
Trichloroethene	120	E	5.00	111	E 4	ug/L		-229	65 - 135
Trichlorofluoromethane	ND		5.00	5.56		ug/L		111	53 - 137
1,2,3-Trichloropropane	ND		5.00	4.34		ug/L		87	65 - 135
Vinyl acetate	ND		10.0	7.64		ug/L		76	11 - 187
Vinyl chloride	ND		5.00	4.90		ug/L		98	40 - 137
Xylenes, Total	ND		10.0	8.45		ug/L		85	65 - 135
1,2-Dibromoethane	ND		5.00	4.66		ug/L		93	65 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 127*
Toluene-d8 (Surr)	*98*		*80 - 125*
4-Bromofluorobenzene (Surr)	*87*		*78 - 120*
Dibromofluoromethane (Surr)	*92*		*77 - 120*

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 433383

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	ND		40.0	37.0		ug/L		93	50 - 150
Chloroprene	ND		4.00	2.59		ug/L		65	50 - 150
Methacrylonitrile	ND		40.0	35.2		ug/L		88	50 - 150
Methyl methacrylate	ND		8.00	5.54		ug/L		69	50 - 150
Propionitrile	ND		40.0	46.5		ug/L		116	50 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*87*		*70 - 127*
Toluene-d8 (Surr)	*86*		*80 - 125*
4-Bromofluorobenzene (Surr)	*87*		*78 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 433383

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	*90*		*77 - 120*

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 433383

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	ND		20.0	22.4		ug/L		112	39 - 156	2	23
Acrolein	ND		50.0	62.9		ug/L		126	36 - 147	8	30
Acrylonitrile	ND		50.0	56.1		ug/L		112	56 - 135	5	30
Benzene	ND		5.00	4.90		ug/L		98	65 - 135	8	20
Chlorobromomethane	ND		5.00	5.52		ug/L		110	65 - 135	7	29
Dichlorobromomethane	ND		5.00	5.26		ug/L		105	65 - 135	6	20
Bromoform	ND		5.00	5.56		ug/L		111	62 - 135	5	27
Bromomethane	ND		5.00	5.81		ug/L		116	45 - 135	8	33
2-Butanone (MEK)	ND		20.0	17.4		ug/L		87	44 - 177	11	32
Carbon disulfide	ND		5.00	5.66		ug/L		113	55 - 143	9	20
Carbon tetrachloride	ND		5.00	5.31		ug/L		106	65 - 135	5	21
Chlorobenzene	ND		5.00	4.98		ug/L		100	65 - 135	7	20
Chlorodibromomethane	ND		5.00	5.53		ug/L		111	65 - 135	5	20
Chloroethane	ND		5.00	5.83		ug/L		117	46 - 136	10	25
Chloroform	0.84	J	5.00	5.92		ug/L		101	65 - 135	6	20
Chloromethane	ND		5.00	5.51		ug/L		110	34 - 145	7	24
Allyl chloride	ND		5.00	5.33		ug/L		107	50 - 135	10	30
1,2-Dibromo-3-Chloropropane	ND		5.00	5.37		ug/L		107	57 - 135	1	22
Dibromomethane	ND		5.00	5.38		ug/L		108	65 - 135	10	26
1,2-Dichlorobenzene	ND		5.00	5.05		ug/L		101	65 - 135	11	20
1,3-Dichlorobenzene	ND		5.00	4.69		ug/L		94	65 - 135	9	20
1,4-Dichlorobenzene	ND		5.00	4.68		ug/L		94	65 - 135	9	23
trans-1,4-Dichloro-2-butene	ND		5.00	5.14		ug/L		103	53 - 135	13	25
Dichlorodifluoromethane	ND		5.00	5.49		ug/L		110	43 - 142	5	30
1,1-Dichloroethane	ND		5.00	5.05		ug/L		101	65 - 135	7	21
1,2-Dichloroethane	ND		5.00	5.16		ug/L		103	65 - 135	7	20
cis-1,2-Dichloroethene	ND		5.00	4.64		ug/L		93	65 - 135	7	20
trans-1,2-Dichloroethene	ND		5.00	5.69		ug/L		114	65 - 135	3	24
1,1-Dichloroethene	ND		5.00	5.75		ug/L		115	65 - 136	9	20
1,2-Dichloropropane	ND		5.00	5.33		ug/L		107	64 - 135	11	20
1,3-Dichloropropane	ND		5.00	5.30		ug/L		106	64 - 135	12	20
2,2-Dichloropropane	ND		5.00	4.61		ug/L		92	65 - 135	9	20
cis-1,3-Dichloropropene	ND		5.00	3.75		ug/L		75	65 - 135	11	26
trans-1,3-Dichloropropene	ND		5.00	3.98		ug/L		80	65 - 135	2	26
1,1-Dichloropropene	ND		5.00	4.72		ug/L		94	65 - 135	10	21
Ethylbenzene	ND		5.00	4.75		ug/L		95	65 - 135	8	20
Ethyl methacrylate	ND		5.00	4.06		ug/L		81	50 - 135	7	30
2-Hexanone	ND		20.0	16.5		ug/L		82	57 - 139	1	25
Iodomethane	ND		5.00	6.18		ug/L		124	65 - 142	7	25
Isobutyl alcohol	ND		125	97.3	J	ug/L		78	55 - 135	5	30
Methylene Chloride	ND		5.00	5.85		ug/L		117	54 - 141	5	26

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 433383

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Methyl-2-pentanone (MIBK)	ND		20.0	16.3		ug/L		81	60 - 150	8	22
Styrene	ND		5.00	4.56		ug/L		91	65 - 135	8	26
1,1,1,2-Tetrachloroethane	ND		5.00	5.59		ug/L		112	65 - 135	12	20
1,1,2,2-Tetrachloroethane	ND		5.00	5.01		ug/L		100	58 - 135	11	20
Tetrachloroethene	32		5.00	38.0	4	ug/L		111	65 - 135	3	20
Toluene	ND		5.00	5.20		ug/L		104	65 - 135	6	20
1,2,4-Trichlorobenzene	ND		5.00	4.00		ug/L		80	58 - 135	2	25
1,1,1-Trichloroethane	ND		5.00	5.18		ug/L		104	65 - 135	7	20
1,1,2-Trichloroethane	ND		5.00	5.16		ug/L		103	64 - 135	1	27
Trichloroethene	120	E	5.00	111	E 4	ug/L		-228	65 - 135	0	20
Trichlorofluoromethane	ND		5.00	6.02		ug/L		120	53 - 137	8	27
1,2,3-Trichloropropane	ND		5.00	4.95		ug/L		99	65 - 135	13	23
Vinyl acetate	ND		10.0	8.45		ug/L		85	11 - 187	10	24
Vinyl chloride	ND		5.00	5.40		ug/L		108	40 - 137	10	24
Xylenes, Total	ND		10.0	9.15		ug/L		92	65 - 135	8	20
1,2-Dibromoethane	ND		5.00	5.15		ug/L		103	65 - 135	10	27

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 127*
Toluene-d8 (Surr)	*100*		*80 - 125*
4-Bromofluorobenzene (Surr)	*89*		*78 - 120*
Dibromofluoromethane (Surr)	*90*		*77 - 120*

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 433383

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetonitrile	ND		40.0	40.1		ug/L		100	50 - 150	8	30
Chloroprene	ND		4.00	2.82		ug/L		70	50 - 150	9	30
Methacrylonitrile	ND		40.0	39.7		ug/L		99	50 - 150	12	30
Methyl methacrylate	ND		8.00	6.30		ug/L		79	50 - 150	13	30
Propionitrile	ND		40.0	51.2		ug/L		128	50 - 150	9	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 127*
Toluene-d8 (Surr)	*85*		*80 - 125*
4-Bromofluorobenzene (Surr)	*87*		*78 - 120*
Dibromofluoromethane (Surr)	*89*		*77 - 120*

Lab Sample ID: MB 280-433542/6
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/16/18 09:59	1
Acetonitrile	ND		30	9.6	ug/L			10/16/18 09:59	1
Acrolein	ND		20	2.8	ug/L			10/16/18 09:59	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433542/6
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrylonitrile	ND		20	1.4	ug/L			10/16/18 09:59	1
Benzene	ND		1.0	0.16	ug/L			10/16/18 09:59	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/16/18 09:59	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/16/18 09:59	1
Bromoform	ND		1.0	0.19	ug/L			10/16/18 09:59	1
Bromomethane	ND		2.0	0.21	ug/L			10/16/18 09:59	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/16/18 09:59	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/16/18 09:59	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/16/18 09:59	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/16/18 09:59	1
Chloroprene	ND		1.0	0.21	ug/L			10/16/18 09:59	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/16/18 09:59	1
Chloroethane	ND		2.0	0.41	ug/L			10/16/18 09:59	1
Chloroform	ND		1.0	0.16	ug/L			10/16/18 09:59	1
Chloromethane	ND		2.0	0.30	ug/L			10/16/18 09:59	1
Allyl chloride	ND		2.0	0.17	ug/L			10/16/18 09:59	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/16/18 09:59	1
Dibromomethane	ND		1.0	0.17	ug/L			10/16/18 09:59	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/16/18 09:59	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/16/18 09:59	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/16/18 09:59	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/16/18 09:59	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/16/18 09:59	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/16/18 09:59	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/16/18 09:59	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 09:59	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 09:59	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/16/18 09:59	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 09:59	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/16/18 09:59	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 09:59	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/16/18 09:59	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/16/18 09:59	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/16/18 09:59	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/16/18 09:59	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/16/18 09:59	1
2-Hexanone	ND		5.0	1.7	ug/L			10/16/18 09:59	1
Iodomethane	ND		1.0	0.23	ug/L			10/16/18 09:59	1
Isobutyl alcohol	ND		110	37	ug/L			10/16/18 09:59	1
Methacrylonitrile	ND		10	1.6	ug/L			10/16/18 09:59	1
Methylene Chloride	0.433	J	2.0	0.32	ug/L			10/16/18 09:59	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/16/18 09:59	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/16/18 09:59	1
Propionitrile	ND		20	3.7	ug/L			10/16/18 09:59	1
Styrene	ND		1.0	0.17	ug/L			10/16/18 09:59	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 09:59	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 09:59	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/16/18 09:59	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433542/6
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0	0.17	ug/L			10/16/18 09:59	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/16/18 09:59	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/16/18 09:59	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/16/18 09:59	1
Trichloroethene	ND		1.0	0.16	ug/L			10/16/18 09:59	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/16/18 09:59	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/16/18 09:59	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/16/18 09:59	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/16/18 09:59	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/16/18 09:59	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/16/18 09:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 127*		*10/16/18 09:59*	*1*
Toluene-d8 (Surr)	*88*		*80 - 125*		*10/16/18 09:59*	*1*
4-Bromofluorobenzene (Surr)	*82*		*78 - 120*		*10/16/18 09:59*	*1*
Dibromofluoromethane (Surr)	*95*		*77 - 120*		*10/16/18 09:59*	*1*

Lab Sample ID: LCS 280-433542/30
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	40.0	36.2		ug/L		90	50 - 150
Chloroprene	4.00	2.81		ug/L		70	50 - 150
Methacrylonitrile	40.0	38.4		ug/L		96	50 - 150
Methyl methacrylate	8.00	5.68		ug/L		71	50 - 150
Propionitrile	40.0	48.3		ug/L		121	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 127*
Toluene-d8 (Surr)	*87*		*80 - 125*
4-Bromofluorobenzene (Surr)	*92*		*78 - 120*
Dibromofluoromethane (Surr)	*86*		*77 - 120*

Lab Sample ID: LCS 280-433542/4
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	21.3		ug/L		107	39 - 156
Acrolein	50.0	57.4		ug/L		115	36 - 147
Acrylonitrile	50.0	57.2		ug/L		114	56 - 135
Benzene	5.00	4.56		ug/L		91	65 - 135
Chlorobromomethane	5.00	4.97		ug/L		99	65 - 135
Dichlorobromomethane	5.00	4.66		ug/L		93	65 - 135
Bromoform	5.00	4.86		ug/L		97	62 - 135
Bromomethane	5.00	5.04		ug/L		101	45 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433542/4
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Butanone (MEK)	20.0	14.2		ug/L		71	44 - 177
Carbon disulfide	5.00	4.88		ug/L		98	55 - 143
Carbon tetrachloride	5.00	4.75		ug/L		95	65 - 135
Chlorobenzene	5.00	4.55		ug/L		91	65 - 135
Chlorodibromomethane	5.00	4.89		ug/L		98	65 - 135
Chloroethane	5.00	4.82		ug/L		96	46 - 136
Chloroform	5.00	4.62		ug/L		92	65 - 135
Chloromethane	5.00	4.57		ug/L		91	34 - 145
Allyl chloride	5.00	4.67		ug/L		93	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	4.88	J	ug/L		98	57 - 135
Dibromomethane	5.00	4.83		ug/L		97	65 - 135
1,2-Dichlorobenzene	5.00	4.53		ug/L		91	65 - 135
1,3-Dichlorobenzene	5.00	4.40		ug/L		88	65 - 135
1,4-Dichlorobenzene	5.00	4.30		ug/L		86	65 - 135
trans-1,4-Dichloro-2-butene	5.00	4.61		ug/L		92	53 - 135
Dichlorodifluoromethane	5.00	4.22		ug/L		84	43 - 142
1,1-Dichloroethane	5.00	4.55		ug/L		91	65 - 135
1,2-Dichloroethane	5.00	4.79		ug/L		96	65 - 135
cis-1,2-Dichloroethene	5.00	4.40		ug/L		88	65 - 135
trans-1,2-Dichloroethene	5.00	5.19		ug/L		104	65 - 135
1,1-Dichloroethene	5.00	5.10		ug/L		102	65 - 136
1,2-Dichloropropane	5.00	4.84		ug/L		97	64 - 135
1,3-Dichloropropane	5.00	4.48		ug/L		90	64 - 135
2,2-Dichloropropane	5.00	4.64		ug/L		93	65 - 135
cis-1,3-Dichloropropene	5.00	3.74		ug/L		75	65 - 135
trans-1,3-Dichloropropene	5.00	4.00		ug/L		80	65 - 135
1,1-Dichloropropene	5.00	4.38		ug/L		88	65 - 135
Ethylbenzene	5.00	4.35		ug/L		87	65 - 135
Ethyl methacrylate	5.00	3.91		ug/L		78	50 - 135
2-Hexanone	20.0	15.6		ug/L		78	57 - 139
Iodomethane	5.00	5.50		ug/L		110	65 - 142
Isobutyl alcohol	125	106	J	ug/L		84	55 - 135
Methylene Chloride	5.00	5.53		ug/L		111	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	15.3		ug/L		77	60 - 150
Styrene	5.00	4.30		ug/L		86	65 - 135
1,1,1,2-Tetrachloroethane	5.00	4.73		ug/L		95	65 - 135
1,1,2,2-Tetrachloroethane	5.00	4.14		ug/L		83	58 - 135
Tetrachloroethene	5.00	4.74		ug/L		95	65 - 135
Toluene	5.00	4.93		ug/L		99	65 - 135
1,2,4-Trichlorobenzene	5.00	4.02		ug/L		80	58 - 135
1,1,1-Trichloroethane	5.00	4.64		ug/L		93	65 - 135
1,1,2-Trichloroethane	5.00	4.91		ug/L		98	64 - 135
Trichloroethene	5.00	4.33		ug/L		87	65 - 135
Trichlorofluoromethane	5.00	5.20		ug/L		104	53 - 137
1,2,3-Trichloropropane	5.00	4.38		ug/L		88	65 - 135
Vinyl acetate	10.0	8.29		ug/L		83	11 - 187
Vinyl chloride	5.00	4.56		ug/L		91	40 - 137
Xylenes, Total	10.0	8.67		ug/L		87	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433542/4
Matrix: Water
Analysis Batch: 433542

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2-Dibromoethane			5.00	4.53		ug/L		91	65 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 127*
Toluene-d8 (Surr)	*99*		*80 - 125*
4-Bromofluorobenzene (Surr)	*91*		*78 - 120*
Dibromofluoromethane (Surr)	*88*		*77 - 120*

Lab Sample ID: MB 280-433681/7
Matrix: Water
Analysis Batch: 433681

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/16/18 20:25	1
Acetonitrile	ND		30	9.6	ug/L			10/16/18 20:25	1
Acrolein	ND		20	2.8	ug/L			10/16/18 20:25	1
Acrylonitrile	ND		20	1.4	ug/L			10/16/18 20:25	1
Benzene	ND		1.0	0.16	ug/L			10/16/18 20:25	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/16/18 20:25	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/16/18 20:25	1
Bromoform	ND		1.0	0.19	ug/L			10/16/18 20:25	1
Bromomethane	ND		2.0	0.21	ug/L			10/16/18 20:25	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/16/18 20:25	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/16/18 20:25	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/16/18 20:25	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/16/18 20:25	1
Chloroprene	ND		1.0	0.21	ug/L			10/16/18 20:25	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/16/18 20:25	1
Chloroethane	ND		2.0	0.41	ug/L			10/16/18 20:25	1
Chloroform	ND		1.0	0.16	ug/L			10/16/18 20:25	1
Chloromethane	ND		2.0	0.30	ug/L			10/16/18 20:25	1
Allyl chloride	ND		2.0	0.17	ug/L			10/16/18 20:25	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/16/18 20:25	1
Dibromomethane	ND		1.0	0.17	ug/L			10/16/18 20:25	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/16/18 20:25	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/16/18 20:25	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/16/18 20:25	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/16/18 20:25	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/16/18 20:25	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/16/18 20:25	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/16/18 20:25	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 20:25	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/16/18 20:25	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/16/18 20:25	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 20:25	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/16/18 20:25	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/16/18 20:25	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/16/18 20:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433681/7
Matrix: Water
Analysis Batch: 433681

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/16/18 20:25	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/16/18 20:25	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/16/18 20:25	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/16/18 20:25	1
2-Hexanone	ND		5.0	1.7	ug/L			10/16/18 20:25	1
Iodomethane	ND		1.0	0.23	ug/L			10/16/18 20:25	1
Isobutyl alcohol	ND		110	37	ug/L			10/16/18 20:25	1
Methacrylonitrile	ND		10	1.6	ug/L			10/16/18 20:25	1
Methylene Chloride	ND		2.0	0.32	ug/L			10/16/18 20:25	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/16/18 20:25	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/16/18 20:25	1
Propionitrile	ND		20	3.7	ug/L			10/16/18 20:25	1
Styrene	ND		1.0	0.17	ug/L			10/16/18 20:25	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 20:25	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/16/18 20:25	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/16/18 20:25	1
Toluene	ND		1.0	0.17	ug/L			10/16/18 20:25	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/16/18 20:25	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/16/18 20:25	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/16/18 20:25	1
Trichloroethene	ND		1.0	0.16	ug/L			10/16/18 20:25	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/16/18 20:25	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/16/18 20:25	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/16/18 20:25	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/16/18 20:25	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/16/18 20:25	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/16/18 20:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*		*10/16/18 20:25*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*10/16/18 20:25*	*1*
4-Bromofluorobenzene (Surr)	*102*		*78 - 120*		*10/16/18 20:25*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*10/16/18 20:25*	*1*

Lab Sample ID: LCS 280-433681/11
Matrix: Water
Analysis Batch: 433681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	50.0	47.4		ug/L		95	50 - 150
Chloroprene	5.00	4.99		ug/L		100	50 - 150
Methacrylonitrile	50.0	52.7		ug/L		105	50 - 150
Methyl methacrylate	10.0	6.76		ug/L		68	50 - 150
Propionitrile	50.0	46.1		ug/L		92	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433681/11
Matrix: Water
Analysis Batch: 433681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*93*		*80 - 125*
4-Bromofluorobenzene (Surr)	*107*		*78 - 120*
Dibromofluoromethane (Surr)	*101*		*77 - 120*

Lab Sample ID: LCS 280-433681/5
Matrix: Water
Analysis Batch: 433681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	18.7		ug/L		94	39 - 156
Acrolein	50.0	51.0		ug/L		102	36 - 147
Acrylonitrile	50.0	48.4		ug/L		97	56 - 135
Benzene	5.00	4.65		ug/L		93	65 - 135
Chlorobromomethane	5.00	4.68		ug/L		94	65 - 135
Dichlorobromomethane	5.00	4.76		ug/L		95	65 - 135
Bromoform	5.00	4.35		ug/L		87	62 - 135
Bromomethane	5.00	4.67		ug/L		93	45 - 135
2-Butanone (MEK)	20.0	18.3		ug/L		92	44 - 177
Carbon disulfide	5.00	4.60		ug/L		92	55 - 143
Carbon tetrachloride	5.00	4.60		ug/L		92	65 - 135
Chlorobenzene	5.00	4.81		ug/L		96	65 - 135
Chlorodibromomethane	5.00	5.06		ug/L		101	65 - 135
Chloroethane	5.00	4.53		ug/L		91	46 - 136
Chloroform	5.00	4.81		ug/L		96	65 - 135
Chloromethane	5.00	4.54		ug/L		91	34 - 145
Allyl chloride	5.00	4.82		ug/L		96	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	4.19	J	ug/L		84	57 - 135
Dibromomethane	5.00	4.67		ug/L		93	65 - 135
1,2-Dichlorobenzene	5.00	4.61		ug/L		92	65 - 135
1,3-Dichlorobenzene	5.00	4.67		ug/L		93	65 - 135
1,4-Dichlorobenzene	5.00	4.68		ug/L		94	65 - 135
trans-1,4-Dichloro-2-butene	5.00	4.67		ug/L		93	53 - 135
Dichlorodifluoromethane	5.00	4.17		ug/L		83	43 - 142
1,1-Dichloroethane	5.00	4.72		ug/L		94	65 - 135
1,2-Dichloroethane	5.00	4.99		ug/L		100	65 - 135
cis-1,2-Dichloroethene	5.00	4.50		ug/L		90	65 - 135
trans-1,2-Dichloroethene	5.00	4.80		ug/L		96	65 - 135
1,1-Dichloroethene	5.00	4.38		ug/L		88	65 - 136
1,2-Dichloropropane	5.00	4.65		ug/L		93	64 - 135
1,3-Dichloropropane	5.00	4.99		ug/L		100	64 - 135
2,2-Dichloropropane	5.00	4.93		ug/L		99	65 - 135
cis-1,3-Dichloropropene	5.00	5.23		ug/L		105	65 - 135
trans-1,3-Dichloropropene	5.00	4.20		ug/L		84	65 - 135
1,1-Dichloropropene	5.00	4.58		ug/L		92	65 - 135
Ethylbenzene	5.00	4.80		ug/L		96	65 - 135
Ethyl methacrylate	5.00	4.11		ug/L		82	50 - 135
2-Hexanone	20.0	18.0		ug/L		90	57 - 139
Iodomethane	5.00	4.62		ug/L		92	65 - 142

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433681/5
Matrix: Water
Analysis Batch: 433681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Isobutyl alcohol			125	120		ug/L		96	55 - 135		
Methylene Chloride			5.00	4.41		ug/L		88	54 - 141		
4-Methyl-2-pentanone (MIBK)			20.0	17.6		ug/L		88	60 - 150		
Styrene			5.00	4.54		ug/L		91	65 - 135		
1,1,1,2-Tetrachloroethane			5.00	4.95		ug/L		99	65 - 135		
1,1,2,2-Tetrachloroethane			5.00	4.58		ug/L		92	58 - 135		
Tetrachloroethene			5.00	4.81		ug/L		96	65 - 135		
Toluene			5.00	4.29		ug/L		86	65 - 135		
1,2,4-Trichlorobenzene			5.00	4.64		ug/L		93	58 - 135		
1,1,1-Trichloroethane			5.00	4.85		ug/L		97	65 - 135		
1,1,2-Trichloroethane			5.00	4.22		ug/L		84	64 - 135		
Trichloroethene			5.00	4.37		ug/L		87	65 - 135		
Trichlorofluoromethane			5.00	4.69		ug/L		94	53 - 137		
1,2,3-Trichloropropane			5.00	4.88		ug/L		98	65 - 135		
Vinyl acetate			10.0	9.43		ug/L		94	11 - 187		
Vinyl chloride			5.00	4.60		ug/L		92	40 - 137		
Xylenes, Total			10.0	9.80		ug/L		98	65 - 135		
1,2-Dibromoethane			5.00	4.68		ug/L		94	65 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 127*
Toluene-d8 (Surr)	*104*		*80 - 125*
4-Bromofluorobenzene (Surr)	*101*		*78 - 120*
Dibromofluoromethane (Surr)	*98*		*77 - 120*

Lab Sample ID: LCSD 280-433681/12
Matrix: Water
Analysis Batch: 433681

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetonitrile			50.0	44.8		ug/L		90	50 - 150	6	30
Chloroprene			5.00	4.44		ug/L		89	50 - 150	12	30
Methacrylonitrile			50.0	49.1		ug/L		98	50 - 150	7	30
Methyl methacrylate			10.0	6.35		ug/L		63	50 - 150	6	30
Propionitrile			50.0	45.0		ug/L		90	50 - 150	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 127*
Toluene-d8 (Surr)	*94*		*80 - 125*
4-Bromofluorobenzene (Surr)	*109*		*78 - 120*
Dibromofluoromethane (Surr)	*99*		*77 - 120*

Lab Sample ID: LCSD 280-433681/6
Matrix: Water
Analysis Batch: 433681

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone			20.0	18.4		ug/L		92	39 - 156	2	23

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-433681/6
Matrix: Water
Analysis Batch: 433681

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acrolein	50.0	52.9		ug/L		106	36 - 147	4	30
Acrylonitrile	50.0	46.3		ug/L		93	56 - 135	4	30
Benzene	5.00	4.57		ug/L		91	65 - 135	2	20
Chlorobromomethane	5.00	4.82		ug/L		96	65 - 135	3	29
Dichlorobromomethane	5.00	4.88		ug/L		98	65 - 135	2	20
Bromoform	5.00	4.48		ug/L		90	62 - 135	3	27
Bromomethane	5.00	5.26		ug/L		105	45 - 135	12	33
2-Butanone (MEK)	20.0	17.6		ug/L		88	44 - 177	4	32
Carbon disulfide	5.00	4.44		ug/L		89	55 - 143	4	20
Carbon tetrachloride	5.00	4.84		ug/L		97	65 - 135	5	21
Chlorobenzene	5.00	4.81		ug/L		96	65 - 135	0	20
Chlorodibromomethane	5.00	4.98		ug/L		100	65 - 135	2	20
Chloroethane	5.00	5.00		ug/L		100	46 - 136	10	25
Chloroform	5.00	4.90		ug/L		98	65 - 135	2	20
Chloromethane	5.00	5.08		ug/L		102	34 - 145	11	24
Allyl chloride	5.00	4.73		ug/L		95	50 - 135	2	30
1,2-Dibromo-3-Chloropropane	5.00	3.98	J	ug/L		80	57 - 135	5	22
Dibromomethane	5.00	4.71		ug/L		94	65 - 135	1	26
1,2-Dichlorobenzene	5.00	4.60		ug/L		92	65 - 135	0	20
1,3-Dichlorobenzene	5.00	4.62		ug/L		92	65 - 135	1	20
1,4-Dichlorobenzene	5.00	4.62		ug/L		92	65 - 135	1	23
trans-1,4-Dichloro-2-butene	5.00	4.91		ug/L		98	53 - 135	5	25
Dichlorodifluoromethane	5.00	4.11		ug/L		82	43 - 142	1	30
1,1-Dichloroethane	5.00	4.69		ug/L		94	65 - 135	1	21
1,2-Dichloroethane	5.00	5.23		ug/L		105	65 - 135	5	20
cis-1,2-Dichloroethene	5.00	4.45		ug/L		89	65 - 135	1	20
trans-1,2-Dichloroethene	5.00	4.70		ug/L		94	65 - 135	2	24
1,1-Dichloroethene	5.00	4.36		ug/L		87	65 - 136	1	20
1,2-Dichloropropane	5.00	4.65		ug/L		93	64 - 135	0	20
1,3-Dichloropropane	5.00	4.89		ug/L		98	64 - 135	2	20
2,2-Dichloropropane	5.00	5.09		ug/L		102	65 - 135	3	20
cis-1,3-Dichloropropene	5.00	4.66		ug/L		93	65 - 135	12	26
trans-1,3-Dichloropropene	5.00	4.70		ug/L		94	65 - 135	11	26
1,1-Dichloropropene	5.00	4.73		ug/L		95	65 - 135	3	21
Ethylbenzene	5.00	4.77		ug/L		95	65 - 135	0	20
Ethyl methacrylate	5.00	3.93		ug/L		79	50 - 135	5	30
2-Hexanone	20.0	17.4		ug/L		87	57 - 139	3	25
Iodomethane	5.00	4.63		ug/L		93	65 - 142	0	25
Isobutyl alcohol	125	121		ug/L		97	55 - 135	1	30
Methylene Chloride	5.00	4.25		ug/L		85	54 - 141	4	26
4-Methyl-2-pentanone (MIBK)	20.0	17.0		ug/L		85	60 - 150	4	22
Styrene	5.00	4.55		ug/L		91	65 - 135	0	26
1,1,1,2-Tetrachloroethane	5.00	4.98		ug/L		100	65 - 135	1	20
1,1,2,2-Tetrachloroethane	5.00	4.54		ug/L		91	58 - 135	1	20
Tetrachloroethene	5.00	4.84		ug/L		97	65 - 135	1	20
Toluene	5.00	4.82		ug/L		96	65 - 135	12	20
1,2,4-Trichlorobenzene	5.00	4.76		ug/L		95	58 - 135	2	25
1,1,1-Trichloroethane	5.00	4.98		ug/L		100	65 - 135	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-433681/6
Matrix: Water
Analysis Batch: 433681

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloroethane			5.00	4.61		ug/L		92	64 - 135	9	27
Trichloroethene			5.00	4.34		ug/L		87	65 - 135	0	20
Trichlorofluoromethane			5.00	5.32		ug/L		106	53 - 137	13	27
1,2,3-Trichloropropane			5.00	4.69		ug/L		94	65 - 135	4	23
Vinyl acetate			10.0	9.08		ug/L		91	11 - 187	4	24
Vinyl chloride			5.00	5.12		ug/L		102	40 - 137	11	24
Xylenes, Total			10.0	9.94		ug/L		99	65 - 135	1	20
1,2-Dibromoethane			5.00	4.67		ug/L		93	65 - 135	0	27

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*
Toluene-d8 (Surr)	*102*		*80 - 125*
4-Bromofluorobenzene (Surr)	*100*		*78 - 120*
Dibromofluoromethane (Surr)	*99*		*77 - 120*

Lab Sample ID: 280-115369-2 MS
Matrix: Water
Analysis Batch: 433681

Client Sample ID: MW-110D-20181007
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acetone	ND		20.0	15.8		ug/L		79	39 - 156		
Acrolein	ND		50.0	44.2		ug/L		88	36 - 147		
Acrylonitrile	ND		50.0	47.1		ug/L		94	56 - 135		
Benzene	ND		5.00	4.43		ug/L		89	65 - 135		
Chlorobromomethane	ND		5.00	4.27		ug/L		85	65 - 135		
Dichlorobromomethane	ND		5.00	4.35		ug/L		87	65 - 135		
Bromoform	ND		5.00	3.90		ug/L		78	62 - 135		
Bromomethane	ND		5.00	4.45		ug/L		89	45 - 135		
2-Butanone (MEK)	ND		20.0	16.7		ug/L		84	44 - 177		
Carbon disulfide	ND		5.00	4.21		ug/L		84	55 - 143		
Carbon tetrachloride	ND		5.00	4.01		ug/L		80	65 - 135		
Chlorobenzene	ND		5.00	4.52		ug/L		90	65 - 135		
Chlorodibromomethane	ND		5.00	4.62		ug/L		92	65 - 135		
Chloroethane	ND		5.00	4.30		ug/L		86	46 - 136		
Chloroform	ND		5.00	4.58		ug/L		92	65 - 135		
Chloromethane	ND		5.00	4.29		ug/L		86	34 - 145		
Allyl chloride	ND		5.00	4.75		ug/L		95	50 - 135		
1,2-Dibromo-3-Chloropropane	ND		5.00	3.94	J	ug/L		79	57 - 135		
Dibromomethane	ND		5.00	4.40		ug/L		88	65 - 135		
1,2-Dichlorobenzene	ND		5.00	4.27		ug/L		85	65 - 135		
1,3-Dichlorobenzene	ND		5.00	4.30		ug/L		86	65 - 135		
1,4-Dichlorobenzene	ND		5.00	4.29		ug/L		86	65 - 135		
trans-1,4-Dichloro-2-butene	ND		5.00	4.30		ug/L		86	53 - 135		
Dichlorodifluoromethane	1.1	J	5.00	4.56		ug/L		69	43 - 142		
1,1-Dichloroethane	ND		5.00	4.70		ug/L		94	65 - 135		
1,2-Dichloroethane	ND		5.00	4.62		ug/L		92	65 - 135		
cis-1,2-Dichloroethene	1.2		5.00	5.51		ug/L		86	65 - 135		
trans-1,2-Dichloroethene	ND		5.00	4.42		ug/L		88	65 - 135		

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115369-2 MS
Matrix: Water
Analysis Batch: 433681

Client Sample ID: MW-110D-20181007
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	ND		5.00	3.98		ug/L		80	65 - 136
1,2-Dichloropropane	ND		5.00	4.45		ug/L		89	64 - 135
1,3-Dichloropropane	ND		5.00	4.71		ug/L		94	64 - 135
2,2-Dichloropropane	ND		5.00	4.30		ug/L		86	65 - 135
cis-1,3-Dichloropropene	ND		5.00	4.05		ug/L		81	65 - 135
trans-1,3-Dichloropropene	ND		5.00	4.22		ug/L		84	65 - 135
1,1-Dichloropropene	ND		5.00	4.26		ug/L		85	65 - 135
Ethylbenzene	ND		5.00	4.48		ug/L		90	65 - 135
Ethyl methacrylate	ND		5.00	3.90		ug/L		78	50 - 135
2-Hexanone	ND		20.0	15.3		ug/L		76	57 - 139
Iodomethane	ND		5.00	4.10		ug/L		82	65 - 142
Isobutyl alcohol	ND		125	108	J	ug/L		86	55 - 135
Methylene Chloride	ND		5.00	4.10		ug/L		82	54 - 141
4-Methyl-2-pentanone (MIBK)	ND		20.0	15.1		ug/L		75	60 - 150
Styrene	ND		5.00	4.21		ug/L		84	65 - 135
1,1,1,2-Tetrachloroethane	ND		5.00	4.64		ug/L		93	65 - 135
1,1,2,2-Tetrachloroethane	ND		5.00	4.35		ug/L		87	58 - 135
Tetrachloroethene	0.61	J	5.00	4.98		ug/L		87	65 - 135
Toluene	0.23	J	5.00	4.52		ug/L		86	65 - 135
1,2,4-Trichlorobenzene	ND		5.00	4.01		ug/L		80	58 - 135
1,1,1-Trichloroethane	ND		5.00	4.28		ug/L		86	65 - 135
1,1,2-Trichloroethane	ND		5.00	4.35		ug/L		87	64 - 135
Trichloroethene	8.5	F1	5.00	10.9	F1	ug/L		49	65 - 135
Trichlorofluoromethane	ND		5.00	4.47		ug/L		89	53 - 137
1,2,3-Trichloropropane	ND		5.00	4.39		ug/L		88	65 - 135
Vinyl acetate	ND		10.0	8.91		ug/L		89	11 - 187
Vinyl chloride	ND		5.00	4.09		ug/L		82	40 - 137
Xylenes, Total	ND		10.0	9.23		ug/L		92	65 - 135
1,2-Dibromoethane	ND		5.00	4.27		ug/L		85	65 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 127*
Toluene-d8 (Surr)	*97*		*80 - 125*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*
Dibromofluoromethane (Surr)	*91*		*77 - 120*

Lab Sample ID: 280-115369-2 MSD
Matrix: Water
Analysis Batch: 433681

Client Sample ID: MW-110D-20181007
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	ND		20.0	19.4		ug/L		97	39 - 156	20	23
Acrolein	ND		50.0	56.5		ug/L		113	36 - 147	24	30
Acrylonitrile	ND		50.0	41.6		ug/L		83	56 - 135	12	30
Benzene	ND		5.00	4.01		ug/L		80	65 - 135	10	20
Chlorobromomethane	ND		5.00	4.14		ug/L		83	65 - 135	3	29
Dichlorobromomethane	ND		5.00	4.36		ug/L		87	65 - 135	0	20
Bromoform	ND		5.00	3.84		ug/L		77	62 - 135	1	27

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115369-2 MSD
Matrix: Water
Analysis Batch: 433681

Client Sample ID: MW-110D-20181007
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	ND		5.00	5.22		ug/L		104	45 - 135	16	33
2-Butanone (MEK)	ND		20.0	15.6		ug/L		78	44 - 177	7	32
Carbon disulfide	ND		5.00	4.80		ug/L		96	55 - 143	13	20
Carbon tetrachloride	ND		5.00	4.06		ug/L		81	65 - 135	1	21
Chlorobenzene	ND		5.00	4.01		ug/L		80	65 - 135	12	20
Chlorodibromomethane	ND		5.00	4.22		ug/L		84	65 - 135	9	20
Chloroethane	ND		5.00	5.12		ug/L		102	46 - 136	17	25
Chloroform	ND		5.00	4.43		ug/L		89	65 - 135	3	20
Chloromethane	ND		5.00	5.06		ug/L		101	34 - 145	16	24
Allyl chloride	ND		5.00	5.43		ug/L		109	50 - 135	14	30
1,2-Dibromo-3-Chloropropane	ND		5.00	3.44	J	ug/L		69	57 - 135	14	22
Dibromomethane	ND		5.00	4.24		ug/L		85	65 - 135	4	26
1,2-Dichlorobenzene	ND		5.00	4.02		ug/L		80	65 - 135	6	20
1,3-Dichlorobenzene	ND		5.00	4.03		ug/L		81	65 - 135	7	20
1,4-Dichlorobenzene	ND		5.00	4.06		ug/L		81	65 - 135	5	23
trans-1,4-Dichloro-2-butene	ND		5.00	4.04		ug/L		81	53 - 135	6	25
Dichlorodifluoromethane	1.1	J	5.00	5.30		ug/L		84	43 - 142	15	30
1,1-Dichloroethane	ND		5.00	4.33		ug/L		87	65 - 135	8	21
1,2-Dichloroethane	ND		5.00	4.86		ug/L		97	65 - 135	5	20
cis-1,2-Dichloroethene	1.2		5.00	5.06		ug/L		77	65 - 135	9	20
trans-1,2-Dichloroethene	ND		5.00	4.01		ug/L		80	65 - 135	10	24
1,1-Dichloroethene	ND		5.00	4.50		ug/L		90	65 - 136	12	20
1,2-Dichloropropane	ND		5.00	4.11		ug/L		82	64 - 135	8	20
1,3-Dichloropropane	ND		5.00	4.36		ug/L		87	64 - 135	8	20
2,2-Dichloropropane	ND		5.00	4.26		ug/L		85	65 - 135	1	20
cis-1,3-Dichloropropene	ND		5.00	3.80		ug/L		76	65 - 135	6	26
trans-1,3-Dichloropropene	ND		5.00	4.38		ug/L		88	65 - 135	4	26
1,1-Dichloropropene	ND		5.00	3.91		ug/L		78	65 - 135	9	21
Ethylbenzene	ND		5.00	3.99		ug/L		80	65 - 135	11	20
Ethyl methacrylate	ND		5.00	3.51		ug/L		70	50 - 135	11	30
2-Hexanone	ND		20.0	14.8		ug/L		74	57 - 139	3	25
Iodomethane	ND		5.00	4.79		ug/L		96	65 - 142	15	25
Isobutyl alcohol	ND		125	84.5	J	ug/L		68	55 - 135	24	30
Methylene Chloride	ND		5.00	4.77		ug/L		95	54 - 141	15	26
4-Methyl-2-pentanone (MIBK)	ND		20.0	15.4		ug/L		77	60 - 150	2	22
Styrene	ND		5.00	3.34		ug/L		67	65 - 135	23	26
1,1,1,2-Tetrachloroethane	ND		5.00	4.20		ug/L		84	65 - 135	10	20
1,1,2,2-Tetrachloroethane	ND		5.00	3.96		ug/L		79	58 - 135	9	20
Tetrachloroethene	0.61	J	5.00	4.39		ug/L		76	65 - 135	13	20
Toluene	0.23	J	5.00	4.35		ug/L		82	65 - 135	4	20
1,2,4-Trichlorobenzene	ND		5.00	3.96		ug/L		79	58 - 135	1	25
1,1,1-Trichloroethane	ND		5.00	4.26		ug/L		85	65 - 135	0	20
1,1,2-Trichloroethane	ND		5.00	4.18		ug/L		84	64 - 135	4	27
Trichloroethene	8.5	F1	5.00	10.4	F1	ug/L		37	65 - 135	5	20
Trichlorofluoromethane	ND		5.00	5.04		ug/L		101	53 - 137	12	27
1,2,3-Trichloropropane	ND		5.00	4.38		ug/L		88	65 - 135	0	23
Vinyl acetate	ND		10.0	8.15		ug/L		82	11 - 187	9	24
Vinyl chloride	ND		5.00	4.89		ug/L		98	40 - 137	18	24

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115369-2 MSD
Matrix: Water
Analysis Batch: 433681

Client Sample ID: MW-110D-20181007
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Xylenes, Total	ND		10.0	8.14		ug/L		81	65 - 135	13	20
1,2-Dibromoethane	ND		5.00	4.07		ug/L		81	65 - 135	5	27

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 127*
Toluene-d8 (Surr)	*93*		*80 - 125*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*
Dibromofluoromethane (Surr)	*96*		*77 - 120*

Lab Sample ID: MB 280-434030/8
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/18/18 20:54	1
Acetonitrile	ND		30	9.6	ug/L			10/18/18 20:54	1
Acrolein	ND		20	2.8	ug/L			10/18/18 20:54	1
Acrylonitrile	ND		20	1.4	ug/L			10/18/18 20:54	1
Benzene	ND		1.0	0.16	ug/L			10/18/18 20:54	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/18/18 20:54	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/18/18 20:54	1
Bromoform	ND		1.0	0.19	ug/L			10/18/18 20:54	1
Bromomethane	ND		2.0	0.21	ug/L			10/18/18 20:54	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/18/18 20:54	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/18/18 20:54	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/18/18 20:54	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/18/18 20:54	1
Chloroprene	ND		1.0	0.21	ug/L			10/18/18 20:54	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/18/18 20:54	1
Chloroethane	ND		2.0	0.41	ug/L			10/18/18 20:54	1
Chloroform	ND		1.0	0.16	ug/L			10/18/18 20:54	1
Chloromethane	ND		2.0	0.30	ug/L			10/18/18 20:54	1
Allyl chloride	ND		2.0	0.17	ug/L			10/18/18 20:54	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/18/18 20:54	1
Dibromomethane	ND		1.0	0.17	ug/L			10/18/18 20:54	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/18/18 20:54	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/18/18 20:54	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/18/18 20:54	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/18/18 20:54	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/18/18 20:54	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/18/18 20:54	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/18/18 20:54	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/18/18 20:54	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/18/18 20:54	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/18/18 20:54	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/18/18 20:54	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/18/18 20:54	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/18/18 20:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-434030/8
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/18/18 20:54	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/18/18 20:54	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/18/18 20:54	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/18/18 20:54	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/18/18 20:54	1
2-Hexanone	ND		5.0	1.7	ug/L			10/18/18 20:54	1
Iodomethane	ND		1.0	0.23	ug/L			10/18/18 20:54	1
Isobutyl alcohol	ND		110	37	ug/L			10/18/18 20:54	1
Methacrylonitrile	ND		10	1.6	ug/L			10/18/18 20:54	1
Methylene Chloride	0.933	J	2.0	0.32	ug/L			10/18/18 20:54	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/18/18 20:54	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/18/18 20:54	1
Propionitrile	ND		20	3.7	ug/L			10/18/18 20:54	1
Styrene	ND		1.0	0.17	ug/L			10/18/18 20:54	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/18/18 20:54	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/18/18 20:54	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/18/18 20:54	1
Toluene	ND		1.0	0.17	ug/L			10/18/18 20:54	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/18/18 20:54	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/18/18 20:54	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/18/18 20:54	1
Trichloroethene	ND		1.0	0.16	ug/L			10/18/18 20:54	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/18/18 20:54	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/18/18 20:54	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/18/18 20:54	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/18/18 20:54	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/18/18 20:54	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/18/18 20:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 127*		*10/18/18 20:54*	*1*
Toluene-d8 (Surr)	*102*		*80 - 125*		*10/18/18 20:54*	*1*
4-Bromofluorobenzene (Surr)	*100*		*78 - 120*		*10/18/18 20:54*	*1*
Dibromofluoromethane (Surr)	*119*		*77 - 120*		*10/18/18 20:54*	*1*

Lab Sample ID: LCS 280-434030/4
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	26.1		ug/L		131	39 - 156
Acrolein	50.0	54.4		ug/L		109	36 - 147
Acrylonitrile	50.0	56.2		ug/L		112	56 - 135
Benzene	5.00	5.34		ug/L		107	65 - 135
Chlorobromomethane	5.00	5.84		ug/L		117	65 - 135
Dichlorobromomethane	5.00	5.62		ug/L		112	65 - 135
Bromoform	5.00	5.67		ug/L		113	62 - 135
Bromomethane	5.00	5.79		ug/L		116	45 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-434030/4
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Butanone (MEK)	20.0	26.2		ug/L		131	44 - 177
Carbon disulfide	5.00	6.13		ug/L		123	55 - 143
Carbon tetrachloride	5.00	5.24		ug/L		105	65 - 135
Chlorobenzene	5.00	5.18		ug/L		104	65 - 135
Chlorodibromomethane	5.00	5.40		ug/L		108	65 - 135
Chloroethane	5.00	6.03		ug/L		121	46 - 136
Chloroform	5.00	5.22		ug/L		104	65 - 135
Chloromethane	5.00	6.47		ug/L		129	34 - 145
Allyl chloride	5.00	5.68		ug/L		114	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	4.72	J	ug/L		94	57 - 135
Dibromomethane	5.00	5.63		ug/L		113	65 - 135
1,2-Dichlorobenzene	5.00	4.82		ug/L		96	65 - 135
1,3-Dichlorobenzene	5.00	5.10		ug/L		102	65 - 135
1,4-Dichlorobenzene	5.00	4.74		ug/L		95	65 - 135
trans-1,4-Dichloro-2-butene	5.00	4.87		ug/L		97	53 - 135
Dichlorodifluoromethane	5.00	5.40		ug/L		108	43 - 142
1,1-Dichloroethane	5.00	5.29		ug/L		106	65 - 135
1,2-Dichloroethane	5.00	5.40		ug/L		108	65 - 135
cis-1,2-Dichloroethene	5.00	5.68		ug/L		114	65 - 135
trans-1,2-Dichloroethene	5.00	5.73		ug/L		115	65 - 135
1,1-Dichloroethene	5.00	5.77		ug/L		115	65 - 136
1,2-Dichloropropane	5.00	5.50		ug/L		110	64 - 135
1,3-Dichloropropane	5.00	4.95		ug/L		99	64 - 135
2,2-Dichloropropane	5.00	4.90		ug/L		98	65 - 135
cis-1,3-Dichloropropene	5.00	4.95		ug/L		99	65 - 135
trans-1,3-Dichloropropene	5.00	5.29		ug/L		106	65 - 135
1,1-Dichloropropene	5.00	5.00		ug/L		100	65 - 135
Ethylbenzene	5.00	4.93		ug/L		99	65 - 135
Ethyl methacrylate	5.00	4.34		ug/L		87	50 - 135
2-Hexanone	20.0	17.9		ug/L		89	57 - 139
Iodomethane	5.00	6.15		ug/L		123	65 - 142
Isobutyl alcohol	125	117		ug/L		93	55 - 135
Methylene Chloride	5.00	6.29		ug/L		126	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	21.0		ug/L		105	60 - 150
Styrene	5.00	4.65		ug/L		93	65 - 135
1,1,1,2-Tetrachloroethane	5.00	5.25		ug/L		105	65 - 135
1,1,2,2-Tetrachloroethane	5.00	5.08		ug/L		102	58 - 135
Tetrachloroethene	5.00	5.01		ug/L		100	65 - 135
Toluene	5.00	5.30		ug/L		106	65 - 135
1,2,4-Trichlorobenzene	5.00	4.94		ug/L		99	58 - 135
1,1,1-Trichloroethane	5.00	4.86		ug/L		97	65 - 135
1,1,2-Trichloroethane	5.00	5.51		ug/L		110	64 - 135
Trichloroethene	5.00	5.65		ug/L		113	65 - 135
Trichlorofluoromethane	5.00	4.90		ug/L		98	53 - 137
1,2,3-Trichloropropane	5.00	4.74		ug/L		95	65 - 135
Vinyl acetate	10.0	10.5		ug/L		105	11 - 187
Vinyl chloride	5.00	6.00		ug/L		120	40 - 137
Xylenes, Total	10.0	9.58		ug/L		96	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-434030/4
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2-Dibromoethane			5.00	5.01		ug/L		100	65 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*113*		*70 - 127*
Toluene-d8 (Surr)	*105*		*80 - 125*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*
Dibromofluoromethane (Surr)	*115*		*77 - 120*

Lab Sample ID: LCS 280-434030/6
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Acetonitrile			50.0	57.4		ug/L		115	50 - 150		
Chloroprene			5.00	4.69		ug/L		94	50 - 150		
Methacrylonitrile			50.0	49.2		ug/L		98	50 - 150		
Methyl methacrylate			10.0	13.8		ug/L		138	50 - 150		
Propionitrile			50.0	62.9		ug/L		126	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 127*
Toluene-d8 (Surr)	*99*		*80 - 125*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*
Dibromofluoromethane (Surr)	*114*		*77 - 120*

Lab Sample ID: LCSD 280-434030/5
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone			20.0	22.4		ug/L		112	39 - 156	15	23
Acrolein			50.0	50.1		ug/L		100	36 - 147	8	30
Acrylonitrile			50.0	50.9		ug/L		102	56 - 135	10	30
Benzene			5.00	4.88		ug/L		98	65 - 135	9	20
Chlorobromomethane			5.00	5.64		ug/L		113	65 - 135	3	29
Dichlorobromomethane			5.00	5.36		ug/L		107	65 - 135	5	20
Bromoform			5.00	5.45		ug/L		109	62 - 135	4	27
Bromomethane			5.00	5.22		ug/L		104	45 - 135	10	33
2-Butanone (MEK)			20.0	22.4		ug/L		112	44 - 177	16	32
Carbon disulfide			5.00	5.68		ug/L		114	55 - 143	8	20
Carbon tetrachloride			5.00	5.01		ug/L		100	65 - 135	4	21
Chlorobenzene			5.00	4.84		ug/L		97	65 - 135	7	20
Chlorodibromomethane			5.00	5.11		ug/L		102	65 - 135	6	20
Chloroethane			5.00	5.30		ug/L		106	46 - 136	13	25
Chloroform			5.00	4.88		ug/L		98	65 - 135	7	20
Chloromethane			5.00	5.83		ug/L		117	34 - 145	10	24
Allyl chloride			5.00	5.17		ug/L		103	50 - 135	9	30
1,2-Dibromo-3-Chloropropane			5.00	5.03		ug/L		101	57 - 135	6	22

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-434030/5
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibromomethane			5.00	5.11		ug/L		102	65 - 135	10	26
1,2-Dichlorobenzene			5.00	4.59		ug/L		92	65 - 135	5	20
1,3-Dichlorobenzene			5.00	4.63		ug/L		93	65 - 135	9	20
1,4-Dichlorobenzene			5.00	4.38		ug/L		88	65 - 135	8	23
trans-1,4-Dichloro-2-butene			5.00	4.27		ug/L		85	53 - 135	13	25
Dichlorodifluoromethane			5.00	4.95		ug/L		99	43 - 142	9	30
1,1-Dichloroethane			5.00	4.83		ug/L		97	65 - 135	9	21
1,2-Dichloroethane			5.00	4.83		ug/L		97	65 - 135	11	20
cis-1,2-Dichloroethene			5.00	5.18		ug/L		104	65 - 135	9	20
trans-1,2-Dichloroethene			5.00	5.37		ug/L		107	65 - 135	7	24
1,1-Dichloroethene			5.00	5.32		ug/L		106	65 - 136	8	20
1,2-Dichloropropane			5.00	5.18		ug/L		104	64 - 135	6	20
1,3-Dichloropropane			5.00	4.58		ug/L		92	64 - 135	8	20
2,2-Dichloropropane			5.00	4.61		ug/L		92	65 - 135	6	20
cis-1,3-Dichloropropene			5.00	4.47		ug/L		89	65 - 135	10	26
trans-1,3-Dichloropropene			5.00	5.06		ug/L		101	65 - 135	5	26
1,1-Dichloropropene			5.00	4.60		ug/L		92	65 - 135	8	21
Ethylbenzene			5.00	4.58		ug/L		92	65 - 135	7	20
Ethyl methacrylate			5.00	3.84		ug/L		77	50 - 135	12	30
2-Hexanone			20.0	15.7		ug/L		79	57 - 139	13	25
Iodomethane			5.00	5.79		ug/L		116	65 - 142	6	25
Isobutyl alcohol			125	109	J	ug/L		87	55 - 135	7	30
Methylene Chloride			5.00	5.67		ug/L		113	54 - 141	10	26
4-Methyl-2-pentanone (MIBK)			20.0	18.1		ug/L		91	60 - 150	15	22
Styrene			5.00	4.41		ug/L		88	65 - 135	5	26
1,1,1,2-Tetrachloroethane			5.00	4.91		ug/L		98	65 - 135	7	20
1,1,2,2-Tetrachloroethane			5.00	4.47		ug/L		89	58 - 135	13	20
Tetrachloroethene			5.00	4.74		ug/L		95	65 - 135	5	20
Toluene			5.00	4.99		ug/L		100	65 - 135	6	20
1,2,4-Trichlorobenzene			5.00	4.72		ug/L		94	58 - 135	5	25
1,1,1-Trichloroethane			5.00	4.58		ug/L		92	65 - 135	6	20
1,1,2-Trichloroethane			5.00	5.37		ug/L		107	64 - 135	3	27
Trichloroethene			5.00	5.27		ug/L		105	65 - 135	7	20
Trichlorofluoromethane			5.00	4.65		ug/L		93	53 - 137	5	27
1,2,3-Trichloropropane			5.00	4.40		ug/L		88	65 - 135	7	23
Vinyl acetate			10.0	9.52		ug/L		95	11 - 187	10	24
Vinyl chloride			5.00	5.53		ug/L		111	40 - 137	8	24
Xylenes, Total			10.0	8.78		ug/L		88	65 - 135	9	20
1,2-Dibromoethane			5.00	4.65		ug/L		93	65 - 135	7	27

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 127*
Toluene-d8 (Surr)	*101*		*80 - 125*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*
Dibromofluoromethane (Surr)	*112*		*77 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-434030/7
Matrix: Water
Analysis Batch: 434030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetonitrile			50.0	60.4		ug/L		121	50 - 150	5	30
Chloroprene			5.00	4.95		ug/L		99	50 - 150	6	30
Methacrylonitrile			50.0	50.6		ug/L		101	50 - 150	3	30
Methyl methacrylate			10.0	14.1		ug/L		141	50 - 150	2	30
Propionitrile			50.0	60.1		ug/L		120	50 - 150	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 127*
Toluene-d8 (Surr)	*98*		*80 - 125*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*
Dibromofluoromethane (Surr)	*116*		*77 - 120*

Lab Sample ID: MB 280-434216/8
Matrix: Water
Analysis Batch: 434216

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			10/19/18 19:55	1
Acetonitrile	ND		30	9.6	ug/L			10/19/18 19:55	1
Acrolein	ND		20	2.8	ug/L			10/19/18 19:55	1
Acrylonitrile	ND		20	1.4	ug/L			10/19/18 19:55	1
Benzene	ND		1.0	0.16	ug/L			10/19/18 19:55	1
Chlorobromomethane	ND		1.0	0.10	ug/L			10/19/18 19:55	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			10/19/18 19:55	1
Bromoform	ND		1.0	0.19	ug/L			10/19/18 19:55	1
Bromomethane	ND		2.0	0.21	ug/L			10/19/18 19:55	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			10/19/18 19:55	1
Carbon disulfide	ND		2.0	0.45	ug/L			10/19/18 19:55	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			10/19/18 19:55	1
Chlorobenzene	ND		1.0	0.17	ug/L			10/19/18 19:55	1
Chloroprene	ND		1.0	0.21	ug/L			10/19/18 19:55	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			10/19/18 19:55	1
Chloroethane	ND		2.0	0.41	ug/L			10/19/18 19:55	1
Chloroform	ND		1.0	0.16	ug/L			10/19/18 19:55	1
Chloromethane	ND		2.0	0.30	ug/L			10/19/18 19:55	1
Allyl chloride	ND		2.0	0.17	ug/L			10/19/18 19:55	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			10/19/18 19:55	1
Dibromomethane	ND		1.0	0.17	ug/L			10/19/18 19:55	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			10/19/18 19:55	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			10/19/18 19:55	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			10/19/18 19:55	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			10/19/18 19:55	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			10/19/18 19:55	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			10/19/18 19:55	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			10/19/18 19:55	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/19/18 19:55	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			10/19/18 19:55	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			10/19/18 19:55	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-434216/8
Matrix: Water
Analysis Batch: 434216

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/19/18 19:55	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			10/19/18 19:55	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			10/19/18 19:55	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			10/19/18 19:55	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			10/19/18 19:55	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			10/19/18 19:55	1
Ethylbenzene	ND		1.0	0.16	ug/L			10/19/18 19:55	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			10/19/18 19:55	1
2-Hexanone	ND		5.0	1.7	ug/L			10/19/18 19:55	1
Iodomethane	ND		1.0	0.23	ug/L			10/19/18 19:55	1
Isobutyl alcohol	ND		110	37	ug/L			10/19/18 19:55	1
Methacrylonitrile	ND		10	1.6	ug/L			10/19/18 19:55	1
Methylene Chloride	0.510	J	2.0	0.32	ug/L			10/19/18 19:55	1
Methyl methacrylate	ND		4.0	1.1	ug/L			10/19/18 19:55	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			10/19/18 19:55	1
Propionitrile	ND		20	3.7	ug/L			10/19/18 19:55	1
Styrene	ND		1.0	0.17	ug/L			10/19/18 19:55	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/19/18 19:55	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			10/19/18 19:55	1
Tetrachloroethene	ND		1.0	0.20	ug/L			10/19/18 19:55	1
Toluene	ND		1.0	0.17	ug/L			10/19/18 19:55	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			10/19/18 19:55	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			10/19/18 19:55	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			10/19/18 19:55	1
Trichloroethene	ND		1.0	0.16	ug/L			10/19/18 19:55	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			10/19/18 19:55	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			10/19/18 19:55	1
Vinyl acetate	ND		3.0	0.94	ug/L			10/19/18 19:55	1
Vinyl chloride	ND		1.0	0.10	ug/L			10/19/18 19:55	1
Xylenes, Total	ND		2.0	0.19	ug/L			10/19/18 19:55	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			10/19/18 19:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*70 - 127*		*10/19/18 19:55*	*1*
Toluene-d8 (Surr)	*100*		*80 - 125*		*10/19/18 19:55*	*1*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*		*10/19/18 19:55*	*1*
Dibromofluoromethane (Surr)	*120*		*77 - 120*		*10/19/18 19:55*	*1*

Lab Sample ID: LCS 280-434216/4
Matrix: Water
Analysis Batch: 434216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	23.0		ug/L		115	39 - 156
Acrolein	50.0	52.9		ug/L		106	36 - 147
Acrylonitrile	50.0	54.5		ug/L		109	56 - 135
Benzene	5.00	5.19		ug/L		104	65 - 135
Chlorobromomethane	5.00	6.03		ug/L		121	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-434216/4
Matrix: Water
Analysis Batch: 434216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorobromomethane	5.00	5.39		ug/L		108	65 - 135
Bromoform	5.00	5.42		ug/L		108	62 - 135
Bromomethane	5.00	5.35		ug/L		107	45 - 135
2-Butanone (MEK)	20.0	23.5		ug/L		117	44 - 177
Carbon disulfide	5.00	6.11		ug/L		122	55 - 143
Carbon tetrachloride	5.00	5.58		ug/L		112	65 - 135
Chlorobenzene	5.00	4.86		ug/L		97	65 - 135
Chlorodibromomethane	5.00	5.25		ug/L		105	65 - 135
Chloroethane	5.00	5.64		ug/L		113	46 - 136
Chloroform	5.00	5.08		ug/L		102	65 - 135
Chloromethane	5.00	6.04		ug/L		121	34 - 145
Allyl chloride	5.00	5.54		ug/L		111	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	4.56	J	ug/L		91	57 - 135
Dibromomethane	5.00	5.41		ug/L		108	65 - 135
1,2-Dichlorobenzene	5.00	4.69		ug/L		94	65 - 135
1,3-Dichlorobenzene	5.00	4.84		ug/L		97	65 - 135
1,4-Dichlorobenzene	5.00	4.52		ug/L		90	65 - 135
trans-1,4-Dichloro-2-butene	5.00	4.49		ug/L		90	53 - 135
Dichlorodifluoromethane	5.00	5.53		ug/L		111	43 - 142
1,1-Dichloroethane	5.00	5.26		ug/L		105	65 - 135
1,2-Dichloroethane	5.00	5.13		ug/L		103	65 - 135
cis-1,2-Dichloroethene	5.00	5.50		ug/L		110	65 - 135
trans-1,2-Dichloroethene	5.00	5.90		ug/L		118	65 - 135
1,1-Dichloroethene	5.00	5.85		ug/L		117	65 - 136
1,2-Dichloropropane	5.00	5.41		ug/L		108	64 - 135
1,3-Dichloropropane	5.00	4.68		ug/L		94	64 - 135
2,2-Dichloropropane	5.00	5.04		ug/L		101	65 - 135
cis-1,3-Dichloropropene	5.00	4.63		ug/L		93	65 - 135
trans-1,3-Dichloropropene	5.00	5.25		ug/L		105	65 - 135
1,1-Dichloropropene	5.00	5.03		ug/L		101	65 - 135
Ethylbenzene	5.00	4.67		ug/L		93	65 - 135
Ethyl methacrylate	5.00	3.88		ug/L		78	50 - 135
2-Hexanone	20.0	15.6		ug/L		78	57 - 139
Iodomethane	5.00	6.10		ug/L		122	65 - 142
Isobutyl alcohol	125	120		ug/L		96	55 - 135
Methylene Chloride	5.00	5.91		ug/L		118	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	19.9		ug/L		99	60 - 150
Styrene	5.00	4.42		ug/L		88	65 - 135
1,1,1,2-Tetrachloroethane	5.00	4.95		ug/L		99	65 - 135
1,1,2,2-Tetrachloroethane	5.00	4.60		ug/L		92	58 - 135
Tetrachloroethene	5.00	5.13		ug/L		103	65 - 135
Toluene	5.00	5.35		ug/L		107	65 - 135
1,2,4-Trichlorobenzene	5.00	4.70		ug/L		94	58 - 135
1,1,1-Trichloroethane	5.00	5.01		ug/L		100	65 - 135
1,1,2-Trichloroethane	5.00	5.62		ug/L		112	64 - 135
Trichloroethene	5.00	5.64		ug/L		113	65 - 135
Trichlorofluoromethane	5.00	5.14		ug/L		103	53 - 137
1,2,3-Trichloropropane	5.00	4.60		ug/L		92	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-434216/4
Matrix: Water
Analysis Batch: 434216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl acetate	10.0	10.3		ug/L		103	11 - 187
Vinyl chloride	5.00	5.98		ug/L		120	40 - 137
Xylenes, Total	10.0	9.02		ug/L		90	65 - 135
1,2-Dibromoethane	5.00	4.74		ug/L		95	65 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 127*
Toluene-d8 (Surr)	*99*		*80 - 125*
4-Bromofluorobenzene (Surr)	*96*		*78 - 120*
Dibromofluoromethane (Surr)	*112*		*77 - 120*

Lab Sample ID: LCS 280-434216/6
Matrix: Water
Analysis Batch: 434216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	50.0	56.9		ug/L		114	50 - 150
Chloroprene	5.00	5.39		ug/L		108	50 - 150
Methacrylonitrile	50.0	52.5		ug/L		105	50 - 150
Methyl methacrylate	10.0	14.0		ug/L		140	50 - 150
Propionitrile	50.0	66.1		ug/L		132	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 127*
Toluene-d8 (Surr)	*101*		*80 - 125*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*
Dibromofluoromethane (Surr)	*119*		*77 - 120*

Lab Sample ID: LCSD 280-434216/5
Matrix: Water
Analysis Batch: 434216

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	26.7		ug/L		133	39 - 156	15	23
Acrolein	50.0	52.4		ug/L		105	36 - 147	1	30
Acrylonitrile	50.0	55.3		ug/L		111	56 - 135	2	30
Benzene	5.00	5.18		ug/L		104	65 - 135	0	20
Chlorobromomethane	5.00	6.05		ug/L		121	65 - 135	0	29
Dichlorobromomethane	5.00	5.38		ug/L		108	65 - 135	0	20
Bromoform	5.00	5.47		ug/L		109	62 - 135	1	27
Bromomethane	5.00	5.42		ug/L		108	45 - 135	1	33
2-Butanone (MEK)	20.0	25.6		ug/L		128	44 - 177	9	32
Carbon disulfide	5.00	6.05		ug/L		121	55 - 143	1	20
Carbon tetrachloride	5.00	5.38		ug/L		108	65 - 135	4	21
Chlorobenzene	5.00	5.05		ug/L		101	65 - 135	4	20
Chlorodibromomethane	5.00	5.46		ug/L		109	65 - 135	4	20
Chloroethane	5.00	5.52		ug/L		110	46 - 136	2	25
Chloroform	5.00	5.16		ug/L		103	65 - 135	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-434216/5
Matrix: Water
Analysis Batch: 434216

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloromethane			5.00	6.09		ug/L		122	34 - 145	1	24
Allyl chloride			5.00	5.44		ug/L		109	50 - 135	2	30
1,2-Dibromo-3-Chloropropane			5.00	4.65	J	ug/L		93	57 - 135	2	22
Dibromomethane			5.00	5.54		ug/L		111	65 - 135	2	26
1,2-Dichlorobenzene			5.00	4.67		ug/L		93	65 - 135	0	20
1,3-Dichlorobenzene			5.00	4.85		ug/L		97	65 - 135	0	20
1,4-Dichlorobenzene			5.00	4.54		ug/L		91	65 - 135	0	23
trans-1,4-Dichloro-2-butene			5.00	4.57		ug/L		91	53 - 135	2	25
Dichlorodifluoromethane			5.00	5.14		ug/L		103	43 - 142	7	30
1,1-Dichloroethane			5.00	5.23		ug/L		105	65 - 135	1	21
1,2-Dichloroethane			5.00	5.27		ug/L		105	65 - 135	3	20
cis-1,2-Dichloroethene			5.00	5.77		ug/L		115	65 - 135	5	20
trans-1,2-Dichloroethene			5.00	5.83		ug/L		117	65 - 135	1	24
1,1-Dichloroethene			5.00	5.66		ug/L		113	65 - 136	3	20
1,2-Dichloropropane			5.00	5.56		ug/L		111	64 - 135	3	20
1,3-Dichloropropane			5.00	4.81		ug/L		96	64 - 135	3	20
2,2-Dichloropropane			5.00	4.91		ug/L		98	65 - 135	3	20
cis-1,3-Dichloropropene			5.00	4.88		ug/L		98	65 - 135	5	26
trans-1,3-Dichloropropene			5.00	5.45		ug/L		109	65 - 135	4	26
1,1-Dichloropropene			5.00	4.98		ug/L		100	65 - 135	1	21
Ethylbenzene			5.00	4.86		ug/L		97	65 - 135	4	20
Ethyl methacrylate			5.00	4.16		ug/L		83	50 - 135	7	30
2-Hexanone			20.0	16.8		ug/L		84	57 - 139	7	25
Iodomethane			5.00	6.31		ug/L		126	65 - 142	3	25
Isobutyl alcohol			125	114		ug/L		91	55 - 135	5	30
Methylene Chloride			5.00	6.01		ug/L		120	54 - 141	2	26
4-Methyl-2-pentanone (MIBK)			20.0	20.5		ug/L		103	60 - 150	3	22
Styrene			5.00	4.50		ug/L		90	65 - 135	2	26
1,1,1,2-Tetrachloroethane			5.00	5.08		ug/L		102	65 - 135	2	20
1,1,2,2-Tetrachloroethane			5.00	4.58		ug/L		92	58 - 135	0	20
Tetrachloroethene			5.00	4.99		ug/L		100	65 - 135	3	20
Toluene			5.00	5.34		ug/L		107	65 - 135	0	20
1,2,4-Trichlorobenzene			5.00	4.73		ug/L		95	58 - 135	1	25
1,1,1-Trichloroethane			5.00	4.94		ug/L		99	65 - 135	1	20
1,1,2-Trichloroethane			5.00	5.58		ug/L		112	64 - 135	1	27
Trichloroethene			5.00	5.55		ug/L		111	65 - 135	2	20
Trichlorofluoromethane			5.00	5.04		ug/L		101	53 - 137	2	27
1,2,3-Trichloropropane			5.00	4.70		ug/L		94	65 - 135	2	23
Vinyl acetate			10.0	10.5		ug/L		105	11 - 187	2	24
Vinyl chloride			5.00	5.77		ug/L		115	40 - 137	4	24
Xylenes, Total			10.0	9.27		ug/L		93	65 - 135	3	20
1,2-Dibromoethane			5.00	4.71		ug/L		94	65 - 135	1	27

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 127*
Toluene-d8 (Surr)	*102*		*80 - 125*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*
Dibromofluoromethane (Surr)	*116*		*77 - 120*

Lab Sample ID: LCSD 280-434216/7
Matrix: Water
Analysis Batch: 434216

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetonitrile			50.0	53.9		ug/L		108	50 - 150	6	30
Chloroprene			5.00	4.98		ug/L		100	50 - 150	8	30
Methacrylonitrile			50.0	52.8		ug/L		106	50 - 150	1	30
Methyl methacrylate			10.0	14.8		ug/L		148	50 - 150	6	30
Propionitrile			50.0	64.6		ug/L		129	50 - 150	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 127*
Toluene-d8 (Surr)	*99*		*80 - 125*
4-Bromofluorobenzene (Surr)	*96*		*78 - 120*
Dibromofluoromethane (Surr)	*118*		*77 - 120*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-433120/1-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433120

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		10	1.7	ug/L		10/12/18 11:51	10/17/18 15:48	1
1,3,5-Trinitrobenzene	ND		50	4.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
1,3-Dinitrobenzene	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
1,4-Naphthoquinone	ND		50	14	ug/L		10/12/18 11:51	10/17/18 15:48	1
1-Naphthylamine	ND		10	3.1	ug/L		10/12/18 11:51	10/17/18 15:48	1
2,3,4,6-Tetrachlorophenol	ND		50	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
2,4,5-Trichlorophenol	ND		10	0.45	ug/L		10/12/18 11:51	10/17/18 15:48	1
2,4,6-Trichlorophenol	ND		10	0.29	ug/L		10/12/18 11:51	10/17/18 15:48	1
2,4-Dichlorophenol	ND		10	0.64	ug/L		10/12/18 11:51	10/17/18 15:48	1
2,4-Dimethylphenol	ND		10	0.58	ug/L		10/12/18 11:51	10/17/18 15:48	1
2,4-Dinitrophenol	ND		30	10	ug/L		10/12/18 11:51	10/17/18 15:48	1
2,4-Dinitrotoluene	ND		10	1.7	ug/L		10/12/18 11:51	10/17/18 15:48	1
2,6-Dichlorophenol	ND		10	1.4	ug/L		10/12/18 11:51	10/17/18 15:48	1
2,6-Dinitrotoluene	ND		10	1.9	ug/L		10/12/18 11:51	10/17/18 15:48	1
2-Acetylaminofluorene	ND		100	7.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
2-Chloronaphthalene	ND		4.0	0.26	ug/L		10/12/18 11:51	10/17/18 15:48	1
2-Chlorophenol	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
2-Methylnaphthalene	ND		4.0	0.29	ug/L		10/12/18 11:51	10/17/18 15:48	1
2-Methylphenol	ND		10	0.98	ug/L		10/12/18 11:51	10/17/18 15:48	1
2-Naphthylamine	ND		10	3.1	ug/L		10/12/18 11:51	10/17/18 15:48	1
2-Nitroaniline	ND		10	1.7	ug/L		10/12/18 11:51	10/17/18 15:48	1
2-Nitrophenol	ND		10	0.39	ug/L		10/12/18 11:51	10/17/18 15:48	1
3 & 4 Methylphenol	ND		10	0.25	ug/L		10/12/18 11:51	10/17/18 15:48	1
3,3'-Dichlorobenzidine	ND		50	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
3,3'-Dimethylbenzidine	ND		20	4.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
3-Methylcholanthrene	ND		20	1.7	ug/L		10/12/18 11:51	10/17/18 15:48	1
3-Nitroaniline	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
4,6-Dinitro-2-methylphenol	ND		50	4.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
4-Aminobiphenyl	ND		50	4.5	ug/L		10/12/18 11:51	10/17/18 15:48	1
4-Bromophenyl phenyl ether	ND		10	0.43	ug/L		10/12/18 11:51	10/17/18 15:48	1
4-Chloro-3-methylphenol	ND		10	2.4	ug/L		10/12/18 11:51	10/17/18 15:48	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433120/1-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433120

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chloroaniline	ND		10	2.1	ug/L		10/12/18 11:51	10/17/18 15:48	1
4-Chlorophenyl phenyl ether	ND		10	1.7	ug/L		10/12/18 11:51	10/17/18 15:48	1
4-Nitroaniline	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
4-Nitrophenol	ND		10	1.2	ug/L		10/12/18 11:51	10/17/18 15:48	1
5-Nitro-o-toluidine	ND		20	1.4	ug/L		10/12/18 11:51	10/17/18 15:48	1
7,12-Dimethylbenz(a)anthracene	ND		20	1.6	ug/L		10/12/18 11:51	10/17/18 15:48	1
a,a-Dimethylphenethylamine	ND		50	20	ug/L		10/12/18 11:51	10/17/18 15:48	1
Acenaphthene	ND		4.0	0.28	ug/L		10/12/18 11:51	10/17/18 15:48	1
Acenaphthylene	ND		4.0	0.49	ug/L		10/12/18 11:51	10/17/18 15:48	1
Acetophenone	ND		10	0.24	ug/L		10/12/18 11:51	10/17/18 15:48	1
Anthracene	ND		4.0	0.42	ug/L		10/12/18 11:51	10/17/18 15:48	1
Benzo[a]anthracene	ND		4.0	0.35	ug/L		10/12/18 11:51	10/17/18 15:48	1
Benzo[a]pyrene	ND		4.0	0.31	ug/L		10/12/18 11:51	10/17/18 15:48	1
Benzo[b]fluoranthene	ND		4.0	0.53	ug/L		10/12/18 11:51	10/17/18 15:48	1
Benzo[g,h,i]perylene	ND		4.0	0.50	ug/L		10/12/18 11:51	10/17/18 15:48	1
Benzo[k]fluoranthene	ND		4.0	0.46	ug/L		10/12/18 11:51	10/17/18 15:48	1
Benzyl alcohol	ND		10	0.23	ug/L		10/12/18 11:51	10/17/18 15:48	1
Bis(2-chloroethoxy)methane	ND		10	0.97	ug/L		10/12/18 11:51	10/17/18 15:48	1
Bis(2-chloroethyl)ether	ND		10	0.41	ug/L		10/12/18 11:51	10/17/18 15:48	1
Bis(2-ethylhexyl) phthalate	ND		10	0.56	ug/L		10/12/18 11:51	10/17/18 15:48	1
bis(chloroisopropyl) ether	ND		10	0.28	ug/L		10/12/18 11:51	10/17/18 15:48	1
Butyl benzyl phthalate	ND		4.0	1.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
Chlorobenzilate	ND		10	0.66	ug/L		10/12/18 11:51	10/17/18 15:48	1
Chrysene	ND		4.0	0.54	ug/L		10/12/18 11:51	10/17/18 15:48	1
Diallate	ND		5.6	0.56	ug/L		10/12/18 11:51	10/17/18 15:48	1
Dibenz(a,h)anthracene	ND		4.0	0.51	ug/L		10/12/18 11:51	10/17/18 15:48	1
Dibenzofuran	ND		4.0	0.29	ug/L		10/12/18 11:51	10/17/18 15:48	1
Diethyl phthalate	ND		4.0	0.38	ug/L		10/12/18 11:51	10/17/18 15:48	1
Dimethyl phthalate	ND		4.0	0.21	ug/L		10/12/18 11:51	10/17/18 15:48	1
Di-n-butyl phthalate	ND		4.0	1.2	ug/L		10/12/18 11:51	10/17/18 15:48	1
Di-n-octyl phthalate	ND		4.0	0.35	ug/L		10/12/18 11:51	10/17/18 15:48	1
Diphenylamine	ND		10	1.1	ug/L		10/12/18 11:51	10/17/18 15:48	1
Ethyl methanesulfonate	ND		10	0.94	ug/L		10/12/18 11:51	10/17/18 15:48	1
Fluoranthene	ND		4.0	0.20	ug/L		10/12/18 11:51	10/17/18 15:48	1
Fluorene	ND		4.0	0.31	ug/L		10/12/18 11:51	10/17/18 15:48	1
Hexachlorobenzene	ND		10	0.66	ug/L		10/12/18 11:51	10/17/18 15:48	1
Hexachlorobutadiene	ND		10	3.3	ug/L		10/12/18 11:51	10/17/18 15:48	1
Hexachlorocyclopentadiene	ND		50	10	ug/L		10/12/18 11:51	10/17/18 15:48	1
Hexachloroethane	ND		10	2.1	ug/L		10/12/18 11:51	10/17/18 15:48	1
Hexachloropropene	ND		100	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
Indeno[1,2,3-cd]pyrene	ND		4.0	0.65	ug/L		10/12/18 11:51	10/17/18 15:48	1
Isophorone	ND		10	0.21	ug/L		10/12/18 11:51	10/17/18 15:48	1
Isosafrole	ND		3.5	1.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
Methapyrilene	ND		50	20	ug/L		10/12/18 11:51	10/17/18 15:48	1
Methyl methanesulfonate	ND		10	1.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
Naphthalene	ND		4.0	0.29	ug/L		10/12/18 11:51	10/17/18 15:48	1
Nitrobenzene	ND		10	0.81	ug/L		10/12/18 11:51	10/17/18 15:48	1
N-Nitrosodiethylamine	ND		10	1.7	ug/L		10/12/18 11:51	10/17/18 15:48	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433120/1-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433120

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosodimethylamine	ND		10	0.29	ug/L		10/12/18 11:51	10/17/18 15:48	1
N-Nitrosodi-n-butylamine	ND		10	1.2	ug/L		10/12/18 11:51	10/17/18 15:48	1
N-Nitrosodi-n-propylamine	ND		10	0.35	ug/L		10/12/18 11:51	10/17/18 15:48	1
n-Nitrosodiphenylamine(as diphenylamine)	ND		10	0.44	ug/L		10/12/18 11:51	10/17/18 15:48	1
N-Nitrosomethylethylamine	ND		10	1.8	ug/L		10/12/18 11:51	10/17/18 15:48	1
N-Nitrosopiperidine	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
N-Nitrosopyrrolidine	ND		10	0.80	ug/L		10/12/18 11:51	10/17/18 15:48	1
o,o',o''-Triethylphosphorothioate	ND		50	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
o-Toluidine	ND		10	1.4	ug/L		10/12/18 11:51	10/17/18 15:48	1
p-Dimethylamino azobenzene	ND		20	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
Pentachlorobenzene	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
Pentachloronitrobenzene	ND		50	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
Pentachlorophenol	ND		50	20	ug/L		10/12/18 11:51	10/17/18 15:48	1
Phenacetin	ND		20	1.1	ug/L		10/12/18 11:51	10/17/18 15:48	1
Phenanthrene	ND		4.0	0.26	ug/L		10/12/18 11:51	10/17/18 15:48	1
Phenol	ND		10	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
p-Phenylene diamine	ND		100	5.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
Pronamide	ND		20	2.0	ug/L		10/12/18 11:51	10/17/18 15:48	1
Pyrene	ND		10	0.37	ug/L		10/12/18 11:51	10/17/18 15:48	1
Safrole, Total	ND		20	1.1	ug/L		10/12/18 11:51	10/17/18 15:48	1
Thionazin	ND		50	0.86	ug/L		10/12/18 11:51	10/17/18 15:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*67*		*48 - 135*	*10/12/18 11:51*	*10/17/18 15:48*	*1*
2-Fluorobiphenyl	*76*		*48 - 135*	*10/12/18 11:51*	*10/17/18 15:48*	*1*
2-Fluorophenol	*90*		*41 - 135*	*10/12/18 11:51*	*10/17/18 15:48*	*1*
Nitrobenzene-d5	*77*		*42 - 135*	*10/12/18 11:51*	*10/17/18 15:48*	*1*
Phenol-d5	*80*		*46 - 135*	*10/12/18 11:51*	*10/17/18 15:48*	*1*
Terphenyl-d14	*83*		*20 - 135*	*10/12/18 11:51*	*10/17/18 15:48*	*1*

Lab Sample ID: LCS 280-433120/2-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4,5-Tetrachlorobenzene	80.0	58.8		ug/L		74	57 - 117
1,3-Dinitrobenzene	80.0	71.1		ug/L		89	65 - 135
2,3,4,6-Tetrachlorophenol	80.0	62.3		ug/L		78	64 - 128
2,4,5-Trichlorophenol	80.0	61.7		ug/L		77	60 - 129
2,4,6-Trichlorophenol	80.0	63.4		ug/L		79	60 - 137
2,4-Dichlorophenol	80.0	71.7		ug/L		90	62 - 119
2,4-Dimethylphenol	80.0	61.9		ug/L		77	33 - 117
2,4-Dinitrophenol	160	115		ug/L		72	56 - 121
2,4-Dinitrotoluene	80.0	71.9		ug/L		90	65 - 135
2,6-Dichlorophenol	80.0	65.2		ug/L		81	63 - 118
2,6-Dinitrotoluene	80.0	68.5		ug/L		86	65 - 135
2-Chloronaphthalene	80.0	59.9		ug/L		75	51 - 128

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433120/2-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chlorophenol	80.0	65.2		ug/L		81	54 - 124
2-Methylnaphthalene	80.0	58.4		ug/L		73	53 - 119
2-Methylphenol	80.0	59.2		ug/L		74	55 - 123
2-Nitroaniline	80.0	71.8		ug/L		90	57 - 133
2-Nitrophenol	80.0	68.7		ug/L		86	61 - 121
3 & 4 Methylphenol	80.0	65.2		ug/L		81	51 - 124
3,3'-Dichlorobenzidine	160	109		ug/L		68	43 - 104
3-Nitroaniline	80.0	52.6		ug/L		66	27 - 111
4,6-Dinitro-2-methylphenol	160	145		ug/L		91	63 - 122
4-Bromophenyl phenyl ether	80.0	64.8		ug/L		81	65 - 115
4-Chloro-3-methylphenol	80.0	66.4		ug/L		83	65 - 121
4-Chloroaniline	80.0	49.6		ug/L		62	30 - 99
4-Chlorophenyl phenyl ether	80.0	65.1		ug/L		81	56 - 130
4-Nitroaniline	80.0	64.9		ug/L		81	54 - 128
4-Nitrophenol	160	142		ug/L		89	50 - 140
Acenaphthene	80.0	65.7		ug/L		82	54 - 129
Acenaphthylene	80.0	67.6		ug/L		84	55 - 123
Acetophenone	80.0	65.2		ug/L		81	46 - 127
Anthracene	80.0	65.6		ug/L		82	65 - 116
Benzo[a]anthracene	80.0	63.4		ug/L		79	63 - 120
Benzo[a]pyrene	80.0	65.6		ug/L		82	62 - 114
Benzo[b]fluoranthene	80.0	59.8		ug/L		75	64 - 122
Benzo[g,h,i]perylene	80.0	66.8		ug/L		84	60 - 122
Benzo[k]fluoranthene	80.0	65.5		ug/L		82	69 - 125
Benzyl alcohol	80.0	63.2		ug/L		79	54 - 124
Bis(2-chloroethoxy)methane	80.0	71.4		ug/L		89	62 - 114
Bis(2-chloroethyl)ether	80.0	66.6		ug/L		83	53 - 132
Bis(2-ethylhexyl) phthalate	80.0	71.3		ug/L		89	61 - 123
bis(chloroisopropyl) ether	80.0	62.3		ug/L		78	44 - 132
Butyl benzyl phthalate	80.0	67.6		ug/L		84	64 - 121
Chrysene	80.0	67.5		ug/L		84	65 - 122
Dibenz(a,h)anthracene	80.0	62.9		ug/L		79	60 - 120
Dibenzofuran	80.0	65.4		ug/L		82	56 - 128
Diethyl phthalate	80.0	70.0		ug/L		88	60 - 133
Dimethyl phthalate	80.0	68.2		ug/L		85	59 - 131
Di-n-butyl phthalate	80.0	67.7		ug/L		85	65 - 118
Di-n-octyl phthalate	80.0	56.8		ug/L		71	56 - 119
Diphenylamine	68.0	55.1		ug/L		81	60 - 124
Fluoranthene	80.0	64.0		ug/L		80	65 - 118
Fluorene	80.0	65.0		ug/L		81	51 - 133
Hexachlorobenzene	80.0	65.0		ug/L		81	65 - 114
Hexachlorobutadiene	80.0	49.9		ug/L		62	36 - 118
Hexachlorocyclopentadiene	160	65.2		ug/L		41	10 - 106
Hexachloroethane	80.0	49.6		ug/L		62	27 - 123
Indeno[1,2,3-cd]pyrene	80.0	55.5		ug/L		69	53 - 116
Isophorone	80.0	69.8		ug/L		87	58 - 111
Naphthalene	80.0	58.7		ug/L		73	50 - 119
Nitrobenzene	80.0	75.5		ug/L		94	59 - 117

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433120/2-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
N-Nitrosodimethylamine	80.0	62.2		ug/L		78	48 - 121
N-Nitrosodi-n-propylamine	80.0	66.1		ug/L		83	57 - 117
n-Nitrosodiphenylamine(as diphenylamine)	80.0	67.6		ug/L		85	63 - 116
Pentachlorophenol	160	113		ug/L		71	56 - 115
Phenanthrene	80.0	66.2		ug/L		83	63 - 119
Phenol	80.0	70.4		ug/L		88	50 - 127
Pyrene	80.0	69.8		ug/L		87	59 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*73*		*48 - 135*
2-Fluorobiphenyl	*73*		*48 - 135*
2-Fluorophenol	*81*		*41 - 135*
Nitrobenzene-d5	*88*		*42 - 135*
Phenol-d5	*81*		*46 - 135*
Terphenyl-d14	*78*		*20 - 135*

Lab Sample ID: LCS 280-433120/4-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trinitrobenzene	80.0	73.5		ug/L		92	62 - 121
1,4-Naphthoquinone	80.0	74.8		ug/L		94	57 - 131
1-Naphthylamine	80.0	53.3		ug/L		67	33 - 109
2-Acetylaminofluorene	80.0	80.7	J	ug/L		101	70 - 125
2-Naphthylamine	80.0	60.0		ug/L		75	41 - 104
3,3'-Dimethylbenzidine	80.0	49.6		ug/L		62	10 - 90
3-Methylcholanthrene	80.0	44.4		ug/L		56	39 - 108
4-Aminobiphenyl	80.0	50.9		ug/L		64	41 - 101
5-Nitro-o-toluidine	80.0	68.7		ug/L		86	46 - 113
7,12-Dimethylbenz(a)anthracene	80.0	68.1		ug/L		85	42 - 119
a,a-Dimethylphenethylamine	80.0	26.7	J	ug/L		33	17 - 94
Chlorobenzilate	80.0	77.5		ug/L		97	70 - 124
Diallate	80.0	88.9		ug/L		111	65 - 117
Ethyl methanesulfonate	80.0	75.7		ug/L		95	57 - 115
Hexachloropropene	80.0	50.1	J	ug/L		63	29 - 96
Isosafrole	80.0	69.6		ug/L		87	46 - 120
Methapyrilene	79.4	53.5		ug/L		67	10 - 106
Methyl methanesulfonate	80.0	75.8		ug/L		95	42 - 116
N-Nitrosodiethylamine	80.0	81.8		ug/L		102	62 - 115
N-Nitrosodi-n-butylamine	80.0	80.3		ug/L		100	66 - 117
N-Nitrosomethylethylamine	80.0	83.1		ug/L		104	57 - 117
N-Nitrosopiperidine	80.0	74.5		ug/L		93	67 - 112
N-Nitrosopyrrolidine	80.0	79.6		ug/L		100	65 - 114
o,o',o''-Triethylphosphorothioate	80.0	69.5		ug/L		87	65 - 114
o-Toluidine	80.0	66.8		ug/L		83	41 - 104
p-Dimethylamino azobenzene	80.0	86.2		ug/L		108	65 - 128

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433120/4-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorobenzene	80.0	67.5		ug/L		84	61 - 125
Pentachloronitrobenzene	80.0	80.0		ug/L		100	67 - 123
Phenacetin	80.0	83.4		ug/L		104	68 - 122
p-Phenylene diamine	80.0	33.2	J	ug/L		41	10 - 63
Pronamide	80.0	80.7		ug/L		101	72 - 118
Safrole, Total	80.0	70.1		ug/L		88	65 - 111
Thionazin	80.0	87.3		ug/L		109	66 - 128

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*71*		*48 - 135*
2-Fluorobiphenyl	*82*		*48 - 135*
2-Fluorophenol	*94*		*41 - 135*
Nitrobenzene-d5	*81*		*42 - 135*
Phenol-d5	*94*		*46 - 135*
Terphenyl-d14	*83*		*20 - 135*

Lab Sample ID: LCSD 280-433120/3-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433120

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4,5-Tetrachlorobenzene	80.0	50.3		ug/L		63	57 - 117	16	30
1,3-Dinitrobenzene	80.0	70.8		ug/L		88	65 - 135	0	30
2,3,4,6-Tetrachlorophenol	80.0	63.3		ug/L		79	64 - 128	2	30
2,4,5-Trichlorophenol	80.0	66.6		ug/L		83	60 - 129	8	30
2,4,6-Trichlorophenol	80.0	68.5		ug/L		86	60 - 137	8	30
2,4-Dichlorophenol	80.0	66.7		ug/L		83	62 - 119	7	30
2,4-Dimethylphenol	80.0	58.4		ug/L		73	33 - 117	6	30
2,4-Dinitrophenol	160	120		ug/L		75	56 - 121	4	30
2,4-Dinitrotoluene	80.0	72.3		ug/L		90	65 - 135	1	32
2,6-Dichlorophenol	80.0	65.7		ug/L		82	63 - 118	1	50
2,6-Dinitrotoluene	80.0	69.4		ug/L		87	65 - 135	1	30
2-Chloronaphthalene	80.0	63.3		ug/L		79	51 - 128	6	30
2-Chlorophenol	80.0	65.1		ug/L		81	54 - 124	0	46
2-Methylnaphthalene	80.0	54.5		ug/L		68	53 - 119	7	32
2-Methylphenol	80.0	66.8		ug/L		83	55 - 123	12	40
2-Nitroaniline	80.0	71.5		ug/L		89	57 - 133	0	30
2-Nitrophenol	80.0	65.4		ug/L		82	61 - 121	5	38
3 & 4 Methylphenol	80.0	69.7		ug/L		87	51 - 124	7	36
3,3'-Dichlorobenzidine	160	110		ug/L		69	43 - 104	2	50
3-Nitroaniline	80.0	49.2		ug/L		62	27 - 111	7	30
4,6-Dinitro-2-methylphenol	160	141		ug/L		88	63 - 122	3	30
4-Bromophenyl phenyl ether	80.0	63.0		ug/L		79	65 - 115	3	30
4-Chloro-3-methylphenol	80.0	62.6		ug/L		78	65 - 121	6	30
4-Chloroaniline	80.0	49.0		ug/L		61	30 - 99	1	38
4-Chlorophenyl phenyl ether	80.0	66.0		ug/L		83	56 - 130	1	30
4-Nitroaniline	80.0	68.1		ug/L		85	54 - 128	5	34
4-Nitrophenol	160	137		ug/L		86	50 - 140	4	50

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-433120/3-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433120

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene			80.0	67.6		ug/L		84	54 - 129	3	30
Acenaphthylene			80.0	67.9		ug/L		85	55 - 123	1	30
Acetophenone			80.0	69.7		ug/L		87	46 - 127	7	35
Anthracene			80.0	68.1		ug/L		85	65 - 116	4	30
Benzo[a]anthracene			80.0	63.5		ug/L		79	63 - 120	0	30
Benzo[a]pyrene			80.0	66.9		ug/L		84	62 - 114	2	30
Benzo[b]fluoranthene			80.0	68.3		ug/L		85	64 - 122	13	30
Benzo[g,h,i]perylene			80.0	66.7		ug/L		83	60 - 122	0	30
Benzo[k]fluoranthene			80.0	74.1		ug/L		93	69 - 125	12	30
Benzyl alcohol			80.0	67.9		ug/L		85	54 - 124	7	37
Bis(2-chloroethoxy)methane			80.0	66.8		ug/L		83	62 - 114	7	30
Bis(2-chloroethyl)ether			80.0	67.3		ug/L		84	53 - 132	1	41
Bis(2-ethylhexyl) phthalate			80.0	73.2		ug/L		91	61 - 123	3	30
bis(chloroisopropyl) ether			80.0	68.4		ug/L		85	44 - 132	9	37
Butyl benzyl phthalate			80.0	68.0		ug/L		85	64 - 121	1	30
Chrysene			80.0	68.7		ug/L		86	65 - 122	2	30
Dibenz(a,h)anthracene			80.0	67.0		ug/L		84	60 - 120	6	30
Dibenzofuran			80.0	66.4		ug/L		83	56 - 128	1	30
Diethyl phthalate			80.0	70.9		ug/L		89	60 - 133	1	30
Dimethyl phthalate			80.0	68.4		ug/L		86	59 - 131	0	30
Di-n-butyl phthalate			80.0	73.8		ug/L		92	65 - 118	9	30
Di-n-octyl phthalate			80.0	61.8		ug/L		77	56 - 119	8	30
Diphenylamine			68.0	56.9		ug/L		84	60 - 124	3	50
Fluoranthene			80.0	69.6		ug/L		87	65 - 118	8	30
Fluorene			80.0	67.4		ug/L		84	51 - 133	4	30
Hexachlorobenzene			80.0	62.5		ug/L		78	65 - 114	4	30
Hexachlorobutadiene			80.0	49.6		ug/L		62	36 - 118	1	47
Hexachlorocyclopentadiene			160	73.7		ug/L		46	10 - 106	12	66
Hexachloroethane			80.0	52.6		ug/L		66	27 - 123	6	53
Indeno[1,2,3-cd]pyrene			80.0	59.3		ug/L		74	53 - 116	7	30
Isophorone			80.0	69.3		ug/L		87	58 - 111	1	30
Naphthalene			80.0	59.7		ug/L		75	50 - 119	2	40
Nitrobenzene			80.0	68.6		ug/L		86	59 - 117	10	39
N-Nitrosodimethylamine			80.0	65.1		ug/L		81	48 - 121	5	36
N-Nitrosodi-n-propylamine			80.0	72.2		ug/L		90	57 - 117	9	30
n-Nitrosodiphenylamine(as diphenylamine)			80.0	65.4		ug/L		82	63 - 116	3	30
Pentachlorophenol			160	114		ug/L		71	56 - 115	1	30
Phenanthrene			80.0	66.9		ug/L		84	63 - 119	1	30
Phenol			80.0	68.0		ug/L		85	50 - 127	3	37
Pyrene			80.0	69.0		ug/L		86	59 - 124	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*77*		*48 - 135*
2-Fluorobiphenyl	*80*		*48 - 135*
2-Fluorophenol	*84*		*41 - 135*
Nitrobenzene-d5	*80*		*42 - 135*
Phenol-d5	*76*		*46 - 135*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-433120/3-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433120

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14	*77*		*20 - 135*

Lab Sample ID: LCSD 280-433120/5-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433120

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene			80.0	74.1		ug/L		93	62 - 121	1	50
1,4-Naphthoquinone			80.0	73.5		ug/L		92	57 - 131	2	50
1-Naphthylamine			80.0	61.3		ug/L		77	33 - 109	14	50
2-Acetylaminofluorene			80.0	84.1	J	ug/L		105	70 - 125	4	50
2-Naphthylamine			80.0	67.2		ug/L		84	41 - 104	11	50
3,3'-Dimethylbenzidine			80.0	59.3		ug/L		74	10 - 90	18	50
3-Methylcholanthrene			80.0	45.9		ug/L		57	39 - 108	3	50
4-Aminobiphenyl			80.0	61.5		ug/L		77	41 - 101	19	50
5-Nitro-o-toluidine			80.0	76.2		ug/L		95	46 - 113	10	50
7,12-Dimethylbenz(a)anthracene			80.0	79.2		ug/L		99	42 - 119	15	50
a,a-Dimethylphenethylamine			80.0	44.4	J	ug/L		55	17 - 94	50	50
Chlorobenzilate			80.0	78.9		ug/L		99	70 - 124	2	50
Diallate			80.0	89.4		ug/L		112	65 - 117	1	50
Ethyl methanesulfonate			80.0	68.4		ug/L		86	57 - 115	10	50
Hexachloropropene			80.0	40.7	J	ug/L		51	29 - 96	21	50
Isosafrole			80.0	66.8		ug/L		83	46 - 120	4	50
Methapyrilene			79.4	58.1		ug/L		73	10 - 106	8	50
Methyl methanesulfonate			80.0	67.1		ug/L		84	42 - 116	12	50
N-Nitrosodiethylamine			80.0	71.4		ug/L		89	62 - 115	14	50
N-Nitrosodi-n-butylamine			80.0	79.1		ug/L		99	66 - 117	2	50
N-Nitrosomethylethylamine			80.0	73.2		ug/L		92	57 - 117	13	50
N-Nitrosopiperidine			80.0	70.9		ug/L		89	67 - 112	5	50
N-Nitrosopyrrolidine			80.0	78.0		ug/L		97	65 - 114	2	50
o,o',o''-Triethylphosphorothioate			80.0	62.3		ug/L		78	65 - 114	11	50
o-Toluidine			80.0	67.3		ug/L		84	41 - 104	1	50
p-Dimethylamino azobenzene			80.0	88.1		ug/L		110	65 - 128	2	50
Pentachlorobenzene			80.0	68.0		ug/L		85	61 - 125	1	50
Pentachloronitrobenzene			80.0	79.7		ug/L		100	67 - 123	0	50
Phenacetin			80.0	86.6		ug/L		108	68 - 122	4	50
p-Phenylene diamine			80.0	36.3	J	ug/L		45	10 - 63	9	50
Pronamide			80.0	80.3		ug/L		100	72 - 118	0	50
Safrole, Total			80.0	65.5		ug/L		82	65 - 111	7	50
Thionazin			80.0	92.3		ug/L		115	66 - 128	6	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*74*		*48 - 135*
2-Fluorobiphenyl	*78*		*48 - 135*
2-Fluorophenol	*83*		*41 - 135*
Nitrobenzene-d5	*73*		*42 - 135*
Phenol-d5	*87*		*46 - 135*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-433120/5-A
Matrix: Water
Analysis Batch: 433816

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433120

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14	*85*		*20 - 135*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 280-433305/4
Matrix: Water
Analysis Batch: 433305

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/13/18 15:18	1
Ethene	ND		5.0	0.40	ug/L			10/13/18 15:18	1
Ethane	ND		5.0	0.57	ug/L			10/13/18 15:18	1
Acetylene	ND		5.0	0.73	ug/L			10/13/18 15:18	1
Propane	ND		5.0	0.56	ug/L			10/13/18 15:18	1

Lab Sample ID: LCS 280-433305/2
Matrix: Water
Analysis Batch: 433305

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	73.0	70.1		ug/L		96	75 - 125
Ethene	128	136		ug/L		107	75 - 125
Ethane	137	151		ug/L		111	75 - 125
Acetylene	119	114		ug/L		96	75 - 125
Propane	201	211		ug/L		105	75 - 125

Lab Sample ID: LCSD 280-433305/3
Matrix: Water
Analysis Batch: 433305

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	73.0	68.7		ug/L		94	75 - 125	2	20
Ethene	128	133		ug/L		104	75 - 125	2	20
Ethane	137	148		ug/L		108	75 - 125	2	20
Acetylene	119	115		ug/L		97	75 - 125	1	20
Propane	201	207		ug/L		103	75 - 125	2	20

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 433305

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	ND		73.0	48.7		ug/L		67	52 - 145
Ethene	ND		128	97.3		ug/L		76	75 - 131
Ethane	ND		137	104		ug/L		76	75 - 125
Acetylene	ND		119	102		ug/L		86	52 - 142
Propane	ND		201	144		ug/L		72	50 - 150

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 433305

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	ND		73.0	50.5		ug/L		69	52 - 145	4	20
Ethene	ND		128	100		ug/L		79	75 - 131	3	20
Ethane	ND		137	108		ug/L		79	75 - 125	4	20
Acetylene	ND		119	105		ug/L		88	52 - 142	3	20
Propane	ND		201	149		ug/L		74	50 - 150	4	20

Lab Sample ID: MB 280-433444/4
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		5.0	0.64	ug/L			10/15/18 12:39	1
Ethene	ND		5.0	0.40	ug/L			10/15/18 12:39	1
Ethane	ND		5.0	0.57	ug/L			10/15/18 12:39	1
Acetylene	ND		5.0	0.73	ug/L			10/15/18 12:39	1
Propane	ND		5.0	0.56	ug/L			10/15/18 12:39	1

Lab Sample ID: LCS 280-433444/2
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	73.0	68.2		ug/L		93	75 - 125
Ethene	128	137		ug/L		107	75 - 125
Ethane	137	150		ug/L		109	75 - 125
Acetylene	119	119		ug/L		100	75 - 125
Propane	201	211		ug/L		105	75 - 125

Lab Sample ID: LCSD 280-433444/3
Matrix: Water
Analysis Batch: 433444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	73.0	66.2		ug/L		91	75 - 125	3	20
Ethene	128	132		ug/L		103	75 - 125	3	20
Ethane	137	145		ug/L		106	75 - 125	3	20
Acetylene	119	116		ug/L		98	75 - 125	2	20
Propane	201	205		ug/L		102	75 - 125	3	20

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 280-433037/1-A
Matrix: Water
Analysis Batch: 435706

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433037

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.050	0.0077	ug/L		10/11/18 21:18	10/31/18 17:35	1
4,4'-DDE	ND		0.050	0.0075	ug/L		10/11/18 21:18	10/31/18 17:35	1
4,4'-DDT	ND		0.050	0.015	ug/L		10/11/18 21:18	10/31/18 17:35	1

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 280-433037/1-A
Matrix: Water
Analysis Batch: 435706

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433037

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.050	0.0059	ug/L		10/11/18 21:18	10/31/18 17:35	1
alpha-BHC	ND		0.050	0.0053	ug/L		10/11/18 21:18	10/31/18 17:35	1
beta-BHC	ND		0.050	0.0087	ug/L		10/11/18 21:18	10/31/18 17:35	1
delta-BHC	ND		0.050	0.0058	ug/L		10/11/18 21:18	10/31/18 17:35	1
Dieldrin	ND		0.050	0.0063	ug/L		10/11/18 21:18	10/31/18 17:35	1
Endosulfan I	ND		0.050	0.0058	ug/L		10/11/18 21:18	10/31/18 17:35	1
Endosulfan II	ND		0.050	0.0070	ug/L		10/11/18 21:18	10/31/18 17:35	1
Endosulfan sulfate	ND		0.050	0.0057	ug/L		10/11/18 21:18	10/31/18 17:35	1
Endrin	ND		0.050	0.0079	ug/L		10/11/18 21:18	10/31/18 17:35	1
Endrin aldehyde	ND		0.050	0.0088	ug/L		10/11/18 21:18	10/31/18 17:35	1
gamma-BHC (Lindane)	ND		0.050	0.0069	ug/L		10/11/18 21:18	10/31/18 17:35	1
Heptachlor	ND		0.050	0.0077	ug/L		10/11/18 21:18	10/31/18 17:35	1
Heptachlor epoxide	ND		0.050	0.0075	ug/L		10/11/18 21:18	10/31/18 17:35	1
Kepone	ND		1.0	0.35	ug/L		10/11/18 21:18	10/31/18 17:35	1
Methoxychlor	ND		0.10	0.013	ug/L		10/11/18 21:18	10/31/18 17:35	1
Toxaphene	ND		2.0	0.37	ug/L		10/11/18 21:18	10/31/18 17:35	1
Isodrin	0.00475	J	0.10	0.0039	ug/L		10/11/18 21:18	10/31/18 17:35	1
Technical Chlordane	ND		0.50	0.14	ug/L		10/11/18 21:18	10/31/18 17:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*94*		*34 - 122*	*10/11/18 21:18*	*10/31/18 17:35*	*1*
Tetrachloro-m-xylene	*81*		*28 - 115*	*10/11/18 21:18*	*10/31/18 17:35*	*1*

Lab Sample ID: LCS 280-433037/2-A
Matrix: Water
Analysis Batch: 435706

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433037

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	0.500	0.547		ug/L		109	73 - 115
4,4'-DDE	0.500	0.478		ug/L		96	74 - 112
4,4'-DDT	0.500	0.533		ug/L		107	72 - 121
Aldrin	0.500	0.502		ug/L		100	50 - 114
alpha-BHC	0.500	0.486		ug/L		97	68 - 113
beta-BHC	0.500	0.505		ug/L		101	54 - 113
delta-BHC	0.500	0.520		ug/L		104	72 - 113
Dieldrin	0.500	0.545		ug/L		109	78 - 116
Endosulfan I	0.500	0.516		ug/L		103	73 - 111
Endosulfan II	0.500	0.552	*	ug/L		110	69 - 109
Endosulfan sulfate	0.500	0.564		ug/L		113	71 - 116
Endrin	0.500	0.572		ug/L		114	69 - 128
Endrin aldehyde	0.500	0.466		ug/L		93	47 - 119
gamma-BHC (Lindane)	0.500	0.514		ug/L		103	71 - 112
Heptachlor	0.500	0.554		ug/L		111	61 - 115
Heptachlor epoxide	0.500	0.553		ug/L		111	72 - 114
Methoxychlor	0.500	0.572		ug/L		114	67 - 131

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 280-433037/2-A
Matrix: Water
Analysis Batch: 435706

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433037

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*86*		*34 - 122*
Tetrachloro-m-xylene	*86*		*28 - 115*

Lab Sample ID: LCSD 280-433037/3-A
Matrix: Water
Analysis Batch: 435706

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433037

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD			0.500	0.530		ug/L		106	73 - 115	3	50
4,4'-DDE			0.500	0.462		ug/L		92	74 - 112	3	50
4,4'-DDT			0.500	0.505		ug/L		101	72 - 121	6	25
Aldrin			0.500	0.471		ug/L		94	50 - 114	6	33
alpha-BHC			0.500	0.450		ug/L		90	68 - 113	8	50
beta-BHC			0.500	0.480		ug/L		96	54 - 113	5	50
delta-BHC			0.500	0.499		ug/L		100	72 - 113	4	50
Dieldrin			0.500	0.530		ug/L		106	78 - 116	3	22
Endosulfan I			0.500	0.491		ug/L		98	73 - 111	5	50
Endosulfan II			0.500	0.495		ug/L		99	69 - 109	11	50
Endosulfan sulfate			0.500	0.555		ug/L		111	71 - 116	2	50
Endrin			0.500	0.559		ug/L		112	69 - 128	2	39
Endrin aldehyde			0.500	0.463		ug/L		93	47 - 119	1	50
gamma-BHC (Lindane)			0.500	0.485		ug/L		97	71 - 112	6	26
Heptachlor			0.500	0.531		ug/L		106	61 - 115	4	27
Heptachlor epoxide			0.500	0.529		ug/L		106	72 - 114	5	50
Methoxychlor			0.500	0.557		ug/L		111	67 - 131	3	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*84*		*34 - 122*
Tetrachloro-m-xylene	*78*		*28 - 115*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 280-433037/1-A
Matrix: Water
Analysis Batch: 435087

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433037

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		1.0	0.21	ug/L		10/11/18 21:18	10/26/18 21:59	1
PCB-1016	ND		1.0	0.12	ug/L		10/11/18 21:18	10/26/18 21:59	1
PCB-1232	ND		1.0	0.17	ug/L		10/11/18 21:18	10/26/18 21:59	1
PCB-1242	ND		1.0	0.10	ug/L		10/11/18 21:18	10/26/18 21:59	1
PCB-1248	ND		1.0	0.092	ug/L		10/11/18 21:18	10/26/18 21:59	1
PCB-1254	ND		1.0	0.11	ug/L		10/11/18 21:18	10/26/18 21:59	1
PCB-1260	ND		1.0	0.16	ug/L		10/11/18 21:18	10/26/18 21:59	1
Polychlorinated biphenyls, Total	ND		1.0	0.085	ug/L		10/11/18 21:18	10/26/18 21:59	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 280-433037/1-A
Matrix: Water
Analysis Batch: 435087

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433037

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	*93*		*25 - 120*	*10/11/18 21:18*	*10/26/18 21:59*	*1*
DCB Decachlorobiphenyl	*93*		*30 - 136*	*10/11/18 21:18*	*10/26/18 21:59*	*1*

Lab Sample ID: LCS 280-433037/4-A
Matrix: Water
Analysis Batch: 435087

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433037

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	2.00	2.02		ug/L		101	58 - 128
PCB-1260	2.00	1.94		ug/L		97	69 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	*95*		*25 - 120*
DCB Decachlorobiphenyl	*87*		*30 - 136*

Method: 8141A - Organophosphorous Pesticides (GC)

Lab Sample ID: MB 280-433004/1-A
Matrix: Water
Analysis Batch: 433298

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433004

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethoate	ND		1.5	0.45	ug/L		10/11/18 17:12	10/13/18 21:56	1
Disulfoton	ND		1.0	0.32	ug/L		10/11/18 17:12	10/13/18 21:56	1
Famphur	ND		1.0	0.18	ug/L		10/11/18 17:12	10/13/18 21:56	1
Methyl parathion	ND		4.0	0.14	ug/L		10/11/18 17:12	10/13/18 21:56	1
Parathion	ND		1.0	0.14	ug/L		10/11/18 17:12	10/13/18 21:56	1
Phorate	ND		1.2	0.15	ug/L		10/11/18 17:12	10/13/18 21:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenylphosphate	*82*		*60 - 154*	*10/11/18 17:12*	*10/13/18 21:56*	*1*
Chlormefos	*26*	*X*	*49 - 171*	*10/11/18 17:12*	*10/13/18 21:56*	*1*

Lab Sample ID: LCS 280-433004/2-A
Matrix: Water
Analysis Batch: 433298

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433004

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dimethoate	4.00	2.62		ug/L		65	42 - 115
Disulfoton	4.00	3.11		ug/L		78	45 - 115
Famphur	4.00	2.99		ug/L		75	62 - 115
Methyl parathion	4.00	3.27	J	ug/L		82	58 - 115
Parathion	4.00	3.00		ug/L		75	55 - 115
Phorate	4.00	2.95		ug/L		74	40 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Triphenylphosphate	*84*		*60 - 154*

Method: 8141A - Organophosphorous Pesticides (GC) (Continued)

Lab Sample ID: LCS 280-433004/2-A
Matrix: Water
Analysis Batch: 433298

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433004

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Chlormefos	*64*		*49 - 171*

Lab Sample ID: LCSD 280-433004/3-A
Matrix: Water
Analysis Batch: 433298

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433004

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dimethoate			4.00	2.84		ug/L		71	42 - 115	8	38
Disulfoton			4.00	3.20		ug/L		80	45 - 115	3	31
Famphur			4.00	3.15		ug/L		79	62 - 115	5	20
Methyl parathion			4.00	3.43	J	ug/L		86	58 - 115	5	20
Parathion			4.00	3.14		ug/L		79	55 - 115	5	20
Phorate			4.00	2.98		ug/L		74	40 - 115	1	32

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Triphenylphosphate	*86*		*60 - 154*
Chlormefos	*73*		*49 - 171*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 280-433061/1-A
Matrix: Water
Analysis Batch: 433454

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433061

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		4.0	0.21	ug/L		10/12/18 07:48	10/16/18 04:39	1
Dinoseb	ND		1.0	0.45	ug/L		10/12/18 07:48	10/16/18 04:39	1
2,4,5-T	ND		1.0	0.19	ug/L		10/12/18 07:48	10/16/18 04:39	1
Silvex (2,4,5-TP)	ND		1.0	0.17	ug/L		10/12/18 07:48	10/16/18 04:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*78*		*39 - 135*	*10/12/18 07:48*	*10/16/18 04:39*	*1*

Lab Sample ID: LCS 280-433061/2-A
Matrix: Water
Analysis Batch: 433454

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433061

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D			5.00	5.43		ug/L		109	47 - 151
Dinoseb			5.00	5.04		ug/L		101	10 - 120
2,4,5-T			5.00	5.36		ug/L		107	42 - 152
Silvex (2,4,5-TP)			5.00	5.53		ug/L		111	48 - 148

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*79*		*39 - 135*

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCSD 280-433061/3-A
Matrix: Water
Analysis Batch: 433454

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433061

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4-D			5.00	5.26		ug/L		105	47 - 151	3	30
Dinoseb			5.00	5.01		ug/L		100	10 - 120	1	30
2,4,5-T			5.00	5.25		ug/L		105	42 - 152	2	30
Silvex (2,4,5-TP)			5.00	5.45		ug/L		109	48 - 148	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*78*		*39 - 135*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-432967/1-A
Matrix: Water
Analysis Batch: 433722

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432967

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	63.8	J	200	35	ug/L		10/15/18 08:25	10/16/18 16:17	1
Iron	31.7	J	100	22	ug/L		10/15/18 08:25	10/16/18 16:17	1
Magnesium	ND		200	11	ug/L		10/15/18 08:25	10/16/18 16:17	1
Potassium	ND		3000	240	ug/L		10/15/18 08:25	10/16/18 16:17	1
Sodium	ND		1000	120	ug/L		10/15/18 08:25	10/16/18 16:17	1

Lab Sample ID: LCS 280-432967/2-A
Matrix: Water
Analysis Batch: 433722

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432967

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium			50000	52400		ug/L		105	90 - 111
Iron			10000	10400		ug/L		104	89 - 115
Magnesium			50000	50300		ug/L		101	90 - 113
Potassium			50000	52100		ug/L		104	89 - 114
Sodium			50000	53200		ug/L		106	90 - 115

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 433722

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 432967

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	86000	B	50000	138000		ug/L		103	48 - 153
Iron	29	J B	10000	10300		ug/L		103	52 - 155
Magnesium	39000		50000	88100		ug/L		99	62 - 146
Potassium	3900		50000	56700		ug/L		106	76 - 132
Sodium	58000		50000	111000		ug/L		105	70 - 203

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 433722

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 432967

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	86000	B	50000	139000		ug/L		105	48 - 153	1	20
Iron	29	J B	10000	10200		ug/L		102	52 - 155	1	20
Magnesium	39000		50000	88900		ug/L		100	62 - 146	1	20
Potassium	3900		50000	56500		ug/L		105	76 - 132	0	20
Sodium	58000		50000	112000		ug/L		107	70 - 203	1	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-432968/1-A
Matrix: Water
Analysis Batch: 433732

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 432968

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/16/18 16:45	10/17/18 00:53	1
Arsenic	ND		5.0	0.33	ug/L		10/16/18 16:45	10/17/18 00:53	1
Barium	0.417	J	1.0	0.29	ug/L		10/16/18 16:45	10/17/18 00:53	1
Beryllium	ND		1.0	0.080	ug/L		10/16/18 16:45	10/17/18 00:53	1
Cadmium	ND		1.0	0.27	ug/L		10/16/18 16:45	10/17/18 00:53	1
Chromium	ND		2.0	0.50	ug/L		10/16/18 16:45	10/17/18 00:53	1
Co	ND		1.0	0.054	ug/L		10/16/18 16:45	10/17/18 00:53	1
Copper	ND		2.0	0.56	ug/L		10/16/18 16:45	10/17/18 00:53	1
Lead	ND		1.0	0.18	ug/L		10/16/18 16:45	10/17/18 00:53	1
Manganese	0.581	J	1.0	0.31	ug/L		10/16/18 16:45	10/17/18 00:53	1
Nickel	ND		2.0	0.30	ug/L		10/16/18 16:45	10/17/18 00:53	1
Selenium	ND		5.0	0.70	ug/L		10/16/18 16:45	10/17/18 00:53	1
Silver	ND		5.0	0.033	ug/L		10/16/18 16:45	10/17/18 00:53	1
Thallium	ND		1.0	0.050	ug/L		10/16/18 16:45	10/17/18 00:53	1
Tin	ND		10	0.77	ug/L		10/16/18 16:45	10/17/18 00:53	1
Vanadium	ND		5.0	0.50	ug/L		10/16/18 16:45	10/17/18 00:53	1
Zinc	3.49	J	10	2.0	ug/L		10/16/18 16:45	10/17/18 00:53	1

Lab Sample ID: LCS 280-432968/2-A
Matrix: Water
Analysis Batch: 433732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432968

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	39.3		ug/L		98	86 - 110
Arsenic	40.0	36.0		ug/L		90	80 - 106
Barium	40.0	41.9		ug/L		105	88 - 113
Beryllium	40.0	39.1		ug/L		98	82 - 113
Cadmium	40.0	39.7		ug/L		99	85 - 111
Chromium	40.0	40.5		ug/L		101	87 - 115
Co	40.0	41.0		ug/L		103	89 - 113
Copper	40.0	40.5		ug/L		101	87 - 114
Lead	40.0	40.7		ug/L		102	91 - 113
Manganese	40.0	41.9		ug/L		105	90 - 114
Nickel	40.0	39.7		ug/L		99	87 - 116
Selenium	40.0	36.1		ug/L		90	80 - 113

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 280-432968/2-A
Matrix: Water
Analysis Batch: 433732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 432968

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	40.0	42.6		ug/L		106	85 - 117
Thallium	40.0	40.4		ug/L		101	90 - 111
Tin	40.0	40.4		ug/L		101	88 - 113
Vanadium	40.0	39.9		ug/L		100	85 - 113
Zinc	40.0	39.2		ug/L		98	81 - 120

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 433732

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 432968

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		40.0	41.6		ug/L		104	85 - 115
Arsenic	0.86	J	40.0	36.7		ug/L		89	85 - 117
Barium	130	B	40.0	173		ug/L		109	85 - 118
Beryllium	ND		40.0	38.3		ug/L		96	80 - 125
Cadmium	ND		40.0	37.9		ug/L		95	85 - 115
Chromium	0.69	J	40.0	40.0		ug/L		98	84 - 121
Co	ND		40.0	39.4		ug/L		99	85 - 120
Copper	ND		40.0	39.2		ug/L		98	85 - 119
Lead	ND		40.0	38.9		ug/L		97	85 - 118
Manganese	ND		40.0	39.7		ug/L		99	85 - 117
Nickel	ND		40.0	37.6		ug/L		94	85 - 119
Selenium	ND		40.0	37.1		ug/L		93	77 - 122
Silver	ND		40.0	41.0		ug/L		103	85 - 115
Thallium	ND		40.0	38.5		ug/L		96	85 - 118
Tin	ND		40.0	39.5		ug/L		99	77 - 115
Vanadium	0.59	J	40.0	40.7		ug/L		100	85 - 120
Zinc	2.2	J B	40.0	41.2		ug/L		97	83 - 122

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 433732

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 432968

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		40.0	39.9		ug/L		100	85 - 115	4	20
Arsenic	0.86	J	40.0	36.9		ug/L		90	85 - 117	1	20
Barium	130	B	40.0	176		ug/L		117	85 - 118	2	20
Beryllium	ND		40.0	38.9		ug/L		97	80 - 125	2	20
Cadmium	ND		40.0	37.1		ug/L		93	85 - 115	2	20
Chromium	0.69	J	40.0	39.6		ug/L		97	84 - 121	1	20
Co	ND		40.0	38.1		ug/L		95	85 - 120	3	20
Copper	ND		40.0	38.5		ug/L		96	85 - 119	2	20
Lead	ND		40.0	38.7		ug/L		97	85 - 118	1	20
Manganese	ND		40.0	38.1		ug/L		95	85 - 117	4	20
Nickel	ND		40.0	36.3		ug/L		91	85 - 119	3	20
Selenium	ND		40.0	35.8		ug/L		90	77 - 122	4	20
Silver	ND		40.0	41.1		ug/L		103	85 - 115	0	20
Thallium	ND		40.0	38.2		ug/L		96	85 - 118	1	20
Tin	ND		40.0	39.7		ug/L		99	77 - 115	0	20

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 433732

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 432968

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Vanadium	0.59	J	40.0	39.7		ug/L		98	85 - 120	2	20
Zinc	2.2	J B	40.0	39.8		ug/L		94	83 - 122	3	20

Lab Sample ID: MB 280-434398/1-A
Matrix: Water
Analysis Batch: 434707

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434398

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	0.489	J	1.0	0.31	ug/L		10/23/18 06:00	10/24/18 04:17	1

Lab Sample ID: LCS 280-434398/2-A
Matrix: Water
Analysis Batch: 434707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434398

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	40.0	41.5		ug/L		104	90 - 114

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-433550/1-A
Matrix: Water
Analysis Batch: 433723

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433550

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		10/16/18 11:15	10/16/18 18:11	1

Lab Sample ID: LCS 280-433550/2-A
Matrix: Water
Analysis Batch: 433723

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433550

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.81		ug/L		96	84 - 120

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 433723

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 433550

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		5.00	4.97		ug/L		99	75 - 125

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 433723

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 433550

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		5.00	4.88		ug/L		98	75 - 125	2	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 280-433707/22
Matrix: Water
Analysis Batch: 433707

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.019	mg/L			10/16/18 20:44	1

Lab Sample ID: LCS 280-433707/21
Matrix: Water
Analysis Batch: 433707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	5.00	4.83		mg/L		97	90 - 110

Lab Sample ID: 280-115369-16 MS
Matrix: Water
Analysis Batch: 433707

Client Sample ID: MW-9-20181007
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.021	J	4.00	4.07		mg/L		101	90 - 110

Lab Sample ID: 280-115369-16 MSD
Matrix: Water
Analysis Batch: 433707

Client Sample ID: MW-9-20181007
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.021	J	4.00	4.10		mg/L		102	90 - 110	1	10

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 433707

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.70		4.00	4.76		mg/L		101	90 - 110

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 433707

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.70		4.00	4.74		mg/L		101	90 - 110	0	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-434387/6
Matrix: Water
Analysis Batch: 434387

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	0.25	mg/L			10/22/18 13:56	1
Sulfate	ND		5.0	0.23	mg/L			10/22/18 13:56	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 280-434387/4
Matrix: Water
Analysis Batch: 434387

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	98.9		mg/L		99	90 - 110
Sulfate	100	103		mg/L		103	90 - 110

Lab Sample ID: LCSD 280-434387/5
Matrix: Water
Analysis Batch: 434387

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	99.0		mg/L		99	90 - 110	0	10
Sulfate	100	103		mg/L		103	90 - 110	0	10

Lab Sample ID: MRL 280-434387/3
Matrix: Water
Analysis Batch: 434387

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.70	J	mg/L		108	50 - 150
Sulfate	2.50	2.77	J	mg/L		111	50 - 150

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 434387

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	91		25.0	120		mg/L		114	80 - 120
Sulfate	110		25.0	141	4	mg/L		107	80 - 120

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 434387

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	91		25.0	120		mg/L		114	80 - 120	0	20
Sulfate	110		25.0	141	4	mg/L		107	80 - 120	0	20

Lab Sample ID: 280-115369-20 DU
Matrix: Water
Analysis Batch: 434387

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	91		91.1		mg/L		0.06	15
Sulfate	110		114		mg/L		0	15

Lab Sample ID: MB 280-434562/6
Matrix: Water
Analysis Batch: 434562

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	0.25	mg/L			10/23/18 14:25	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 280-434562/6
Matrix: Water
Analysis Batch: 434562

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	0.23	mg/L			10/23/18 14:25	1

Lab Sample ID: LCS 280-434562/4
Matrix: Water
Analysis Batch: 434562

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	101		mg/L		101	90 - 110
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-434562/5
Matrix: Water
Analysis Batch: 434562

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Sulfate	100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-434562/3
Matrix: Water
Analysis Batch: 434562

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.61	J	mg/L		104	50 - 150
Sulfate	2.50	2.59	J	mg/L		104	50 - 150

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-433222/5
Matrix: Water
Analysis Batch: 433222

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.16	mg/L			10/12/18 14:21	1

Lab Sample ID: LCS 280-433222/3
Matrix: Water
Analysis Batch: 433222

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	25.0	25.1		mg/L		101	88 - 112
TOC Result 2	25.0	25.0		mg/L		100	88 - 112
TOC Result 1	25.0	25.3		mg/L		101	88 - 112

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCSD 280-433222/4
Matrix: Water
Analysis Batch: 433222

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates			25.0	25.1		mg/L		100	88 - 112	0	15
TOC Result 2			25.0	25.6		mg/L		102	88 - 112	2	15
TOC Result 1			25.0	24.6		mg/L		98	88 - 112	3	15

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 433222

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	0.91	J	25.0	26.3		mg/L		102	88 - 112
TOC Result 2	0.93	J	25.0	25.9		mg/L		100	88 - 112
TOC Result 1	0.89	J	25.0	26.7		mg/L		103	88 - 112

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 433222

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	0.91	J	25.0	26.3		mg/L		101	88 - 112	0	15
TOC Result 2	0.93	J	25.0	26.4		mg/L		102	88 - 112	2	15
TOC Result 1	0.89	J	25.0	26.1		mg/L		101	88 - 112	2	15

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-433267/17
Matrix: Water
Analysis Batch: 433267

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/12/18 18:05	1

Lab Sample ID: LCS 280-433267/16
Matrix: Water
Analysis Batch: 433267

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total			200	201		mg/L		100	90 - 110

Lab Sample ID: MB 280-433421/31
Matrix: Water
Analysis Batch: 433421

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/13/18 20:43	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 280-433421/5
Matrix: Water
Analysis Batch: 433421

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/13/18 17:07	1

Lab Sample ID: LCS 280-433421/30
Matrix: Water
Analysis Batch: 433421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	200	190		mg/L		95	90 - 110

Lab Sample ID: LCS 280-433421/4
Matrix: Water
Analysis Batch: 433421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	200	190		mg/L		95	90 - 110

Method: SM 4500 CN E - Cyanide, Total

Lab Sample ID: MB 280-433909/4-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433909

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 08:50	10/18/18 13:56	1

Lab Sample ID: HLCS 280-433909/1-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.336		mg/L		96	90 - 110

Lab Sample ID: LCS 280-433909/3-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0976		mg/L		98	90 - 110

Lab Sample ID: LLCS 280-433909/2-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0963		mg/L		96	90 - 110

Method: SM 4500 CN E - Cyanide, Total (Continued)

Lab Sample ID: 280-115369-20 MS
Matrix: Water
Analysis Batch: 434011

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND	F1	0.100	0.0859	F1	mg/L		86	90 - 110

Lab Sample ID: 280-115369-20 MSD
Matrix: Water
Analysis Batch: 434011

Client Sample ID: MW-109S-20181006
Prep Type: Total/NA
Prep Batch: 433909

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND	F1	0.100	0.0877	F1	mg/L		88	90 - 110	2	20

Lab Sample ID: MB 280-433946/4-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433946

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/18/18 11:18	10/18/18 14:44	1

Lab Sample ID: HLCS 280-433946/1-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433946

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.336		mg/L		96	90 - 110

Lab Sample ID: LCS 280-433946/3-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433946

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.100		mg/L		100	90 - 110

Lab Sample ID: LLCS 280-433946/2-A
Matrix: Water
Analysis Batch: 434011

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433946

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.0959		mg/L		96	90 - 110

Lab Sample ID: 280-115369-18 MS
Matrix: Water
Analysis Batch: 434011

Client Sample ID: MW-8-20181007
Prep Type: Total/NA
Prep Batch: 433946

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		0.100	0.0973		mg/L		97	90 - 110

Lab Sample ID: 280-115369-18 MSD
Matrix: Water
Analysis Batch: 434011

Client Sample ID: MW-8-20181007
Prep Type: Total/NA
Prep Batch: 433946

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		0.100	0.0969		mg/L		97	90 - 110	0	20

Lab Sample ID: MB 280-434101/4-A
Matrix: Water
Analysis Batch: 434316

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434101

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/19/18 09:01	10/19/18 17:43	1

Lab Sample ID: HLCS 280-434101/1-A
Matrix: Water
Analysis Batch: 434316

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434101

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.368		mg/L		105	90 - 110

Lab Sample ID: LCS 280-434101/3-A
Matrix: Water
Analysis Batch: 434316

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434101

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.109		mg/L		109	90 - 110

Lab Sample ID: LLCS 280-434101/2-A
Matrix: Water
Analysis Batch: 434316

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434101

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.102		mg/L		102	90 - 110

Lab Sample ID: MB 280-434355/4-A
Matrix: Water
Analysis Batch: 434430

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434355

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		10/22/18 08:21	10/22/18 15:12	1

Lab Sample ID: HLCS 280-434355/1-A
Matrix: Water
Analysis Batch: 434430

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434355

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.347		mg/L		99	90 - 110

Lab Sample ID: LCS 280-434355/3-A
Matrix: Water
Analysis Batch: 434430

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434355

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.104		mg/L		104	90 - 110

Lab Sample ID: LLCS 280-434355/2-A
Matrix: Water
Analysis Batch: 434430

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434355

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.100		mg/L		100	90 - 110

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-433243/4
Matrix: Water
Analysis Batch: 433243

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.0070	mg/L			10/13/18 09:32	1

Lab Sample ID: LCS 280-433243/3
Matrix: Water
Analysis Batch: 433243

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide			0.564	0.573		mg/L		102	85 - 115		

GC/MS VOA

Analysis Batch: 433383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-20	MW-109S-20181006	Total/NA	Water	8260B	
MB 280-433383/6	Method Blank	Total/NA	Water	8260B	
LCS 280-433383/17	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-433383/4	Lab Control Sample	Total/NA	Water	8260B	
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	8260B	
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	8260B	
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	8260B	
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	8260B	

Analysis Batch: 433542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-13	MW-102S-20181006	Total/NA	Water	8260B	
280-115369-14	MW-110S-20181006	Total/NA	Water	8260B	
280-115369-14 - DL	MW-110S-20181006	Total/NA	Water	8260B	
280-115369-15	RW-15-20181006	Total/NA	Water	8260B	
280-115369-15 - DL	RW-15-20181006	Total/NA	Water	8260B	
280-115369-19	INJ-1R-20181006	Total/NA	Water	8260B	
280-115369-20 - DL	MW-109S-20181006	Total/NA	Water	8260B	
MB 280-433542/6	Method Blank	Total/NA	Water	8260B	
LCS 280-433542/30	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-433542/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 433681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-2	MW-110D-20181007	Total/NA	Water	8260B	
280-115369-3	MW-115S-20181008	Total/NA	Water	8260B	
280-115369-4	TB-6-VOC-20181009	Total/NA	Water	8260B	
280-115369-5	RW-4-20181007	Total/NA	Water	8260B	
280-115369-5 - DL	RW-4-20181007	Total/NA	Water	8260B	
280-115369-6	MW-121-20181007	Total/NA	Water	8260B	
280-115369-7	RW-7773P-20181007	Total/NA	Water	8260B	
280-115369-8	EB-4-VOC-20181007	Total/NA	Water	8260B	
280-115369-16	MW-9-20181007	Total/NA	Water	8260B	
280-115369-17	MW-12-20181008	Total/NA	Water	8260B	
280-115369-18	MW-8-20181007	Total/NA	Water	8260B	
280-115369-21	MW-5A-20181008	Total/NA	Water	8260B	
280-115369-22	TB-8-VOC-20181009	Total/NA	Water	8260B	
280-115369-23	TB-5-VOC-20181009	Total/NA	Water	8260B	
MB 280-433681/7	Method Blank	Total/NA	Water	8260B	
LCS 280-433681/11	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-433681/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-433681/12	Lab Control Sample Dup	Total/NA	Water	8260B	
LCSD 280-433681/6	Lab Control Sample Dup	Total/NA	Water	8260B	
280-115369-2 MS	MW-110D-20181007	Total/NA	Water	8260B	
280-115369-2 MSD	MW-110D-20181007	Total/NA	Water	8260B	

Analysis Batch: 434030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-9	INF-COM-20181007	Total/NA	Water	8260B	
MB 280-434030/8	Method Blank	Total/NA	Water	8260B	
LCS 280-434030/4	Lab Control Sample	Total/NA	Water	8260B	

GC/MS VOA (Continued)

Analysis Batch: 434030 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-434030/6	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-434030/5	Lab Control Sample Dup	Total/NA	Water	8260B	
LCSD 280-434030/7	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 434216

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	8260B	
MB 280-434216/8	Method Blank	Total/NA	Water	8260B	
LCS 280-434216/4	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-434216/6	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-434216/5	Lab Control Sample Dup	Total/NA	Water	8260B	
LCSD 280-434216/7	Lab Control Sample Dup	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 433120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-16	MW-9-20181007	Total/NA	Water	3520C	
280-115369-17	MW-12-20181008	Total/NA	Water	3520C	
280-115369-18	MW-8-20181007	Total/NA	Water	3520C	
280-115369-19	INJ-1R-20181006	Total/NA	Water	3520C	
MB 280-433120/1-A	Method Blank	Total/NA	Water	3520C	
LCS 280-433120/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCS 280-433120/4-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 280-433120/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	
LCSD 280-433120/5-A	Lab Control Sample Dup	Total/NA	Water	3520C	

Analysis Batch: 433816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-16	MW-9-20181007	Total/NA	Water	8270C	433120
280-115369-18	MW-8-20181007	Total/NA	Water	8270C	433120
280-115369-19	INJ-1R-20181006	Total/NA	Water	8270C	433120
MB 280-433120/1-A	Method Blank	Total/NA	Water	8270C	433120
LCS 280-433120/2-A	Lab Control Sample	Total/NA	Water	8270C	433120
LCS 280-433120/4-A	Lab Control Sample	Total/NA	Water	8270C	433120
LCSD 280-433120/3-A	Lab Control Sample Dup	Total/NA	Water	8270C	433120
LCSD 280-433120/5-A	Lab Control Sample Dup	Total/NA	Water	8270C	433120

Analysis Batch: 433965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-17	MW-12-20181008	Total/NA	Water	8270C	433120

GC VOA

Analysis Batch: 433305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-13	MW-102S-20181006	Total/NA	Water	RSK-175	
280-115369-14	MW-110S-20181006	Total/NA	Water	RSK-175	
280-115369-15	RW-15-20181006	Total/NA	Water	RSK-175	
280-115369-20	MW-109S-20181006	Total/NA	Water	RSK-175	

GC VOA (Continued)

Analysis Batch: 433305 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-433305/4	Method Blank	Total/NA	Water	RSK-175	
LCS 280-433305/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 280-433305/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	RSK-175	
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	RSK-175	

Analysis Batch: 433444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-2	MW-110D-20181007	Total/NA	Water	RSK-175	
280-115369-10	RW-10-20181007	Total/NA	Water	RSK-175	
280-115369-11	RW-9-20181007	Total/NA	Water	RSK-175	
280-115369-12	RW-17-20181007	Total/NA	Water	RSK-175	
MB 280-433444/4	Method Blank	Total/NA	Water	RSK-175	
LCS 280-433444/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 280-433444/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	

GC Semi VOA

Prep Batch: 433004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-16	MW-9-20181007	Total/NA	Water	3510C	
280-115369-17	MW-12-20181008	Total/NA	Water	3510C	
280-115369-18	MW-8-20181007	Total/NA	Water	3510C	
280-115369-19	INJ-1R-20181006	Total/NA	Water	3510C	
MB 280-433004/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-433004/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-433004/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 433037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-16	MW-9-20181007	Total/NA	Water	3510C	
280-115369-17	MW-12-20181008	Total/NA	Water	3510C	
280-115369-18	MW-8-20181007	Total/NA	Water	3510C	
280-115369-19	INJ-1R-20181006	Total/NA	Water	3510C	
MB 280-433037/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-433037/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 280-433037/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-433037/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 433061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-16	MW-9-20181007	Total/NA	Water	8151A	
280-115369-17	MW-12-20181008	Total/NA	Water	8151A	
280-115369-18	MW-8-20181007	Total/NA	Water	8151A	
280-115369-19	INJ-1R-20181006	Total/NA	Water	8151A	
MB 280-433061/1-A	Method Blank	Total/NA	Water	8151A	
LCS 280-433061/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 280-433061/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

GC Semi VOA (Continued)

Analysis Batch: 433298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-16	MW-9-20181007	Total/NA	Water	8141A	433004
280-115369-17	MW-12-20181008	Total/NA	Water	8141A	433004
280-115369-18	MW-8-20181007	Total/NA	Water	8141A	433004
280-115369-19	INJ-1R-20181006	Total/NA	Water	8141A	433004
MB 280-433004/1-A	Method Blank	Total/NA	Water	8141A	433004
LCS 280-433004/2-A	Lab Control Sample	Total/NA	Water	8141A	433004
LCSD 280-433004/3-A	Lab Control Sample Dup	Total/NA	Water	8141A	433004

Analysis Batch: 433454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-16	MW-9-20181007	Total/NA	Water	8151A	433061
280-115369-17	MW-12-20181008	Total/NA	Water	8151A	433061
280-115369-18	MW-8-20181007	Total/NA	Water	8151A	433061
280-115369-19	INJ-1R-20181006	Total/NA	Water	8151A	433061
MB 280-433061/1-A	Method Blank	Total/NA	Water	8151A	433061
LCS 280-433061/2-A	Lab Control Sample	Total/NA	Water	8151A	433061
LCSD 280-433061/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	433061

Analysis Batch: 435087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-16	MW-9-20181007	Total/NA	Water	8082A	433037
280-115369-17	MW-12-20181008	Total/NA	Water	8082A	433037
280-115369-18	MW-8-20181007	Total/NA	Water	8082A	433037
280-115369-19	INJ-1R-20181006	Total/NA	Water	8082A	433037
MB 280-433037/1-A	Method Blank	Total/NA	Water	8082A	433037
LCS 280-433037/4-A	Lab Control Sample	Total/NA	Water	8082A	433037

Analysis Batch: 435706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-16	MW-9-20181007	Total/NA	Water	8081A	433037
280-115369-17	MW-12-20181008	Total/NA	Water	8081A	433037
280-115369-18	MW-8-20181007	Total/NA	Water	8081A	433037
280-115369-19	INJ-1R-20181006	Total/NA	Water	8081A	433037
MB 280-433037/1-A	Method Blank	Total/NA	Water	8081A	433037
LCS 280-433037/2-A	Lab Control Sample	Total/NA	Water	8081A	433037
LCSD 280-433037/3-A	Lab Control Sample Dup	Total/NA	Water	8081A	433037

Metals

Prep Batch: 432967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	3010A	
280-115369-2	MW-110D-20181007	Total/NA	Water	3010A	
280-115369-3	MW-115S-20181008	Total/NA	Water	3010A	
280-115369-10	RW-10-20181007	Total/NA	Water	3010A	
280-115369-11	RW-9-20181007	Total/NA	Water	3010A	
280-115369-12	RW-17-20181007	Total/NA	Water	3010A	
280-115369-13	MW-102S-20181006	Total/NA	Water	3010A	
280-115369-14	MW-110S-20181006	Total/NA	Water	3010A	
280-115369-15	RW-15-20181006	Total/NA	Water	3010A	

Metals (Continued)

Prep Batch: 432967 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-16	MW-9-20181007	Total/NA	Water	3010A	
280-115369-17	MW-12-20181008	Total/NA	Water	3010A	
280-115369-18	MW-8-20181007	Total/NA	Water	3010A	
280-115369-19	INJ-1R-20181006	Total/NA	Water	3010A	
280-115369-20	MW-109S-20181006	Total/NA	Water	3010A	
280-115369-21	MW-5A-20181008	Total/NA	Water	3010A	
MB 280-432967/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-432967/2-A	Lab Control Sample	Total/NA	Water	3010A	
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	3010A	
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	3010A	

Prep Batch: 432968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	3020A	
280-115369-2	MW-110D-20181007	Total/NA	Water	3020A	
280-115369-3	MW-115S-20181008	Total/NA	Water	3020A	
280-115369-10	RW-10-20181007	Total/NA	Water	3020A	
280-115369-11	RW-9-20181007	Total/NA	Water	3020A	
280-115369-12	RW-17-20181007	Total/NA	Water	3020A	
280-115369-13	MW-102S-20181006	Total/NA	Water	3020A	
280-115369-14	MW-110S-20181006	Total/NA	Water	3020A	
280-115369-15	RW-15-20181006	Total/NA	Water	3020A	
280-115369-16	MW-9-20181007	Total/NA	Water	3020A	
280-115369-17	MW-12-20181008	Total/NA	Water	3020A	
280-115369-18	MW-8-20181007	Total/NA	Water	3020A	
280-115369-19	INJ-1R-20181006	Total/NA	Water	3020A	
280-115369-20	MW-109S-20181006	Total/NA	Water	3020A	
280-115369-21	MW-5A-20181008	Total/NA	Water	3020A	
MB 280-432968/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-432968/2-A	Lab Control Sample	Total/NA	Water	3020A	
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	3020A	
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	3020A	

Prep Batch: 433550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	7470A	
280-115369-2	MW-110D-20181007	Total/NA	Water	7470A	
280-115369-3	MW-115S-20181008	Total/NA	Water	7470A	
280-115369-10	RW-10-20181007	Total/NA	Water	7470A	
280-115369-11	RW-9-20181007	Total/NA	Water	7470A	
280-115369-12	RW-17-20181007	Total/NA	Water	7470A	
280-115369-13	MW-102S-20181006	Total/NA	Water	7470A	
280-115369-14	MW-110S-20181006	Total/NA	Water	7470A	
280-115369-15	RW-15-20181006	Total/NA	Water	7470A	
280-115369-16	MW-9-20181007	Total/NA	Water	7470A	
280-115369-17	MW-12-20181008	Total/NA	Water	7470A	
280-115369-18	MW-8-20181007	Total/NA	Water	7470A	
280-115369-19	INJ-1R-20181006	Total/NA	Water	7470A	
280-115369-20	MW-109S-20181006	Total/NA	Water	7470A	
280-115369-21	MW-5A-20181008	Total/NA	Water	7470A	
MB 280-433550/1-A	Method Blank	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 433550 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-433550/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	7470A	
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	7470A	

Analysis Batch: 433722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	6010C	432967
280-115369-2	MW-110D-20181007	Total/NA	Water	6010C	432967
280-115369-3	MW-115S-20181008	Total/NA	Water	6010C	432967
280-115369-10	RW-10-20181007	Total/NA	Water	6010C	432967
280-115369-11	RW-9-20181007	Total/NA	Water	6010C	432967
280-115369-12	RW-17-20181007	Total/NA	Water	6010C	432967
280-115369-13	MW-102S-20181006	Total/NA	Water	6010C	432967
280-115369-14	MW-110S-20181006	Total/NA	Water	6010C	432967
280-115369-15	RW-15-20181006	Total/NA	Water	6010C	432967
280-115369-16	MW-9-20181007	Total/NA	Water	6010C	432967
280-115369-17	MW-12-20181008	Total/NA	Water	6010C	432967
280-115369-18	MW-8-20181007	Total/NA	Water	6010C	432967
280-115369-19	INJ-1R-20181006	Total/NA	Water	6010C	432967
280-115369-20	MW-109S-20181006	Total/NA	Water	6010C	432967
280-115369-21	MW-5A-20181008	Total/NA	Water	6010C	432967
MB 280-432967/1-A	Method Blank	Total/NA	Water	6010C	432967
LCS 280-432967/2-A	Lab Control Sample	Total/NA	Water	6010C	432967
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	6010C	432967
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	6010C	432967

Analysis Batch: 433723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	7470A	433550
280-115369-2	MW-110D-20181007	Total/NA	Water	7470A	433550
280-115369-3	MW-115S-20181008	Total/NA	Water	7470A	433550
280-115369-10	RW-10-20181007	Total/NA	Water	7470A	433550
280-115369-11	RW-9-20181007	Total/NA	Water	7470A	433550
280-115369-12	RW-17-20181007	Total/NA	Water	7470A	433550
280-115369-13	MW-102S-20181006	Total/NA	Water	7470A	433550
280-115369-14	MW-110S-20181006	Total/NA	Water	7470A	433550
280-115369-15	RW-15-20181006	Total/NA	Water	7470A	433550
280-115369-16	MW-9-20181007	Total/NA	Water	7470A	433550
280-115369-17	MW-12-20181008	Total/NA	Water	7470A	433550
280-115369-18	MW-8-20181007	Total/NA	Water	7470A	433550
280-115369-19	INJ-1R-20181006	Total/NA	Water	7470A	433550
280-115369-20	MW-109S-20181006	Total/NA	Water	7470A	433550
280-115369-21	MW-5A-20181008	Total/NA	Water	7470A	433550
MB 280-433550/1-A	Method Blank	Total/NA	Water	7470A	433550
LCS 280-433550/2-A	Lab Control Sample	Total/NA	Water	7470A	433550
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	7470A	433550
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	7470A	433550

Analysis Batch: 433732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	6020B	432968

Metals (Continued)

Analysis Batch: 433732 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-2	MW-110D-20181007	Total/NA	Water	6020B	432968
280-115369-3	MW-115S-20181008	Total/NA	Water	6020B	432968
280-115369-10	RW-10-20181007	Total/NA	Water	6020B	432968
280-115369-11	RW-9-20181007	Total/NA	Water	6020B	432968
280-115369-12	RW-17-20181007	Total/NA	Water	6020B	432968
280-115369-13	MW-102S-20181006	Total/NA	Water	6020B	432968
280-115369-14	MW-110S-20181006	Total/NA	Water	6020B	432968
280-115369-15	RW-15-20181006	Total/NA	Water	6020B	432968
280-115369-16	MW-9-20181007	Total/NA	Water	6020B	432968
280-115369-17	MW-12-20181008	Total/NA	Water	6020B	432968
280-115369-18	MW-8-20181007	Total/NA	Water	6020B	432968
280-115369-19	INJ-1R-20181006	Total/NA	Water	6020B	432968
280-115369-20	MW-109S-20181006	Total/NA	Water	6020B	432968
280-115369-21	MW-5A-20181008	Total/NA	Water	6020B	432968
MB 280-432968/1-A	Method Blank	Total/NA	Water	6020B	432968
LCS 280-432968/2-A	Lab Control Sample	Total/NA	Water	6020B	432968
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	6020B	432968
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	6020B	432968

Prep Batch: 434398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-12	RW-17-20181007	Total/NA	Water	3020A	
280-115369-13	MW-102S-20181006	Total/NA	Water	3020A	
280-115369-18	MW-8-20181007	Total/NA	Water	3020A	
MB 280-434398/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-434398/2-A	Lab Control Sample	Total/NA	Water	3020A	

Analysis Batch: 434707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-12	RW-17-20181007	Total/NA	Water	6020B	434398
280-115369-13	MW-102S-20181006	Total/NA	Water	6020B	434398
280-115369-18	MW-8-20181007	Total/NA	Water	6020B	434398
MB 280-434398/1-A	Method Blank	Total/NA	Water	6020B	434398
LCS 280-434398/2-A	Lab Control Sample	Total/NA	Water	6020B	434398

General Chemistry

Analysis Batch: 433222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-2	MW-110D-20181007	Total/NA	Water	9060A	
280-115369-10	RW-10-20181007	Total/NA	Water	9060A	
280-115369-11	RW-9-20181007	Total/NA	Water	9060A	
280-115369-12	RW-17-20181007	Total/NA	Water	9060A	
280-115369-13	MW-102S-20181006	Total/NA	Water	9060A	
280-115369-14	MW-110S-20181006	Total/NA	Water	9060A	
280-115369-15	RW-15-20181006	Total/NA	Water	9060A	
280-115369-19	INJ-1R-20181006	Total/NA	Water	9060A	
280-115369-20	MW-109S-20181006	Total/NA	Water	9060A	
MB 280-433222/5	Method Blank	Total/NA	Water	9060A	
LCS 280-433222/3	Lab Control Sample	Total/NA	Water	9060A	

General Chemistry (Continued)

Analysis Batch: 433222 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-433222/4	Lab Control Sample Dup	Total/NA	Water	9060A	
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	9060A	
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	9060A	

Analysis Batch: 433243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-16	MW-9-20181007	Total/NA	Water	SM 4500 S2 D	
280-115369-17	MW-12-20181008	Total/NA	Water	SM 4500 S2 D	
280-115369-18	MW-8-20181007	Total/NA	Water	SM 4500 S2 D	
280-115369-19	INJ-1R-20181006	Total/NA	Water	SM 4500 S2 D	
MB 280-433243/4	Method Blank	Total/NA	Water	SM 4500 S2 D	
LCS 280-433243/3	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 433267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	SM 2320B	
280-115369-2	MW-110D-20181007	Total/NA	Water	SM 2320B	
280-115369-3	MW-115S-20181008	Total/NA	Water	SM 2320B	
280-115369-10	RW-10-20181007	Total/NA	Water	SM 2320B	
280-115369-11	RW-9-20181007	Total/NA	Water	SM 2320B	
280-115369-12	RW-17-20181007	Total/NA	Water	SM 2320B	
MB 280-433267/17	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-433267/16	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 433421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-13	MW-102S-20181006	Total/NA	Water	SM 2320B	
280-115369-14	MW-110S-20181006	Total/NA	Water	SM 2320B	
280-115369-15	RW-15-20181006	Total/NA	Water	SM 2320B	
280-115369-16	MW-9-20181007	Total/NA	Water	SM 2320B	
280-115369-17	MW-12-20181008	Total/NA	Water	SM 2320B	
280-115369-18	MW-8-20181007	Total/NA	Water	SM 2320B	
280-115369-19	INJ-1R-20181006	Total/NA	Water	SM 2320B	
280-115369-20	MW-109S-20181006	Total/NA	Water	SM 2320B	
MB 280-433421/31	Method Blank	Total/NA	Water	SM 2320B	
MB 280-433421/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-433421/30	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 280-433421/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 433707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	353.2	
280-115369-2	MW-110D-20181007	Total/NA	Water	353.2	
280-115369-3	MW-115S-20181008	Total/NA	Water	353.2	
280-115369-10	RW-10-20181007	Total/NA	Water	353.2	
280-115369-11	RW-9-20181007	Total/NA	Water	353.2	
280-115369-12	RW-17-20181007	Total/NA	Water	353.2	
280-115369-13	MW-102S-20181006	Total/NA	Water	353.2	
280-115369-14	MW-110S-20181006	Total/NA	Water	353.2	
280-115369-15	RW-15-20181006	Total/NA	Water	353.2	
280-115369-16	MW-9-20181007	Total/NA	Water	353.2	

General Chemistry (Continued)

Analysis Batch: 433707 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-17	MW-12-20181008	Total/NA	Water	353.2	
280-115369-18	MW-8-20181007	Total/NA	Water	353.2	
280-115369-19	INJ-1R-20181006	Total/NA	Water	353.2	
280-115369-20	MW-109S-20181006	Total/NA	Water	353.2	
280-115369-21	MW-5A-20181008	Total/NA	Water	353.2	
MB 280-433707/22	Method Blank	Total/NA	Water	353.2	
LCS 280-433707/21	Lab Control Sample	Total/NA	Water	353.2	
280-115369-16 MS	MW-9-20181007	Total/NA	Water	353.2	
280-115369-16 MSD	MW-9-20181007	Total/NA	Water	353.2	
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	353.2	
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	353.2	

Prep Batch: 433909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-13	MW-102S-20181006	Total/NA	Water	SM 4500 CN C	
280-115369-14	MW-110S-20181006	Total/NA	Water	SM 4500 CN C	
280-115369-15	RW-15-20181006	Total/NA	Water	SM 4500 CN C	
280-115369-19	INJ-1R-20181006	Total/NA	Water	SM 4500 CN C	
280-115369-20	MW-109S-20181006	Total/NA	Water	SM 4500 CN C	
MB 280-433909/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-433909/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-433909/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-433909/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	SM 4500 CN C	
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	SM 4500 CN C	

Prep Batch: 433946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	SM 4500 CN C	
280-115369-2	MW-110D-20181007	Total/NA	Water	SM 4500 CN C	
280-115369-10	RW-10-20181007	Total/NA	Water	SM 4500 CN C	
280-115369-11	RW-9-20181007	Total/NA	Water	SM 4500 CN C	
280-115369-12	RW-17-20181007	Total/NA	Water	SM 4500 CN C	
280-115369-16	MW-9-20181007	Total/NA	Water	SM 4500 CN C	
280-115369-18	MW-8-20181007	Total/NA	Water	SM 4500 CN C	
MB 280-433946/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-433946/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-433946/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-433946/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
280-115369-18 MS	MW-8-20181007	Total/NA	Water	SM 4500 CN C	
280-115369-18 MSD	MW-8-20181007	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 434011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115369-2	MW-110D-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115369-10	RW-10-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115369-11	RW-9-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115369-12	RW-17-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115369-13	MW-102S-20181006	Total/NA	Water	SM 4500 CN E	433909
280-115369-14	MW-110S-20181006	Total/NA	Water	SM 4500 CN E	433909

General Chemistry (Continued)

Analysis Batch: 434011 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-15	RW-15-20181006	Total/NA	Water	SM 4500 CN E	433909
280-115369-16	MW-9-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115369-18	MW-8-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115369-19	INJ-1R-20181006	Total/NA	Water	SM 4500 CN E	433909
280-115369-20	MW-109S-20181006	Total/NA	Water	SM 4500 CN E	433909
MB 280-433909/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	433909
MB 280-433946/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	433946
HLCS 280-433909/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433909
HLCS 280-433946/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433946
LCS 280-433909/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433909
LCS 280-433946/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433946
LLCS 280-433909/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433909
LLCS 280-433946/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	433946
280-115369-18 MS	MW-8-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115369-18 MSD	MW-8-20181007	Total/NA	Water	SM 4500 CN E	433946
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	SM 4500 CN E	433909
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	SM 4500 CN E	433909

Prep Batch: 434101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-3	MW-115S-20181008	Total/NA	Water	SM 4500 CN C	
MB 280-434101/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-434101/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-434101/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-434101/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 434316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-3	MW-115S-20181008	Total/NA	Water	SM 4500 CN E	434101
MB 280-434101/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	434101
HLCS 280-434101/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434101
LCS 280-434101/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434101
LLCS 280-434101/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434101

Prep Batch: 434355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-17	MW-12-20181008	Total/NA	Water	SM 4500 CN C	
MB 280-434355/4-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-434355/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-434355/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LLCS 280-434355/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 434387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-1	MW-106S-20181007	Total/NA	Water	9056A	
280-115369-2	MW-110D-20181007	Total/NA	Water	9056A	
280-115369-3	MW-115S-20181008	Total/NA	Water	9056A	
280-115369-10	RW-10-20181007	Total/NA	Water	9056A	
280-115369-11	RW-9-20181007	Total/NA	Water	9056A	
280-115369-12	RW-17-20181007	Total/NA	Water	9056A	
280-115369-13	MW-102S-20181006	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 434387 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-14	MW-110S-20181006	Total/NA	Water	9056A	
280-115369-15	RW-15-20181006	Total/NA	Water	9056A	
280-115369-16	MW-9-20181007	Total/NA	Water	9056A	
280-115369-17	MW-12-20181008	Total/NA	Water	9056A	
280-115369-18	MW-8-20181007	Total/NA	Water	9056A	
280-115369-19	INJ-1R-20181006	Total/NA	Water	9056A	
280-115369-20	MW-109S-20181006	Total/NA	Water	9056A	
MB 280-434387/6	Method Blank	Total/NA	Water	9056A	
LCS 280-434387/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-434387/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-434387/3	Lab Control Sample	Total/NA	Water	9056A	
280-115369-20 MS	MW-109S-20181006	Total/NA	Water	9056A	
280-115369-20 MSD	MW-109S-20181006	Total/NA	Water	9056A	
280-115369-20 DU	MW-109S-20181006	Total/NA	Water	9056A	

Analysis Batch: 434430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-17	MW-12-20181008	Total/NA	Water	SM 4500 CN E	434355
MB 280-434355/4-A	Method Blank	Total/NA	Water	SM 4500 CN E	434355
HLCS 280-434355/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434355
LCS 280-434355/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434355
LLCS 280-434355/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	434355

Analysis Batch: 434562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115369-14	MW-110S-20181006	Total/NA	Water	9056A	
MB 280-434562/6	Method Blank	Total/NA	Water	9056A	
LCS 280-434562/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-434562/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-434562/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: MW-106S-20181007

Date Collected: 10/07/18 16:05
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	434216	10/19/18 21:01	FCN	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 16:37	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:01	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:16	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 20:52	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 01:49	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 18:49	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433946	10/18/18 11:18	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 15:04	RK	TAL DEN

Client Sample ID: MW-110D-20181007

Date Collected: 10/07/18 13:25
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/16/18 23:47	FCN	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433444	10/15/18 18:00	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 16:41	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:05	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:18	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 20:54	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 02:08	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433222	10/12/18 15:57	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 18:58	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433946	10/18/18 11:18	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 15:05	RK	TAL DEN

Client Sample ID: MW-115S-20181008

Date Collected: 10/08/18 14:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 00:46	FCN	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 16:44	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: MW-115S-20181008

Lab Sample ID: 280-115369-3
Matrix: Water
Date Collected: 10/08/18 14:45
Date Received: 10/10/18 16:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6020B		1			433732	10/17/18 01:09	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:20	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 20:56	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 03:04	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 19:08	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	434101	10/19/18 09:01	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434316	10/19/18 18:33	RK	TAL DEN

Client Sample ID: TB-6-VOC-20181009

Lab Sample ID: 280-115369-4
Matrix: Water
Date Collected: 10/09/18 11:15
Date Received: 10/10/18 16:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 01:06	FCN	TAL DEN

Client Sample ID: RW-4-20181007

Lab Sample ID: 280-115369-5
Matrix: Water
Date Collected: 10/07/18 12:40
Date Received: 10/10/18 16:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 01:25	FCN	TAL DEN
Total/NA	Analysis	8260B	DL	4	20 mL	20 mL	433681	10/17/18 01:45	FCN	TAL DEN

Client Sample ID: MW-121-20181007

Lab Sample ID: 280-115369-6
Matrix: Water
Date Collected: 10/07/18 10:15
Date Received: 10/10/18 16:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 02:04	FCN	TAL DEN

Client Sample ID: RW-7773P-20181007

Lab Sample ID: 280-115369-7
Matrix: Water
Date Collected: 10/07/18 16:05
Date Received: 10/10/18 16:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 02:24	FCN	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: EB-4-VOC-20181007

Lab Sample ID: 280-115369-8

Date Collected: 10/07/18 16:56
Matrix: Water
Date Received: 10/10/18 16:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 02:43	FCN	TAL DEN

Client Sample ID: INF-COM-20181007

Lab Sample ID: 280-115369-9

Date Collected: 10/07/18 16:30
Matrix: Water
Date Received: 10/10/18 16:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	434030	10/18/18 23:26	FCN	TAL DEN

Client Sample ID: RW-10-20181007

Lab Sample ID: 280-115369-10

Date Collected: 10/07/18 11:15
Matrix: Water
Date Received: 10/10/18 16:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433444	10/15/18 18:14	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 16:47	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:12	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:22	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 20:58	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 03:23	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433222	10/12/18 16:16	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 19:17	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433946	10/18/18 11:18	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 15:07	RK	TAL DEN

Client Sample ID: RW-9-20181007

Lab Sample ID: 280-115369-11

Date Collected: 10/07/18 12:30
Matrix: Water
Date Received: 10/10/18 16:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433444	10/15/18 18:27	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 16:51	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:16	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:25	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 21:00	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 03:42	A1D	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: RW-9-20181007
Date Collected: 10/07/18 12:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1			433222	10/12/18 16:33	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 19:30	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433946	10/18/18 11:18	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 15:08	RK	TAL DEN

Client Sample ID: RW-17-20181007
Date Collected: 10/07/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433444	10/15/18 18:41	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 16:54	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:20	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	434398	10/23/18 06:00	THP	TAL DEN
Total/NA	Analysis	6020B		1			434707	10/24/18 04:24	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:27	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 21:02	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 04:00	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433222	10/12/18 16:50	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1			433267	10/12/18 19:39	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433946	10/18/18 11:18	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 15:10	RK	TAL DEN

Client Sample ID: MW-102S-20181006
Date Collected: 10/06/18 16:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433542	10/16/18 13:32	DPI	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 19:20	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 16:58	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:36	LMT	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	434398	10/23/18 06:00	THP	TAL DEN
Total/NA	Analysis	6020B		1			434707	10/24/18 04:28	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:29	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 21:04	SVC	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: MW-102S-20181006

Date Collected: 10/06/18 16:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 04:19	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433222	10/12/18 17:10	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1	1.0 mL	1.0 mL	433421	10/13/18 20:11	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:18	RK	TAL DEN

Client Sample ID: MW-110S-20181006

Date Collected: 10/06/18 15:45
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433542	10/16/18 13:53	DPI	TAL DEN
Total/NA	Analysis	8260B	DL	4	20 mL	20 mL	433542	10/16/18 14:15	DPI	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 19:33	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 17:01	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:39	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:31	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 21:18	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 04:38	A1D	TAL DEN
Total/NA	Analysis	9056A		2	5 mL	5 mL	434562	10/23/18 23:49	ARM	TAL DEN
Total/NA	Analysis	9060A		1			433222	10/12/18 17:25	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1	1.0 mL	1.0 mL	433421	10/13/18 21:12	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:20	RK	TAL DEN

Client Sample ID: RW-15-20181006

Date Collected: 10/06/18 17:50
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433542	10/16/18 14:36	DPI	TAL DEN
Total/NA	Analysis	8260B	DL	10	20 mL	20 mL	433542	10/16/18 14:57	DPI	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 19:47	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 17:04	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:43	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:38	THP	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: RW-15-20181006

Date Collected: 10/06/18 17:50
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 21:20	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 04:57	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433222	10/12/18 18:16	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1	1.0 mL	1.0 mL	433421	10/13/18 19:26	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:21	RK	TAL DEN

Client Sample ID: MW-9-20181007

Date Collected: 10/07/18 14:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 03:23	FCN	TAL DEN
Total/NA	Prep	3520C			893.2 mL	1 mL	433120	10/12/18 11:51	JZ	TAL DEN
Total/NA	Analysis	8270C		1			433816	10/17/18 22:08	DCK	TAL DEN
Total/NA	Prep	3510C			987.6 mL	10 mL	433037	10/11/18 21:18	AJE	TAL DEN
Total/NA	Analysis	8081A		1			435706	10/31/18 18:27	TEM	TAL DEN
Total/NA	Prep	3510C			987.6 mL	10 mL	433037	10/11/18 21:18	AJE	TAL DEN
Total/NA	Analysis	8082A		1			435087	10/27/18 00:06	BJP	TAL DEN
Total/NA	Prep	3510C			978.8 mL	2 mL	433004	10/11/18 17:12	AJE	TAL DEN
Total/NA	Analysis	8141A		1			433298	10/13/18 23:53	TEM	TAL DEN
Total/NA	Prep	8151A			977 mL	10 mL	433061	10/12/18 07:48	KJS	TAL DEN
Total/NA	Analysis	8151A		1			433454	10/16/18 05:26	AMB1	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 17:08	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:47	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:40	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 21:22	SVC	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	434387	10/23/18 05:34	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1	1.0 mL	1.0 mL	433421	10/13/18 19:37	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			25 mL	50 mL	433946	10/18/18 11:18	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 15:11	RK	TAL DEN
Total/NA	Analysis	SM 4500 S2 D		1	10 mL	10 mL	433243	10/13/18 09:32	JAP	TAL DEN

Client Sample ID: MW-12-20181008

Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 03:42	FCN	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: MW-12-20181008

Date Collected: 10/08/18 10:10
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			873.8 mL	1 mL	433120	10/12/18 11:51	JZ	TAL DEN
Total/NA	Analysis	8270C		1			433965	10/18/18 18:31	DCK	TAL DEN
Total/NA	Prep	3510C			938.8 mL	10 mL	433037	10/11/18 21:18	AJE	TAL DEN
Total/NA	Analysis	8081A		1			435706	10/31/18 18:45	TEM	TAL DEN
Total/NA	Prep	3510C			938.8 mL	10 mL	433037	10/11/18 21:18	AJE	TAL DEN
Total/NA	Analysis	8082A		1			435087	10/27/18 00:27	BJP	TAL DEN
Total/NA	Prep	3510C			921.8 mL	2 mL	433004	10/11/18 17:12	AJE	TAL DEN
Total/NA	Analysis	8141A		1			433298	10/14/18 00:32	TEM	TAL DEN
Total/NA	Prep	8151A			998.5 mL	10 mL	433061	10/12/18 07:48	KJS	TAL DEN
Total/NA	Analysis	8151A		1			433454	10/16/18 05:42	AMB1	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 17:25	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:51	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:42	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 21:28	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 05:53	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1	1.0 mL	1.0 mL	433421	10/13/18 19:45	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	434355	10/22/18 08:21	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434430	10/22/18 16:00	RK	TAL DEN
Total/NA	Analysis	SM 4500 S2 D		1	10 mL	10 mL	433243	10/13/18 09:32	JAP	TAL DEN

Client Sample ID: MW-8-20181007

Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 04:02	FCN	TAL DEN
Total/NA	Prep	3520C			910.5 mL	1 mL	433120	10/12/18 11:51	JZ	TAL DEN
Total/NA	Analysis	8270C		1			433816	10/17/18 23:02	DCK	TAL DEN
Total/NA	Prep	3510C			996.9 mL	10 mL	433037	10/11/18 21:18	AJE	TAL DEN
Total/NA	Analysis	8081A		1			435706	10/31/18 19:02	TEM	TAL DEN
Total/NA	Prep	3510C			996.9 mL	10 mL	433037	10/11/18 21:18	AJE	TAL DEN
Total/NA	Analysis	8082A		1			435087	10/27/18 00:48	BJP	TAL DEN
Total/NA	Prep	3510C			1006.4 mL	2 mL	433004	10/11/18 17:12	AJE	TAL DEN
Total/NA	Analysis	8141A		1			433298	10/14/18 01:11	TEM	TAL DEN
Total/NA	Prep	8151A			946 mL	10 mL	433061	10/12/18 07:48	KJS	TAL DEN
Total/NA	Analysis	8151A		1			433454	10/16/18 05:57	AMB1	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 17:28	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:55	LMT	TAL DEN

Client Sample ID: MW-8-20181007

Date Collected: 10/07/18 10:35
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-18

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3020A			50 mL	50 mL	434398	10/23/18 06:00	THP	TAL DEN
Total/NA	Analysis	6020B		1			434707	10/24/18 04:31	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:45	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 21:30	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 06:49	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1	1.0 mL	1.0 mL	433421	10/13/18 19:53	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433946	10/18/18 11:18	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 15:13	RK	TAL DEN
Total/NA	Analysis	SM 4500 S2 D		1	10 mL	10 mL	433243	10/13/18 09:32	JAP	TAL DEN

Client Sample ID: INJ-1R-20181006

Date Collected: 10/06/18 18:00
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-19

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433542	10/16/18 15:18	DPI	TAL DEN
Total/NA	Prep	3520C			994.3 mL	1 mL	433120	10/12/18 11:51	JZ	TAL DEN
Total/NA	Analysis	8270C		1			433816	10/17/18 23:30	DCK	TAL DEN
Total/NA	Prep	3510C			1052.1 mL	10 mL	433037	10/11/18 21:18	AJE	TAL DEN
Total/NA	Analysis	8081A		1			435706	10/31/18 19:19	TEM	TAL DEN
Total/NA	Prep	3510C			1052.1 mL	10 mL	433037	10/11/18 21:18	AJE	TAL DEN
Total/NA	Analysis	8082A		1			435087	10/27/18 01:09	BJP	TAL DEN
Total/NA	Prep	3510C			1031.7 mL	2 mL	433004	10/11/18 17:12	AJE	TAL DEN
Total/NA	Analysis	8141A		1			433298	10/14/18 01:50	TEM	TAL DEN
Total/NA	Prep	8151A			1051.5 mL	10 mL	433061	10/12/18 07:48	KJS	TAL DEN
Total/NA	Analysis	8151A		1			433454	10/16/18 06:13	AMB1	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 17:32	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 01:59	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:47	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 21:32	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 07:08	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433222	10/12/18 18:36	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1	1.0 mL	1.0 mL	433421	10/13/18 21:02	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:23	RK	TAL DEN
Total/NA	Analysis	SM 4500 S2 D		1	10 mL	10 mL	433243	10/13/18 09:32	JAP	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: MW-109S-20181006

Date Collected: 10/06/18 11:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-20

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433383	10/15/18 18:19	DPI	TAL DEN
Total/NA	Analysis	8260B	DL	4	20 mL	20 mL	433542	10/16/18 15:40	DPI	TAL DEN
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	433305	10/13/18 20:00	JLW	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 17:35	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 02:14	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:49	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 20:46	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	434387	10/23/18 07:26	A1D	TAL DEN
Total/NA	Analysis	9060A		1			433222	10/12/18 14:54	LPL	TAL DEN
Total/NA	Analysis	SM 2320B		1	1.0 mL	1.0 mL	433421	10/13/18 20:52	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	433909	10/18/18 08:50	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	434011	10/18/18 14:24	RK	TAL DEN

Client Sample ID: MW-5A-20181008

Date Collected: 10/08/18 12:40
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-21

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 04:21	FCN	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	432967	10/15/18 08:25	MRJ	TAL DEN
Total/NA	Analysis	6010C		1			433722	10/16/18 17:52	TEB	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	432968	10/16/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			433732	10/17/18 02:33	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	433550	10/16/18 11:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			433723	10/16/18 18:56	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	433707	10/16/18 21:34	SVC	TAL DEN

Client Sample ID: TB-8-VOC-20181009

Date Collected: 10/09/18 14:38
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-22

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 04:41	FCN	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Client Sample ID: TB-5-VOC-20181009
Date Collected: 10/09/18 08:30
Date Received: 10/10/18 16:50

Lab Sample ID: 280-115369-23
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433681	10/17/18 05:00	FCN	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115369-1

Laboratory: TestAmerica Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19
A2LA	ISO/IEC 17025		2907.01	10-31-19
Alabama	State Program	4	40730	09-30-12 *
Alaska (UST)	State Program	10	UST-30	01-08-19
Arizona	State Program	9	AZ0713	12-20-18
Arkansas DEQ	State Program	6	88-0687	06-01-19
California	State Program	9	2513	01-18-19
Connecticut	State Program	1	PH-0686	09-30-20
Florida	NELAP	4	E87667	06-30-19
Georgia	State Program	4	N/A	01-08-19 *
Illinois	NELAP	5	200017	04-30-19
Iowa	State Program	7	370	12-01-18
Kansas	NELAP	7	E-10166	04-30-19
Louisiana	NELAP	6	02096	06-30-19
Maine	State Program	1	CO0002	03-03-19
Minnesota	NELAP	5	8-999-405	12-31-18
Nevada	State Program	9	CO0026	07-31-19
New Hampshire	NELAP	1	205310	04-28-19
New Jersey	NELAP	2	CO004	06-30-19
New York	NELAP	2	11964	04-01-19
North Carolina (WW/SW)	State Program	4	358	12-31-18
North Dakota	State Program	8	R-034	01-08-19
Oklahoma	State Program	6	8614	08-31-19
Oregon	NELAP	10	4025	01-08-19
Pennsylvania	NELAP	3	68-00664	07-31-19
South Carolina	State Program	4	72002001	01-08-19
Texas	NELAP	6	T104704183-17-14	09-30-19
US Fish & Wildlife	Federal			07-31-19
USDA	Federal			03-26-21
Utah	NELAP	8	CO00026	07-31-19
Virginia	NELAP	3	460232	06-14-19
Washington	State Program	10	C583	08-03-19
West Virginia DEP	State Program	3	354	12-31-18
Wisconsin	State Program	5	999615430	08-31-19 *
Wyoming (UST)	A2LA	8	2907.01	10-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

280-115369

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kate Coshe	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-7270107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/8020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	B	A	S	S	A	S	X	
MW-1065-20181007	10/7/18	1605	G	W			3	1							1	1		1	1	1			3	
MW-110D-20181007	10/7/18	1325	G	W			3	1							1	1		1	1	1	3	1	3	
MW-1155-20181008	10/8/18	1445	G	W			3	1							1	1		1	1	1			3	
FB-6-VOC-20181009	10/9/18	1115	G	W			2																2	
RW-4-20181007	10/7/18	1240	G	W			3																3	
MW-121-20181007	10/7/18	1015	G	W			3																3	
RW-7773P-20181007	10/7/18	1605	G	W			3																3	
EB-4-VOC-20181007	10/7/18	1656	G	W			3																3	
INF-COM-20181007	10/7/18	1630	G	W			3																3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level TWO

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10.10.18 1650	TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.3, 0.4, 2.7, 2.0, 1.2, 0.8, 0.7, 0.1, 2.6 +0.7, IR9 transferred by DB 10/10/18

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 7857270107	Bieniulis, Dylan T.		Page:
Company: CDM Smith, Inc.		E-Mail: Dylan.Bieniulis@testamericainc.com		Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601	PO #:			
Phone:	WO #:			
Email: HillsMW@cdmsmith.com	Project #: See TA PM at sample receipt for project #			
Project Name: Bannock Ft. Hall Mine LF, Idaho	SSOW#:			
Site:				

Analysis Requested

Preservation Codes: A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/8020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:			X	X	B	N	A	A	A	A	D	A	C/B	N	N	S	A	S	X	
RW-10-20181007	10/7/18	1115	G	W			1							1	1		1	1	1	3	1	5	
RW-9-20181007	10/7/18	1230	G	W			1							1	1		1	1	1	3	1	5	
RW-17-20181007	10/7/18	1130	G	W			1							1	1		1	1	L	3	1	5	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level TWO

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 16:00			10-10-18 1650	TASDV
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kara Osborn	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Field Filtered Sample (Yes or No)

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of Containers	Special Instructions/Note:
			Preservation Code:		A	D	R	N	N	N	N	N	D	B	C	B	N	N	S	A	S	
MW-102S-20191006	10/6/18	1000	G	W		1							1	1		1	1	1	3	1		
MW-110S-20191006	10/6/18	1545	G	W		1							1	1		1	1	1	3	1		
RW-15-20191006	10/6/18	1750	G	W		1							1	1		1	1	1	3	1		

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)
	Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level Two

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10/10/18 1650	TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:			A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-9-20181007	10/7/18	14:00	G	W				2	2	2	2	2										9	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level FOUR Data deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10.10.18 1050	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Loslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:			A	B	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-12-20181008	10/8/18	1010	G	W				2	2	2	2	2											

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level FAR Data Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
		10/9/18 1600			10.10.18 1057	TAN
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Leslie	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601	PO #:			
Phone:	WO #:			
Email: HillsMW@cdmsmith.com	Project #: See TA PM at sample receipt for project #			
Project Name: Bannock Ft. Hall Mine LF, Idaho	SSOW#:			
Site:				

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, AA=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	M	N	N	N	N	N	B	B	C/B	N	N	S	A	S		
MW-8-20181007	10/7/18	10:35	G	W					2	2	2	2	2											

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level Four Data Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 14:00	CDMSmith		10/10/18 1150	TA Denver
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Karla Lesue	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested		
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	A	D	N	N	N	N	N	D	B	C/B	N	N	S	A	S	X		
INJ-1R-20181006	10/6/18	1800	G	W				2	2	2	2	2										10	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level FOUR Data Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/6/18 1600			10.10.18 1650	TADN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kayla Lowe	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-0107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601				
Phone:	PO #:			
Email: HillsMW@cdmsmith.com	WO #:			
Project Name: Bannock Ft. Hall Mine LF, Idaho	Project #: See TA PM at sample receipt for project #			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC		Total Number of Containers	Special Instructions/Note:
							A	B	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S			
MW-12-20181008	10/8/18	10:10	G	W			3	1							1	1	1	1	1	1					10
MW-9-20181007	10/7/18	14:00	G	W			3	1							1	1	1	1	1	1					10
MW-8-20181007	10/7/18	10:35	G	W			3	1							1	1	1	1	1	1					10
TWJ-LR-20181006	10/6/18	18:00	G	W			3	1							1	1	1	1	1	1		1			10
							2																		2

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level FOUR Date Deliverable

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
		10/9/18 1600			10/10/18 1650	TAOK
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

11/8/2018

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kaleena	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: 785-727-6107	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:
Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:			
City: Helena	TAT Requested (days):			
State, Zip: MT, 59601	PO #:			
Phone:	WO #:			
Email: HillsMW@cdmsmith.com	Project #: See TA PM at sample receipt for project #			
Project Name: Bannock Ft. Hall Mine LF, Idaho	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (MEEA)	9060A - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-109S-20181006	10/6/18	1130	G	W			4	6	2						2	2		2	2	2	6	2		
MW-5A-20181008	10/8/18	1210	G	W				3	1									1	1	1				
EW-15-20181006	10/6/18	1750	G	W				3																
MW-102S-20181006	10/6/18	1600	G	W				3																
MW-110S-20181006	10/6/18	1545	G	W				3																
TB-8-VOC-20181009	10/9/18	1439	G	W				2																

280-115369 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level Two

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/9/18 1600			10-10-18 1650	TAEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 5.3, 0.4, 2.7, 2.0, 1.2, 0.5, 0.7, 0.1, 2.6, 10.7, 7.9

Stored by AMA 10.10.18

11/8/2018

Login Sample Receipt Checklist

Client: CDM Smith, Inc.

Job Number: 280-115369-1

Login Number: 115369
List Number: 1
Creator: Gomez, Alyssa I

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	False	Refer to Job Narrative for details.
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115944-1
Client Project/Site: Bannock Ft. Hall Mine LF, Idaho

For:
CDM Smith, Inc.
14432 S.E. Eastgate Way
Suite 100
Bellevue, Washington 98007-6493

Attn: Mary Lou Fox

Authorized for release by:
11/13/2018 3:28:20 PM

Dylan Bieniulis, Project Manager I
(303)736-0100
dylan.bieniulis@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions 3
Case Narrative 4
Detection Summary 6
Method Summary 8
Sample Summary 9
Client Sample Results 10
Surrogate Summary 23
QC Sample Results 24
QC Association 34
Chronicle 37
Certification Summary 39
Chain of Custody 40
Receipt Checklists 41

Definitions/Glossary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115944-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115944-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: CDM Smith, Inc.

Project: Bannock Ft. Hall Mine LF, Idaho

Report Number: 280-115944-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/23/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.9 C.

The requested analyses were logged on a 15 business day turn around time due to current laboratory capacity. The client was notified on 10/24/2018.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples MW-116S-20181019 (280-115944-1), MW-116D-20181019 (280-115944-2), MW-116D-20181019-2 (280-115944-3), RW-2140H-20181019 (280-115944-4), EB-5-VOC-20181019 (280-115944-5) and TB-10-VOC-20181019 (280-115944-6) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/02/2018.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP)

Samples MW-116S-20181019 (280-115944-1), MW-116D-20181019 (280-115944-2), MW-116D-20181019-2 (280-115944-3) and RW-2140H-20181019 (280-115944-4) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 10/28/2018 and analyzed on 10/30/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL METALS (ICP/MS)

Samples MW-116S-20181019 (280-115944-1), MW-116D-20181019 (280-115944-2), MW-116D-20181019-2 (280-115944-3) and RW-2140H-20181019 (280-115944-4) were analyzed for Total Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 10/31/2018 and analyzed on 11/07/2018.

Manganese was detected in method blank MB 280-435480/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY

Samples MW-116S-20181019 (280-115944-1), MW-116D-20181019 (280-115944-2), MW-116D-20181019-2 (280-115944-3) and

Job ID: 280-115944-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

RW-2140H-20181019 (280-115944-4) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 11/03/2018 and analyzed on 11/03/2018 and 11/04/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ALKALINITY
Samples MW-116S-20181019 (280-115944-1), MW-116D-20181019 (280-115944-2) and MW-116D-20181019-2 (280-115944-3) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 10/26/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

NITRATE-NITRITE AS NITROGEN
Samples MW-116S-20181019 (280-115944-1), MW-116D-20181019 (280-115944-2) and MW-116D-20181019-2 (280-115944-3) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/01/2018.

Nitrate Nitrite as N was detected in method blank MB 280-435969/22 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL AND AMENABLE CYANIDE
Samples MW-116S-20181019 (280-115944-1), MW-116D-20181019 (280-115944-2), MW-116D-20181019-2 (280-115944-3) and RW-2140H-20181019 (280-115944-4) were analyzed for total and amenable cyanide in accordance with SM20 4500 CN E. The samples were prepared on 11/01/2018 and analyzed on 11/02/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS (28 DAYS)
Samples MW-116S-20181019 (280-115944-1), MW-116D-20181019 (280-115944-2) and MW-116D-20181019-2 (280-115944-3) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 11/09/2018.

Chloride and Sulfate failed the recovery criteria high for the MS of sample MW-116D-20181019-2MS (280-115944-3) in batch 280-436991. Chloride and Sulfate failed the recovery criteria high for the MSD of sample MW-116D-20181019-2MSD (280-115944-3) in batch 280-436991. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115944-1

Client Sample ID: MW-116S-20181019 — Lab Sample ID: 280-115944-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.21	J	1.0	0.16	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	2.1		1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	2.2		1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	26		1.0	0.16	ug/L	1		8260B	Total/NA
Calcium	130000		200	35	ug/L	1		6010C	Total/NA
Iron	450		100	22	ug/L	1		6010C	Total/NA
Magnesium	45000		200	11	ug/L	1		6010C	Total/NA
Potassium	7600		3000	240	ug/L	1		6010C	Total/NA
Sodium	55000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.5	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	180		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.4	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.31	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	1.3	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.39	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	12	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	1.6	J	2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	0.57	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	4.7	J	10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	1.9	B	0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	130		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	86		5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	330		5.0	1.1	mg/L	1		SM 2320B	Total/NA
Cyanide, Total	0.0034	J	0.010	0.0020	mg/L	1		SM 4500 CN E	Total/NA

Client Sample ID: MW-116D-20181019 — Lab Sample ID: 280-115944-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	41000		200	35	ug/L	1		6010C	Total/NA
Iron	2700		100	22	ug/L	1		6010C	Total/NA
Magnesium	14000		200	11	ug/L	1		6010C	Total/NA
Potassium	9200		3000	240	ug/L	1		6010C	Total/NA
Sodium	13000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	9.9		5.0	0.33	ug/L	1		6020B	Total/NA
Barium	89		1.0	0.29	ug/L	1		6020B	Total/NA
Beryllium	0.083	J	1.0	0.080	ug/L	1		6020B	Total/NA
Chromium	3.4		2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.65	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	19		2.0	0.56	ug/L	1		6020B	Total/NA
Lead	2.1		1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	380	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	2.8		2.0	0.30	ug/L	1		6020B	Total/NA
Vanadium	1.4	J	5.0	0.50	ug/L	1		6020B	Total/NA
Zinc	44		10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.025	J B	0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	18		3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	0.59	J	5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	150		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-116D-20181019-2 — Lab Sample ID: 280-115944-3

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Detection Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115944-1

Client Sample ID: MW-116D-20181019-2 (Continued) — Lab Sample ID: 280-115944-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	42000		200	35	ug/L	1		6010C	Total/NA
Iron	1500		100	22	ug/L	1		6010C	Total/NA
Magnesium	17000		200	11	ug/L	1		6010C	Total/NA
Potassium	7800		3000	240	ug/L	1		6010C	Total/NA
Sodium	16000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	8.6		5.0	0.33	ug/L	1		6020B	Total/NA
Barium	96		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	1.6	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.36	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	4.9		2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.85	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	420	B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	1.1	J	2.0	0.30	ug/L	1		6020B	Total/NA
Zinc	13		10	2.0	ug/L	1		6020B	Total/NA
Nitrate Nitrite as N	0.065	J B	0.10	0.019	mg/L	1		353.2	Total/NA
Chloride	32	F1	3.0	0.25	mg/L	1		9056A	Total/NA
Sulfate	7.7	F1	5.0	0.23	mg/L	1		9056A	Total/NA
Alkalinity, Total	150		5.0	1.1	mg/L	1		SM 2320B	Total/NA

Client Sample ID: RW-2140H-20181019 — Lab Sample ID: 280-115944-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.22	J	1.0	0.16	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	2.3		1.0	0.15	ug/L	1		8260B	Total/NA
Tetrachloroethene	4.9		1.0	0.20	ug/L	1		8260B	Total/NA
Trichloroethene	34		1.0	0.16	ug/L	1		8260B	Total/NA
Calcium	130000		200	35	ug/L	1		6010C	Total/NA
Magnesium	44000		200	11	ug/L	1		6010C	Total/NA
Potassium	7500		3000	240	ug/L	1		6010C	Total/NA
Sodium	54000		1000	120	ug/L	1		6010C	Total/NA
Arsenic	1.0	J	5.0	0.33	ug/L	1		6020B	Total/NA
Barium	170		1.0	0.29	ug/L	1		6020B	Total/NA
Chromium	0.65	J	2.0	0.50	ug/L	1		6020B	Total/NA
Co	0.055	J	1.0	0.054	ug/L	1		6020B	Total/NA
Copper	1.4	J	2.0	0.56	ug/L	1		6020B	Total/NA
Lead	0.37	J	1.0	0.18	ug/L	1		6020B	Total/NA
Manganese	0.44	J B	1.0	0.31	ug/L	1		6020B	Total/NA
Nickel	0.93	J	2.0	0.30	ug/L	1		6020B	Total/NA
Tin	1.2	J	10	0.77	ug/L	1		6020B	Total/NA
Zinc	26		10	2.0	ug/L	1		6020B	Total/NA

Client Sample ID: EB-5-VOC-20181019 — Lab Sample ID: 280-115944-5

No Detections.

Client Sample ID: TB-10-VOC-20181019 — Lab Sample ID: 280-115944-6

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115944-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
6010C	Metals (ICP)	SW846	TAL DEN
6020B	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 4500 CN E	Cyanide, Total	SM	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
SM 4500 CN C	Cyanide, Distillation	SM	TAL DEN

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115944-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115944-1	MW-116S-20181019	Water	10/19/18 13:45	10/23/18 08:50
280-115944-2	MW-116D-20181019	Water	10/19/18 11:45	10/23/18 08:50
280-115944-3	MW-116D-20181019-2	Water	10/19/18 17:30	10/23/18 08:50
280-115944-4	RW-2140H-20181019	Water	10/19/18 18:15	10/23/18 08:50
280-115944-5	EB-5-VOC-20181019	Water	10/19/18 14:00	10/23/18 08:50
280-115944-6	TB-10-VOC-20181019	Water	10/19/18 16:00	10/23/18 08:50

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: MW-116S-20181019
Date Collected: 10/19/18 13:45
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			11/02/18 01:58	1
Acetonitrile	ND		30	9.6	ug/L			11/02/18 01:58	1
Acrolein	ND		20	2.8	ug/L			11/02/18 01:58	1
Acrylonitrile	ND		20	1.4	ug/L			11/02/18 01:58	1
Benzene	ND		1.0	0.16	ug/L			11/02/18 01:58	1
Chlorobromomethane	ND		1.0	0.10	ug/L			11/02/18 01:58	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			11/02/18 01:58	1
Bromoform	ND		1.0	0.19	ug/L			11/02/18 01:58	1
Bromomethane	ND		2.0	0.21	ug/L			11/02/18 01:58	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			11/02/18 01:58	1
Carbon disulfide	ND		2.0	0.45	ug/L			11/02/18 01:58	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			11/02/18 01:58	1
Chlorobenzene	ND		1.0	0.17	ug/L			11/02/18 01:58	1
Chloroprene	ND		1.0	0.21	ug/L			11/02/18 01:58	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			11/02/18 01:58	1
Chloroethane	ND		2.0	0.41	ug/L			11/02/18 01:58	1
Chloroform	**0.21**	**J**	1.0	0.16	ug/L			11/02/18 01:58	1
Chloromethane	ND		2.0	0.30	ug/L			11/02/18 01:58	1
Allyl chloride	ND		2.0	0.17	ug/L			11/02/18 01:58	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			11/02/18 01:58	1
Dibromomethane	ND		1.0	0.17	ug/L			11/02/18 01:58	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			11/02/18 01:58	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			11/02/18 01:58	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			11/02/18 01:58	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			11/02/18 01:58	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			11/02/18 01:58	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			11/02/18 01:58	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			11/02/18 01:58	1
cis-1,2-Dichloroethene	**2.1**		1.0	0.15	ug/L			11/02/18 01:58	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/02/18 01:58	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			11/02/18 01:58	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 01:58	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			11/02/18 01:58	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 01:58	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			11/02/18 01:58	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			11/02/18 01:58	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			11/02/18 01:58	1
Ethylbenzene	ND		1.0	0.16	ug/L			11/02/18 01:58	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			11/02/18 01:58	1
2-Hexanone	ND		5.0	1.7	ug/L			11/02/18 01:58	1
Iodomethane	ND		1.0	0.23	ug/L			11/02/18 01:58	1
Isobutyl alcohol	ND		110	37	ug/L			11/02/18 01:58	1
Methacrylonitrile	ND		10	1.6	ug/L			11/02/18 01:58	1
Methylene Chloride	ND		2.0	0.32	ug/L			11/02/18 01:58	1
Methyl methacrylate	ND		4.0	1.1	ug/L			11/02/18 01:58	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			11/02/18 01:58	1
Propionitrile	ND		20	3.7	ug/L			11/02/18 01:58	1
Styrene	ND		1.0	0.17	ug/L			11/02/18 01:58	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 01:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-116S-20181019
Date Collected: 10/19/18 13:45
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 01:58	1
Tetrachloroethene	**2.2**		1.0	0.20	ug/L			11/02/18 01:58	1
Toluene	ND		1.0	0.17	ug/L			11/02/18 01:58	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			11/02/18 01:58	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			11/02/18 01:58	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			11/02/18 01:58	1
Trichloroethene	**26**		1.0	0.16	ug/L			11/02/18 01:58	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			11/02/18 01:58	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			11/02/18 01:58	1
Vinyl acetate	ND		3.0	0.94	ug/L			11/02/18 01:58	1
Vinyl chloride	ND		1.0	0.10	ug/L			11/02/18 01:58	1
Xylenes, Total	ND		2.0	0.19	ug/L			11/02/18 01:58	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			11/02/18 01:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*		*11/02/18 01:58*	*1*
Toluene-d8 (Surr)	*98*		*80 - 125*		*11/02/18 01:58*	*1*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*		*11/02/18 01:58*	*1*
Dibromofluoromethane (Surr)	*110*		*77 - 120*		*11/02/18 01:58*	*1*

Client Sample ID: MW-116D-20181019
Date Collected: 10/19/18 11:45
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			11/02/18 02:17	1
Acetonitrile	ND		30	9.6	ug/L			11/02/18 02:17	1
Acrolein	ND		20	2.8	ug/L			11/02/18 02:17	1
Acrylonitrile	ND		20	1.4	ug/L			11/02/18 02:17	1
Benzene	ND		1.0	0.16	ug/L			11/02/18 02:17	1
Chlorobromomethane	ND		1.0	0.10	ug/L			11/02/18 02:17	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			11/02/18 02:17	1
Bromoform	ND		1.0	0.19	ug/L			11/02/18 02:17	1
Bromomethane	ND		2.0	0.21	ug/L			11/02/18 02:17	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			11/02/18 02:17	1
Carbon disulfide	ND		2.0	0.45	ug/L			11/02/18 02:17	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			11/02/18 02:17	1
Chlorobenzene	ND		1.0	0.17	ug/L			11/02/18 02:17	1
Chloroprene	ND		1.0	0.21	ug/L			11/02/18 02:17	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			11/02/18 02:17	1
Chloroethane	ND		2.0	0.41	ug/L			11/02/18 02:17	1
Chloroform	ND		1.0	0.16	ug/L			11/02/18 02:17	1
Chloromethane	ND		2.0	0.30	ug/L			11/02/18 02:17	1
Allyl chloride	ND		2.0	0.17	ug/L			11/02/18 02:17	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			11/02/18 02:17	1
Dibromomethane	ND		1.0	0.17	ug/L			11/02/18 02:17	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			11/02/18 02:17	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			11/02/18 02:17	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			11/02/18 02:17	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			11/02/18 02:17	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			11/02/18 02:17	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-116D-20181019
Date Collected: 10/19/18 11:45
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		1.0	0.22	ug/L			11/02/18 02:17	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			11/02/18 02:17	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/02/18 02:17	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/02/18 02:17	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			11/02/18 02:17	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 02:17	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			11/02/18 02:17	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 02:17	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			11/02/18 02:17	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			11/02/18 02:17	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			11/02/18 02:17	1
Ethylbenzene	ND		1.0	0.16	ug/L			11/02/18 02:17	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			11/02/18 02:17	1
2-Hexanone	ND		5.0	1.7	ug/L			11/02/18 02:17	1
Iodomethane	ND		1.0	0.23	ug/L			11/02/18 02:17	1
Isobutyl alcohol	ND		110	37	ug/L			11/02/18 02:17	1
Methacrylonitrile	ND		10	1.6	ug/L			11/02/18 02:17	1
Methylene Chloride	ND		2.0	0.32	ug/L			11/02/18 02:17	1
Methyl methacrylate	ND		4.0	1.1	ug/L			11/02/18 02:17	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			11/02/18 02:17	1
Propionitrile	ND		20	3.7	ug/L			11/02/18 02:17	1
Styrene	ND		1.0	0.17	ug/L			11/02/18 02:17	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 02:17	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 02:17	1
Tetrachloroethene	ND		1.0	0.20	ug/L			11/02/18 02:17	1
Toluene	ND		1.0	0.17	ug/L			11/02/18 02:17	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			11/02/18 02:17	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			11/02/18 02:17	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			11/02/18 02:17	1
Trichloroethene	ND		1.0	0.16	ug/L			11/02/18 02:17	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			11/02/18 02:17	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			11/02/18 02:17	1
Vinyl acetate	ND		3.0	0.94	ug/L			11/02/18 02:17	1
Vinyl chloride	ND		1.0	0.10	ug/L			11/02/18 02:17	1
Xylenes, Total	ND		2.0	0.19	ug/L			11/02/18 02:17	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			11/02/18 02:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 127*		*11/02/18 02:17*	*1*
Toluene-d8 (Surr)	*95*		*80 - 125*		*11/02/18 02:17*	*1*
4-Bromofluorobenzene (Surr)	*96*		*78 - 120*		*11/02/18 02:17*	*1*
Dibromofluoromethane (Surr)	*108*		*77 - 120*		*11/02/18 02:17*	*1*

Client Sample ID: MW-116D-20181019-2
Date Collected: 10/19/18 17:30
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			11/02/18 02:35	1
Acetonitrile	ND		30	9.6	ug/L			11/02/18 02:35	1
Acrolein	ND		20	2.8	ug/L			11/02/18 02:35	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-116D-20181019-2
Date Collected: 10/19/18 17:30
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrylonitrile	ND		20	1.4	ug/L			11/02/18 02:35	1
Benzene	ND		1.0	0.16	ug/L			11/02/18 02:35	1
Chlorobromomethane	ND		1.0	0.10	ug/L			11/02/18 02:35	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			11/02/18 02:35	1
Bromoform	ND		1.0	0.19	ug/L			11/02/18 02:35	1
Bromomethane	ND		2.0	0.21	ug/L			11/02/18 02:35	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			11/02/18 02:35	1
Carbon disulfide	ND		2.0	0.45	ug/L			11/02/18 02:35	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			11/02/18 02:35	1
Chlorobenzene	ND		1.0	0.17	ug/L			11/02/18 02:35	1
Chloroprene	ND		1.0	0.21	ug/L			11/02/18 02:35	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			11/02/18 02:35	1
Chloroethane	ND		2.0	0.41	ug/L			11/02/18 02:35	1
Chloroform	ND		1.0	0.16	ug/L			11/02/18 02:35	1
Chloromethane	ND		2.0	0.30	ug/L			11/02/18 02:35	1
Allyl chloride	ND		2.0	0.17	ug/L			11/02/18 02:35	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			11/02/18 02:35	1
Dibromomethane	ND		1.0	0.17	ug/L			11/02/18 02:35	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			11/02/18 02:35	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			11/02/18 02:35	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			11/02/18 02:35	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			11/02/18 02:35	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			11/02/18 02:35	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			11/02/18 02:35	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			11/02/18 02:35	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/02/18 02:35	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/02/18 02:35	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			11/02/18 02:35	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 02:35	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			11/02/18 02:35	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 02:35	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			11/02/18 02:35	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			11/02/18 02:35	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			11/02/18 02:35	1
Ethylbenzene	ND		1.0	0.16	ug/L			11/02/18 02:35	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			11/02/18 02:35	1
2-Hexanone	ND		5.0	1.7	ug/L			11/02/18 02:35	1
Iodomethane	ND		1.0	0.23	ug/L			11/02/18 02:35	1
Isobutyl alcohol	ND		110	37	ug/L			11/02/18 02:35	1
Methacrylonitrile	ND		10	1.6	ug/L			11/02/18 02:35	1
Methylene Chloride	ND		2.0	0.32	ug/L			11/02/18 02:35	1
Methyl methacrylate	ND		4.0	1.1	ug/L			11/02/18 02:35	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			11/02/18 02:35	1
Propionitrile	ND		20	3.7	ug/L			11/02/18 02:35	1
Styrene	ND		1.0	0.17	ug/L			11/02/18 02:35	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 02:35	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 02:35	1
Tetrachloroethene	ND		1.0	0.20	ug/L			11/02/18 02:35	1
Toluene	ND		1.0	0.17	ug/L			11/02/18 02:35	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-116D-20181019-2
Date Collected: 10/19/18 17:30
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			11/02/18 02:35	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			11/02/18 02:35	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			11/02/18 02:35	1
Trichloroethene	ND		1.0	0.16	ug/L			11/02/18 02:35	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			11/02/18 02:35	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			11/02/18 02:35	1
Vinyl acetate	ND		3.0	0.94	ug/L			11/02/18 02:35	1
Vinyl chloride	ND		1.0	0.10	ug/L			11/02/18 02:35	1
Xylenes, Total	ND		2.0	0.19	ug/L			11/02/18 02:35	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			11/02/18 02:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 127*		*11/02/18 02:35*	*1*
Toluene-d8 (Surr)	*97*		*80 - 125*		*11/02/18 02:35*	*1*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*		*11/02/18 02:35*	*1*
Dibromofluoromethane (Surr)	*108*		*77 - 120*		*11/02/18 02:35*	*1*

Client Sample ID: RW-2140H-20181019
Date Collected: 10/19/18 18:15
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			11/02/18 02:54	1
Acetonitrile	ND		30	9.6	ug/L			11/02/18 02:54	1
Acrolein	ND		20	2.8	ug/L			11/02/18 02:54	1
Acrylonitrile	ND		20	1.4	ug/L			11/02/18 02:54	1
Benzene	ND		1.0	0.16	ug/L			11/02/18 02:54	1
Chlorobromomethane	ND		1.0	0.10	ug/L			11/02/18 02:54	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			11/02/18 02:54	1
Bromoform	ND		1.0	0.19	ug/L			11/02/18 02:54	1
Bromomethane	ND		2.0	0.21	ug/L			11/02/18 02:54	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			11/02/18 02:54	1
Carbon disulfide	ND		2.0	0.45	ug/L			11/02/18 02:54	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			11/02/18 02:54	1
Chlorobenzene	ND		1.0	0.17	ug/L			11/02/18 02:54	1
Chloroprene	ND		1.0	0.21	ug/L			11/02/18 02:54	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			11/02/18 02:54	1
Chloroethane	ND		2.0	0.41	ug/L			11/02/18 02:54	1
Chloroform	**0.22**	**J**	1.0	0.16	ug/L			11/02/18 02:54	1
Chloromethane	ND		2.0	0.30	ug/L			11/02/18 02:54	1
Allyl chloride	ND		2.0	0.17	ug/L			11/02/18 02:54	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			11/02/18 02:54	1
Dibromomethane	ND		1.0	0.17	ug/L			11/02/18 02:54	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			11/02/18 02:54	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			11/02/18 02:54	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			11/02/18 02:54	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			11/02/18 02:54	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			11/02/18 02:54	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			11/02/18 02:54	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			11/02/18 02:54	1
cis-1,2-Dichloroethene	**2.3**		1.0	0.15	ug/L			11/02/18 02:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RW-2140H-20181019
Date Collected: 10/19/18 18:15
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/02/18 02:54	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			11/02/18 02:54	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 02:54	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			11/02/18 02:54	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 02:54	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			11/02/18 02:54	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			11/02/18 02:54	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			11/02/18 02:54	1
Ethylbenzene	ND		1.0	0.16	ug/L			11/02/18 02:54	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			11/02/18 02:54	1
2-Hexanone	ND		5.0	1.7	ug/L			11/02/18 02:54	1
Iodomethane	ND		1.0	0.23	ug/L			11/02/18 02:54	1
Isobutyl alcohol	ND		110	37	ug/L			11/02/18 02:54	1
Methacrylonitrile	ND		10	1.6	ug/L			11/02/18 02:54	1
Methylene Chloride	ND		2.0	0.32	ug/L			11/02/18 02:54	1
Methyl methacrylate	ND		4.0	1.1	ug/L			11/02/18 02:54	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			11/02/18 02:54	1
Propionitrile	ND		20	3.7	ug/L			11/02/18 02:54	1
Styrene	ND		1.0	0.17	ug/L			11/02/18 02:54	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 02:54	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 02:54	1
Tetrachloroethene	**4.9**		1.0	0.20	ug/L			11/02/18 02:54	1
Toluene	ND		1.0	0.17	ug/L			11/02/18 02:54	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			11/02/18 02:54	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			11/02/18 02:54	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			11/02/18 02:54	1
Trichloroethene	**34**		1.0	0.16	ug/L			11/02/18 02:54	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			11/02/18 02:54	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			11/02/18 02:54	1
Vinyl acetate	ND		3.0	0.94	ug/L			11/02/18 02:54	1
Vinyl chloride	ND		1.0	0.10	ug/L			11/02/18 02:54	1
Xylenes, Total	ND		2.0	0.19	ug/L			11/02/18 02:54	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			11/02/18 02:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 127*		*11/02/18 02:54*	*1*
Toluene-d8 (Surr)	*98*		*80 - 125*		*11/02/18 02:54*	*1*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*		*11/02/18 02:54*	*1*
Dibromofluoromethane (Surr)	*106*		*77 - 120*		*11/02/18 02:54*	*1*

Client Sample ID: EB-5-VOC-20181019
Date Collected: 10/19/18 14:00
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			11/02/18 03:12	1
Acetonitrile	ND		30	9.6	ug/L			11/02/18 03:12	1
Acrolein	ND		20	2.8	ug/L			11/02/18 03:12	1
Acrylonitrile	ND		20	1.4	ug/L			11/02/18 03:12	1
Benzene	ND		1.0	0.16	ug/L			11/02/18 03:12	1
Chlorobromomethane	ND		1.0	0.10	ug/L			11/02/18 03:12	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-5-VOC-20181019
Date Collected: 10/19/18 14:00
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorobromomethane	ND		1.0	0.17	ug/L			11/02/18 03:12	1
Bromoform	ND		1.0	0.19	ug/L			11/02/18 03:12	1
Bromomethane	ND		2.0	0.21	ug/L			11/02/18 03:12	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			11/02/18 03:12	1
Carbon disulfide	ND		2.0	0.45	ug/L			11/02/18 03:12	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			11/02/18 03:12	1
Chlorobenzene	ND		1.0	0.17	ug/L			11/02/18 03:12	1
Chloroprene	ND		1.0	0.21	ug/L			11/02/18 03:12	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			11/02/18 03:12	1
Chloroethane	ND		2.0	0.41	ug/L			11/02/18 03:12	1
Chloroform	ND		1.0	0.16	ug/L			11/02/18 03:12	1
Chloromethane	ND		2.0	0.30	ug/L			11/02/18 03:12	1
Allyl chloride	ND		2.0	0.17	ug/L			11/02/18 03:12	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			11/02/18 03:12	1
Dibromomethane	ND		1.0	0.17	ug/L			11/02/18 03:12	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			11/02/18 03:12	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			11/02/18 03:12	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			11/02/18 03:12	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			11/02/18 03:12	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			11/02/18 03:12	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			11/02/18 03:12	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			11/02/18 03:12	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/02/18 03:12	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/02/18 03:12	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			11/02/18 03:12	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 03:12	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			11/02/18 03:12	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 03:12	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			11/02/18 03:12	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			11/02/18 03:12	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			11/02/18 03:12	1
Ethylbenzene	ND		1.0	0.16	ug/L			11/02/18 03:12	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			11/02/18 03:12	1
2-Hexanone	ND		5.0	1.7	ug/L			11/02/18 03:12	1
Iodomethane	ND		1.0	0.23	ug/L			11/02/18 03:12	1
Isobutyl alcohol	ND		110	37	ug/L			11/02/18 03:12	1
Methacrylonitrile	ND		10	1.6	ug/L			11/02/18 03:12	1
Methylene Chloride	ND		2.0	0.32	ug/L			11/02/18 03:12	1
Methyl methacrylate	ND		4.0	1.1	ug/L			11/02/18 03:12	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			11/02/18 03:12	1
Propionitrile	ND		20	3.7	ug/L			11/02/18 03:12	1
Styrene	ND		1.0	0.17	ug/L			11/02/18 03:12	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 03:12	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 03:12	1
Tetrachloroethene	ND		1.0	0.20	ug/L			11/02/18 03:12	1
Toluene	ND		1.0	0.17	ug/L			11/02/18 03:12	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			11/02/18 03:12	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			11/02/18 03:12	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			11/02/18 03:12	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: EB-5-VOC-20181019
Date Collected: 10/19/18 14:00
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		1.0	0.16	ug/L			11/02/18 03:12	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			11/02/18 03:12	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			11/02/18 03:12	1
Vinyl acetate	ND		3.0	0.94	ug/L			11/02/18 03:12	1
Vinyl chloride	ND		1.0	0.10	ug/L			11/02/18 03:12	1
Xylenes, Total	ND		2.0	0.19	ug/L			11/02/18 03:12	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			11/02/18 03:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*		*11/02/18 03:12*	*1*
Toluene-d8 (Surr)	*96*		*80 - 125*		*11/02/18 03:12*	*1*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*		*11/02/18 03:12*	*1*
Dibromofluoromethane (Surr)	*109*		*77 - 120*		*11/02/18 03:12*	*1*

Client Sample ID: TB-10-VOC-20181019
Date Collected: 10/19/18 16:00
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			11/02/18 03:31	1
Acetonitrile	ND		30	9.6	ug/L			11/02/18 03:31	1
Acrolein	ND		20	2.8	ug/L			11/02/18 03:31	1
Acrylonitrile	ND		20	1.4	ug/L			11/02/18 03:31	1
Benzene	ND		1.0	0.16	ug/L			11/02/18 03:31	1
Chlorobromomethane	ND		1.0	0.10	ug/L			11/02/18 03:31	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			11/02/18 03:31	1
Bromoform	ND		1.0	0.19	ug/L			11/02/18 03:31	1
Bromomethane	ND		2.0	0.21	ug/L			11/02/18 03:31	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			11/02/18 03:31	1
Carbon disulfide	ND		2.0	0.45	ug/L			11/02/18 03:31	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			11/02/18 03:31	1
Chlorobenzene	ND		1.0	0.17	ug/L			11/02/18 03:31	1
Chloroprene	ND		1.0	0.21	ug/L			11/02/18 03:31	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			11/02/18 03:31	1
Chloroethane	ND		2.0	0.41	ug/L			11/02/18 03:31	1
Chloroform	ND		1.0	0.16	ug/L			11/02/18 03:31	1
Chloromethane	ND		2.0	0.30	ug/L			11/02/18 03:31	1
Allyl chloride	ND		2.0	0.17	ug/L			11/02/18 03:31	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			11/02/18 03:31	1
Dibromomethane	ND		1.0	0.17	ug/L			11/02/18 03:31	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			11/02/18 03:31	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			11/02/18 03:31	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			11/02/18 03:31	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			11/02/18 03:31	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			11/02/18 03:31	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			11/02/18 03:31	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			11/02/18 03:31	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/02/18 03:31	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/02/18 03:31	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			11/02/18 03:31	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 03:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-10-VOC-20181019
Date Collected: 10/19/18 16:00
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	ND		1.0	0.22	ug/L			11/02/18 03:31	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			11/02/18 03:31	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			11/02/18 03:31	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			11/02/18 03:31	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			11/02/18 03:31	1
Ethylbenzene	ND		1.0	0.16	ug/L			11/02/18 03:31	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			11/02/18 03:31	1
2-Hexanone	ND		5.0	1.7	ug/L			11/02/18 03:31	1
Iodomethane	ND		1.0	0.23	ug/L			11/02/18 03:31	1
Isobutyl alcohol	ND		110	37	ug/L			11/02/18 03:31	1
Methacrylonitrile	ND		10	1.6	ug/L			11/02/18 03:31	1
Methylene Chloride	ND		2.0	0.32	ug/L			11/02/18 03:31	1
Methyl methacrylate	ND		4.0	1.1	ug/L			11/02/18 03:31	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			11/02/18 03:31	1
Propionitrile	ND		20	3.7	ug/L			11/02/18 03:31	1
Styrene	ND		1.0	0.17	ug/L			11/02/18 03:31	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 03:31	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/02/18 03:31	1
Tetrachloroethene	ND		1.0	0.20	ug/L			11/02/18 03:31	1
Toluene	ND		1.0	0.17	ug/L			11/02/18 03:31	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			11/02/18 03:31	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			11/02/18 03:31	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			11/02/18 03:31	1
Trichloroethene	ND		1.0	0.16	ug/L			11/02/18 03:31	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			11/02/18 03:31	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			11/02/18 03:31	1
Vinyl acetate	ND		3.0	0.94	ug/L			11/02/18 03:31	1
Vinyl chloride	ND		1.0	0.10	ug/L			11/02/18 03:31	1
Xylenes, Total	ND		2.0	0.19	ug/L			11/02/18 03:31	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			11/02/18 03:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 127*		*11/02/18 03:31*	*1*
Toluene-d8 (Surr)	*99*		*80 - 125*		*11/02/18 03:31*	*1*
4-Bromofluorobenzene (Surr)	*99*		*78 - 120*		*11/02/18 03:31*	*1*
Dibromofluoromethane (Surr)	*111*		*77 - 120*		*11/02/18 03:31*	*1*

Method: 6010C - Metals (ICP)

Client Sample ID: MW-116S-20181019
Date Collected: 10/19/18 13:45
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**130000**		200	35	ug/L		10/28/18 13:00	10/30/18 15:07	1
Iron	**450**		100	22	ug/L		10/28/18 13:00	10/30/18 15:07	1
Magnesium	**45000**		200	11	ug/L		10/28/18 13:00	10/30/18 15:07	1
Potassium	**7600**		3000	240	ug/L		10/28/18 13:00	10/30/18 15:07	1
Sodium	**55000**		1000	120	ug/L		10/28/18 13:00	10/30/18 15:07	1

Method: 6010C - Metals (ICP)

Client Sample ID: MW-116D-20181019
Date Collected: 10/19/18 11:45
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**41000**		200	35	ug/L		10/28/18 13:00	10/30/18 15:24	1
Iron	**2700**		100	22	ug/L		10/28/18 13:00	10/30/18 15:24	1
Magnesium	**14000**		200	11	ug/L		10/28/18 13:00	10/30/18 15:24	1
Potassium	**9200**		3000	240	ug/L		10/28/18 13:00	10/30/18 15:24	1
Sodium	**13000**		1000	120	ug/L		10/28/18 13:00	10/30/18 15:24	1

Client Sample ID: MW-116D-20181019-2
Date Collected: 10/19/18 17:30
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**42000**		200	35	ug/L		10/28/18 13:00	10/30/18 15:28	1
Iron	**1500**		100	22	ug/L		10/28/18 13:00	10/30/18 15:28	1
Magnesium	**17000**		200	11	ug/L		10/28/18 13:00	10/30/18 15:28	1
Potassium	**7800**		3000	240	ug/L		10/28/18 13:00	10/30/18 15:28	1
Sodium	**16000**		1000	120	ug/L		10/28/18 13:00	10/30/18 15:28	1

Client Sample ID: RW-2140H-20181019
Date Collected: 10/19/18 18:15
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**130000**		200	35	ug/L		10/28/18 13:00	10/30/18 15:31	1
Iron	ND		100	22	ug/L		10/28/18 13:00	10/30/18 15:31	1
Magnesium	**44000**		200	11	ug/L		10/28/18 13:00	10/30/18 15:31	1
Potassium	**7500**		3000	240	ug/L		10/28/18 13:00	10/30/18 15:31	1
Sodium	**54000**		1000	120	ug/L		10/28/18 13:00	10/30/18 15:31	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: MW-116S-20181019
Date Collected: 10/19/18 13:45
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/31/18 16:45	11/07/18 13:06	1
Arsenic	**1.5**	**J**	5.0	0.33	ug/L		10/31/18 16:45	11/07/18 13:06	1
Barium	**180**		1.0	0.29	ug/L		10/31/18 16:45	11/07/18 13:06	1
Beryllium	ND		1.0	0.080	ug/L		10/31/18 16:45	11/07/18 13:06	1
Cadmium	ND		1.0	0.27	ug/L		10/31/18 16:45	11/07/18 13:06	1
Chromium	**1.4**	**J**	2.0	0.50	ug/L		10/31/18 16:45	11/07/18 13:06	1
Co	**0.31**	**J**	1.0	0.054	ug/L		10/31/18 16:45	11/07/18 13:06	1
Copper	**1.3**	**J**	2.0	0.56	ug/L		10/31/18 16:45	11/07/18 13:06	1
Lead	**0.39**	**J**	1.0	0.18	ug/L		10/31/18 16:45	11/07/18 13:06	1
Manganese	**12**	**B**	1.0	0.31	ug/L		10/31/18 16:45	11/07/18 13:06	1
Nickel	**1.6**	**J**	2.0	0.30	ug/L		10/31/18 16:45	11/07/18 13:06	1
Selenium	ND		5.0	0.70	ug/L		10/31/18 16:45	11/07/18 13:06	1
Silver	ND		5.0	0.033	ug/L		10/31/18 16:45	11/07/18 13:06	1
Thallium	ND		1.0	0.050	ug/L		10/31/18 16:45	11/07/18 13:06	1
Tin	ND		10	0.77	ug/L		10/31/18 16:45	11/07/18 13:06	1
Vanadium	**0.57**	**J**	5.0	0.50	ug/L		10/31/18 16:45	11/07/18 13:06	1
Zinc	**4.7**	**J**	10	2.0	ug/L		10/31/18 16:45	11/07/18 13:06	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: MW-116D-20181019
Date Collected: 10/19/18 11:45
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/31/18 16:45	11/07/18 13:09	1
Arsenic	**9.9**		5.0	0.33	ug/L		10/31/18 16:45	11/07/18 13:09	1
Barium	**89**		1.0	0.29	ug/L		10/31/18 16:45	11/07/18 13:09	1
Beryllium	**0.083**	**J**	1.0	0.080	ug/L		10/31/18 16:45	11/07/18 13:09	1
Cadmium	ND		1.0	0.27	ug/L		10/31/18 16:45	11/07/18 13:09	1
Chromium	**3.4**		2.0	0.50	ug/L		10/31/18 16:45	11/07/18 13:09	1
Co	**0.65**	**J**	1.0	0.054	ug/L		10/31/18 16:45	11/07/18 13:09	1
Copper	**19**		2.0	0.56	ug/L		10/31/18 16:45	11/07/18 13:09	1
Lead	**2.1**		1.0	0.18	ug/L		10/31/18 16:45	11/07/18 13:09	1
Manganese	**380**	**B**	1.0	0.31	ug/L		10/31/18 16:45	11/07/18 13:09	1
Nickel	**2.8**		2.0	0.30	ug/L		10/31/18 16:45	11/07/18 13:09	1
Selenium	ND		5.0	0.70	ug/L		10/31/18 16:45	11/07/18 13:09	1
Silver	ND		5.0	0.033	ug/L		10/31/18 16:45	11/07/18 13:09	1
Thallium	ND		1.0	0.050	ug/L		10/31/18 16:45	11/07/18 13:09	1
Tin	ND		10	0.77	ug/L		10/31/18 16:45	11/07/18 13:09	1
Vanadium	**1.4**	**J**	5.0	0.50	ug/L		10/31/18 16:45	11/07/18 13:09	1
Zinc	**44**		10	2.0	ug/L		10/31/18 16:45	11/07/18 13:09	1

Client Sample ID: MW-116D-20181019-2
Date Collected: 10/19/18 17:30
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/31/18 16:45	11/07/18 13:13	1
Arsenic	**8.6**		5.0	0.33	ug/L		10/31/18 16:45	11/07/18 13:13	1
Barium	**96**		1.0	0.29	ug/L		10/31/18 16:45	11/07/18 13:13	1
Beryllium	ND		1.0	0.080	ug/L		10/31/18 16:45	11/07/18 13:13	1
Cadmium	ND		1.0	0.27	ug/L		10/31/18 16:45	11/07/18 13:13	1
Chromium	**1.6**	**J**	2.0	0.50	ug/L		10/31/18 16:45	11/07/18 13:13	1
Co	**0.36**	**J**	1.0	0.054	ug/L		10/31/18 16:45	11/07/18 13:13	1
Copper	**4.9**		2.0	0.56	ug/L		10/31/18 16:45	11/07/18 13:13	1
Lead	**0.85**	**J**	1.0	0.18	ug/L		10/31/18 16:45	11/07/18 13:13	1
Manganese	**420**	**B**	1.0	0.31	ug/L		10/31/18 16:45	11/07/18 13:13	1
Nickel	**1.1**	**J**	2.0	0.30	ug/L		10/31/18 16:45	11/07/18 13:13	1
Selenium	ND		5.0	0.70	ug/L		10/31/18 16:45	11/07/18 13:13	1
Silver	ND		5.0	0.033	ug/L		10/31/18 16:45	11/07/18 13:13	1
Thallium	ND		1.0	0.050	ug/L		10/31/18 16:45	11/07/18 13:13	1
Tin	ND		10	0.77	ug/L		10/31/18 16:45	11/07/18 13:13	1
Vanadium	ND		5.0	0.50	ug/L		10/31/18 16:45	11/07/18 13:13	1
Zinc	**13**		10	2.0	ug/L		10/31/18 16:45	11/07/18 13:13	1

Client Sample ID: RW-2140H-20181019
Date Collected: 10/19/18 18:15
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/31/18 16:45	11/07/18 13:17	1
Arsenic	**1.0**	**J**	5.0	0.33	ug/L		10/31/18 16:45	11/07/18 13:17	1
Barium	**170**		1.0	0.29	ug/L		10/31/18 16:45	11/07/18 13:17	1
Beryllium	ND		1.0	0.080	ug/L		10/31/18 16:45	11/07/18 13:17	1
Cadmium	ND		1.0	0.27	ug/L		10/31/18 16:45	11/07/18 13:17	1
Chromium	**0.65**	**J**	2.0	0.50	ug/L		10/31/18 16:45	11/07/18 13:17	1

Method: 6020B - Metals (ICP/MS) (Continued)

Client Sample ID: RW-2140H-20181019 — **Lab Sample ID: 280-115944-4**
Date Collected: 10/19/18 18:15 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Co	0.055	J	1.0	0.054	ug/L		10/31/18 16:45	11/07/18 13:17	1
Copper	1.4	J	2.0	0.56	ug/L		10/31/18 16:45	11/07/18 13:17	1
Lead	0.37	J	1.0	0.18	ug/L		10/31/18 16:45	11/07/18 13:17	1
Manganese	0.44	J B	1.0	0.31	ug/L		10/31/18 16:45	11/07/18 13:17	1
Nickel	0.93	J	2.0	0.30	ug/L		10/31/18 16:45	11/07/18 13:17	1
Selenium	ND		5.0	0.70	ug/L		10/31/18 16:45	11/07/18 13:17	1
Silver	ND		5.0	0.033	ug/L		10/31/18 16:45	11/07/18 13:17	1
Thallium	ND		1.0	0.050	ug/L		10/31/18 16:45	11/07/18 13:17	1
Tin	1.2	J	10	0.77	ug/L		10/31/18 16:45	11/07/18 13:17	1
Vanadium	ND		5.0	0.50	ug/L		10/31/18 16:45	11/07/18 13:17	1
Zinc	26		10	2.0	ug/L		10/31/18 16:45	11/07/18 13:17	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: MW-116S-20181019 — **Lab Sample ID: 280-115944-1**
Date Collected: 10/19/18 13:45 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		11/03/18 12:15	11/04/18 09:18	1

Client Sample ID: MW-116D-20181019 — **Lab Sample ID: 280-115944-2**
Date Collected: 10/19/18 11:45 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		11/03/18 12:15	11/04/18 09:20	1

Client Sample ID: MW-116D-20181019-2 — **Lab Sample ID: 280-115944-3**
Date Collected: 10/19/18 17:30 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		11/03/18 12:15	11/04/18 09:23	1

Client Sample ID: RW-2140H-20181019 — **Lab Sample ID: 280-115944-4**
Date Collected: 10/19/18 18:15 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		11/03/18 12:15	11/03/18 19:43	1

General Chemistry

Client Sample ID: MW-116S-20181019 — **Lab Sample ID: 280-115944-1**
Date Collected: 10/19/18 13:45 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.9	B	0.10	0.019	mg/L			11/01/18 18:49	1
Chloride	130		3.0	0.25	mg/L			11/09/18 16:47	1
Sulfate	86		5.0	0.23	mg/L			11/09/18 16:47	1
Alkalinity, Total	330		5.0	1.1	mg/L			10/26/18 21:48	1
Cyanide, Total	0.0034	J	0.010	0.0020	mg/L		11/01/18 10:16	11/02/18 11:54	1

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115944-1

General Chemistry

Client Sample ID: MW-116D-20181019
Date Collected: 10/19/18 11:45
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.025**	**J B**	0.10	0.019	mg/L			11/01/18 18:51	1
Chloride	**18**		3.0	0.25	mg/L			11/09/18 17:05	1
Sulfate	**0.59**	**J**	5.0	0.23	mg/L			11/09/18 17:05	1
Alkalinity, Total	**150**		5.0	1.1	mg/L			10/26/18 21:56	1
Cyanide, Total	ND		0.010	0.0020	mg/L		11/01/18 10:16	11/02/18 11:56	1

Client Sample ID: MW-116D-20181019-2
Date Collected: 10/19/18 17:30
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.065**	**J B**	0.10	0.019	mg/L			11/01/18 18:54	1
Chloride	**32**	**F1**	3.0	0.25	mg/L			11/09/18 17:24	1
Sulfate	**7.7**	**F1**	5.0	0.23	mg/L			11/09/18 17:24	1
Alkalinity, Total	**150**		5.0	1.1	mg/L			10/26/18 21:39	1
Cyanide, Total	ND		0.010	0.0020	mg/L		11/01/18 10:16	11/02/18 11:57	1

Client Sample ID: RW-2140H-20181019
Date Collected: 10/19/18 18:15
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115944-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		11/01/18 10:16	11/02/18 11:59	1

Surrogate Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115944-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(70-127)	(80-125)	(78-120)	(77-120)
280-115944-1	MW-116S-20181019	105	98	99	110
280-115944-2	MW-116D-20181019	103	95	96	108
280-115944-3	MW-116D-20181019-2	103	97	97	108
280-115944-4	RW-2140H-20181019	103	98	98	106
280-115944-5	EB-5-VOC-20181019	105	96	99	109
280-115944-6	TB-10-VOC-20181019	109	99	99	111
LCS 280-435966/10	Lab Control Sample	105	93	95	108
LCS 280-435966/4	Lab Control Sample	106	98	95	110
LCSD 280-435966/11	Lab Control Sample Dup	107	96	97	108
LCSD 280-435966/5	Lab Control Sample Dup	105	98	96	109
MB 280-435966/6	Method Blank	104	96	98	109

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-435966/6
Matrix: Water
Analysis Batch: 435966

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	1.9	ug/L			11/01/18 22:16	1
Acetonitrile	ND		30	9.6	ug/L			11/01/18 22:16	1
Acrolein	ND		20	2.8	ug/L			11/01/18 22:16	1
Acrylonitrile	ND		20	1.4	ug/L			11/01/18 22:16	1
Benzene	ND		1.0	0.16	ug/L			11/01/18 22:16	1
Chlorobromomethane	ND		1.0	0.10	ug/L			11/01/18 22:16	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			11/01/18 22:16	1
Bromoform	ND		1.0	0.19	ug/L			11/01/18 22:16	1
Bromomethane	ND		2.0	0.21	ug/L			11/01/18 22:16	1
2-Butanone (MEK)	ND		6.0	2.0	ug/L			11/01/18 22:16	1
Carbon disulfide	ND		2.0	0.45	ug/L			11/01/18 22:16	1
Carbon tetrachloride	ND		1.0	0.19	ug/L			11/01/18 22:16	1
Chlorobenzene	ND		1.0	0.17	ug/L			11/01/18 22:16	1
Chloroprene	ND		1.0	0.21	ug/L			11/01/18 22:16	1
Chlorodibromomethane	ND		1.0	0.17	ug/L			11/01/18 22:16	1
Chloroethane	ND		2.0	0.41	ug/L			11/01/18 22:16	1
Chloroform	ND		1.0	0.16	ug/L			11/01/18 22:16	1
Chloromethane	ND		2.0	0.30	ug/L			11/01/18 22:16	1
Allyl chloride	ND		2.0	0.17	ug/L			11/01/18 22:16	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.47	ug/L			11/01/18 22:16	1
Dibromomethane	ND		1.0	0.17	ug/L			11/01/18 22:16	1
1,2-Dichlorobenzene	ND		1.0	0.15	ug/L			11/01/18 22:16	1
1,3-Dichlorobenzene	ND		1.0	0.13	ug/L			11/01/18 22:16	1
1,4-Dichlorobenzene	ND		1.0	0.16	ug/L			11/01/18 22:16	1
trans-1,4-Dichloro-2-butene	ND		3.0	0.80	ug/L			11/01/18 22:16	1
Dichlorodifluoromethane	ND		2.0	0.31	ug/L			11/01/18 22:16	1
1,1-Dichloroethane	ND		1.0	0.22	ug/L			11/01/18 22:16	1
1,2-Dichloroethane	ND		1.0	0.13	ug/L			11/01/18 22:16	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/01/18 22:16	1
trans-1,2-Dichloroethene	ND		1.0	0.15	ug/L			11/01/18 22:16	1
1,1-Dichloroethene	ND		1.0	0.23	ug/L			11/01/18 22:16	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			11/01/18 22:16	1
1,3-Dichloropropane	ND		1.0	0.22	ug/L			11/01/18 22:16	1
2,2-Dichloropropane	ND		1.0	0.18	ug/L			11/01/18 22:16	1
cis-1,3-Dichloropropene	ND		1.0	0.16	ug/L			11/01/18 22:16	1
trans-1,3-Dichloropropene	ND		3.0	0.19	ug/L			11/01/18 22:16	1
1,1-Dichloropropene	ND		1.0	0.19	ug/L			11/01/18 22:16	1
Ethylbenzene	ND		1.0	0.16	ug/L			11/01/18 22:16	1
Ethyl methacrylate	ND		3.0	0.86	ug/L			11/01/18 22:16	1
2-Hexanone	ND		5.0	1.7	ug/L			11/01/18 22:16	1
Iodomethane	ND		1.0	0.23	ug/L			11/01/18 22:16	1
Isobutyl alcohol	ND		110	37	ug/L			11/01/18 22:16	1
Methacrylonitrile	ND		10	1.6	ug/L			11/01/18 22:16	1
Methylene Chloride	ND		2.0	0.32	ug/L			11/01/18 22:16	1
Methyl methacrylate	ND		4.0	1.1	ug/L			11/01/18 22:16	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.98	ug/L			11/01/18 22:16	1
Propionitrile	ND		20	3.7	ug/L			11/01/18 22:16	1
Styrene	ND		1.0	0.17	ug/L			11/01/18 22:16	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-435966/6
Matrix: Water
Analysis Batch: 435966

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/01/18 22:16	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			11/01/18 22:16	1
Tetrachloroethene	ND		1.0	0.20	ug/L			11/01/18 22:16	1
Toluene	ND		1.0	0.17	ug/L			11/01/18 22:16	1
1,2,4-Trichlorobenzene	ND		1.0	0.21	ug/L			11/01/18 22:16	1
1,1,1-Trichloroethane	ND		1.0	0.16	ug/L			11/01/18 22:16	1
1,1,2-Trichloroethane	ND		1.0	0.27	ug/L			11/01/18 22:16	1
Trichloroethene	ND		1.0	0.16	ug/L			11/01/18 22:16	1
Trichlorofluoromethane	ND		2.0	0.29	ug/L			11/01/18 22:16	1
1,2,3-Trichloropropane	ND		2.5	0.33	ug/L			11/01/18 22:16	1
Vinyl acetate	ND		3.0	0.94	ug/L			11/01/18 22:16	1
Vinyl chloride	ND		1.0	0.10	ug/L			11/01/18 22:16	1
Xylenes, Total	ND		2.0	0.19	ug/L			11/01/18 22:16	1
1,2-Dibromoethane	ND		1.0	0.18	ug/L			11/01/18 22:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 127*		*11/01/18 22:16*	*1*
Toluene-d8 (Surr)	*96*		*80 - 125*		*11/01/18 22:16*	*1*
4-Bromofluorobenzene (Surr)	*98*		*78 - 120*		*11/01/18 22:16*	*1*
Dibromofluoromethane (Surr)	*109*		*77 - 120*		*11/01/18 22:16*	*1*

Lab Sample ID: LCS 280-435966/10
Matrix: Water
Analysis Batch: 435966

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetonitrile	50.0	43.6		ug/L		87	50 - 150
Chloroprene	5.00	4.73		ug/L		95	50 - 150
Methacrylonitrile	50.0	45.9		ug/L		92	50 - 150
Methyl methacrylate	10.0	9.38		ug/L		94	50 - 150
Propionitrile	50.0	37.1		ug/L		74	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*
Toluene-d8 (Surr)	*93*		*80 - 125*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*
Dibromofluoromethane (Surr)	*108*		*77 - 120*

Lab Sample ID: LCS 280-435966/4
Matrix: Water
Analysis Batch: 435966

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	18.7		ug/L		93	39 - 156
Acrolein	50.0	47.6		ug/L		95	36 - 147
Acrylonitrile	50.0	49.7		ug/L		99	56 - 135
Benzene	5.00	5.16		ug/L		103	65 - 135
Chlorobromomethane	5.00	5.37		ug/L		107	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-435966/4
Matrix: Water
Analysis Batch: 435966

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorobromomethane	5.00	5.06		ug/L		101	65 - 135
Bromoform	5.00	4.58		ug/L		92	62 - 135
Bromomethane	5.00	5.03		ug/L		101	45 - 135
2-Butanone (MEK)	20.0	16.3		ug/L		82	44 - 177
Carbon disulfide	5.00	4.99		ug/L		100	55 - 143
Carbon tetrachloride	5.00	5.06		ug/L		101	65 - 135
Chlorobenzene	5.00	4.97		ug/L		99	65 - 135
Chlorodibromomethane	5.00	4.56		ug/L		91	65 - 135
Chloroethane	5.00	4.95		ug/L		99	46 - 136
Chloroform	5.00	5.16		ug/L		103	65 - 135
Chloromethane	5.00	3.97		ug/L		79	34 - 145
Allyl chloride	5.00	5.07		ug/L		101	50 - 135
1,2-Dibromo-3-Chloropropane	5.00	5.19		ug/L		104	57 - 135
Dibromomethane	5.00	5.09		ug/L		102	65 - 135
1,2-Dichlorobenzene	5.00	4.91		ug/L		98	65 - 135
1,3-Dichlorobenzene	5.00	4.82		ug/L		96	65 - 135
1,4-Dichlorobenzene	5.00	4.70		ug/L		94	65 - 135
trans-1,4-Dichloro-2-butene	5.00	4.20		ug/L		84	53 - 135
Dichlorodifluoromethane	5.00	4.11		ug/L		82	43 - 142
1,1-Dichloroethane	5.00	5.14		ug/L		103	65 - 135
1,2-Dichloroethane	5.00	5.02		ug/L		100	65 - 135
cis-1,2-Dichloroethene	5.00	5.21		ug/L		104	65 - 135
trans-1,2-Dichloroethene	5.00	5.35		ug/L		107	65 - 135
1,1-Dichloroethene	5.00	5.27		ug/L		105	65 - 136
1,2-Dichloropropane	5.00	5.19		ug/L		104	64 - 135
1,3-Dichloropropane	5.00	4.79		ug/L		96	64 - 135
2,2-Dichloropropane	5.00	4.92		ug/L		98	65 - 135
cis-1,3-Dichloropropene	5.00	4.76		ug/L		95	65 - 135
trans-1,3-Dichloropropene	5.00	4.51		ug/L		90	65 - 135
1,1-Dichloropropene	5.00	5.00		ug/L		100	65 - 135
Ethylbenzene	5.00	4.87		ug/L		97	65 - 135
Ethyl methacrylate	5.00	4.36		ug/L		87	50 - 135
2-Hexanone	20.0	17.4		ug/L		87	57 - 139
Iodomethane	5.00	5.56		ug/L		111	65 - 142
Isobutyl alcohol	125	93.8	J	ug/L		75	55 - 135
Methylene Chloride	5.00	4.90		ug/L		98	54 - 141
4-Methyl-2-pentanone (MIBK)	20.0	20.6		ug/L		103	60 - 150
Styrene	5.00	4.91		ug/L		98	65 - 135
1,1,1,2-Tetrachloroethane	5.00	4.82		ug/L		96	65 - 135
1,1,2,2-Tetrachloroethane	5.00	5.04		ug/L		101	58 - 135
Tetrachloroethene	5.00	5.02		ug/L		100	65 - 135
Toluene	5.00	5.39		ug/L		108	65 - 135
1,2,4-Trichlorobenzene	5.00	5.10		ug/L		102	58 - 135
1,1,1-Trichloroethane	5.00	5.13		ug/L		103	65 - 135
1,1,2-Trichloroethane	5.00	5.58		ug/L		112	64 - 135
Trichloroethene	5.00	5.12		ug/L		102	65 - 135
Trichlorofluoromethane	5.00	5.11		ug/L		102	53 - 137
1,2,3-Trichloropropane	5.00	4.94		ug/L		99	65 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-435966/4
Matrix: Water
Analysis Batch: 435966

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl acetate	10.0	9.24		ug/L		92	11 - 187
Vinyl chloride	5.00	4.36		ug/L		87	40 - 137
Xylenes, Total	10.0	10.1		ug/L		101	65 - 135
1,2-Dibromoethane	5.00	5.10		ug/L		102	65 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 127*
Toluene-d8 (Surr)	*98*		*80 - 125*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*
Dibromofluoromethane (Surr)	*110*		*77 - 120*

Lab Sample ID: LCSD 280-435966/11
Matrix: Water
Analysis Batch: 435966

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetonitrile	50.0	47.6		ug/L		95	50 - 150	9	30
Chloroprene	5.00	5.07		ug/L		101	50 - 150	7	30
Methacrylonitrile	50.0	53.2		ug/L		106	50 - 150	15	30
Methyl methacrylate	10.0	10.7		ug/L		107	50 - 150	13	30
Propionitrile	50.0	41.1		ug/L		82	50 - 150	10	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 127*
Toluene-d8 (Surr)	*96*		*80 - 125*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*
Dibromofluoromethane (Surr)	*108*		*77 - 120*

Lab Sample ID: LCSD 280-435966/5
Matrix: Water
Analysis Batch: 435966

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	18.4		ug/L		92	39 - 156	2	23
Acrolein	50.0	50.7		ug/L		101	36 - 147	6	30
Acrylonitrile	50.0	49.5		ug/L		99	56 - 135	0	30
Benzene	5.00	5.39		ug/L		108	65 - 135	4	20
Chlorobromomethane	5.00	5.74		ug/L		115	65 - 135	7	29
Dichlorobromomethane	5.00	5.29		ug/L		106	65 - 135	4	20
Bromoform	5.00	4.57		ug/L		91	62 - 135	0	27
Bromomethane	5.00	5.14		ug/L		103	45 - 135	2	33
2-Butanone (MEK)	20.0	15.2		ug/L		76	44 - 177	7	32
Carbon disulfide	5.00	5.11		ug/L		102	55 - 143	3	20
Carbon tetrachloride	5.00	5.26		ug/L		105	65 - 135	4	21
Chlorobenzene	5.00	5.21		ug/L		104	65 - 135	5	20
Chlorodibromomethane	5.00	4.71		ug/L		94	65 - 135	3	20
Chloroethane	5.00	5.10		ug/L		102	46 - 136	3	25
Chloroform	5.00	5.31		ug/L		106	65 - 135	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-435966/5
Matrix: Water
Analysis Batch: 435966

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloromethane			5.00	4.31		ug/L		86	34 - 145	8	24
Allyl chloride			5.00	5.18		ug/L		104	50 - 135	2	30
1,2-Dibromo-3-Chloropropane			5.00	5.20		ug/L		104	57 - 135	0	22
Dibromomethane			5.00	5.37		ug/L		107	65 - 135	5	26
1,2-Dichlorobenzene			5.00	5.11		ug/L		102	65 - 135	4	20
1,3-Dichlorobenzene			5.00	5.00		ug/L		100	65 - 135	4	20
1,4-Dichlorobenzene			5.00	5.00		ug/L		100	65 - 135	6	23
trans-1,4-Dichloro-2-butene			5.00	4.21		ug/L		84	53 - 135	0	25
Dichlorodifluoromethane			5.00	4.26		ug/L		85	43 - 142	4	30
1,1-Dichloroethane			5.00	5.34		ug/L		107	65 - 135	4	21
1,2-Dichloroethane			5.00	5.22		ug/L		104	65 - 135	4	20
cis-1,2-Dichloroethene			5.00	5.41		ug/L		108	65 - 135	4	20
trans-1,2-Dichloroethene			5.00	5.57		ug/L		111	65 - 135	4	24
1,1-Dichloroethene			5.00	5.44		ug/L		109	65 - 136	3	20
1,2-Dichloropropane			5.00	5.37		ug/L		107	64 - 135	4	20
1,3-Dichloropropane			5.00	5.08		ug/L		102	64 - 135	6	20
2,2-Dichloropropane			5.00	5.16		ug/L		103	65 - 135	5	20
cis-1,3-Dichloropropene			5.00	4.87		ug/L		97	65 - 135	2	26
trans-1,3-Dichloropropene			5.00	4.59		ug/L		92	65 - 135	2	26
1,1-Dichloropropene			5.00	5.32		ug/L		106	65 - 135	6	21
Ethylbenzene			5.00	5.15		ug/L		103	65 - 135	5	20
Ethyl methacrylate			5.00	4.45		ug/L		89	50 - 135	2	30
2-Hexanone			20.0	17.6		ug/L		88	57 - 139	1	25
Iodomethane			5.00	5.51		ug/L		110	65 - 142	1	25
Isobutyl alcohol			125	108	J	ug/L		86	55 - 135	14	30
Methylene Chloride			5.00	5.11		ug/L		102	54 - 141	4	26
4-Methyl-2-pentanone (MIBK)			20.0	21.4		ug/L		107	60 - 150	4	22
Styrene			5.00	5.16		ug/L		103	65 - 135	5	26
1,1,1,2-Tetrachloroethane			5.00	5.15		ug/L		103	65 - 135	7	20
1,1,2,2-Tetrachloroethane			5.00	5.20		ug/L		104	58 - 135	3	20
Tetrachloroethene			5.00	5.24		ug/L		105	65 - 135	4	20
Toluene			5.00	5.63		ug/L		113	65 - 135	4	20
1,2,4-Trichlorobenzene			5.00	5.16		ug/L		103	58 - 135	1	25
1,1,1-Trichloroethane			5.00	5.43		ug/L		109	65 - 135	6	20
1,1,2-Trichloroethane			5.00	5.81		ug/L		116	64 - 135	4	27
Trichloroethene			5.00	5.23		ug/L		105	65 - 135	2	20
Trichlorofluoromethane			5.00	5.23		ug/L		105	53 - 137	2	27
1,2,3-Trichloropropane			5.00	5.18		ug/L		104	65 - 135	5	23
Vinyl acetate			10.0	9.49		ug/L		95	11 - 187	3	24
Vinyl chloride			5.00	4.40		ug/L		88	40 - 137	1	24
Xylenes, Total			10.0	10.5		ug/L		105	65 - 135	4	20
1,2-Dibromoethane			5.00	5.44		ug/L		109	65 - 135	6	27

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 127*
Toluene-d8 (Surr)	*98*		*80 - 125*
4-Bromofluorobenzene (Surr)	*96*		*78 - 120*
Dibromofluoromethane (Surr)	*109*		*77 - 120*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-434972/1-A
Matrix: Water
Analysis Batch: 435661

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434972

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		200	35	ug/L		10/28/18 13:00	10/30/18 15:01	1
Iron	ND		100	22	ug/L		10/28/18 13:00	10/30/18 15:01	1
Magnesium	ND		200	11	ug/L		10/28/18 13:00	10/30/18 15:01	1
Potassium	ND		3000	240	ug/L		10/28/18 13:00	10/30/18 15:01	1
Sodium	ND		1000	120	ug/L		10/28/18 13:00	10/30/18 15:01	1

Lab Sample ID: LCS 280-434972/2-A
Matrix: Water
Analysis Batch: 435661

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434972

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	51800		ug/L		104	90 - 111
Iron	1000	1050		ug/L		105	89 - 115
Magnesium	50000	50800		ug/L		102	90 - 113
Potassium	50000	52700		ug/L		105	89 - 114
Sodium	50000	52700		ug/L		105	90 - 115

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-435480/1-A
Matrix: Water
Analysis Batch: 436784

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435480

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		10/31/18 16:45	11/07/18 12:58	1
Arsenic	ND		5.0	0.33	ug/L		10/31/18 16:45	11/07/18 12:58	1
Barium	ND		1.0	0.29	ug/L		10/31/18 16:45	11/07/18 12:58	1
Beryllium	ND		1.0	0.080	ug/L		10/31/18 16:45	11/07/18 12:58	1
Cadmium	ND		1.0	0.27	ug/L		10/31/18 16:45	11/07/18 12:58	1
Chromium	ND		2.0	0.50	ug/L		10/31/18 16:45	11/07/18 12:58	1
Co	ND		1.0	0.054	ug/L		10/31/18 16:45	11/07/18 12:58	1
Copper	ND		2.0	0.56	ug/L		10/31/18 16:45	11/07/18 12:58	1
Lead	ND		1.0	0.18	ug/L		10/31/18 16:45	11/07/18 12:58	1
Manganese	0.428	J	1.0	0.31	ug/L		10/31/18 16:45	11/07/18 12:58	1
Nickel	ND		2.0	0.30	ug/L		10/31/18 16:45	11/07/18 12:58	1
Selenium	ND		5.0	0.70	ug/L		10/31/18 16:45	11/07/18 12:58	1
Silver	ND		5.0	0.033	ug/L		10/31/18 16:45	11/07/18 12:58	1
Thallium	ND		1.0	0.050	ug/L		10/31/18 16:45	11/07/18 12:58	1
Tin	ND		10	0.77	ug/L		10/31/18 16:45	11/07/18 12:58	1
Vanadium	ND		5.0	0.50	ug/L		10/31/18 16:45	11/07/18 12:58	1
Zinc	ND		10	2.0	ug/L		10/31/18 16:45	11/07/18 12:58	1

Lab Sample ID: LCS 280-435480/2-A
Matrix: Water
Analysis Batch: 436784

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435480

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	40.0	38.7		ug/L		97	86 - 110

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 280-435480/2-A
Matrix: Water
Analysis Batch: 436784

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435480

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	40.0	36.9		ug/L		92	80 - 106
Barium	40.0	39.5		ug/L		99	88 - 113
Beryllium	40.0	40.5		ug/L		101	82 - 113
Cadmium	40.0	36.8		ug/L		92	85 - 111
Chromium	40.0	40.7		ug/L		102	87 - 115
Co	40.0	40.1		ug/L		100	89 - 113
Copper	40.0	40.2		ug/L		100	87 - 114
Lead	40.0	39.1		ug/L		98	91 - 113
Manganese	40.0	41.0		ug/L		103	90 - 114
Nickel	40.0	41.2		ug/L		103	87 - 116
Selenium	40.0	39.3		ug/L		98	80 - 113
Silver	40.0	40.3		ug/L		101	85 - 117
Thallium	40.0	38.8		ug/L		97	90 - 111
Tin	40.0	38.7		ug/L		97	88 - 113
Vanadium	40.0	40.2		ug/L		100	85 - 113
Zinc	40.0	41.4		ug/L		103	81 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-436187/1-A
Matrix: Water
Analysis Batch: 436252

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436187

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		11/03/18 12:15	11/03/18 18:27	1

Lab Sample ID: LCS 280-436187/2-A
Matrix: Water
Analysis Batch: 436252

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436187

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.99		ug/L		100	84 - 120

Lab Sample ID: LCSD 280-436187/3-A
Matrix: Water
Analysis Batch: 436252

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436187

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	5.00	5.10		ug/L		102	84 - 120	2	15

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 280-435969/22
Matrix: Water
Analysis Batch: 435969

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.0256	J	0.10	0.019	mg/L			11/01/18 18:41	1

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 280-435969/21
Matrix: Water
Analysis Batch: 435969

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	5.00	4.71		mg/L		94	90 - 110

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-436991/6
Matrix: Water
Analysis Batch: 436991

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	0.25	mg/L			11/09/18 10:57	1
Sulfate	ND		5.0	0.23	mg/L			11/09/18 10:57	1

Lab Sample ID: LCS 280-436991/4
Matrix: Water
Analysis Batch: 436991

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100	98.3		mg/L		98	90 - 110
Sulfate	100	102		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-436991/5
Matrix: Water
Analysis Batch: 436991

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100	98.4		mg/L		98	90 - 110	0	10
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-436991/3
Matrix: Water
Analysis Batch: 436991

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.50	2.83	J	mg/L		113	50 - 150
Sulfate	2.50	2.84	J	mg/L		114	50 - 150

Lab Sample ID: 280-115944-3 MS
Matrix: Water
Analysis Batch: 436991

Client Sample ID: MW-116D-20181019-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	32	F1	25.0	64.1	F1	mg/L		130	80 - 120
Sulfate	7.7	F1	25.0	39.8	F1	mg/L		128	80 - 120

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 280-115944-3 MSD
Matrix: Water
Analysis Batch: 436991

Client Sample ID: MW-116D-20181019-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	32	F1	25.0	63.5	F1	mg/L		128	80 - 120	1	20
Sulfate	7.7	F1	25.0	39.3	F1	mg/L		126	80 - 120	1	20

Lab Sample ID: 280-115944-3 DU
Matrix: Water
Analysis Batch: 436991

Client Sample ID: MW-116D-20181019-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	32	F1	31.2		mg/L		1	15
Sulfate	7.7	F1	7.27		mg/L		6	15

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-435318/5
Matrix: Water
Analysis Batch: 435318

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0	1.1	mg/L			10/26/18 19:43	1

Lab Sample ID: LCS 280-435318/4
Matrix: Water
Analysis Batch: 435318

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	200	191		mg/L		96	90 - 110

Method: SM 4500 CN E - Cyanide, Total

Lab Sample ID: MB 280-435873/5-A
Matrix: Water
Analysis Batch: 436101

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435873

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0020	mg/L		11/01/18 10:16	11/02/18 11:32	1

Lab Sample ID: HLCS 280-435873/1-A
Matrix: Water
Analysis Batch: 436101

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435873

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.350	0.343		mg/L		98	90 - 110

Lab Sample ID: LCS 280-435873/3-A
Matrix: Water
Analysis Batch: 436101

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435873

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.100	0.106		mg/L		106	90 - 110

QC Sample Results

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115944-1

Lab Sample ID: LCSD 280-435873/4-A
Matrix: Water
Analysis Batch: 436101

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435873

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total			0.100	0.104		mg/L		104	90 - 110	2	10

Lab Sample ID: LLCS 280-435873/2-A
Matrix: Water
Analysis Batch: 436101

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435873

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			0.100	0.0964		mg/L		96	90 - 110		

Lab Sample ID: 280-115944-4 MS
Matrix: Water
Analysis Batch: 436101

Client Sample ID: RW-2140H-20181019
Prep Type: Total/NA
Prep Batch: 435873

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total	ND		0.100	0.102		mg/L		102	90 - 110		

Lab Sample ID: 280-115944-4 MSD
Matrix: Water
Analysis Batch: 436101

Client Sample ID: RW-2140H-20181019
Prep Type: Total/NA
Prep Batch: 435873

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		0.100	0.102		mg/L		102	90 - 110	1	20

GC/MS VOA

Analysis Batch: 435966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	8260B	
280-115944-2	MW-116D-20181019	Total/NA	Water	8260B	
280-115944-3	MW-116D-20181019-2	Total/NA	Water	8260B	
280-115944-4	RW-2140H-20181019	Total/NA	Water	8260B	
280-115944-5	EB-5-VOC-20181019	Total/NA	Water	8260B	
280-115944-6	TB-10-VOC-20181019	Total/NA	Water	8260B	
MB 280-435966/6	Method Blank	Total/NA	Water	8260B	
LCS 280-435966/10	Lab Control Sample	Total/NA	Water	8260B	
LCS 280-435966/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-435966/11	Lab Control Sample Dup	Total/NA	Water	8260B	
LCSD 280-435966/5	Lab Control Sample Dup	Total/NA	Water	8260B	

Metals

Prep Batch: 434972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	3010A	
280-115944-2	MW-116D-20181019	Total/NA	Water	3010A	
280-115944-3	MW-116D-20181019-2	Total/NA	Water	3010A	
280-115944-4	RW-2140H-20181019	Total/NA	Water	3010A	
MB 280-434972/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-434972/2-A	Lab Control Sample	Total/NA	Water	3010A	

Prep Batch: 435480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	3020A	
280-115944-2	MW-116D-20181019	Total/NA	Water	3020A	
280-115944-3	MW-116D-20181019-2	Total/NA	Water	3020A	
280-115944-4	RW-2140H-20181019	Total/NA	Water	3020A	
MB 280-435480/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-435480/2-A	Lab Control Sample	Total/NA	Water	3020A	

Analysis Batch: 435661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	6010C	434972
280-115944-2	MW-116D-20181019	Total/NA	Water	6010C	434972
280-115944-3	MW-116D-20181019-2	Total/NA	Water	6010C	434972
280-115944-4	RW-2140H-20181019	Total/NA	Water	6010C	434972
MB 280-434972/1-A	Method Blank	Total/NA	Water	6010C	434972
LCS 280-434972/2-A	Lab Control Sample	Total/NA	Water	6010C	434972

Prep Batch: 436187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	7470A	
280-115944-2	MW-116D-20181019	Total/NA	Water	7470A	
280-115944-3	MW-116D-20181019-2	Total/NA	Water	7470A	
280-115944-4	RW-2140H-20181019	Total/NA	Water	7470A	
MB 280-436187/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-436187/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-436187/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Metals (Continued)

Analysis Batch: 436252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	7470A	436187
280-115944-2	MW-116D-20181019	Total/NA	Water	7470A	436187
280-115944-3	MW-116D-20181019-2	Total/NA	Water	7470A	436187
280-115944-4	RW-2140H-20181019	Total/NA	Water	7470A	436187
MB 280-436187/1-A	Method Blank	Total/NA	Water	7470A	436187
LCS 280-436187/2-A	Lab Control Sample	Total/NA	Water	7470A	436187
LCSD 280-436187/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	436187

Analysis Batch: 436784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	6020B	435480
280-115944-2	MW-116D-20181019	Total/NA	Water	6020B	435480
280-115944-3	MW-116D-20181019-2	Total/NA	Water	6020B	435480
280-115944-4	RW-2140H-20181019	Total/NA	Water	6020B	435480
MB 280-435480/1-A	Method Blank	Total/NA	Water	6020B	435480
LCS 280-435480/2-A	Lab Control Sample	Total/NA	Water	6020B	435480

General Chemistry

Analysis Batch: 435318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	SM 2320B	
280-115944-2	MW-116D-20181019	Total/NA	Water	SM 2320B	
280-115944-3	MW-116D-20181019-2	Total/NA	Water	SM 2320B	
MB 280-435318/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-435318/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Prep Batch: 435873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	SM 4500 CN C	
280-115944-2	MW-116D-20181019	Total/NA	Water	SM 4500 CN C	
280-115944-3	MW-116D-20181019-2	Total/NA	Water	SM 4500 CN C	
280-115944-4	RW-2140H-20181019	Total/NA	Water	SM 4500 CN C	
MB 280-435873/5-A	Method Blank	Total/NA	Water	SM 4500 CN C	
HLCS 280-435873/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCS 280-435873/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCSD 280-435873/4-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 CN C	
LLCS 280-435873/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
280-115944-4 MS	RW-2140H-20181019	Total/NA	Water	SM 4500 CN C	
280-115944-4 MSD	RW-2140H-20181019	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 435969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	353.2	
280-115944-2	MW-116D-20181019	Total/NA	Water	353.2	
280-115944-3	MW-116D-20181019-2	Total/NA	Water	353.2	
MB 280-435969/22	Method Blank	Total/NA	Water	353.2	
LCS 280-435969/21	Lab Control Sample	Total/NA	Water	353.2	

General Chemistry (Continued)

Analysis Batch: 436101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	SM 4500 CN E	435873
280-115944-2	MW-116D-20181019	Total/NA	Water	SM 4500 CN E	435873
280-115944-3	MW-116D-20181019-2	Total/NA	Water	SM 4500 CN E	435873
280-115944-4	RW-2140H-20181019	Total/NA	Water	SM 4500 CN E	435873
MB 280-435873/5-A	Method Blank	Total/NA	Water	SM 4500 CN E	435873
HLCS 280-435873/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	435873
LCS 280-435873/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	435873
LCSD 280-435873/4-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 CN E	435873
LLCS 280-435873/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	435873
280-115944-4 MS	RW-2140H-20181019	Total/NA	Water	SM 4500 CN E	435873
280-115944-4 MSD	RW-2140H-20181019	Total/NA	Water	SM 4500 CN E	435873

Analysis Batch: 436991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115944-1	MW-116S-20181019	Total/NA	Water	9056A	
280-115944-2	MW-116D-20181019	Total/NA	Water	9056A	
280-115944-3	MW-116D-20181019-2	Total/NA	Water	9056A	
MB 280-436991/6	Method Blank	Total/NA	Water	9056A	
LCS 280-436991/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-436991/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-436991/3	Lab Control Sample	Total/NA	Water	9056A	
280-115944-3 MS	MW-116D-20181019-2	Total/NA	Water	9056A	
280-115944-3 MSD	MW-116D-20181019-2	Total/NA	Water	9056A	
280-115944-3 DU	MW-116D-20181019-2	Total/NA	Water	9056A	

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115944-1

Client Sample ID: MW-116S-20181019

Lab Sample ID: 280-115944-1

Date Collected: 10/19/18 13:45

Matrix: Water

Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	435966	11/02/18 01:58	RSN	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	434972	10/28/18 13:00	DAL	TAL DEN
Total/NA	Analysis	6010C		1			435661	10/30/18 15:07	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	435480	10/31/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			436784	11/07/18 13:06	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	436187	11/03/18 12:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			436252	11/04/18 09:18	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	435969	11/01/18 18:49	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	436991	11/09/18 16:47	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			435318	10/26/18 21:48	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	435873	11/01/18 10:16	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	436101	11/02/18 11:54	RK	TAL DEN

Client Sample ID: MW-116D-20181019

Lab Sample ID: 280-115944-2

Date Collected: 10/19/18 11:45

Matrix: Water

Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	435966	11/02/18 02:17	RSN	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	434972	10/28/18 13:00	DAL	TAL DEN
Total/NA	Analysis	6010C		1			435661	10/30/18 15:24	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	435480	10/31/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			436784	11/07/18 13:09	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	436187	11/03/18 12:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			436252	11/04/18 09:20	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	435969	11/01/18 18:51	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	436991	11/09/18 17:05	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			435318	10/26/18 21:56	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	435873	11/01/18 10:16	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	436101	11/02/18 11:56	RK	TAL DEN

Client Sample ID: MW-116D-20181019-2

Lab Sample ID: 280-115944-3

Date Collected: 10/19/18 17:30

Matrix: Water

Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	435966	11/02/18 02:35	RSN	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	434972	10/28/18 13:00	DAL	TAL DEN
Total/NA	Analysis	6010C		1			435661	10/30/18 15:28	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	435480	10/31/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			436784	11/07/18 13:13	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	436187	11/03/18 12:15	THP	TAL DEN

Lab Chronicle

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115944-1

Client Sample ID: MW-116D-20181019-2

Lab Sample ID: 280-115944-3

Date Collected: 10/19/18 17:30
Matrix: Water
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7470A		1			436252	11/04/18 09:23	THP	TAL DEN
Total/NA	Analysis	353.2		1	100 mL	100 mL	435969	11/01/18 18:54	SVC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	436991	11/09/18 17:24	A1D	TAL DEN
Total/NA	Analysis	SM 2320B		1			435318	10/26/18 21:39	SGB	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	435873	11/01/18 10:16	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	436101	11/02/18 11:57	RK	TAL DEN

Client Sample ID: RW-2140H-20181019

Lab Sample ID: 280-115944-4

Date Collected: 10/19/18 18:15
Matrix: Water
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	435966	11/02/18 02:54	RSN	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	434972	10/28/18 13:00	DAL	TAL DEN
Total/NA	Analysis	6010C		1			435661	10/30/18 15:31	CML	TAL DEN
Total/NA	Prep	3020A			50 mL	50 mL	435480	10/31/18 16:45	LRD	TAL DEN
Total/NA	Analysis	6020B		1			436784	11/07/18 13:17	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	436187	11/03/18 12:15	THP	TAL DEN
Total/NA	Analysis	7470A		1			436252	11/03/18 19:43	THP	TAL DEN
Total/NA	Prep	SM 4500 CN C			50 mL	50 mL	435873	11/01/18 10:16	RK	TAL DEN
Total/NA	Analysis	SM 4500 CN E		1	50 mL	50 mL	436101	11/02/18 11:59	RK	TAL DEN

Client Sample ID: EB-5-VOC-20181019

Lab Sample ID: 280-115944-5

Date Collected: 10/19/18 14:00
Matrix: Water
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	435966	11/02/18 03:12	RSN	TAL DEN

Client Sample ID: TB-10-VOC-20181019

Lab Sample ID: 280-115944-6

Date Collected: 10/19/18 16:00
Matrix: Water
Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	435966	11/02/18 03:31	RSN	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: CDM Smith, Inc.
Project/Site: Bannock Ft. Hall Mine LF, Idaho

TestAmerica Job ID: 280-115944-1

Laboratory: TestAmerica Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19
A2LA	ISO/IEC 17025		2907.01	10-31-19
Alabama	State Program	4	40730	09-30-12 *
Alaska (UST)	State Program	10	UST-30	01-08-19
Arizona	State Program	9	AZ0713	12-20-18
Arkansas DEQ	State Program	6	88-0687	06-01-19
California	State Program	9	2513	01-18-19
Connecticut	State Program	1	PH-0686	09-30-20
Florida	NELAP	4	E87667	06-30-19
Georgia	State Program	4	N/A	01-08-19 *
Illinois	NELAP	5	200017	04-30-19
Iowa	State Program	7	370	12-01-18
Kansas	NELAP	7	E-10166	04-30-19
Louisiana	NELAP	6	02096	06-30-19
Maine	State Program	1	CO0002	03-03-19
Minnesota	NELAP	5	8-999-405	12-31-18
Nevada	State Program	9	CO0026	07-31-19
New Hampshire	NELAP	1	205310	04-28-19
New Jersey	NELAP	2	CO004	06-30-19
New York	NELAP	2	11964	04-01-19
North Carolina (WW/SW)	State Program	4	358	12-31-18
North Dakota	State Program	8	R-034	01-08-19
Oklahoma	State Program	6	8614	08-31-19
Oregon	NELAP	10	4025	01-08-19
Pennsylvania	NELAP	3	68-00664	07-31-19
South Carolina	State Program	4	72002001	01-08-19
Texas	NELAP	6	T104704183-17-14	09-30-19
US Fish & Wildlife	Federal			07-31-19
USDA	Federal			03-26-21
Utah	NELAP	8	CO00026	07-31-19
Virginia	NELAP	3	460232	06-14-19
Washington	State Program	10	C583	08-03-19
West Virginia DEP	State Program	3	354	12-31-18
Wisconsin	State Program	5	999615430	08-31-19 *
Wyoming (UST)	A2LA	8	2907.01	10-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Michelle Goldberg	Lab PM: Bieniulis, Dylan T.	Carrier Tracking No(s):	COC No:
Client Contact: Mark Hills	Phone: (908)370-5534	E-Mail: Dylan.Bieniulis@testamericainc.com		Page:
Company: CDM Smith, Inc.				Job #:

Address: 34 N Last Chance Gulch, Suite 104	Due Date Requested:	Analysis Requested
City: Helena	TAT Requested (days): 2 Day TAT * See NOTE FOR RW-2140H	
State, Zip: MT, 59601	PO #:	
Phone:	WO #:	
Email: HillsMW@cdmsmith.com	Project #: See TA PM at sample receipt for project #	
Project Name: Bannock Ft. Hall Mine LF, Idaho	SSOW#:	
Site:		

280-115944 Chain of Custody

K - EDTA
L - EDA
Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs	6010/6020 - Total Metals	8270C - SVOCs	8081A - Organochlorine Pesticides	8141A Organophosphorous Pesticides	8151A - Chlorinated Herbicides	8082A - PCBs	8290 - Dioxins/Furans (TA SACRAMENTO)	7470A - Mercury	4500_CN_E - Total Cyanide	SM4500_S2_D - Total Sulfide	9056A - Anions (Cl and SO4)	2320B - Alkalinity	353.2 - Nitrate/Nitrite	RSK-175 - Dissolved Gases (I	9060A - TOC	Total Number of containe	Special Instructions/Note:
			Preservation Code:				A	D	N	N	N	N	N	N	D	B	C/B	N	N	S	A	S		
MW-1165-20181019	10/19/18	1345	G	W			3	1							1	1	X	1	1	1			8	MG 10/23/18
MW-116D-20181019	10/19/18	1145	G	W			3	1							1	1	X	1	1	1			8	
MW-116D-20181019-X MG 10/23/18 2	10/19/18	1730	G	W			3	1							1	1	X	1	1	1			8	
RW-2140H-20181019	10/19/18	1815	G	W			3	1							1	1							5	TAT 15 Days
EB-5-VOC-20181019	10/19/18	1400	G	W			3																3	
TB-10-VOC-20181019	10/19/18	1600	G	W			2																2	

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Level Two	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: M. Goldberg	Date/Time: 10/22/18 / 1235	Company: CDM Smith	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10/23/18 0850	Company TA Den

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.2°C IR#9 cf+0.7 checked by JPK

Login Sample Receipt Checklist

Client: CDM Smith, Inc.

Job Number: 280-115944-1

Login Number: 115944
List Number: 1
Creator: Rhoades, Joseph P

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix F

Model Interpolation Source Data

Location	Start Depth (ft)	End Depth (ft)	Screen Depth	PCE Sample Date	PCE_Result_µg/l	Qual	TCE Sample Date	TCE_Result_µg/l	Qual	cis-DCE Sample Date	cis-DCE_Result_µg/l	Qual	VC Sample Date	VC_Result_µg/l	Qual
CW-2-EXT	121	130	Actual	8/10/2017	0.381	J	8/10/2017	2.94		8/10/2017	0.26	U	8/10/2017	0.259	U
INJ-1R	0	1	Estimated	10/6/2018	0.2	U	10/6/2018	0.61	J	10/6/2018	0.15	U	10/6/2018	0.1	U
Muni-Well-10	100	125	Estimated	7/18/1997	0.6		9/14/2010	0.54							
Muni-Well-12	100	125	Estimated				9/9/2014	0.54							
Muni-Well-13	100	125	Estimated	12/12/1994	0.5		10/2/2012	0.67							
Muni-Well-14	100	125	Estimated	11/28/1994	0.8		2/1/1999	4.7							
Muni-Well-16	100	125	Estimated				9/16/2003	2.2							
Muni-Well-29	100	125	Estimated				10/10/2002	0.6							
Muni-Well-30	100	125	Estimated				9/16/2003	2.1							
Muni-Well-33	100	125	Estimated	2/1/1999	0.6		6/8/2009	2.27							
Muni-Well-36	100	125	Estimated	6/8/1998	0.71		9/9/2014	0.59							
MW-1	100	125	Estimated	10/5/2018	0.29	J	10/5/2018	13		10/5/2018	3.4		10/5/2018	0.39	J
MW-101S	55	75	Actual	10/5/2018	6.3		10/5/2018	16		10/5/2018	0.28	J	10/5/2018	0.15	U
MW-102S	125	145	Actual	10/6/2018	0.2	U	10/6/2018	0.16	U	10/6/2018	0.15	U	10/6/2018	0.15	U
MW-103D	173.5	183.5	Actual	10/9/2018	0.2	U	10/9/2018	0.16	U	10/9/2018	0.15	U	10/9/2018	0.15	U
MW-103S	90	110	Actual	10/9/2018	1.4		10/9/2018	8		10/9/2018	0.57	J	10/9/2018	0.15	U
MW-104D	79	89	Actual	10/4/2018	9.3		10/4/2018	140		10/4/2018	16		10/4/2018	0.6	U
MW-104S	47	67	Actual	10/4/2018	86		10/4/2018	750		10/4/2018	12	J	10/4/2018	3	U
MW-105D	72	82	Actual	10/4/2018	30		10/4/2018	240		10/4/2018	12		10/4/2018	0.75	U
MW-105S	45	65	Actual	10/4/2018	3.5		10/4/2018	51		10/4/2018	22		10/4/2018	0.3	U
MW-106D	89	99	Actual	10/8/2018	0.2	U	10/8/2018	0.16	U	10/8/2018	0.15	U	10/8/2018	0.15	U
MW-106S	55	75	Actual	10/7/2018	0.2	U	10/7/2018	0.16	U	10/7/2018	0.15	U	10/7/2018	0.15	U
MW-107S	100	125	Estimated	1/9/2002	1		4/4/2002	17		6/2/1999	2				
MW-109D	75	95	Actual	10/6/2018	8.6		10/6/2018	60		10/6/2018	0.15	U	10/6/2018	0.15	U
MW-109S	42	62	Actual	10/6/2018	30		10/6/2018	110		10/6/2018	0.15	U	10/6/2018	0.15	U
MW-110D	154	159	Actual	10/7/2018	0.61	J	10/7/2018	8.5	J	10/7/2018	1.2		10/7/2018	0.15	U
MW-110S	107.5	127.5	Actual	10/6/2018	4.1		10/6/2018	76		10/6/2018	22		10/6/2018	0.15	J
MW-111D	104	124	Actual	10/4/2018	1.1		10/4/2018	12		10/4/2018	1.1		10/4/2018	0.27	J
MW-111S	54	74	Actual	10/4/2018	0.4	U	10/4/2018	0.32	U	10/4/2018	0.61	J	10/4/2018	0.34	J
MW-112D	93	103	Actual	10/5/2018	11		10/5/2018	200		10/5/2018	0.2	J	10/5/2018	0.15	U
MW-112M	66	76	Actual	10/5/2018	7		10/5/2018	120		10/5/2018	0.6	U	10/5/2018	0.6	U
MW-112S	41	61	Actual	7/6/1999	4		7/6/1999	94							
MW-113D	115	135	Actual	10/4/2018	5		10/4/2018	5.5		10/4/2018	17		10/4/2018	0.6	J
MW-113S	74	94	Actual	10/4/2018	31		10/4/2018	23		10/4/2018	38		10/4/2018	1.8	J
MW-115D	100	120	Actual	10/8/2018	0.2	U	10/8/2018	0.16	U	10/8/2018	0.15	U	10/8/2018	0.15	U
MW-115S	80	90	Actual	10/8/2018	0.2	U	10/8/2018	0.35	J	10/8/2018	0.15	U	10/8/2018	0.15	U
MW-116D	122	142	Actual	10/19/2018	0.2	U	10/19/2018	0.16	U	10/19/2018	0.15	U	10/19/2018	0.15	U
MW-116S	78	93	Actual	10/19/2018	2.2		10/19/2018	26		10/19/2018	2.1		10/19/2018	0.15	U
MW-117D	133	143	Actual	7/19/2017	2.11		7/19/2017	4.1		7/19/2017	0.26	U	7/19/2017	0.259	U
MW-117S	110	130	Actual	7/19/2017	8.53		7/19/2017	43.5		7/19/2017	1.37		7/19/2017	0.259	U
MW-117R	113	123	Actual	4/17/2018	8.24		4/17/2018	53.6		4/17/2018	3.85		4/17/2018	0.259	U
MW-118D	82	102	Actual	10/3/2018	19		10/3/2018	170		10/3/2018	9		10/3/2018	0.6	U
MW-119D	90	100	Actual	10/3/2018	9		10/3/2018	65		10/3/2018	1.3	J	10/3/2018	0.6	U
MW-119S	70	80	Actual	10/3/2018	9.3		10/3/2018	53		10/3/2018	1.3	J	10/3/2018	0.6	U
MW-12	168.5	208.5	Actual	10/8/2018	0.2	U	10/8/2018	0.16	U	10/8/2018	0.15	U	10/8/2018	0.15	U
MW-120D	90	100	Actual	10/3/2018	15		10/3/2018	160		10/3/2018	15		10/3/2018	0.6	U
MW-120S	70	80	Actual	10/3/2018	16		10/3/2018	150		10/3/2018	16		10/3/2018	0.6	U
MW-121	67	87	Actual	10/7/2018	0.78	J	10/7/2018	4		10/7/2018	1.5		10/7/2018	0.1	U
MW-13	157	177	Actual	10/6/2018	0.23	J	10/6/2018	0.16	U	10/6/2018	0.4	J	10/6/2018	0.15	U
MW-3A	379	399	Actual	10/8/2018	0.2	U	10/8/2018	0.16	U	10/8/2018	0.15	U	10/8/2018	0.15	U
MW-3A	379	399	Actual	10/8/2018	0.2	U	10/8/2018	0.16	U	10/8/2018	0.15	U	10/8/2018	0.1	U
MW-4	141	181	Actual	10/5/2018	4.1		10/5/2018	0.32	J	10/5/2018	0.97	J	10/5/2018	0.15	U
MW-4A	179	199	Actual	10/5/2018	0.2	U	10/5/2018	0.16	U	10/5/2018	0.15	U	10/5/2018	0.15	U
MW-5A	276	296	Actual	10/8/2018	0.2	U	10/8/2018	0.16	U	10/8/2018	0.15	U	10/8/2018	0.15	U
MW-6A	145.4	165.4	Actual	10/5/2018	0.2	U	10/5/2018	0.16	U	10/5/2018	0.15	U	10/5/2018	0.15	U
MW-7	169.5	189.5	Actual	10/8/2018	0.38	J	10/8/2018	0.75	J	10/8/2018	16		10/8/2018	0.15	U
MW-8	189.5	229.5	Actual	10/7/2018	0.2	U	10/7/2018	0.16	U	10/7/2018	0.15	U	10/7/2018	0.15	U
MW-9	229.5	269.5	Actual	10/7/2018	0.2	U	10/7/2018	0.16	U	10/7/2018	0.15	U	10/7/2018	0.15	U
PA-1	128.5	148.5	Actual	8/10/2017	0.372	U	8/10/2017	2.12		8/10/2017	0.26	U	8/10/2017	0.259	U
PA-10	100	125	Estimated				11/12/1997	0.4							
PA-2	100	125	Estimated				11/12/1997	0.7							
PA-3	47.5	67.5	Actual	8/10/2017	0.372	U	8/10/2017	1.66		8/10/2017	0.26	U	8/10/2017	0.259	U
PA-4	134.6	144.6	Actual	8/10/2017	0.372	U	8/10/2017	2.18		8/10/2017	0.26	U	8/10/2017	0.259	U
PA-5	100	125	Estimated	11/12/1997	0.4		1/31/2002	1.9							
PA-6	100	125	Estimated	11/17/1997	0.2		1/31/2002	1.6							
PA-7	100	125	Estimated	11/12/1997	0.3		1/31/2002	2.5							
PA-8	100	125	Estimated	11/12/1997	0.3		1/31/2002	1.9							
RW-1	60	100	Actual	7/21/2017	24.1		7/21/2017	171		7/21/2017	15		7/21/2017	2.86	
RW-10	50	85	Actual	10/7/2018	19		10/7/2018	49		10/7/2018	0.99	J	10/7/2018	0.15	U
RW-15	45	105	Actual	10/7/2018	19		10/7/2018	100		10/7/2018	12		10/7/2018	0.15	U
RW-17	43.5	103.5	Actual	10/7/2018	22		10/7/2018	100		10/7/2018	3.2		10/7/2018	0.15	U
RW-2	70	90	Actual	7/21/2017	25.3		7/21/2017	160		7/21/2017	18.9		7/21/2017	0.929	J
RW-2076F	100	125	Estimated	8/2/2017	0.372	U	8/2/2017	0.588	J	8/2/2017	0.26	UB	8/2/2017	0.259	U
RW-2140H	100	125	Estimated	10/19/2018	4.9		10/19/2018	34		10/19/2018	2.3		10/19/2018	0.15	U
RW-2151H	100	125	Estimated	11/16/2017	4.66		11/16/2017	34.4		11/16/2017	3.85		11/16/2017	0.259	U
RW-2172F	100	125	Estimated	8/2/2017	0.372	U	8/2/2017	0.398	U	8/2/2017	0.26	UB	8/2/2017	0.259	U
RW-2172H	100	125	Estimated	8/8/2017	6.69		8/8/2017	37.7		8/8/2017	2.15		8/8/2017	0.259	U
RW-2203H	100	125	Estimated	8/9/2017	2.5		8/9/2017	27.5		8/9/2017	2.1		8/9/2017	0.259	U
RW-2213F	133	138	Actual	8/2/2017	0.372	U	8/2/2017	0.398	U	8/2/2017	0.26	UB	8/2/2017	0.259	U
RW-2237H	100	125	Estimated	8/3/2017	7.84		8/3/2017	44.3		8/3/2017	3.18	B	8/3/2017	0.259	U
RW-2879M	110	205	Estimated	8/11/2017	0.372	U	8/11/2017	0.398	U	8/11/2017	0.26	U	8/11/2017	0.259	U
RW-3	50	90	Actual	10/7/2018	19		10/7/2018	130		10/7/2018	9.1		10/7/2018	0.15	U

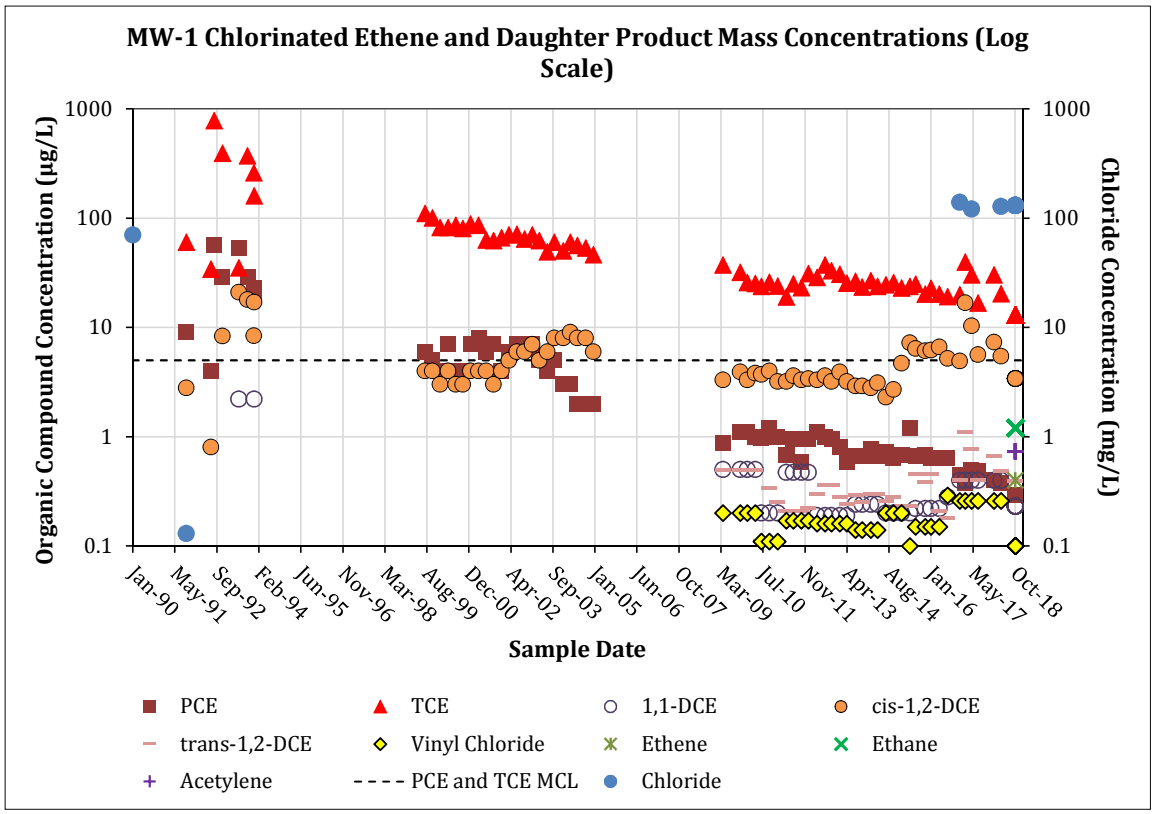
Location	Start Depth (ft)	End Depth (ft)	Screen Depth	PCE Sample Date	PCE_Result_µg/l	Qual	TCE Sample Date	TCE_Result_µg/l	Qual	cis-DCE Sample Date	cis-DCE_Result_µg/l	Qual	VC Sample Date	VC_Result_µg/l	Qual
RW-3259B	73.5	80	Actual	8/16/2017	0.372	U	8/16/2017	0.398	U	8/16/2017	0.26	U	8/16/2017	0.259	U
RW-4	50	100	Actual	10/7/2018	16		10/7/2018	110		10/7/2018	8.7		10/7/2018	0.15	U
RW-5	60	100	Actual	7/21/2017	6.01		7/21/2017	25.4		7/21/2017	0.341	J	7/21/2017	0.259	U
RW-5898B1	100	125	Estimated	8/23/1999	0.54		9/3/2008	2.04							
RW-7077P	100	125	Estimated	8/2/2017	0.372	U	8/2/2017	0.398	U	8/2/2017	0.26	UB	8/2/2017	0.259	U
RW-7244P	100	125	Estimated	8/8/2017	0.372	U	8/8/2017	0.398	U	8/8/2017	0.26	U	8/8/2017	0.259	U
RW-7288P	100	125	Estimated	7/14/2017	0.372	U	7/14/2017	0.398	U	7/14/2017	0.26	U	7/14/2017	0.259	U
RW-7310P	100	125	Estimated	7/13/2017	0.372	U	7/13/2017	0.398	U	7/13/2017	0.26	U	7/13/2017	0.259	U
RW-7350P	100	125	Estimated	8/3/2017	0.372	UJ	8/3/2017	0.398	U	8/3/2017	0.26	UJ	8/3/2017	0.259	U
RW-7492P	100	125	Estimated	7/12/2017	0.372	U	7/12/2017	0.398	U	7/12/2017	0.26	U	7/12/2017	0.259	U
RW-7498P	100	125	Estimated	7/12/2017	0.372	U	7/12/2017	0.398	U	7/12/2017	0.26	U	7/12/2017	0.259	U
RW-7505P	100	125	Estimated	7/13/2017	0.372	U	7/13/2017	0.398	U	7/13/2017	0.26	U	7/13/2017	0.259	U
RW-7549P	100	125	Estimated	7/14/2017	0.822	J	7/14/2017	5.5		7/14/2017	0.266	J	7/14/2017	0.259	U
RW-7586P	90	110	Actual	7/13/2017	0.372	U	7/13/2017	0.398	U	7/13/2017	0.26	U	7/13/2017	0.259	U
RW-7588P	100	125	Estimated	7/14/2017	0.372	U	7/14/2017	0.398	U	7/14/2017	0.26	U	7/14/2017	0.259	U
RW-7677P	100	125	Estimated	8/9/2017	5.45		8/9/2017	33.8		8/9/2017	2.34		8/9/2017	0.259	U
RW-7688P	100	125	Estimated	8/8/2017	0.372	U	8/8/2017	0.398	U	8/8/2017	0.26	U	8/8/2017	0.259	U
RW-7773P	100	125	Estimated	10/7/2018	0.2	U	10/7/2018	0.16	U	10/7/2018	0.15	U	10/7/2018	0.15	U
RW-7776P	100	125	Estimated	8/8/2017	0.372	U	8/8/2017	0.398	U	8/8/2017	0.26	U	8/8/2017	0.259	U
RW-7953P	100	125	Estimated	8/16/2017	0.764	J	8/16/2017	5.61		8/16/2017	0.26	UB	8/16/2017	0.259	U
RW-8000B	100	125	Estimated	8/3/2017	0.786	J	8/3/2017	4.65		8/3/2017	0.26	UB	8/3/2017	0.259	U
RW-8012P	100	125	Estimated	8/3/2017	0.381	J	8/3/2017	2.08		8/3/2017	0.26	UJ	8/3/2017	0.259	U
RW-8030P	100	125	Estimated	8/1/2017	2.67		8/1/2017	16.4		8/1/2017	0.26	UB	8/1/2017	0.259	U
RW-8035P	100	125	Estimated	8/1/2017	0.372	U	8/1/2017	0.398	U	8/1/2017	0.26	UB	8/1/2017	0.259	U
RW-8105PN	100	125	Estimated	8/11/2017	0.372	U	8/11/2017	0.398	U	8/11/2017	0.26	U	8/11/2017	0.259	U
RW-8105PS	80	96	Actual	8/11/2017	0.372	U	8/11/2017	0.398	U	8/11/2017	0.26	U	8/11/2017	0.259	U
RW-8209P	140	150	Actual	8/2/2017	0.372	U	8/2/2017	0.398	U	8/2/2017	0.26	UB	8/2/2017	0.259	U
RW-8249P	247	267	Actual	8/16/2017	0.372	U	8/16/2017	0.398	U	8/16/2017	0.26	U	8/16/2017	0.259	U
RW-9R	51	76	Actual	10/7/2018	12		10/7/2018	210		10/7/2018	15		10/7/2018	0.15	U

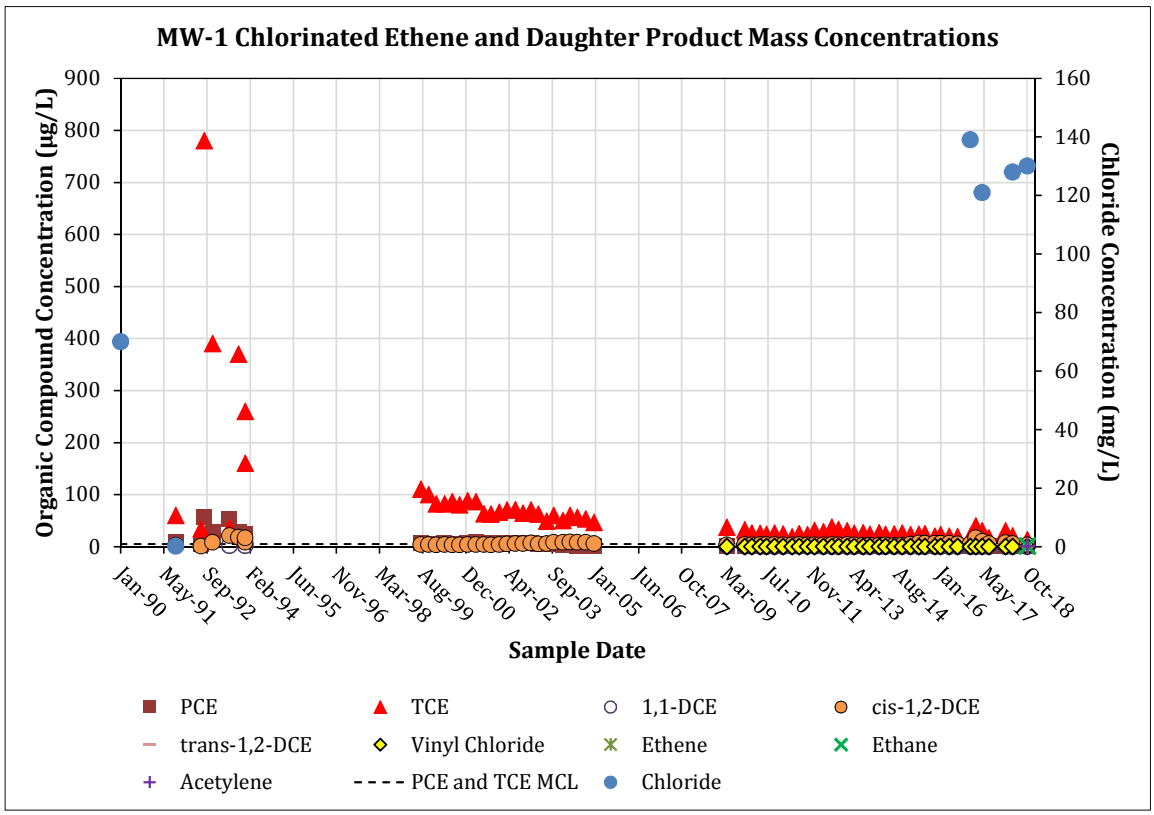
Appendix G

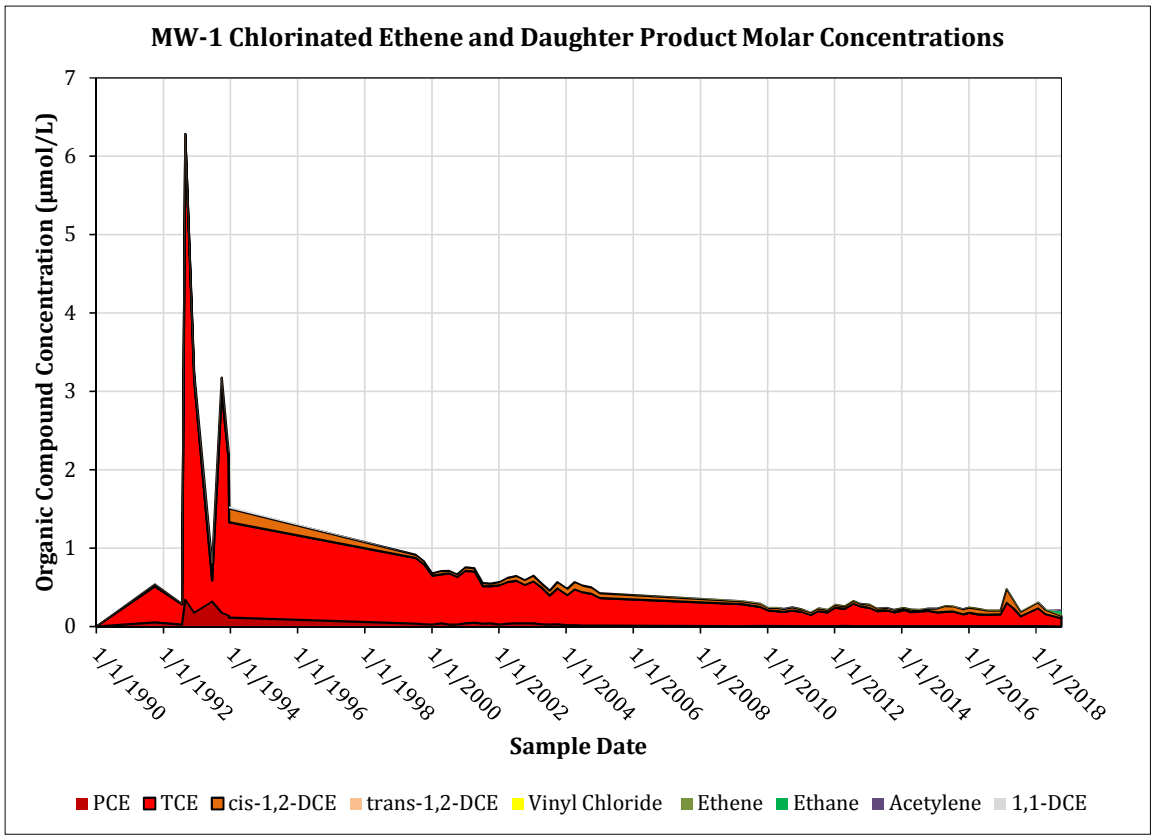
Organics and Geochemistry Trend Charts

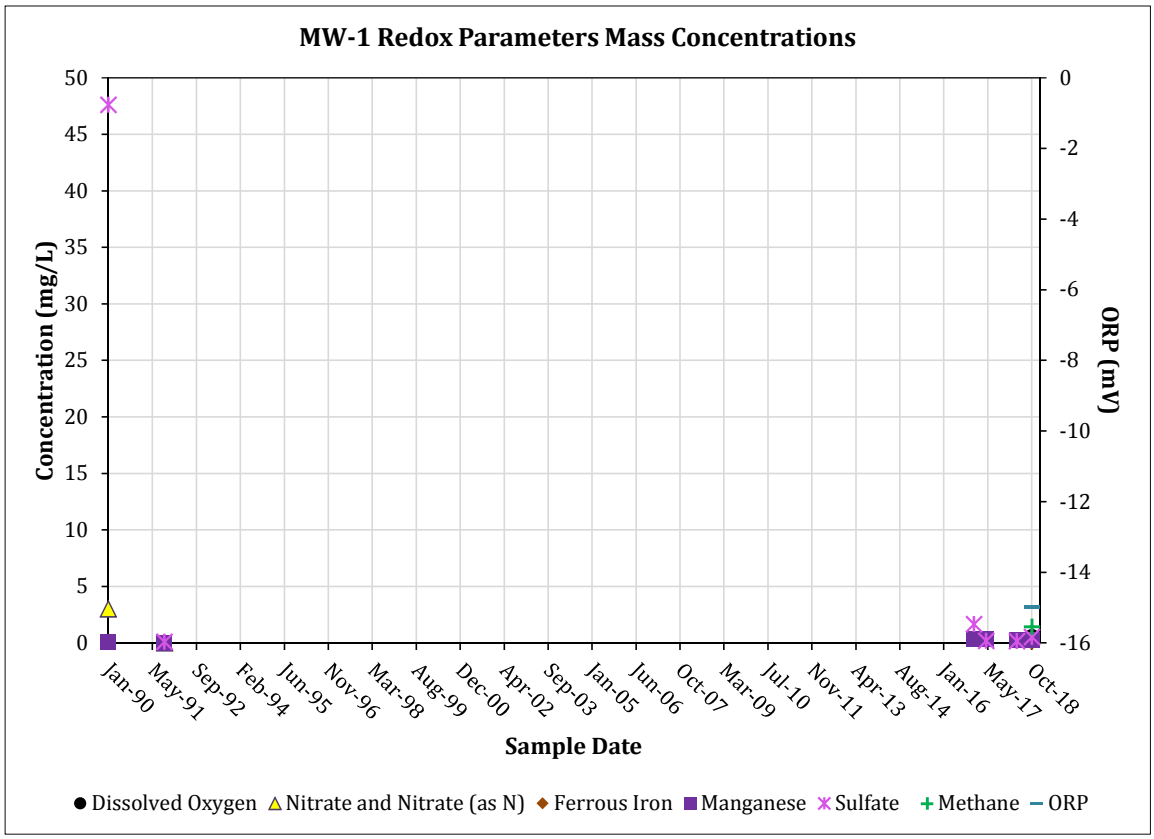
Section 1

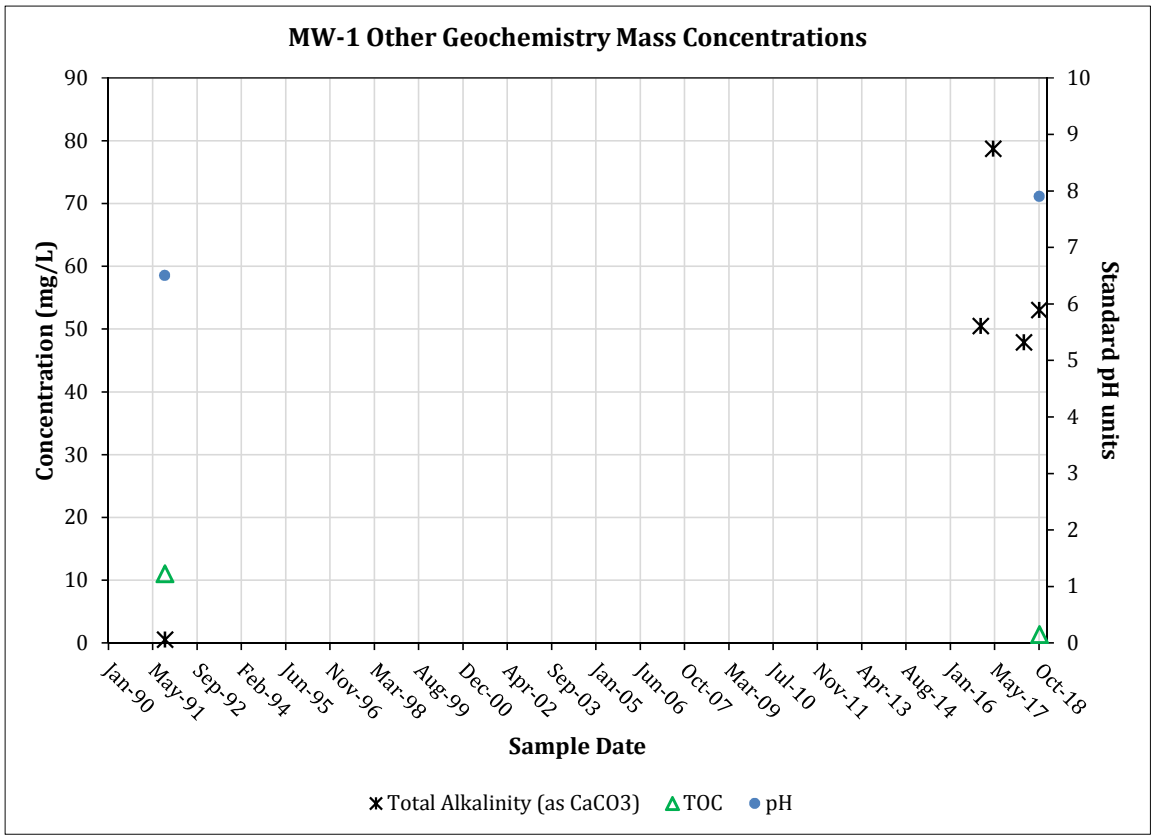
VOC and Geochemistry Trend Charts - Cell 1 Monitoring Wells

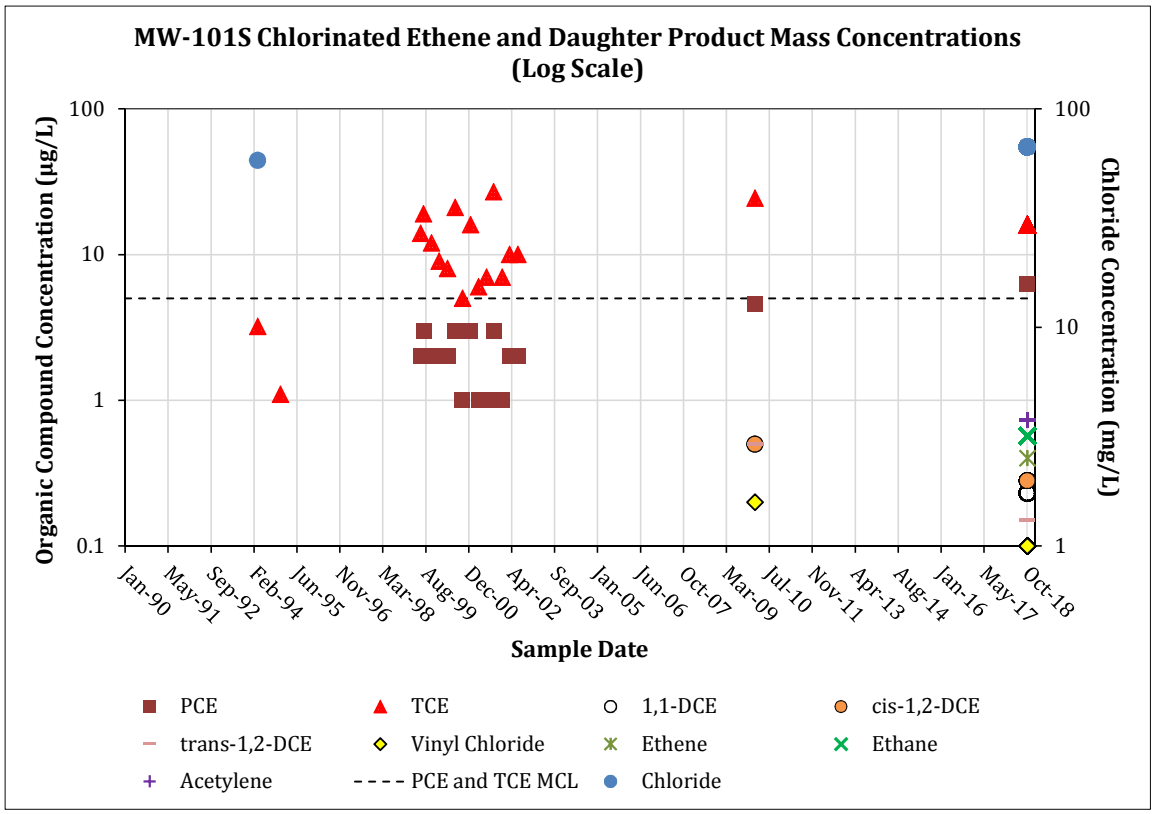

MW-1 Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

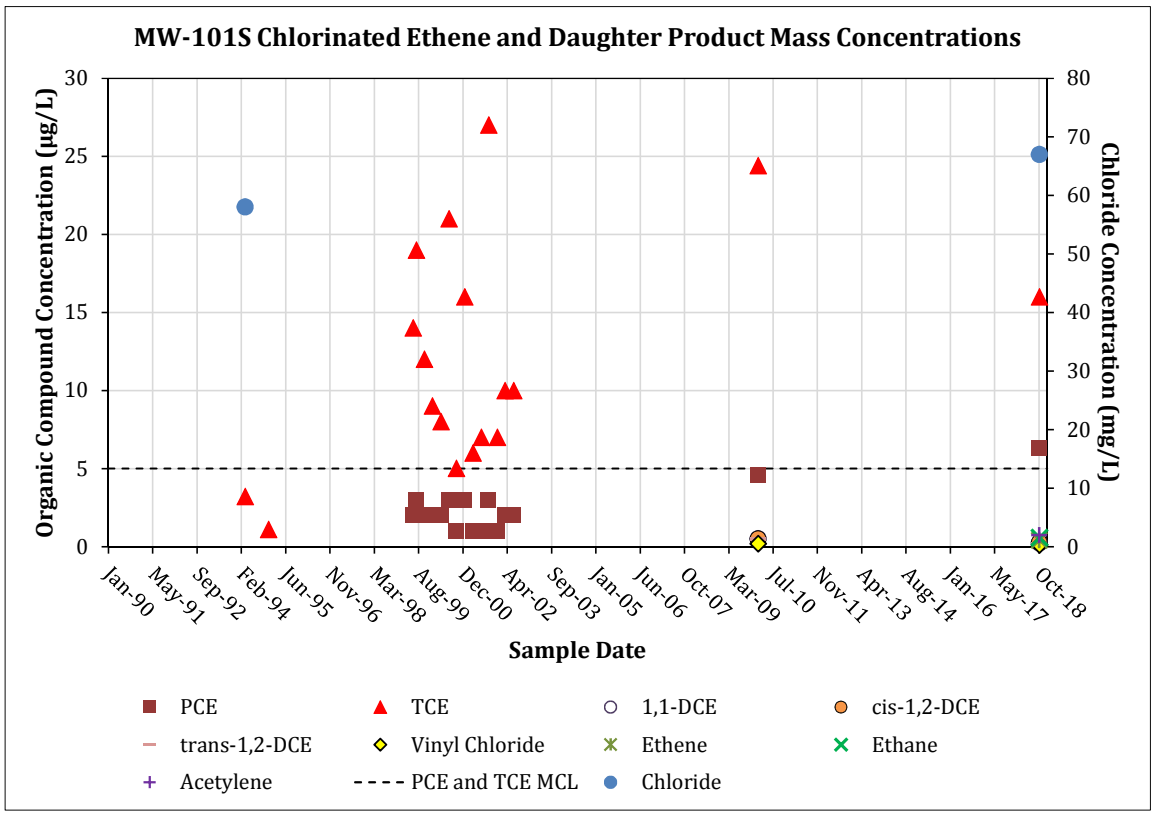

MW-1 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
900
800
700
600
500
400
300
200
100
0
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

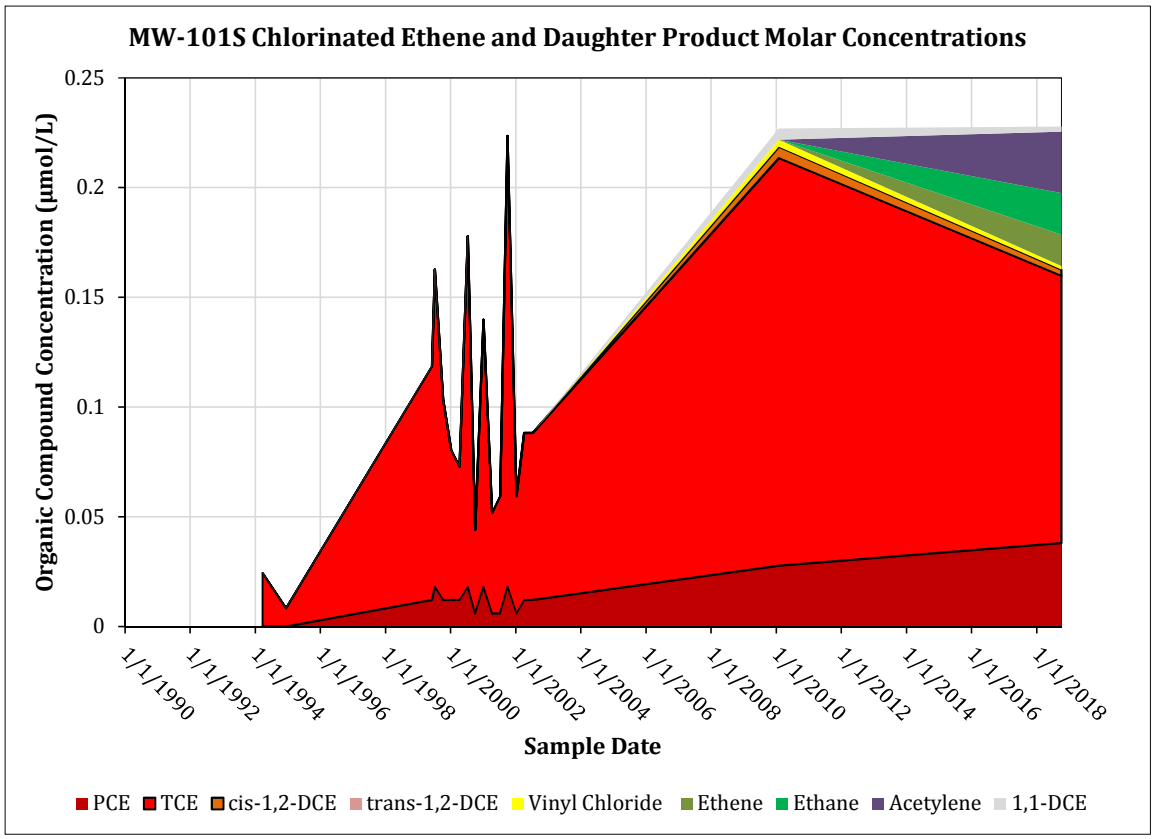

MW-1 Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
0
1
2
3
4
5
6
7
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

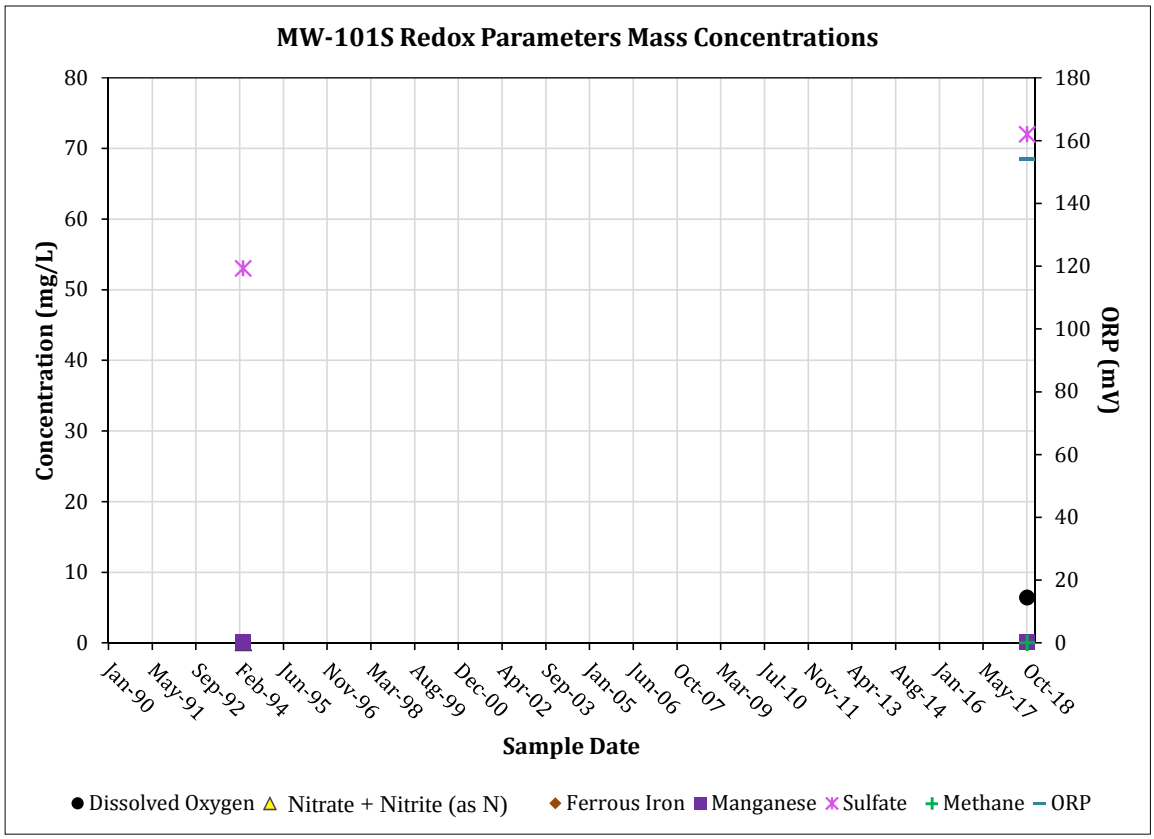

MW-1 Redox Parameters Mass Concentrations
Concentration (mg/L)
0
5
10
15
20
25
30
35
40
45
50
ORP (mV)
0
-2
-4
-6
-8
-10
-12
-14
-16
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

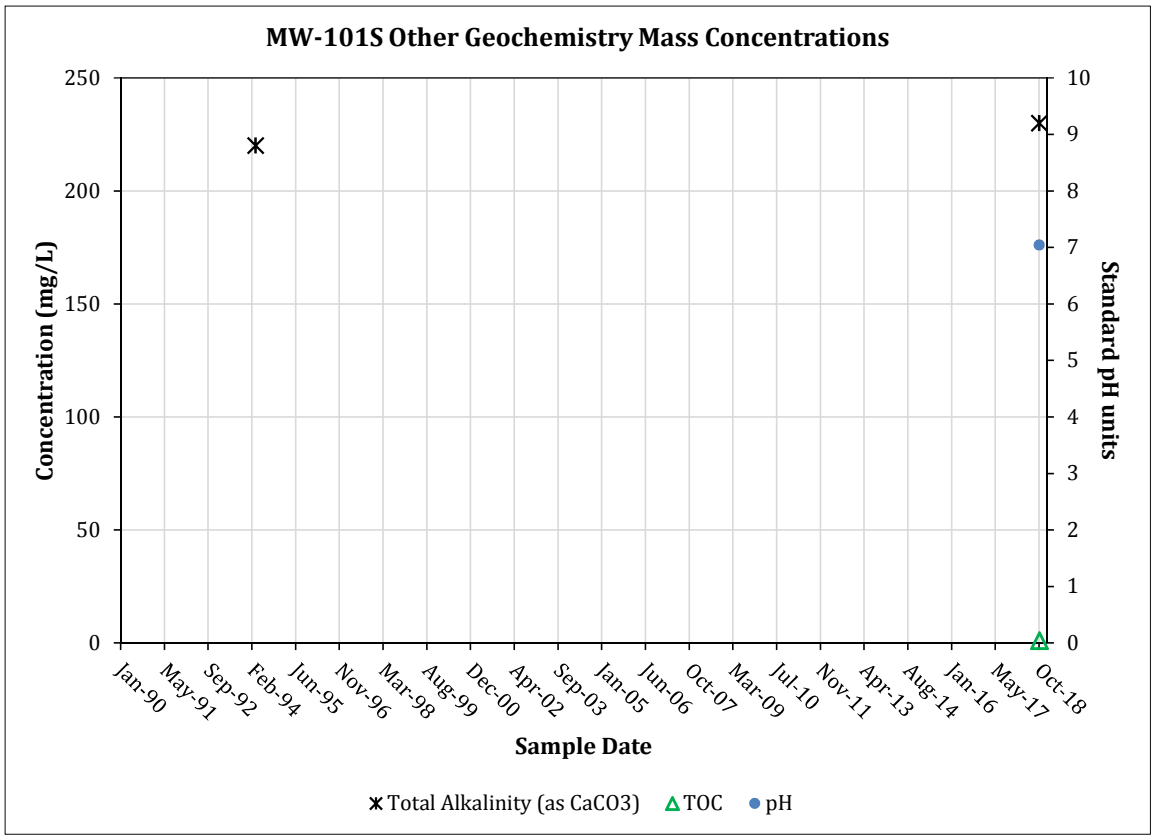

MW-1 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Total Alkalinity (as CaCO3)
TOC
pH

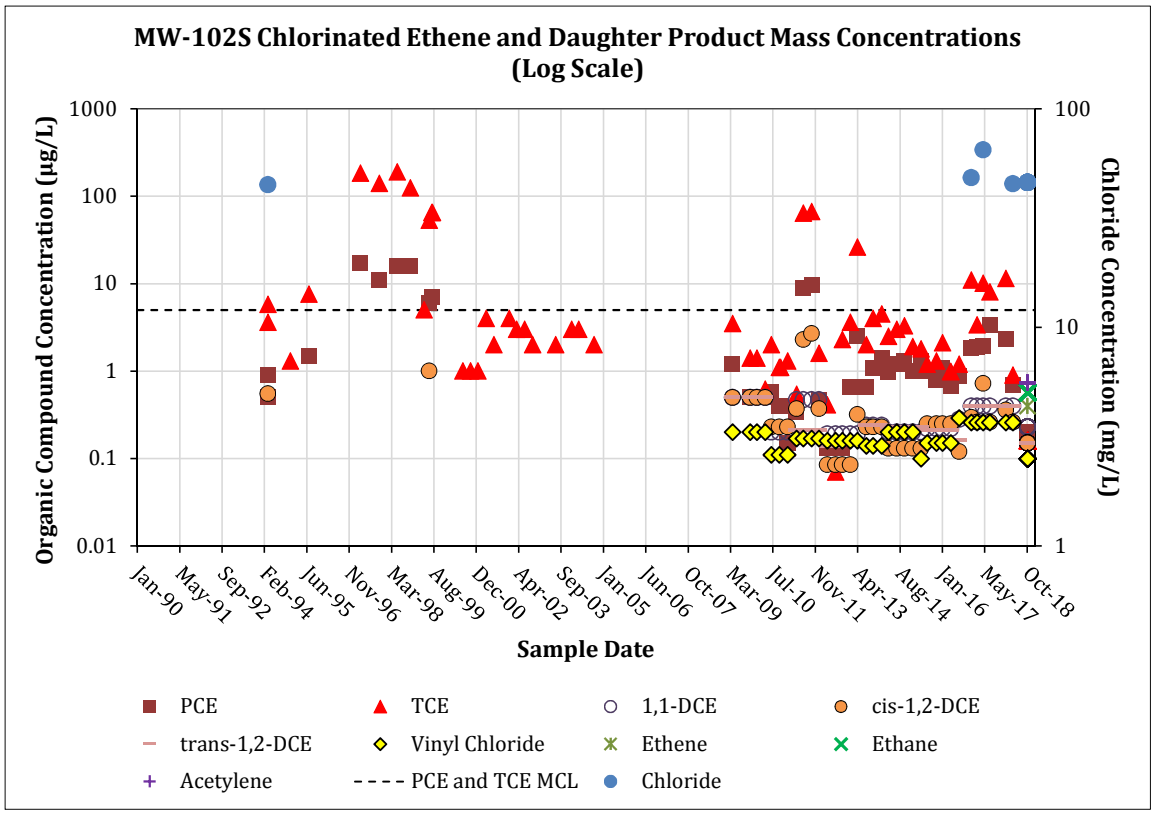

MW-101S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

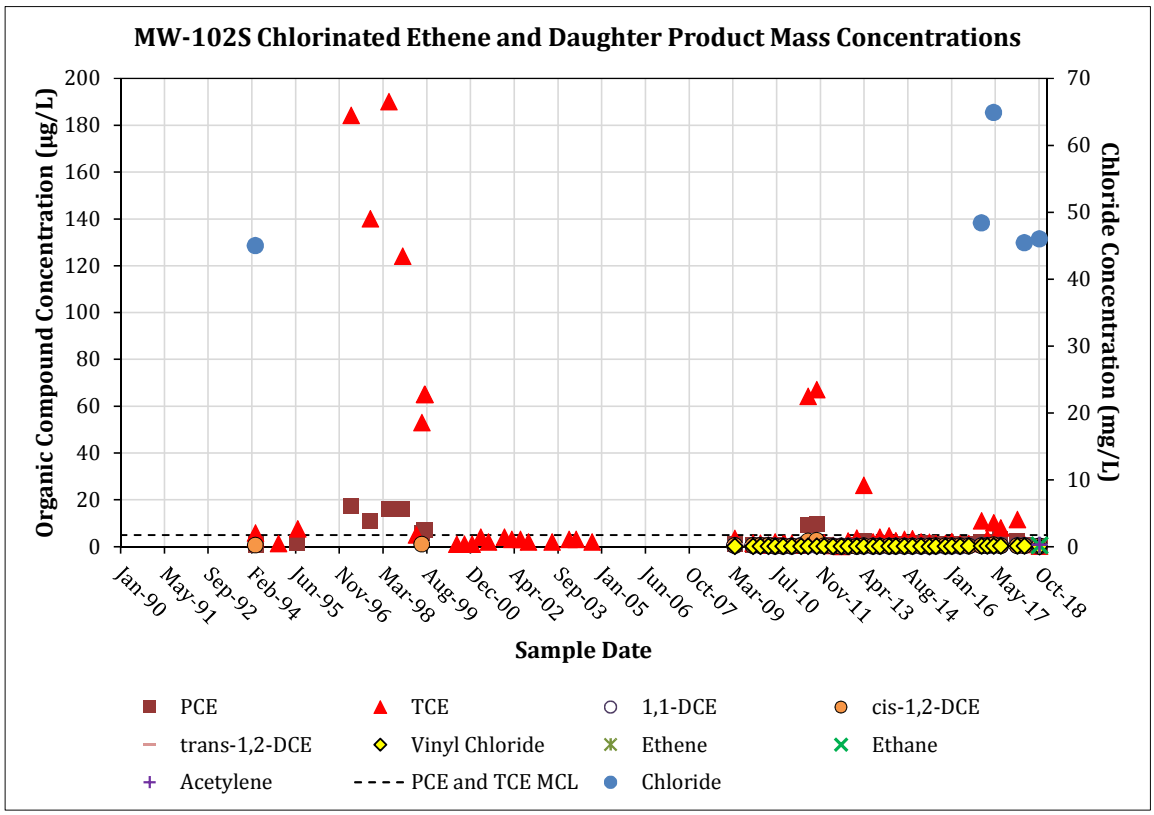

MW-101S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
30
25
20
15
10
5
0
80
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

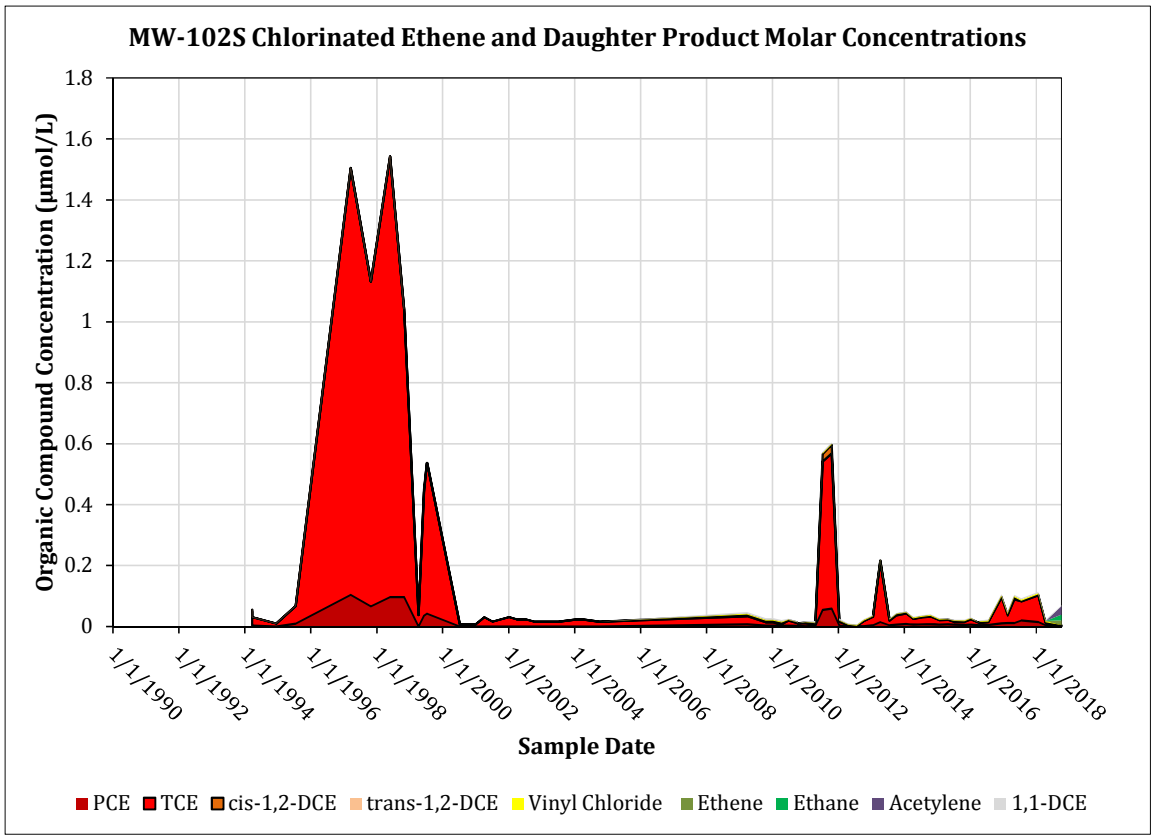

MW-101S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
0.25
0.2
0.15
0.1
0.05
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

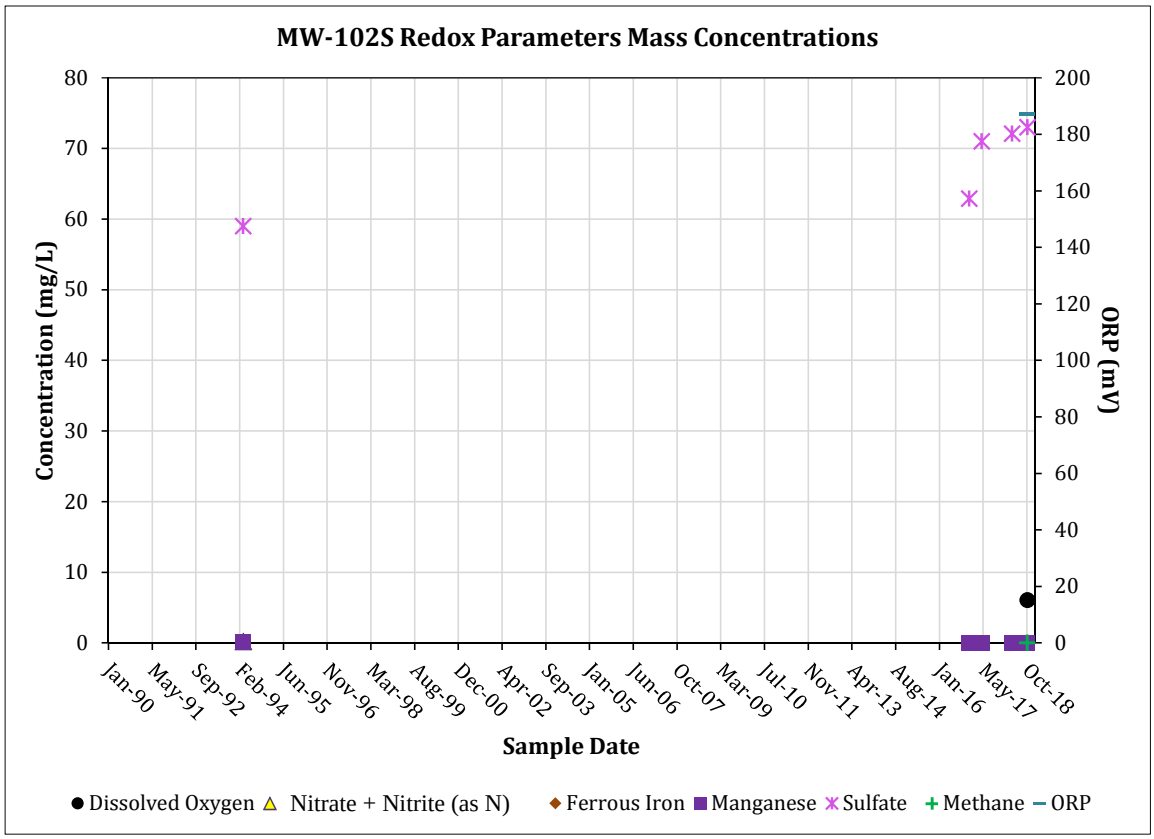

MW-101S Redox Parameters Mass Concentrations
Concentration (mg/L)
80
70
60
50
40
30
20
10
0
ORP (mV)
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

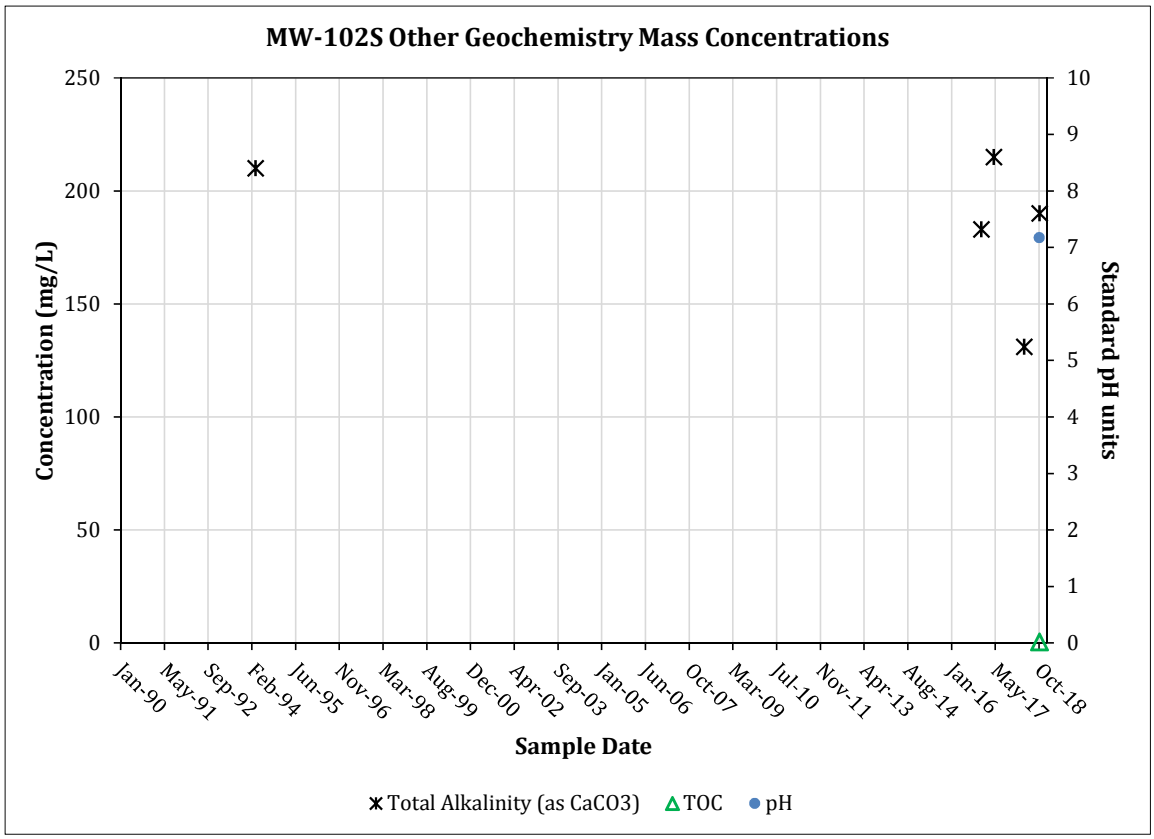

MW-101S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
250
200
150
100
50
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

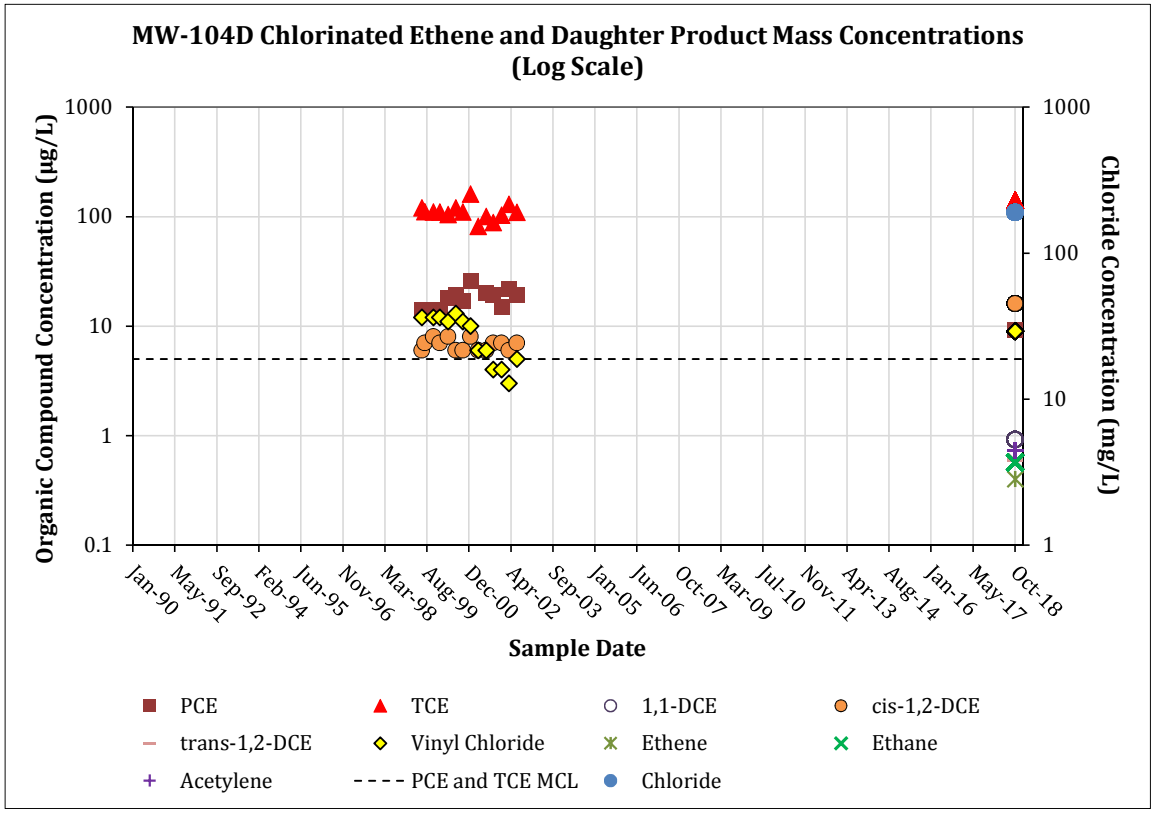

MW-102S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
1000
100
10
1
0.1
0.01
Chloride Concentration (mg/L)
100
10
1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

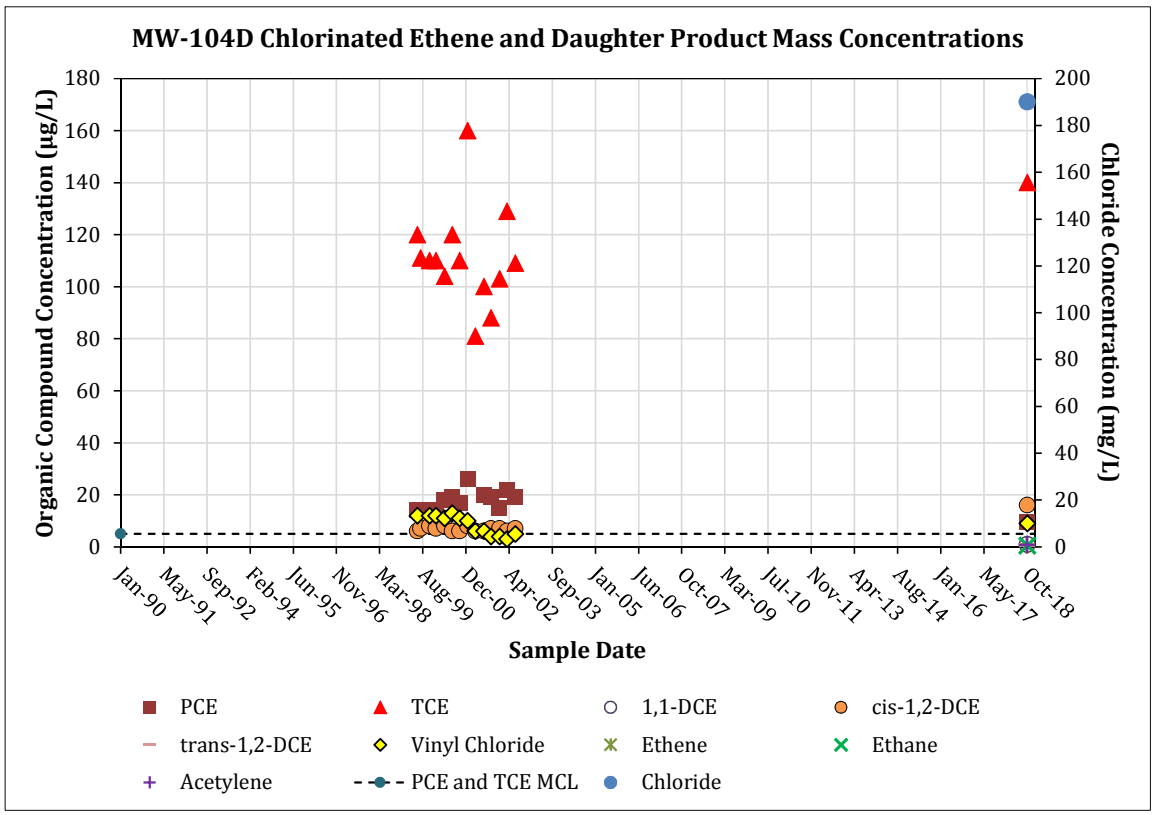

MW-102S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
200
180
160
140
120
100
80
60
40
20
0
Chloride Concentration (mg/L)
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

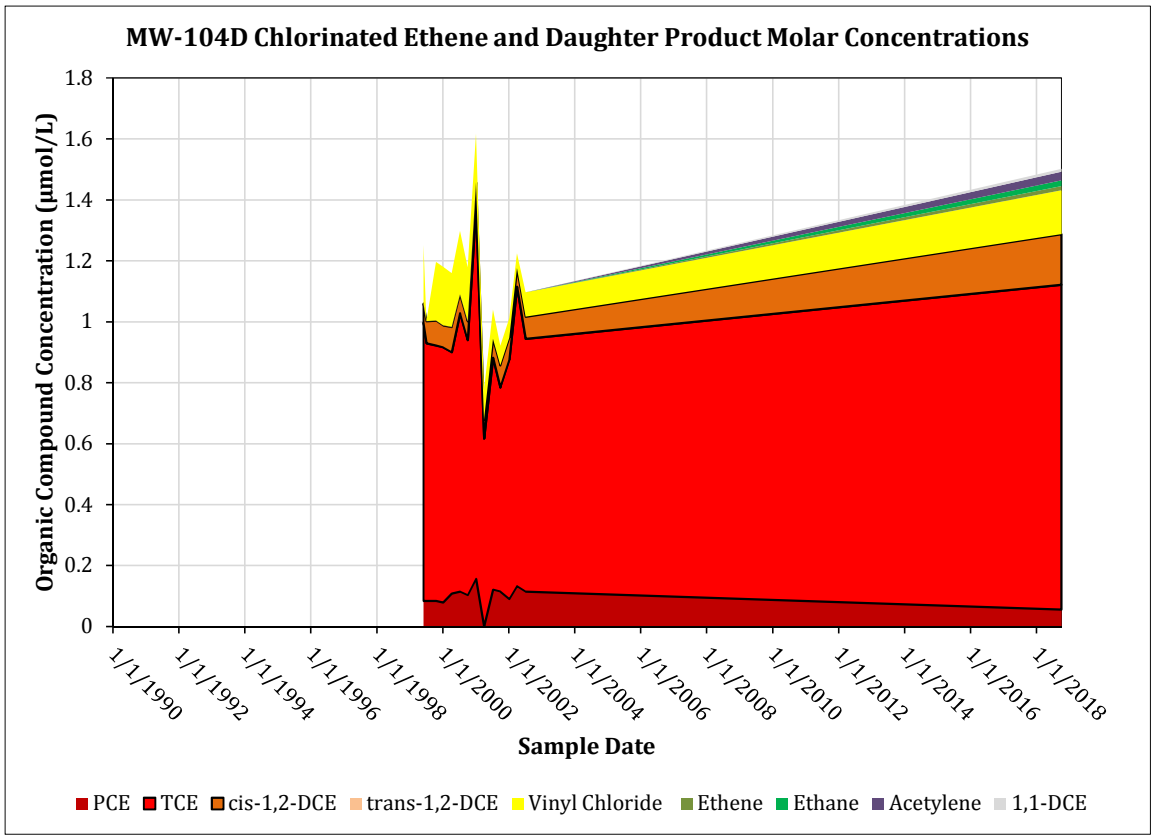

MW-102S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

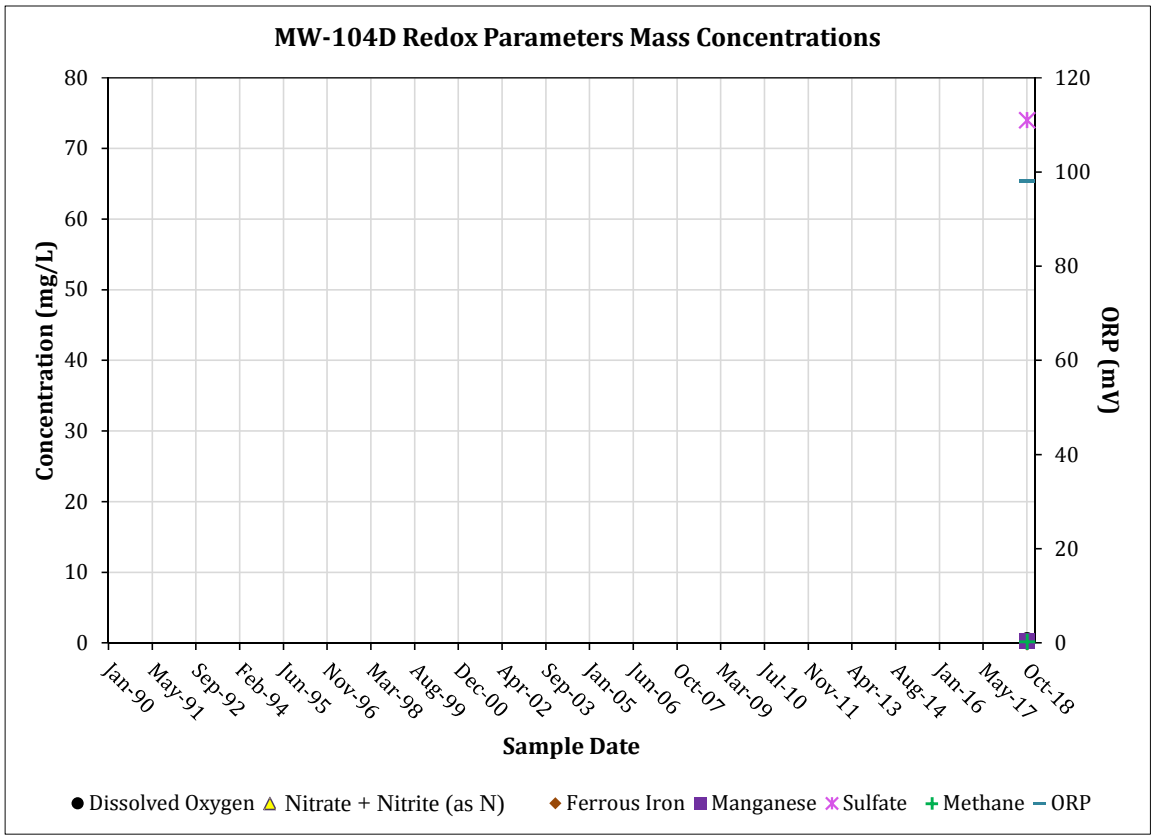

MW-102S Redox Parameters Mass Concentrations
Concentration (mg/L)
80
70
60
50
40
30
20
10
0
ORP (mV)
200
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

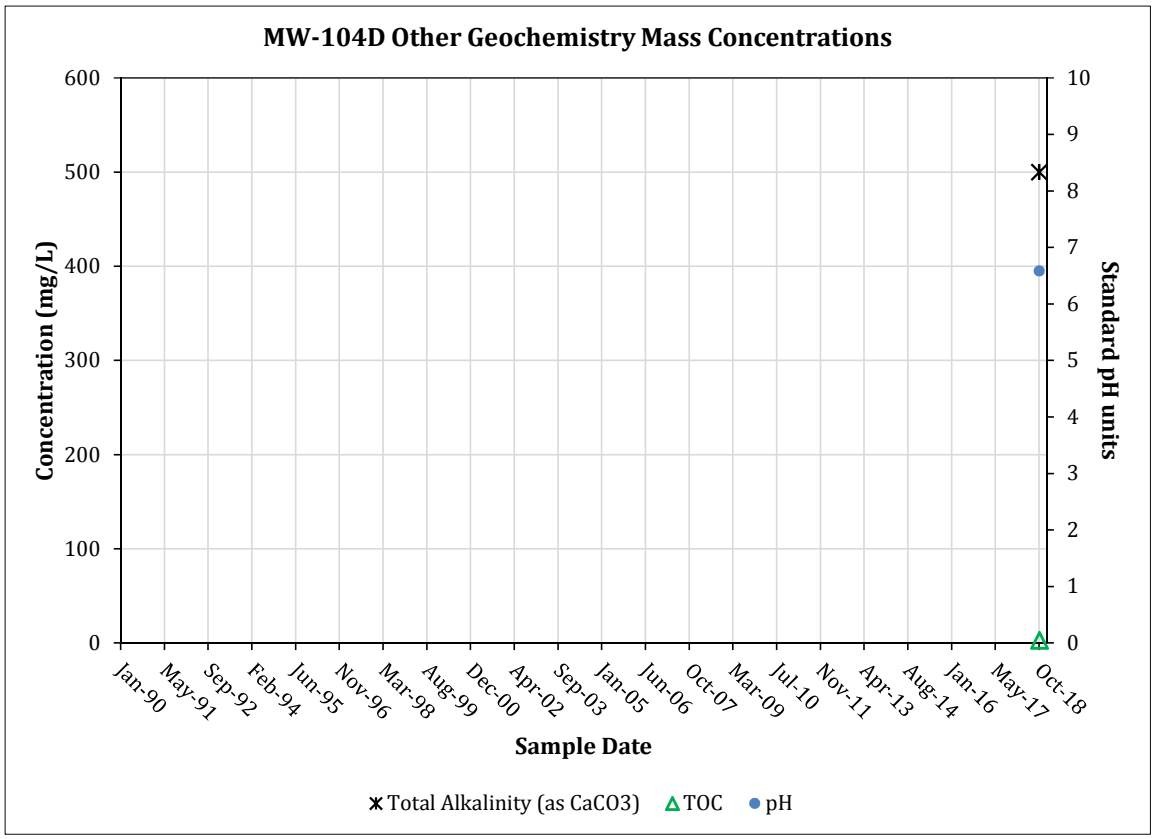

MW-102S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
250
200
150
100
50
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

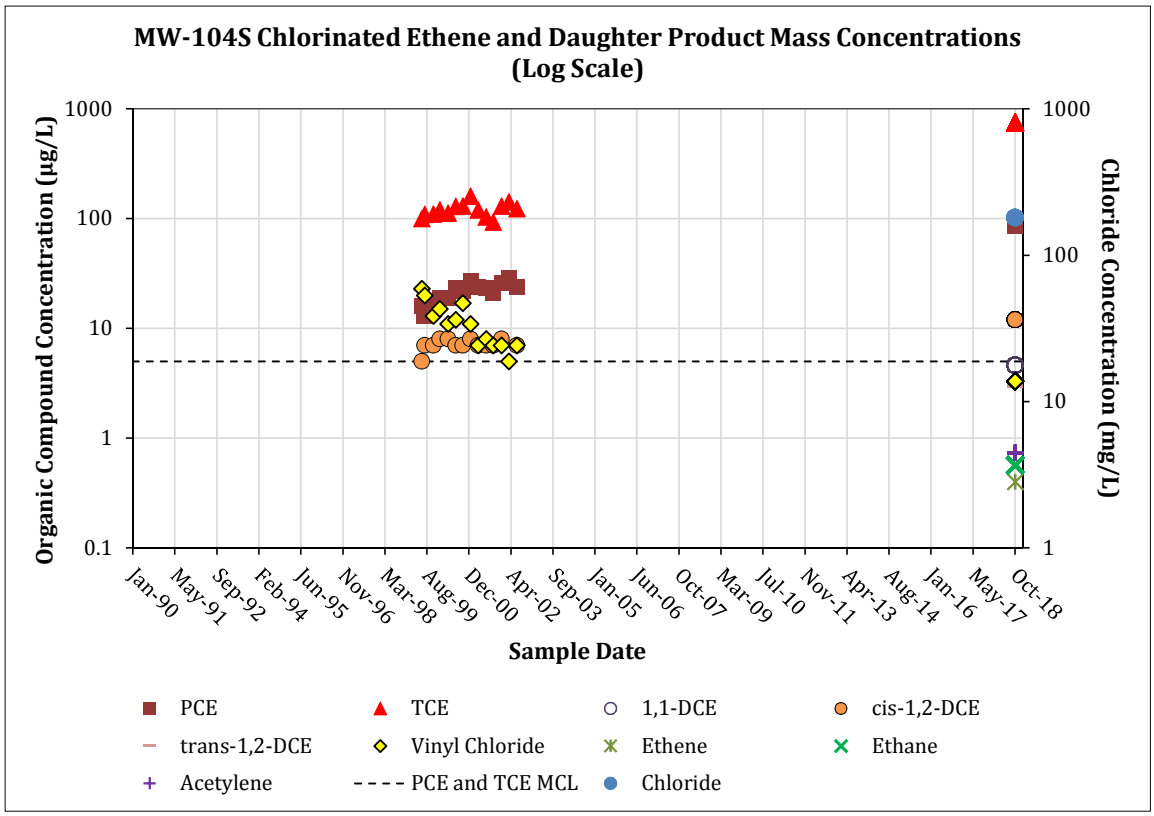

MW-104D Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

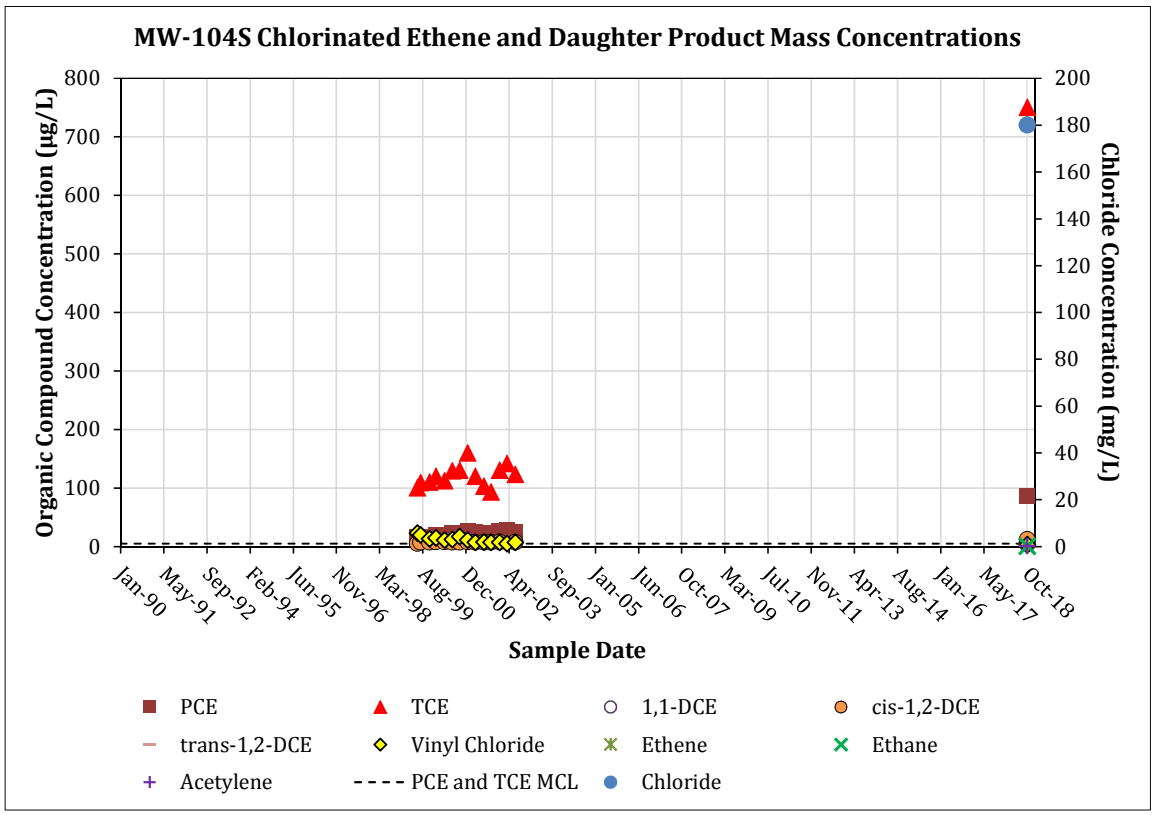

MW-104D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
180
160
140
120
100
80
60
40
20
0
200
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

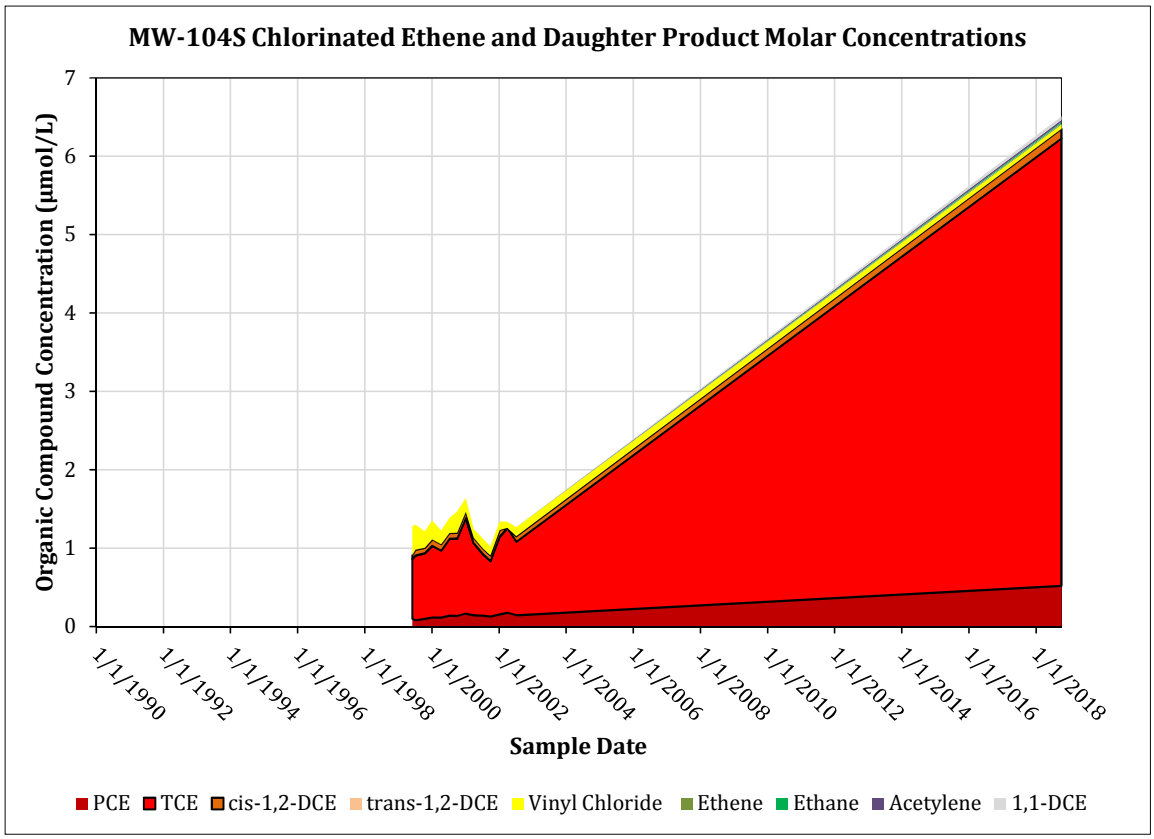

MW-104D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

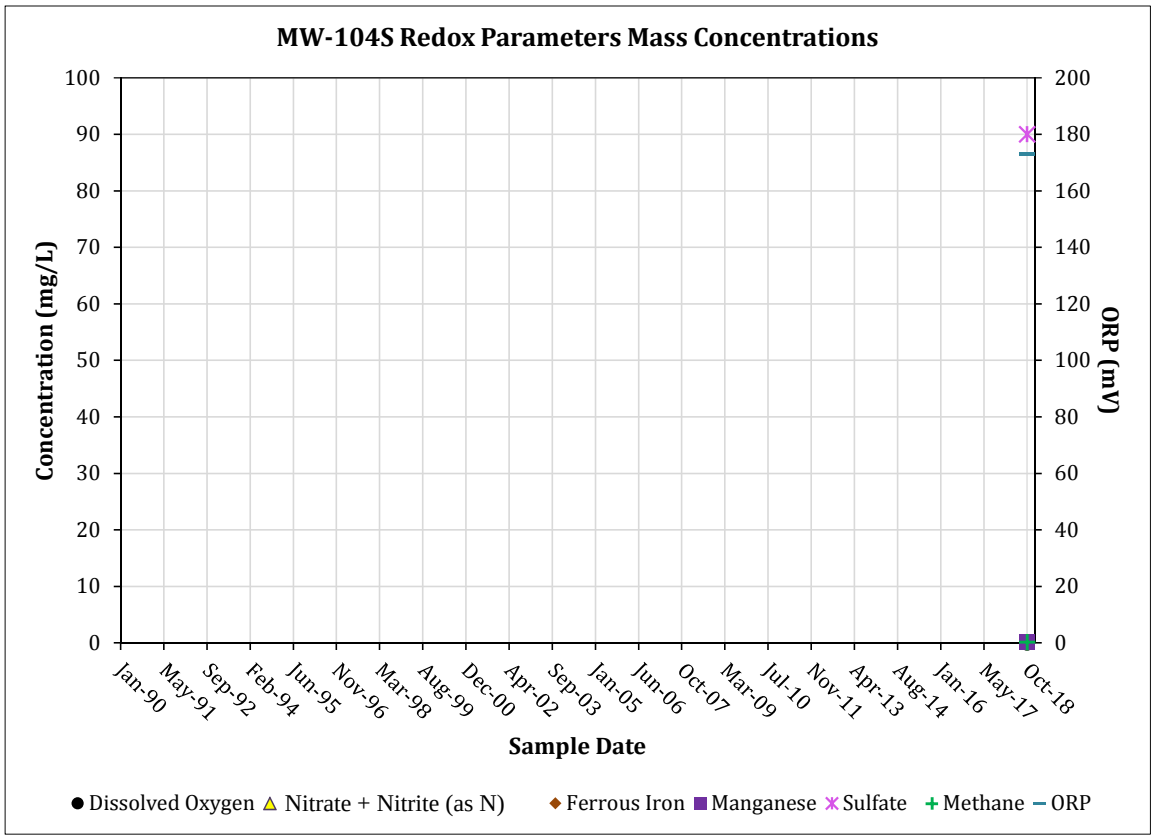

MW-104D Redox Parameters Mass Concentrations
Concentration (mg/L)
80
70
60
50
40
30
20
10
0
ORP (mV)
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

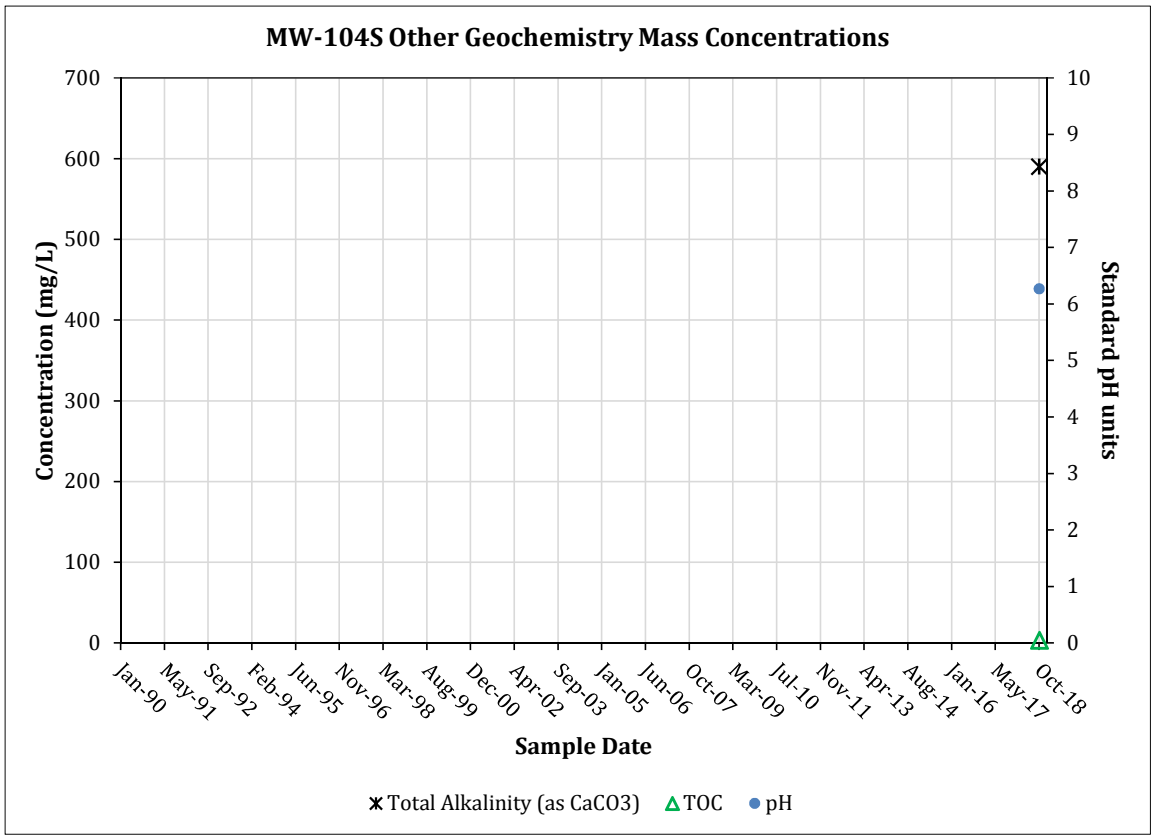

MW-104D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
600
500
400
300
200
100
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

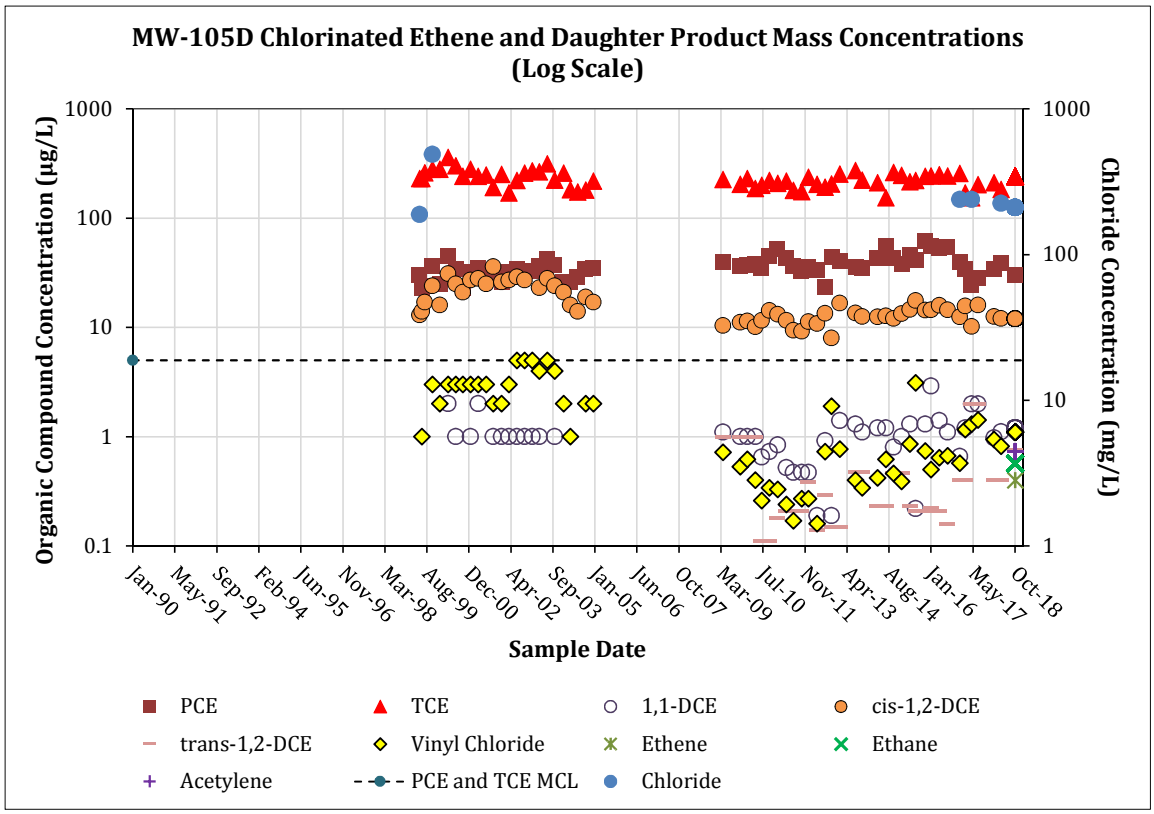

MW-104S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

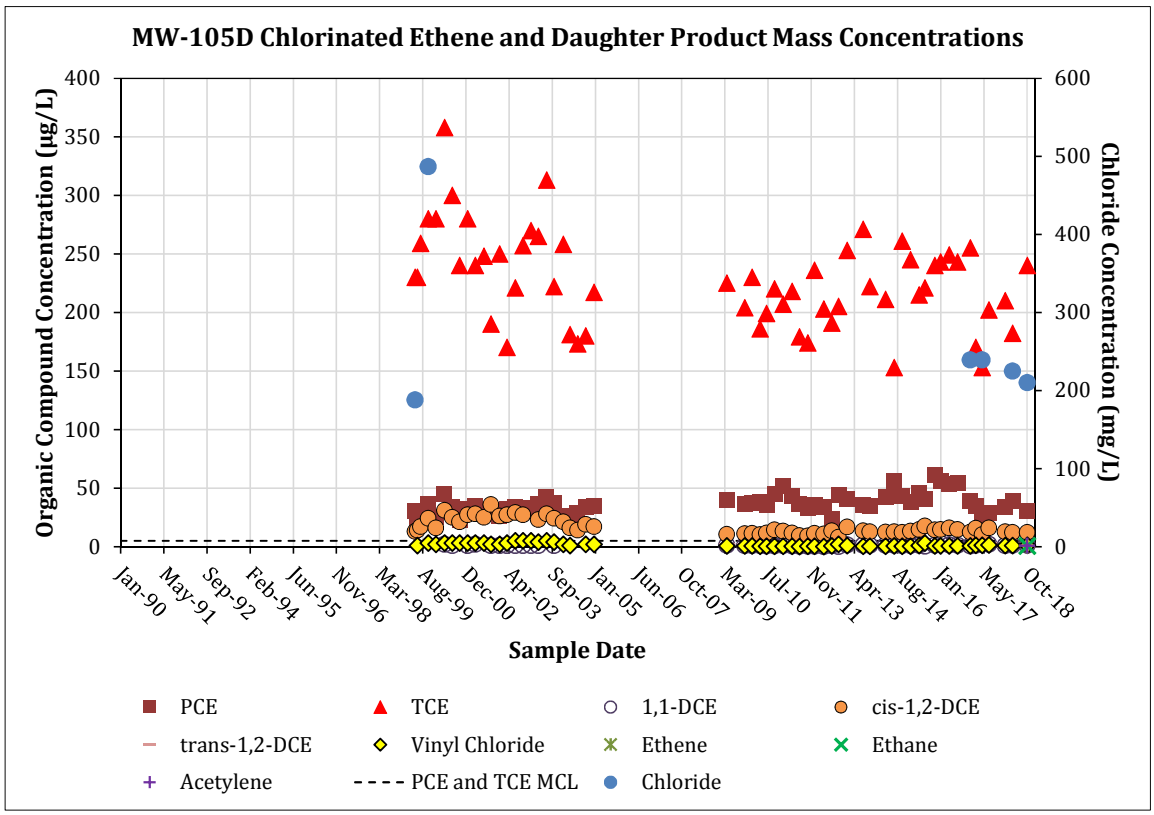

MW-104S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
800
700
600
500
400
300
200
100
0
200
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

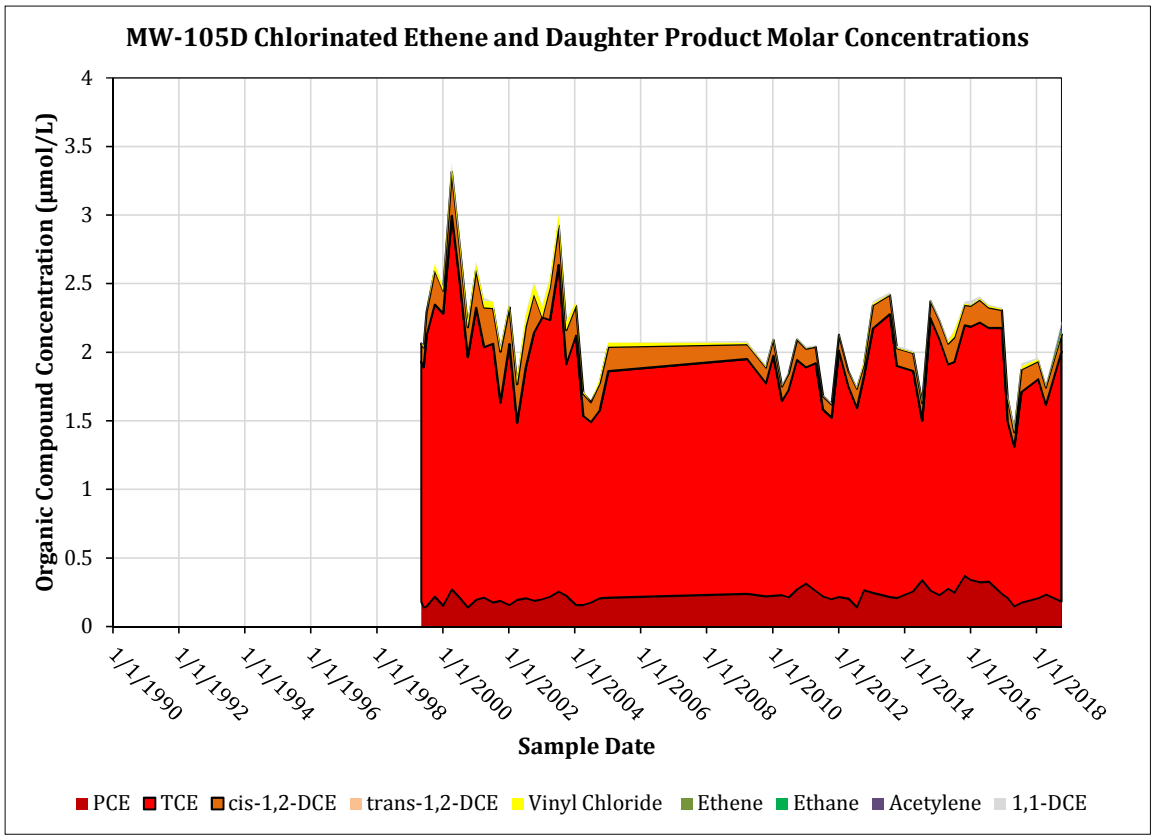

MW-104S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
0
1
2
3
4
5
6
7
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

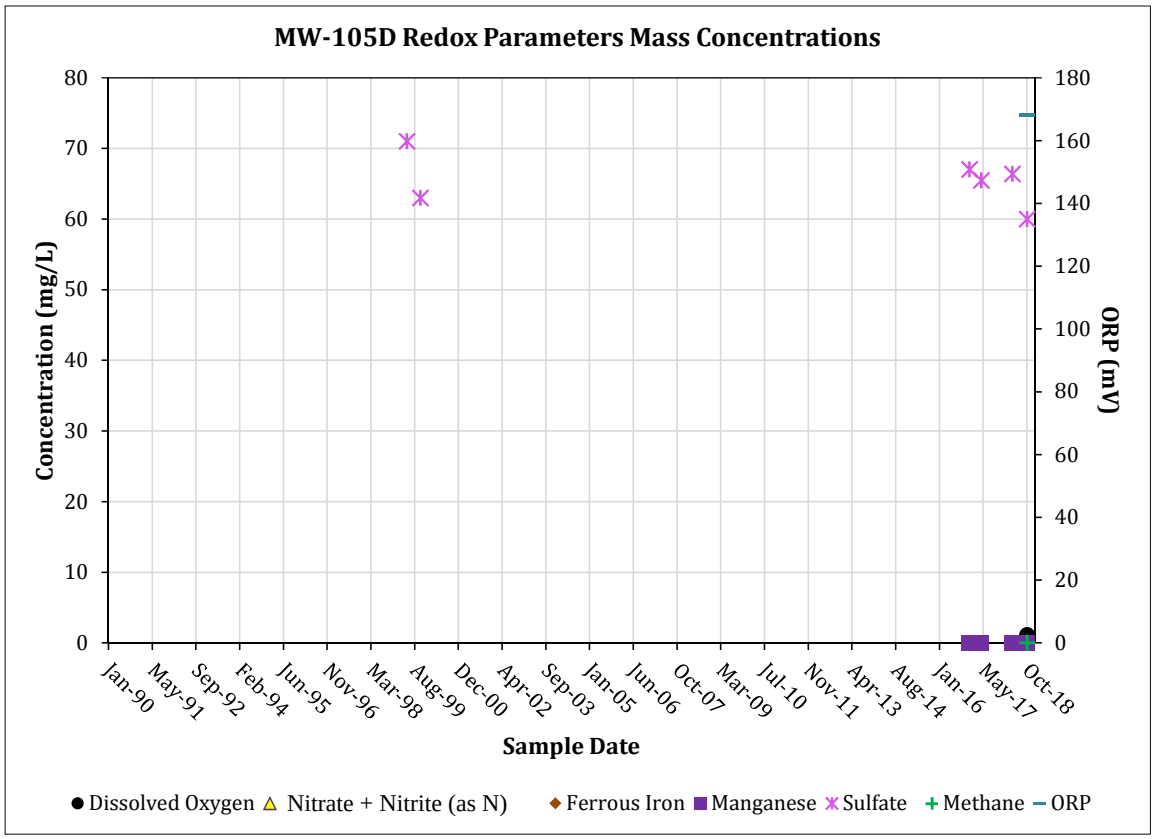

MW-104S Redox Parameters Mass Concentrations
Concentration (mg/L)
0
10
20
30
40
50
60
70
80
90
100
ORP (mV)
0
20
40
60
80
100
120
140
160
180
200
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

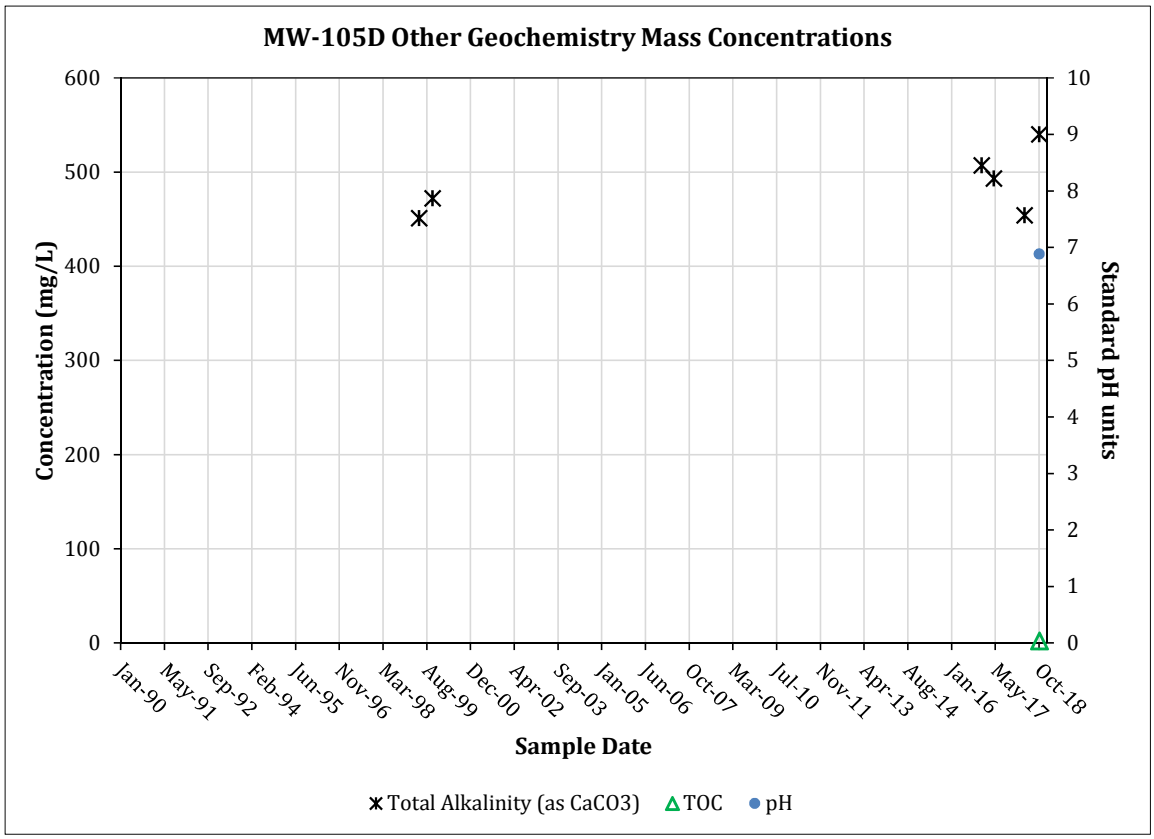

MW-104S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
100
200
300
400
500
600
700
0
1
2
3
4
5
6
7
8
9
10
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

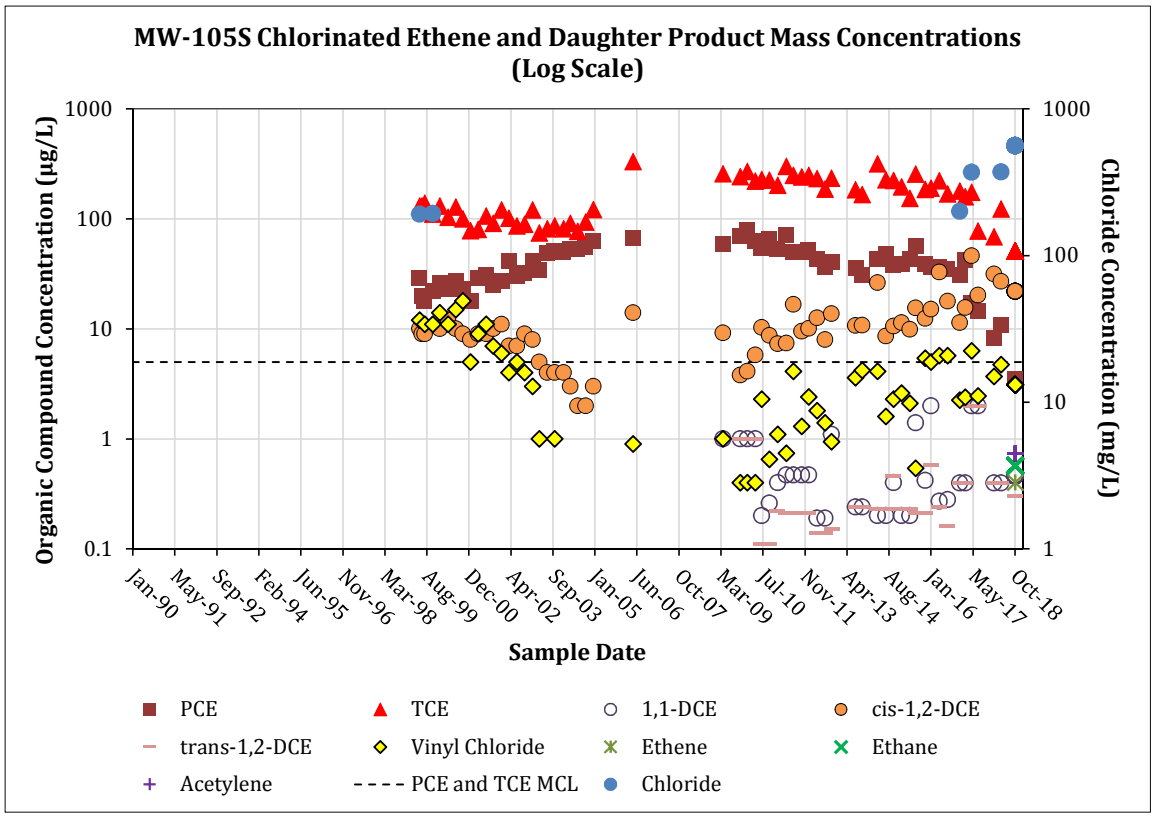

MW-105D Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

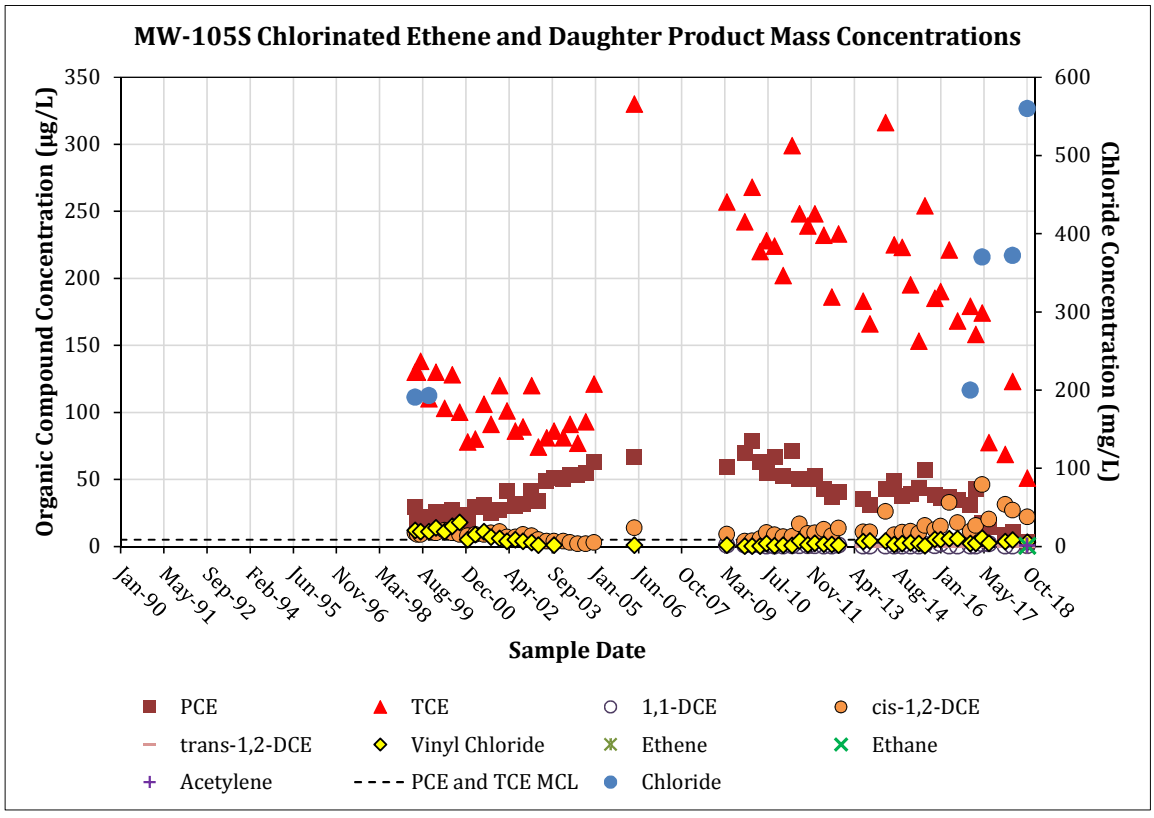

MW-105D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
400
350
300
250
200
150
100
50
0
600
500
400
300
200
100
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

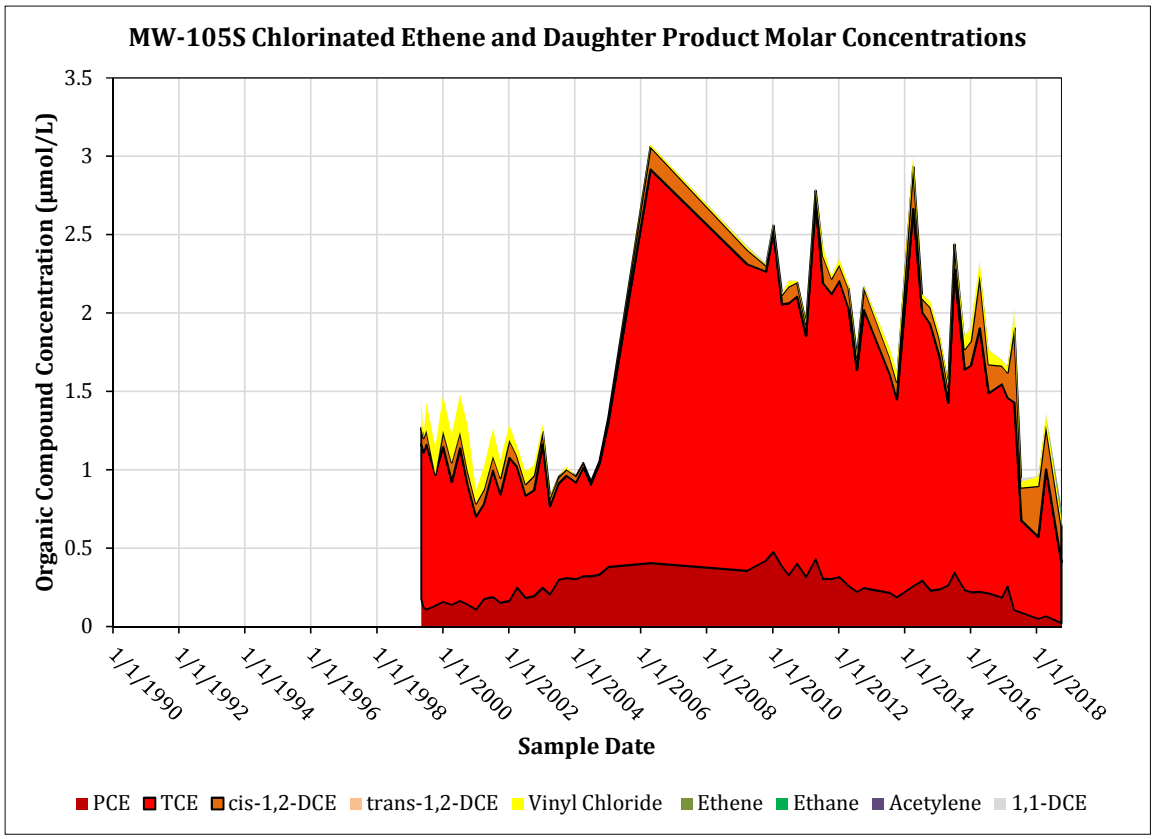

MW-105D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
0
0.5
1
1.5
2
2.5
3
3.5
4
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

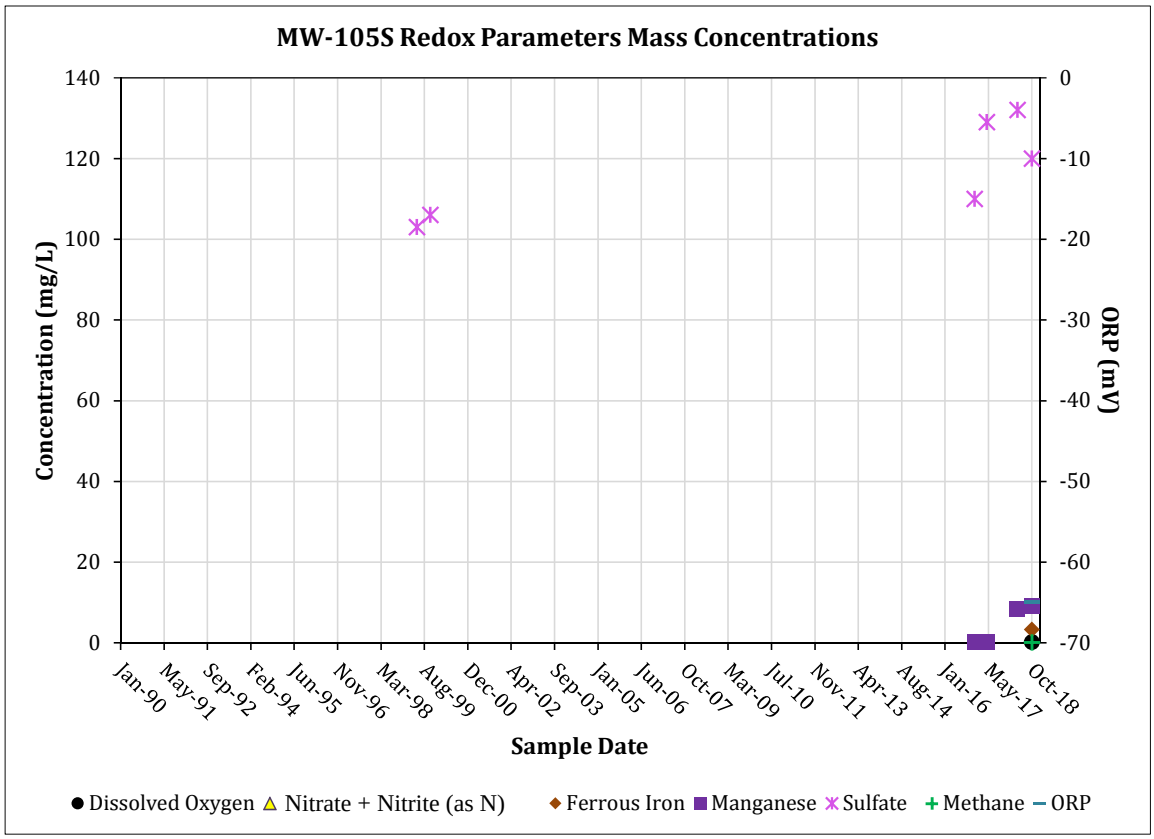

MW-105D Redox Parameters Mass Concentrations
Concentration (mg/L)
0
10
20
30
40
50
60
70
80
ORP (mV)
0
20
40
60
80
100
120
140
160
180
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

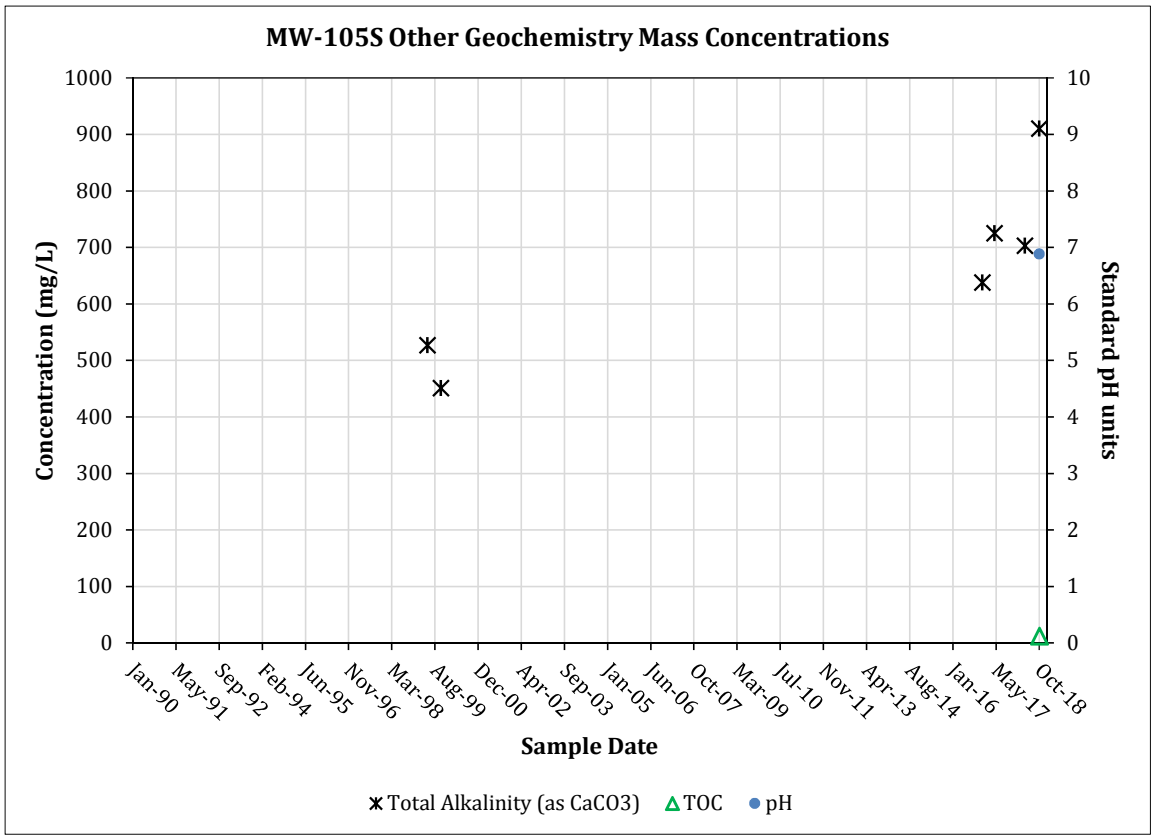

MW-105D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
600
500
400
300
200
100
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

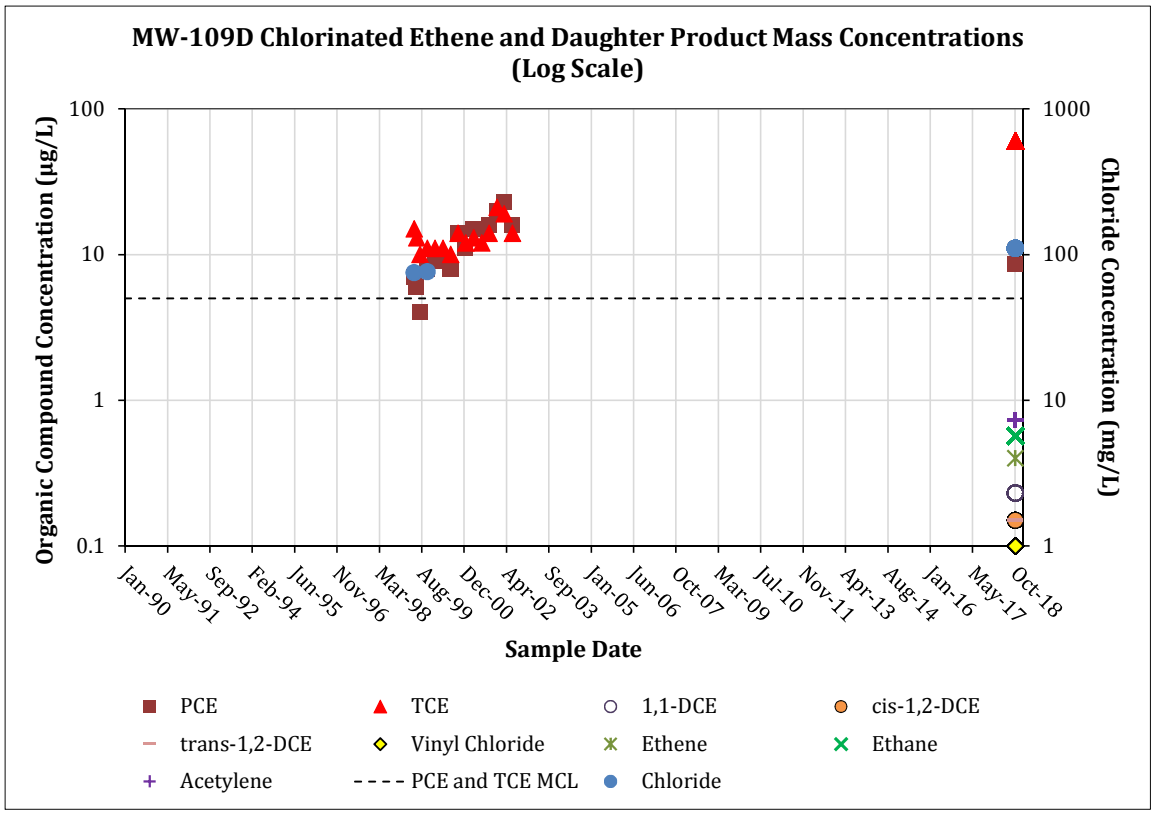

MW-105S Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

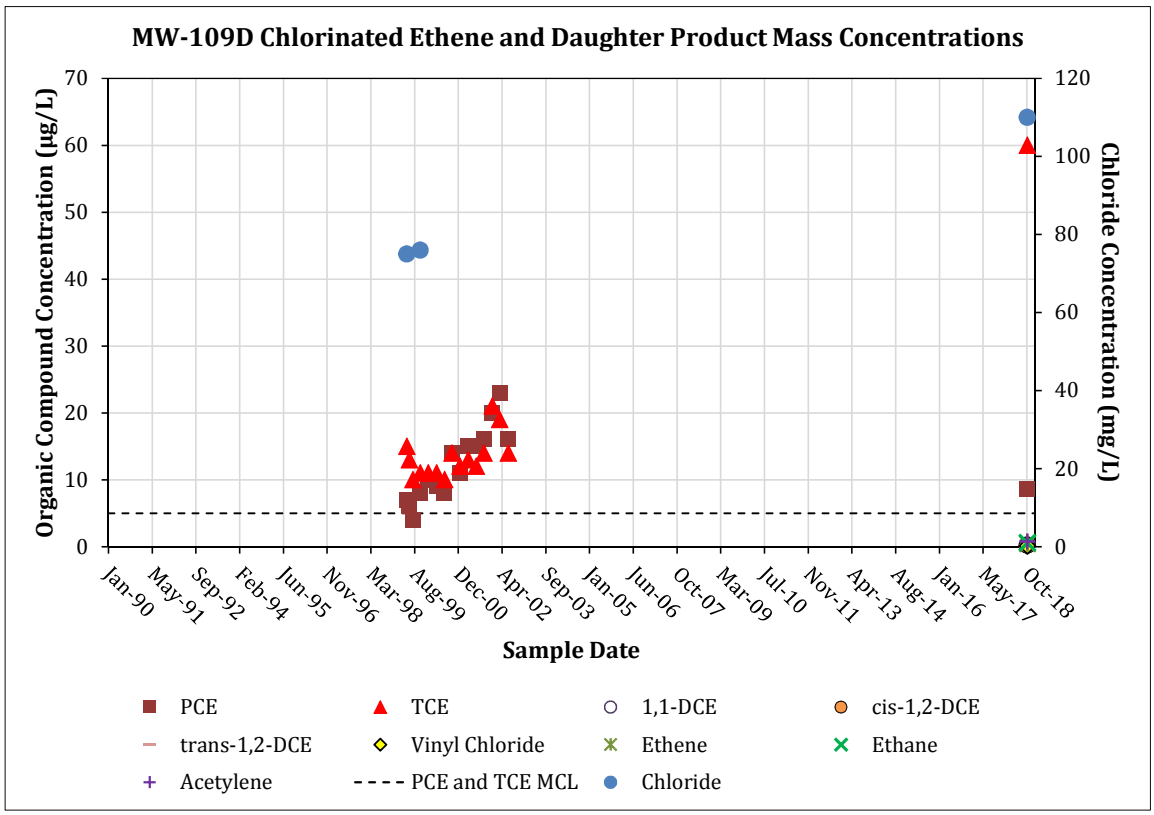

MW-105S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
350
300
250
200
150
100
50
0
600
500
400
300
200
100
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

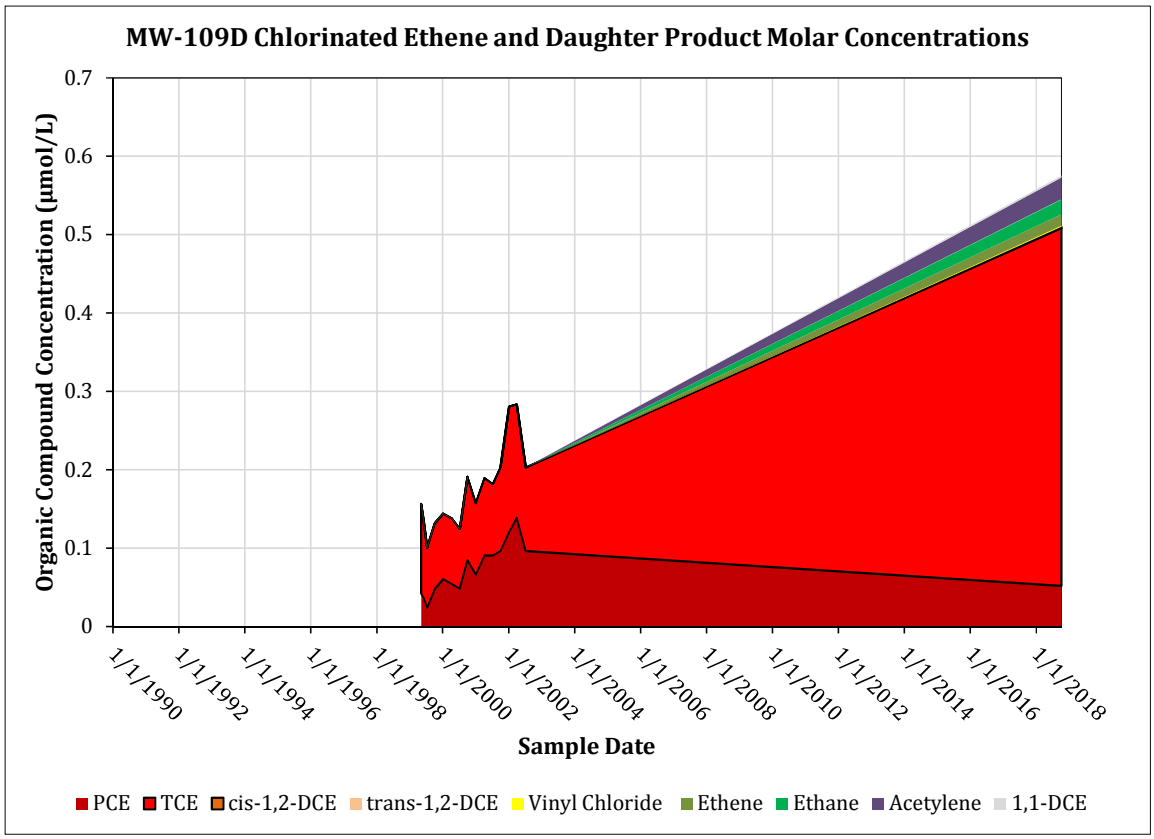

MW-105S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
3.5
3
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

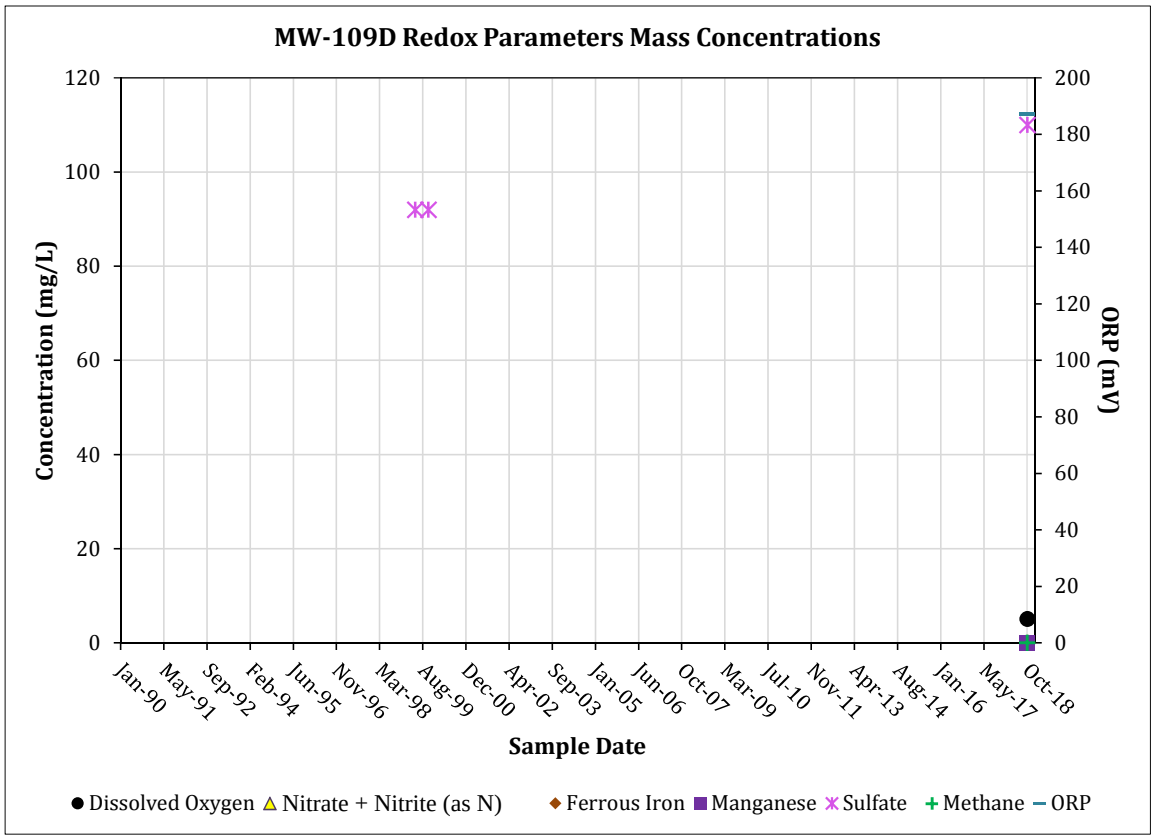

MW-105S Redox Parameters Mass Concentrations
Concentration (mg/L)
140
120
100
80
60
40
20
0
ORP (mV)
0
-10
-20
-30
-40
-50
-60
-70
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

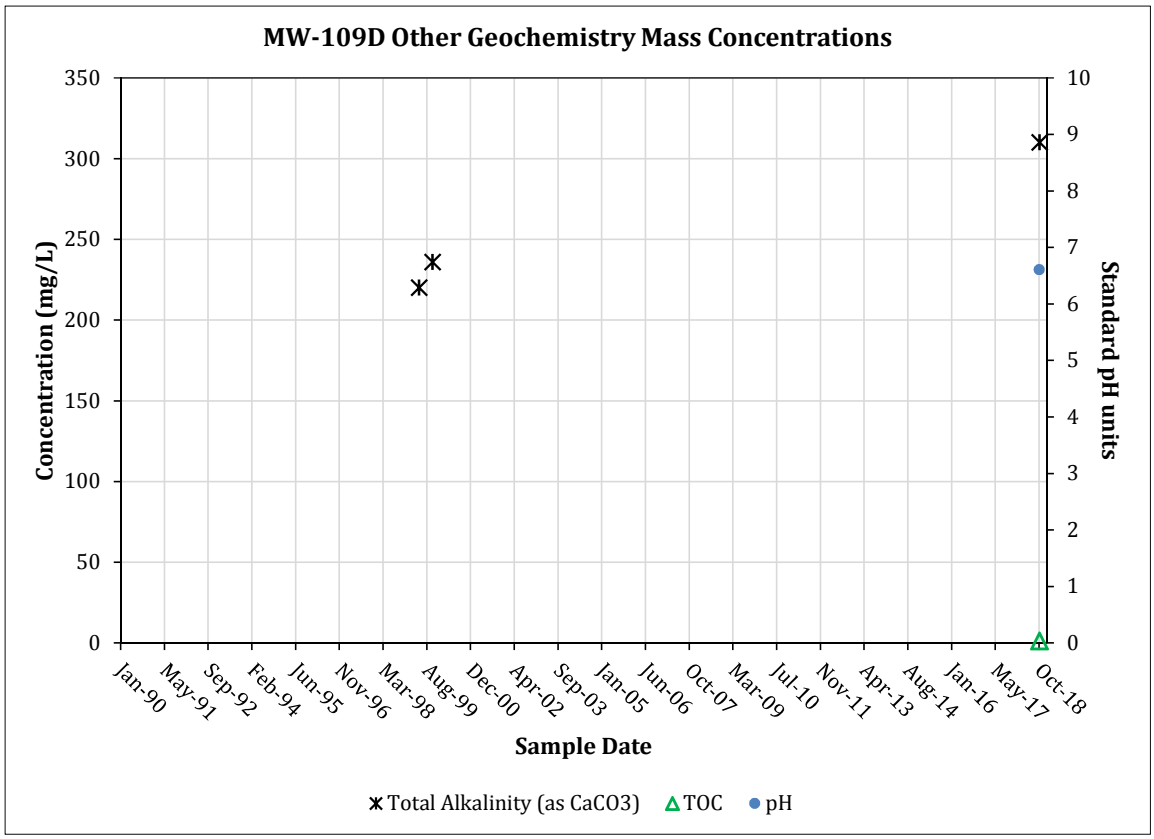

MW-105S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
1000
900
800
700
600
500
400
300
200
100
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

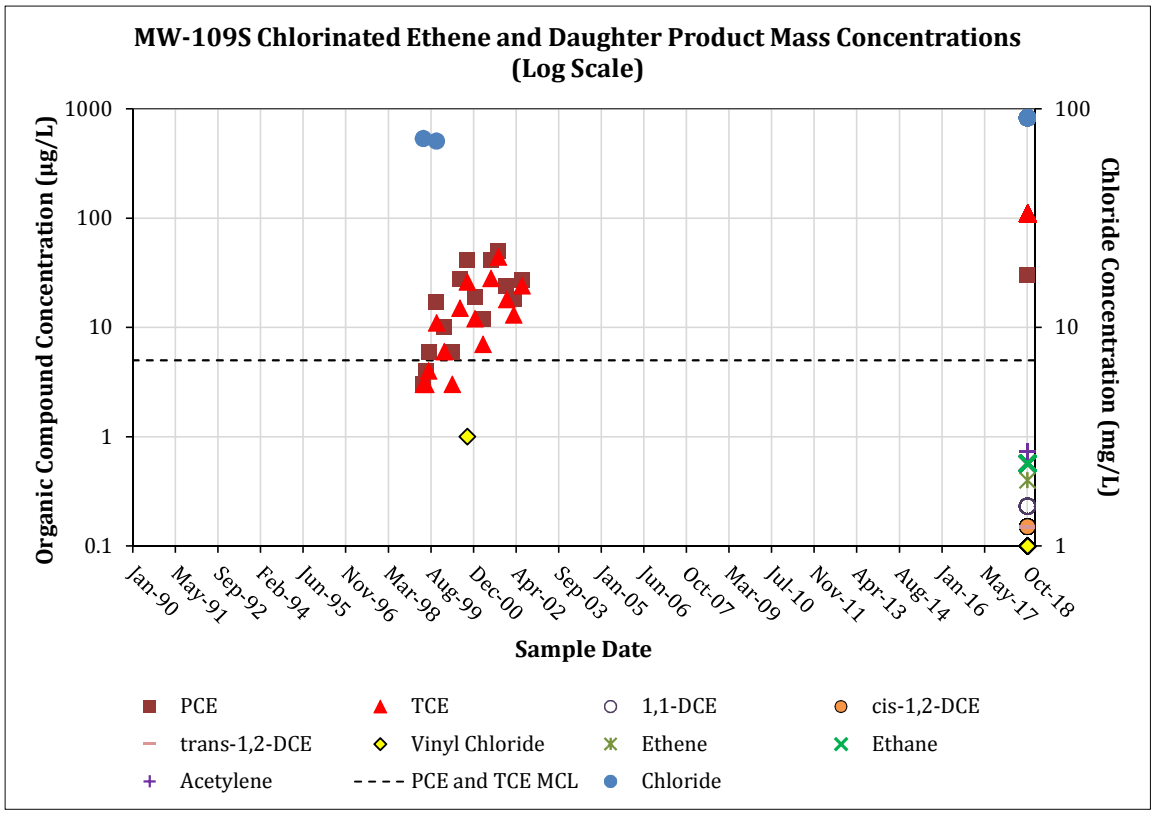

MW-109D Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
1000
100
10
1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

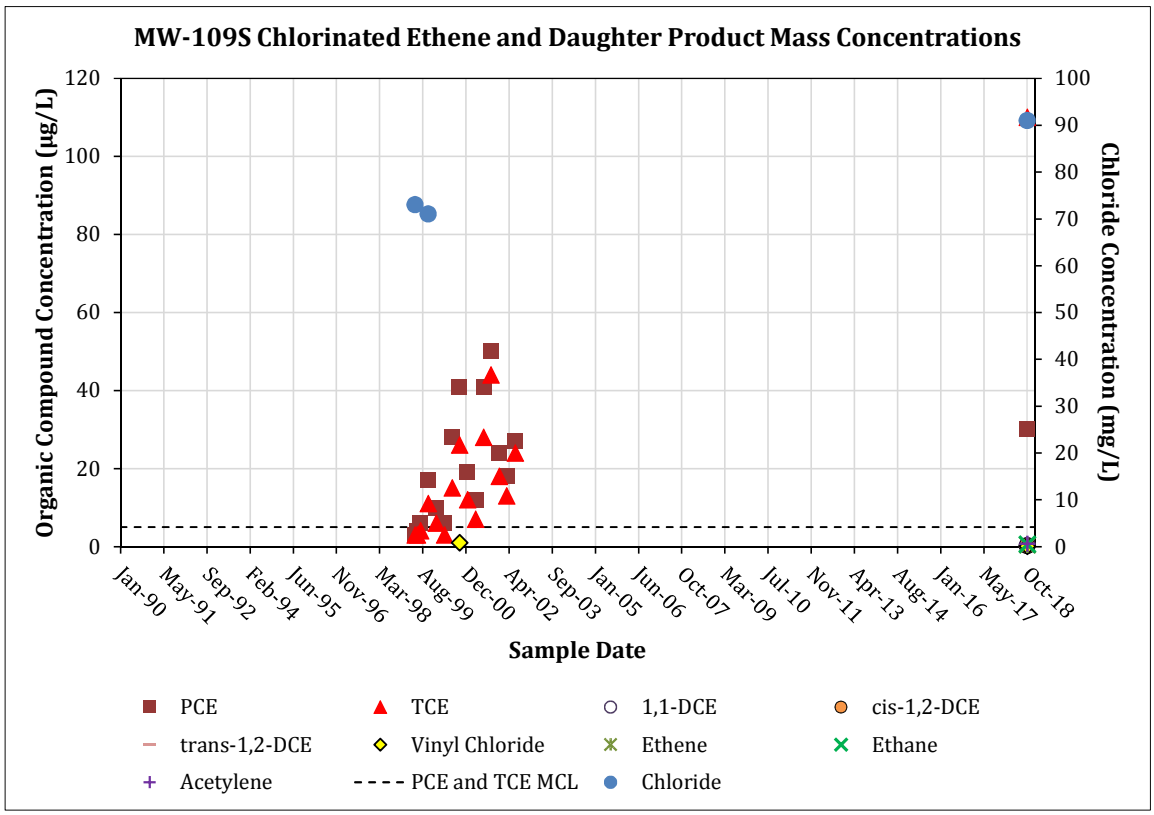

MW-109D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
70
60
50
40
30
20
10
0
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

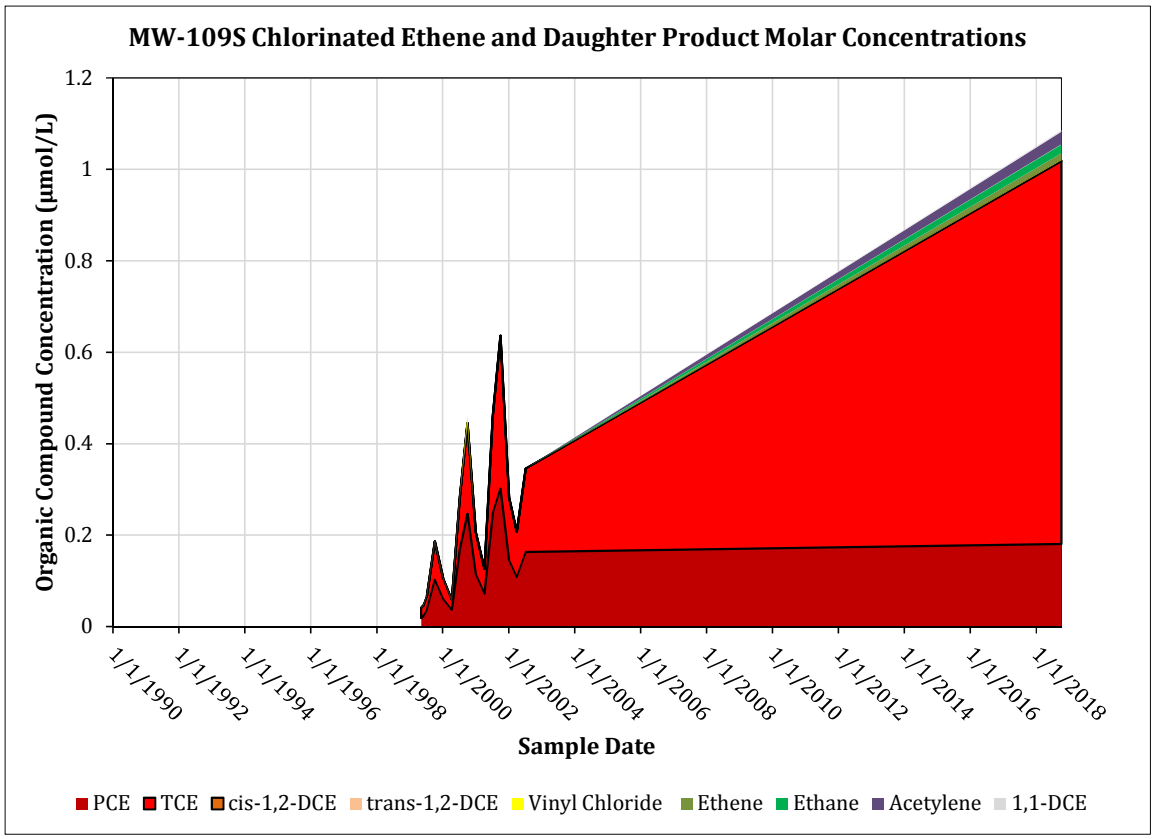

MW-109D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

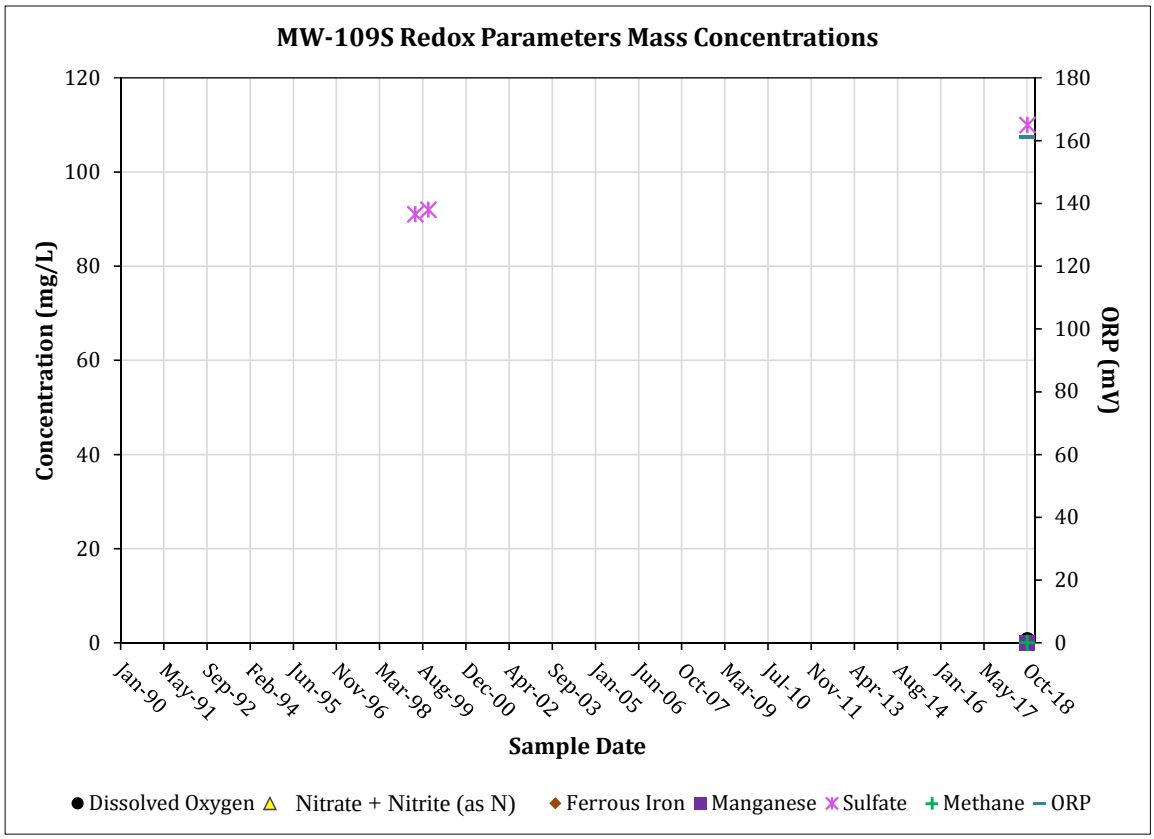

MW-109D Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
200
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

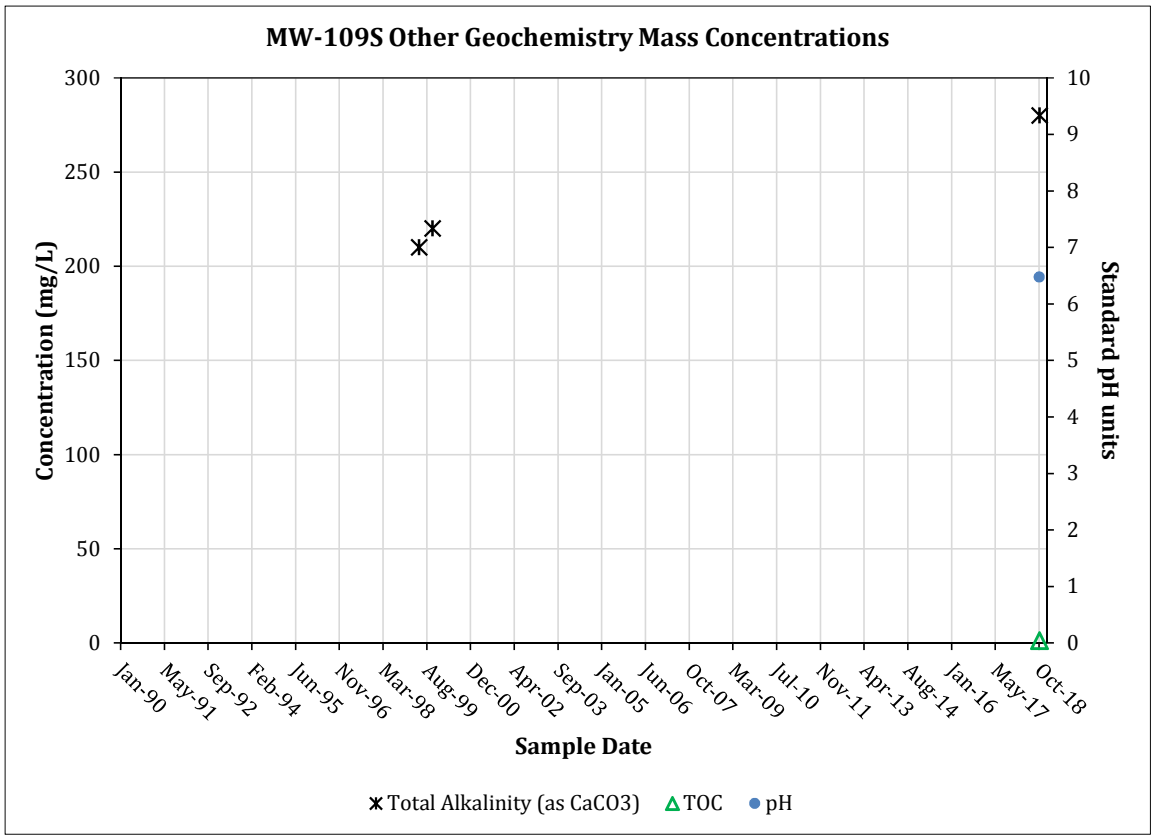

MW-109D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
50
100
150
200
250
300
350
0
1
2
3
4
5
6
7
8
9
10
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

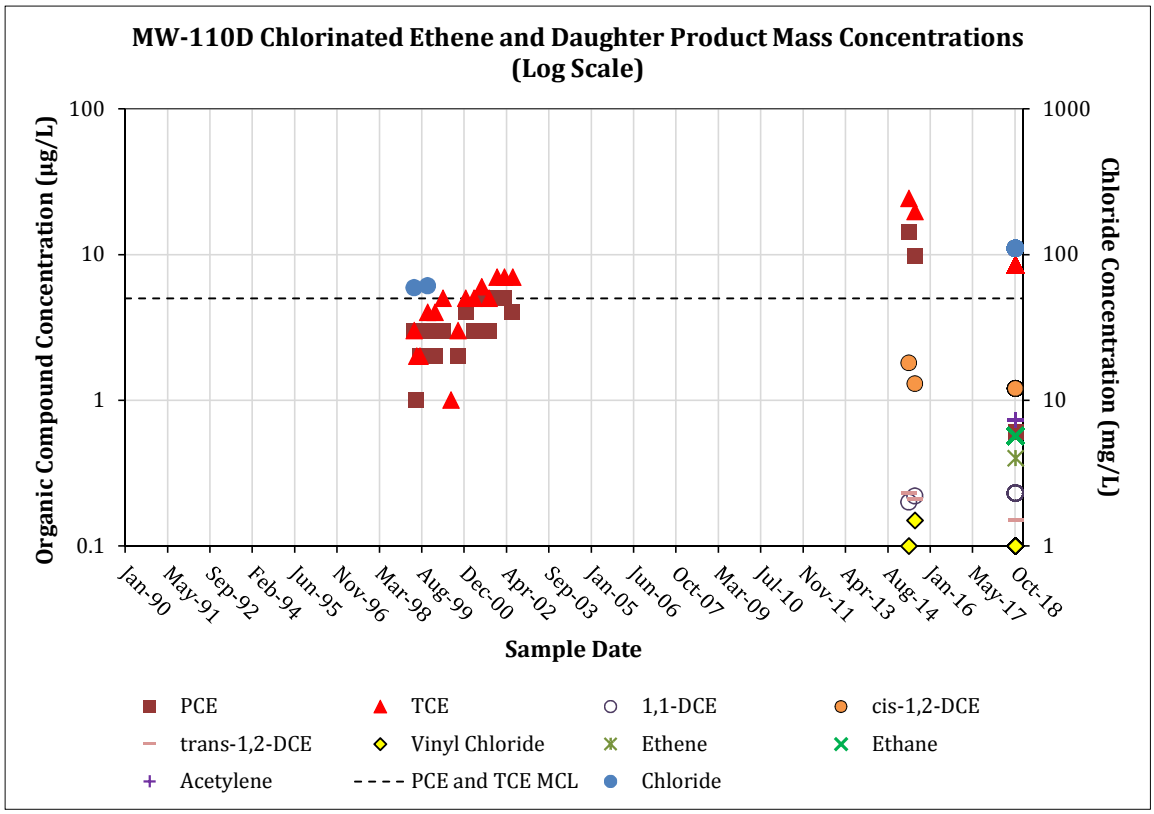

MW-109S Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
100
10
1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

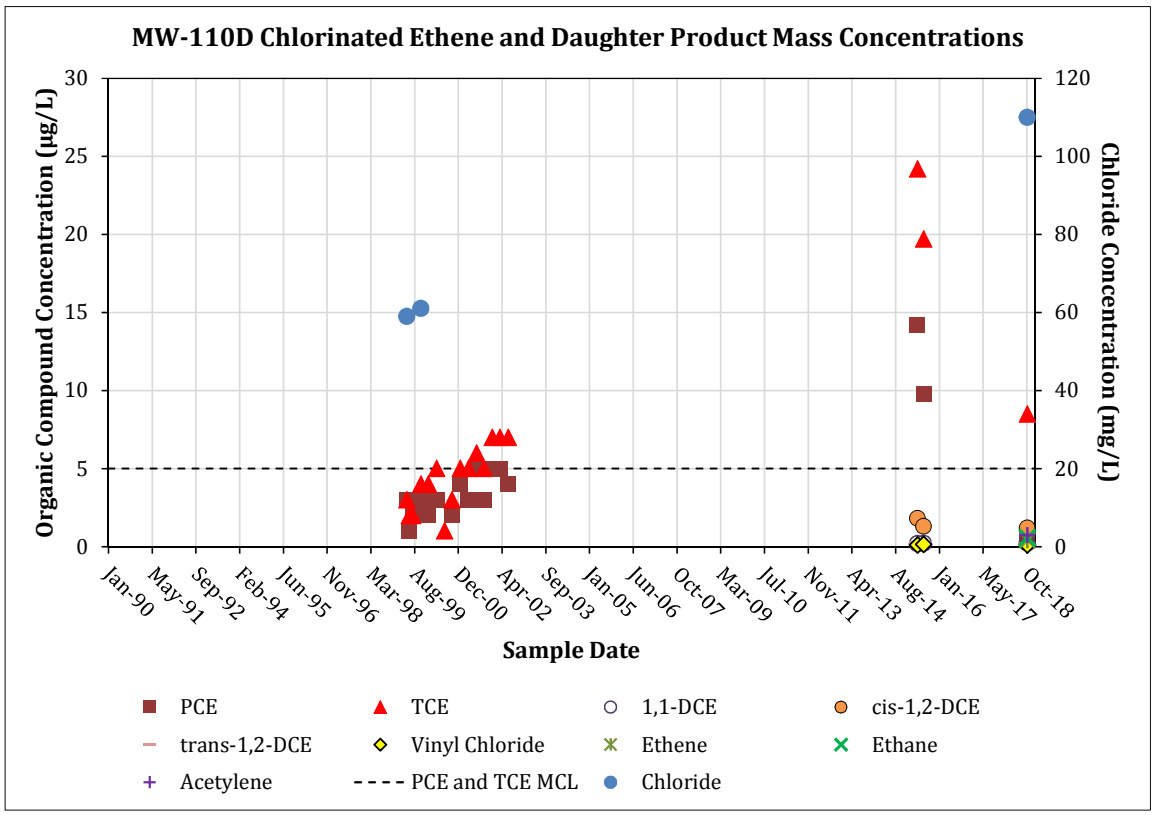

MW-109S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
120
100
80
60
40
20
0
100
90
80
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

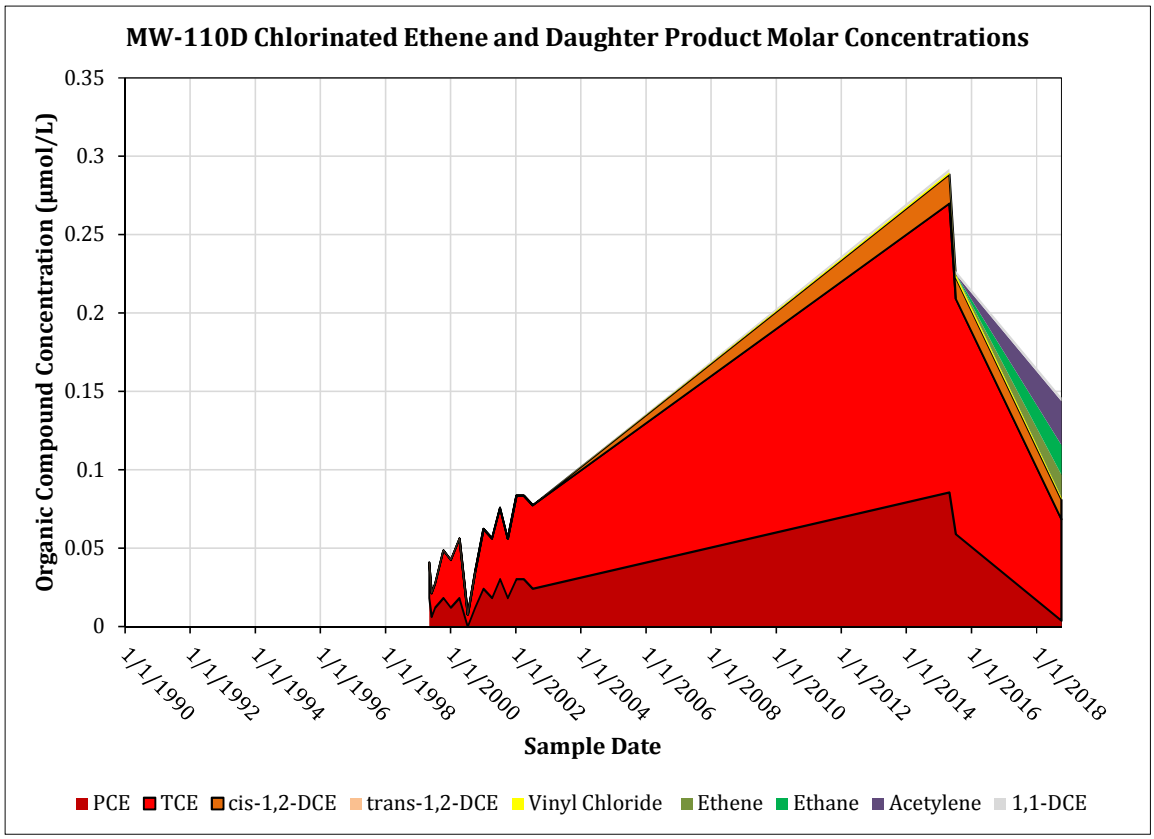

MW-109S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
1.2
1
0.8
0.6
0.4
0.2
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

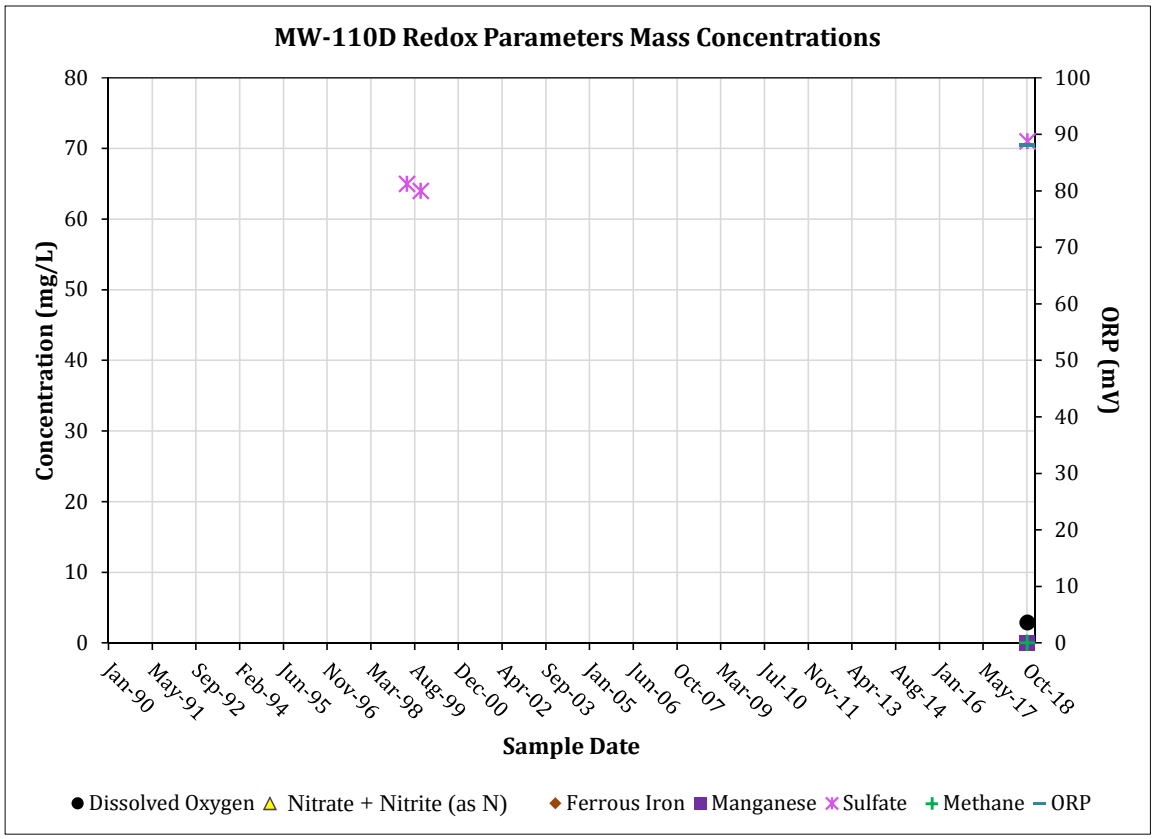

MW-109S Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

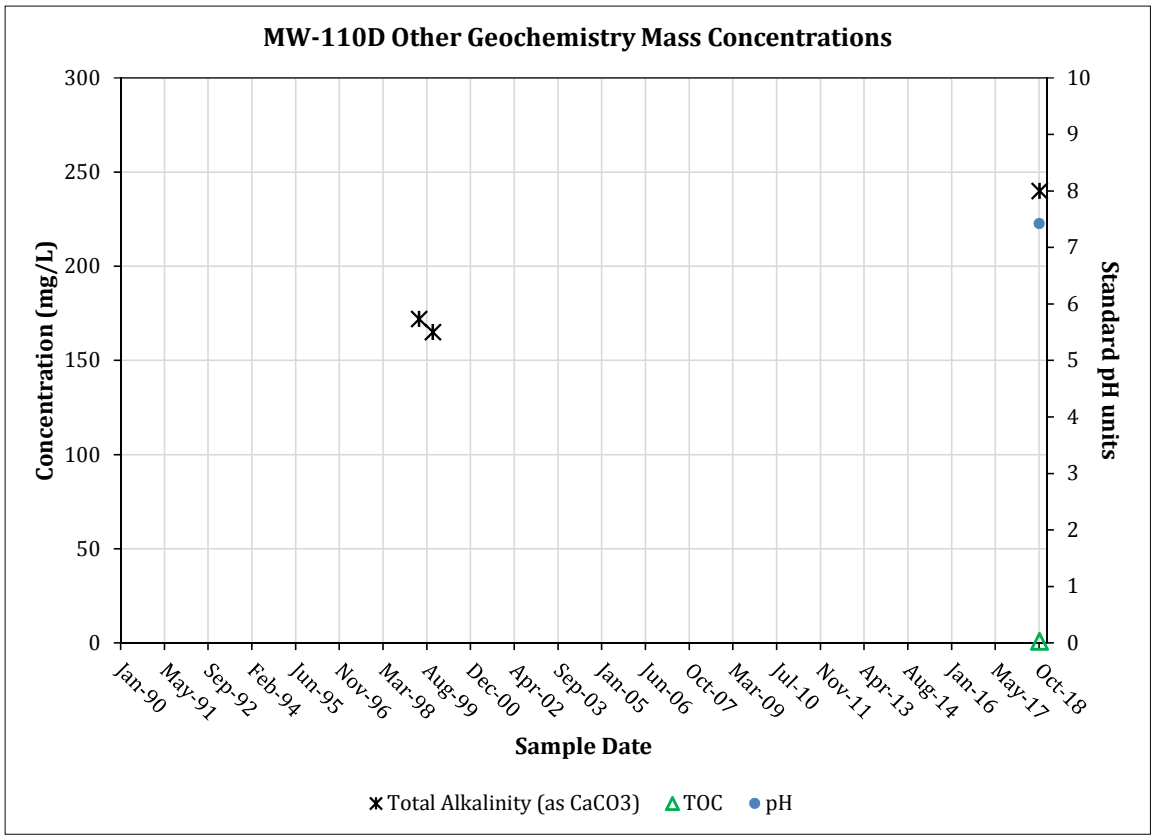

MW-109S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
300
250
200
150
100
50
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

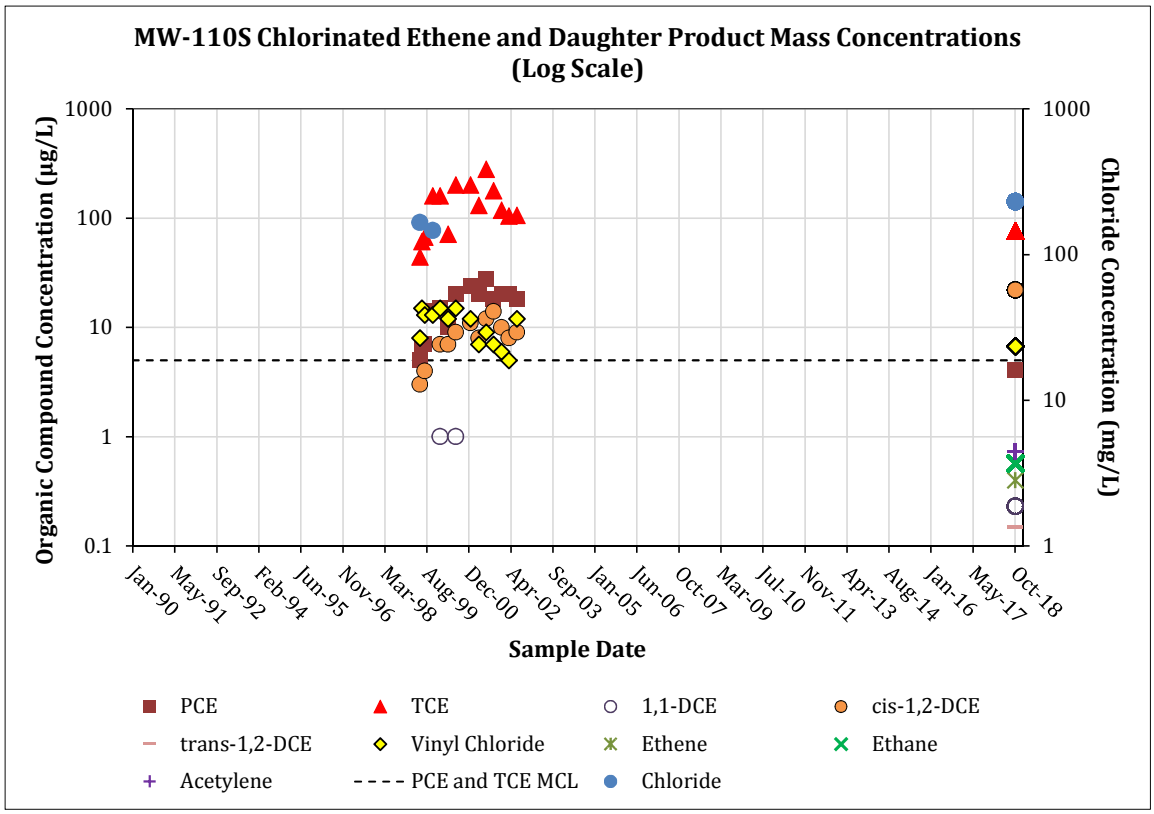

MW-110D Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
1000
100
10
1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

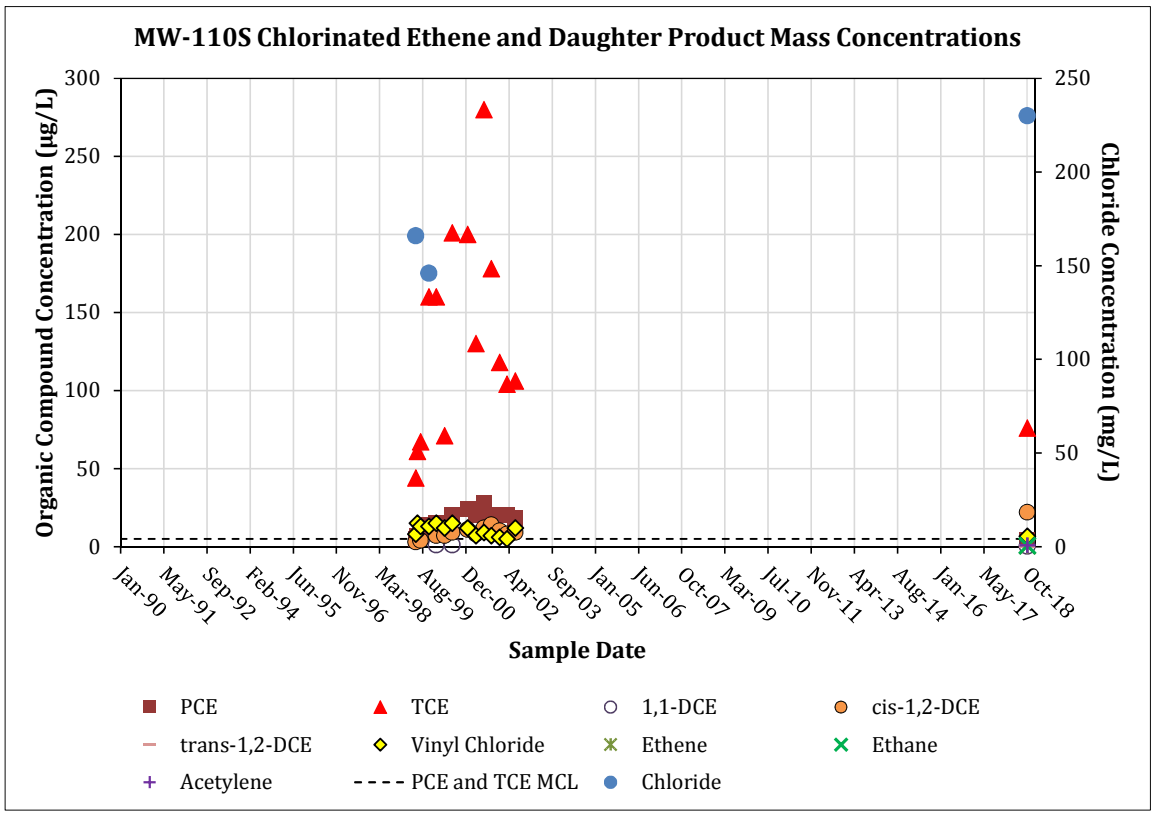

MW-110D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
30
25
20
15
10
5
0
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

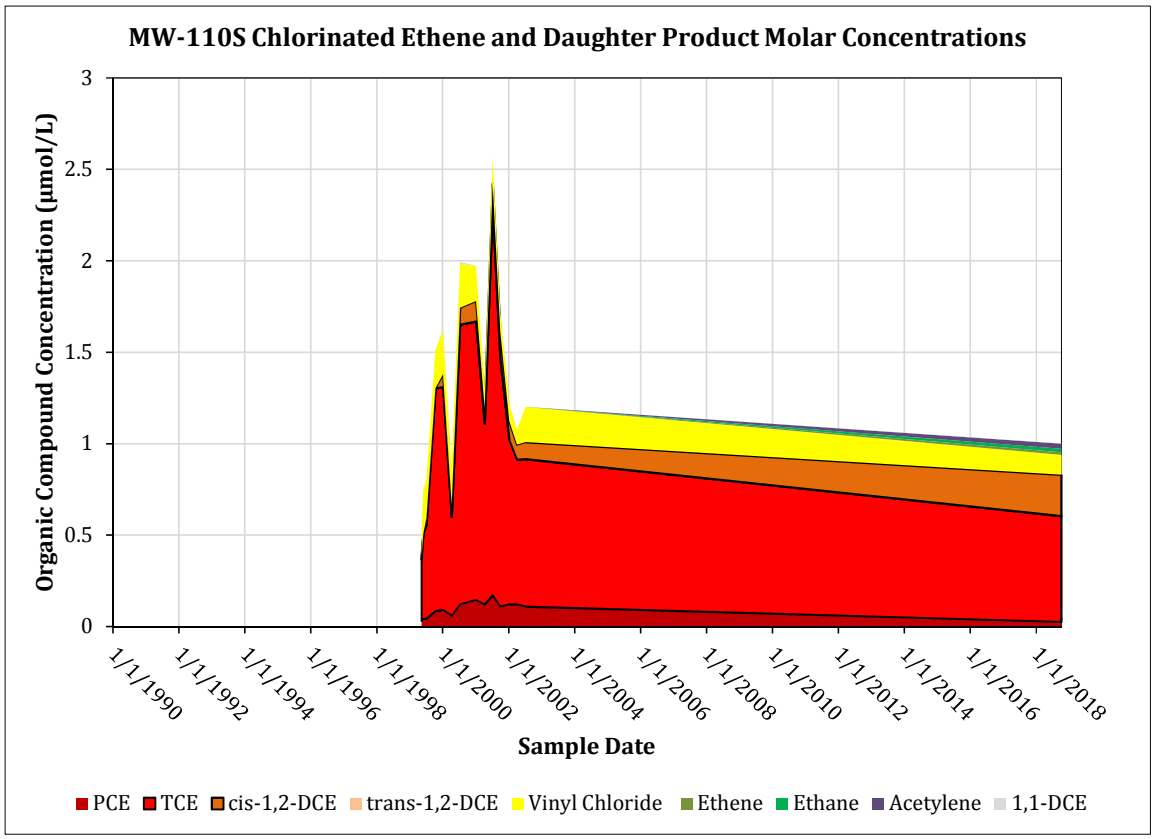

MW-110D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

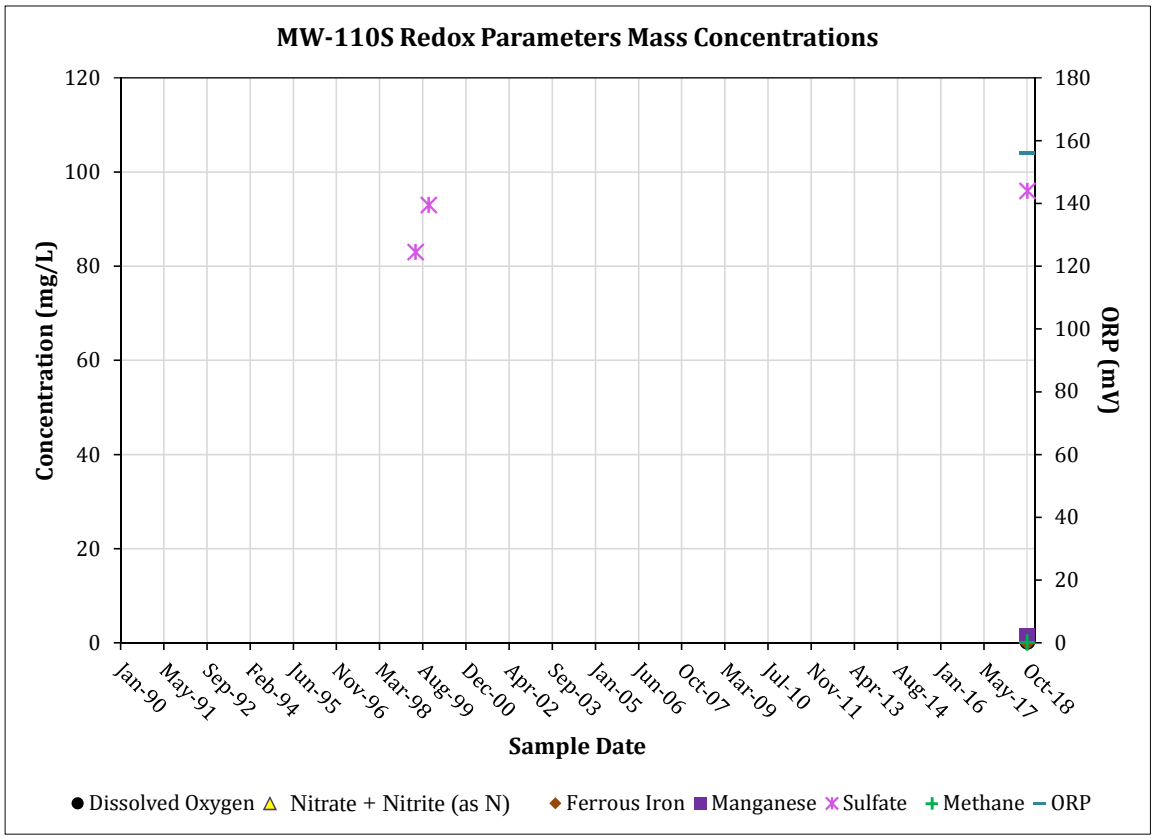

MW-110D Redox Parameters Mass Concentrations
Concentration (mg/L)
80
70
60
50
40
30
20
10
0
ORP (mV)
100
90
80
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

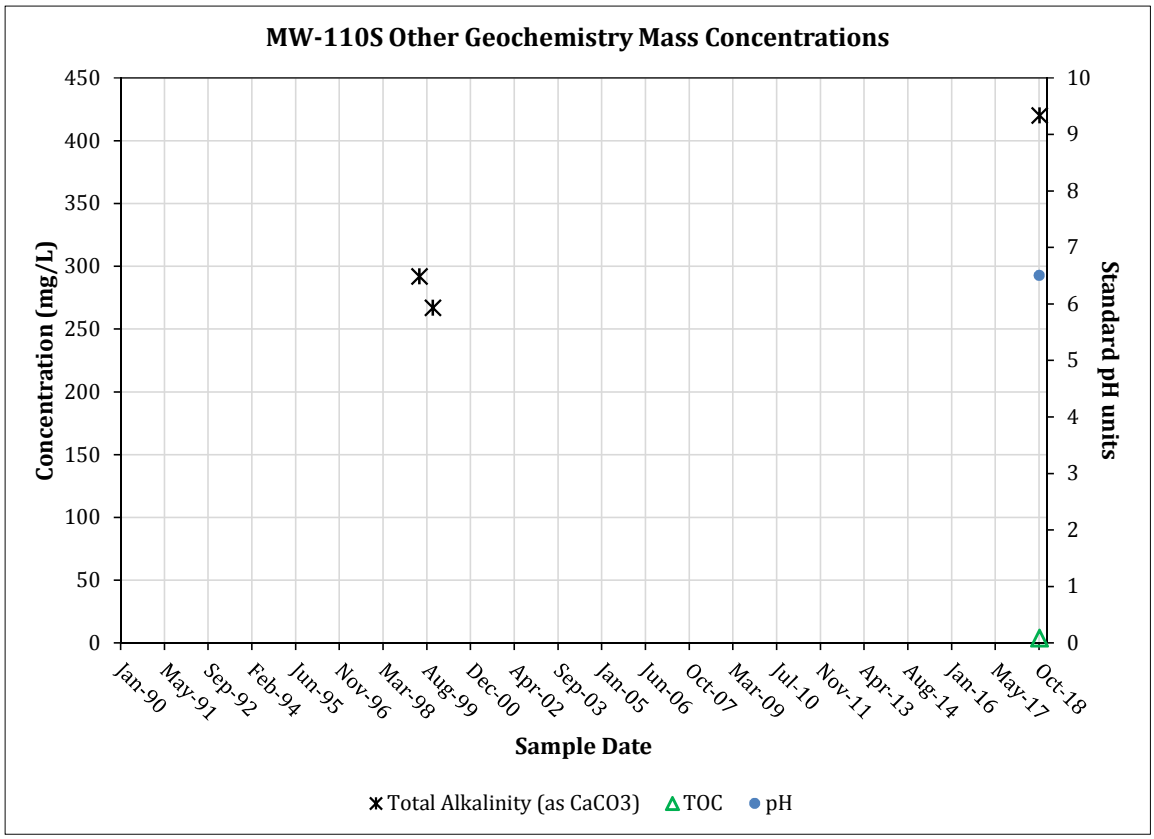

MW-110D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
300
250
200
150
100
50
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

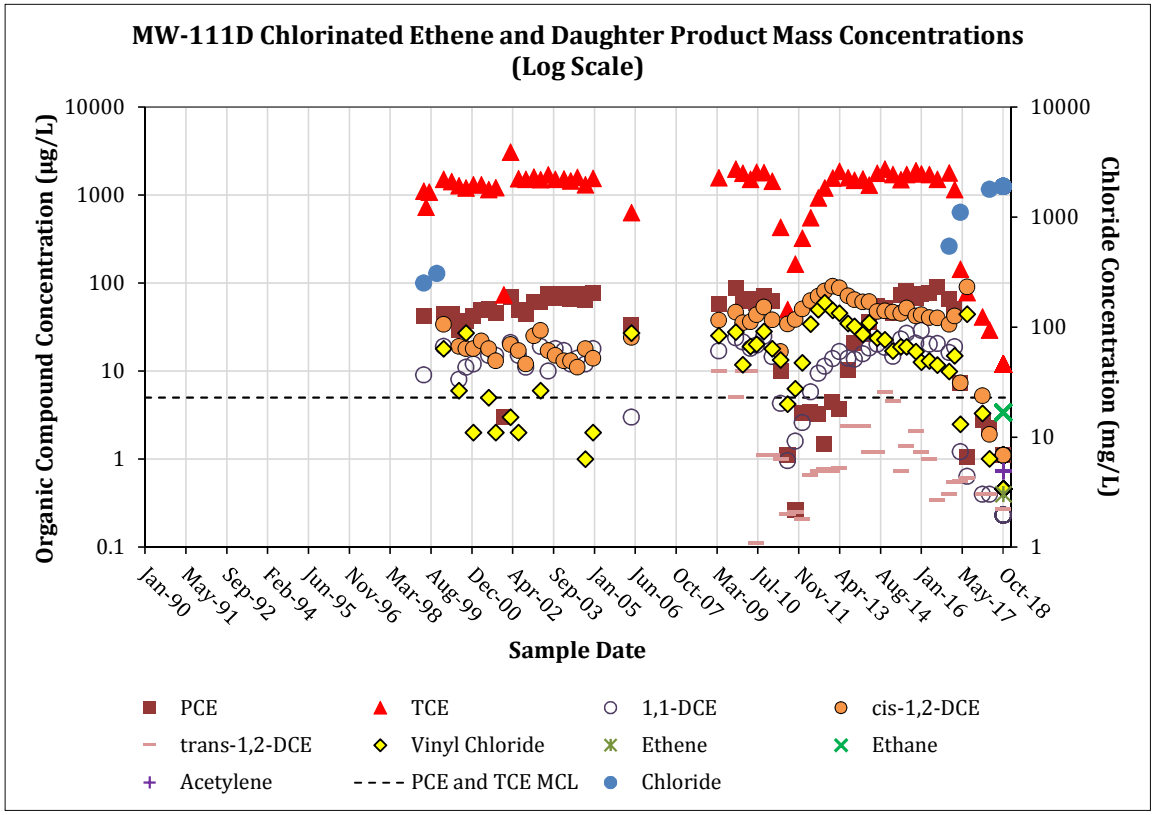

MW-110S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

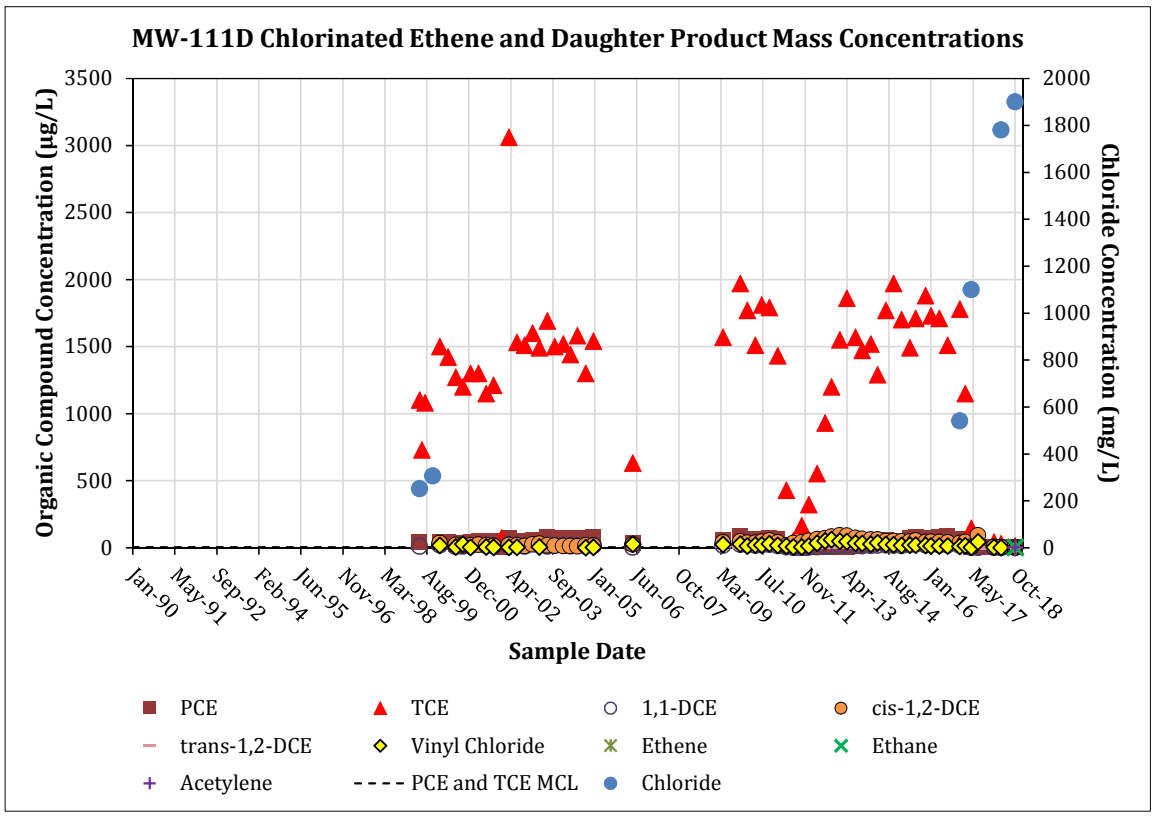

MW-110S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
300
250
200
150
100
50
0
250
200
150
100
50
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

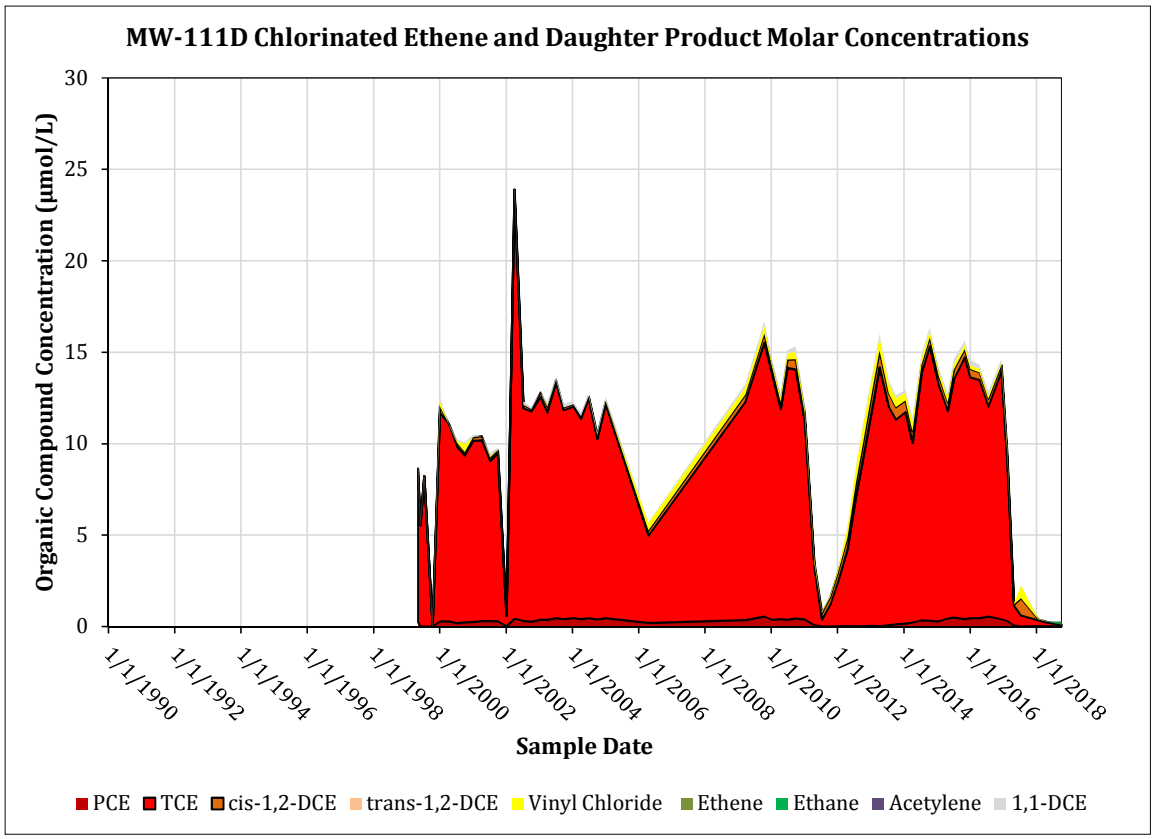

MW-110S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
3
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

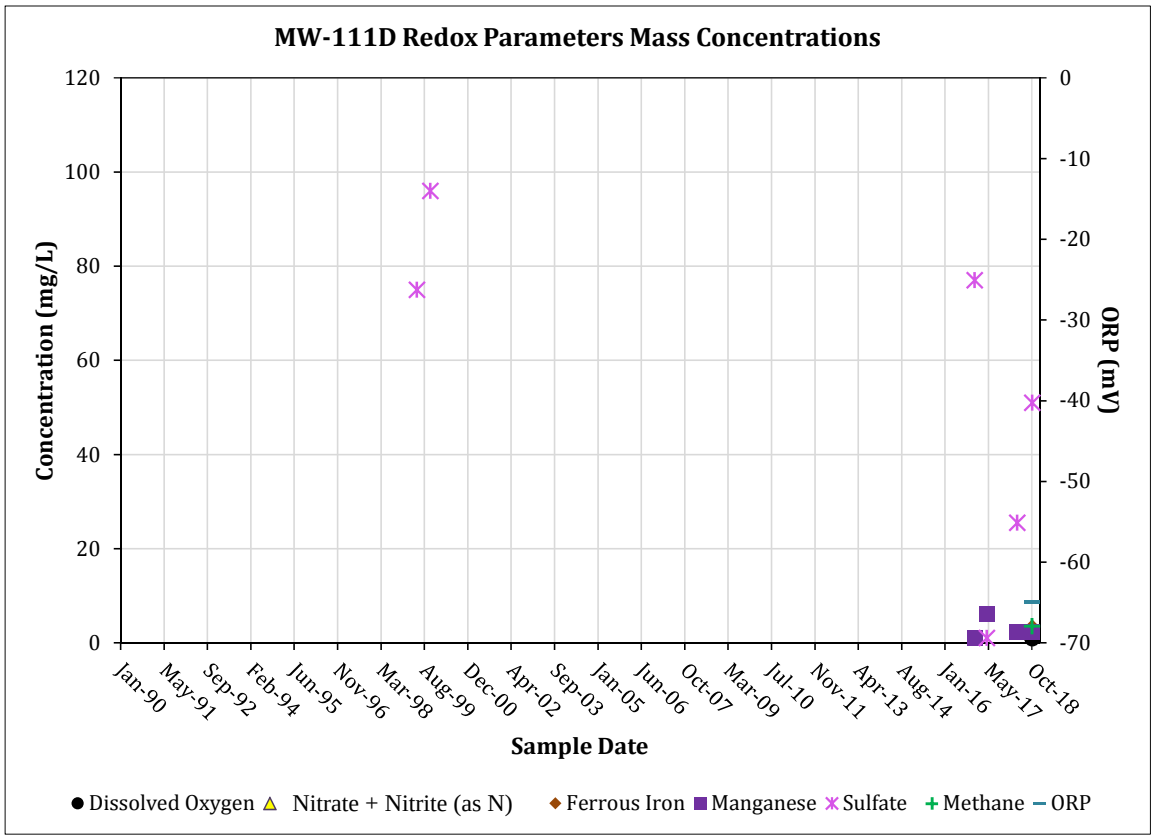

MW-110S Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

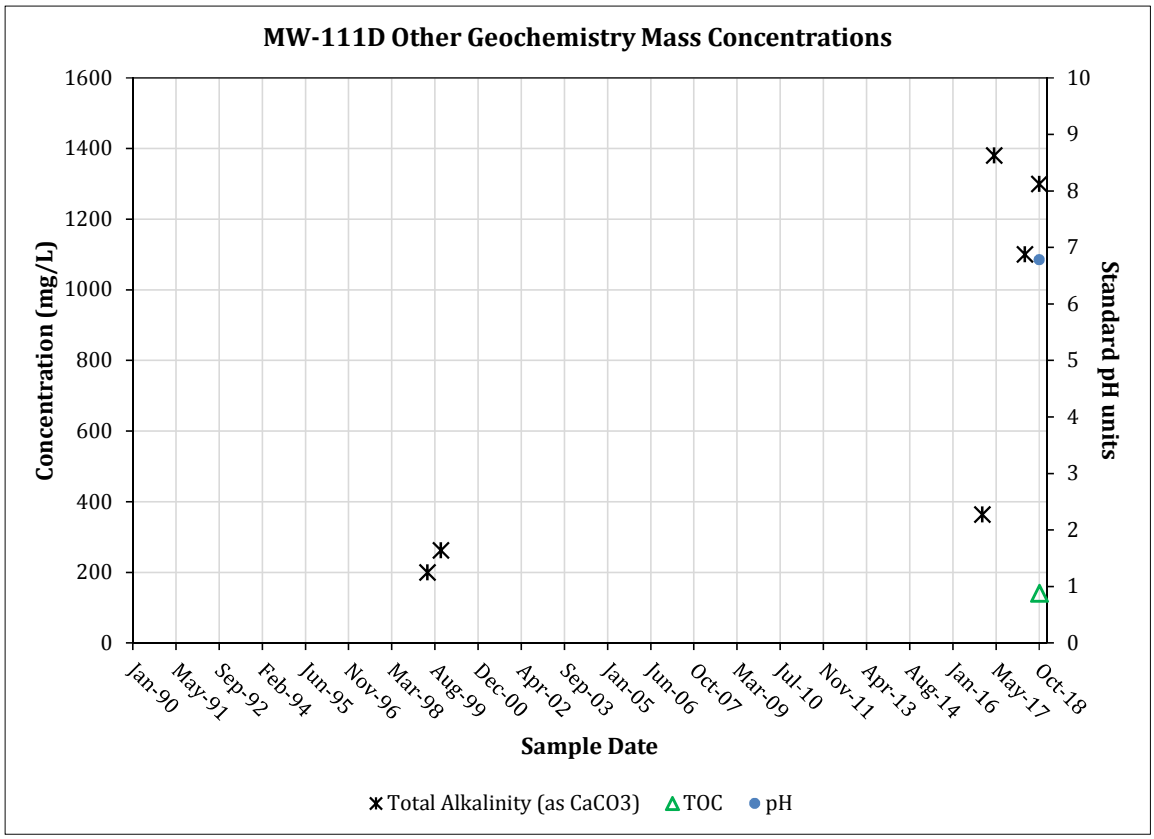

MW-110S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
50
100
150
200
250
300
350
400
450
0
1
2
3
4
5
6
7
8
9
10
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

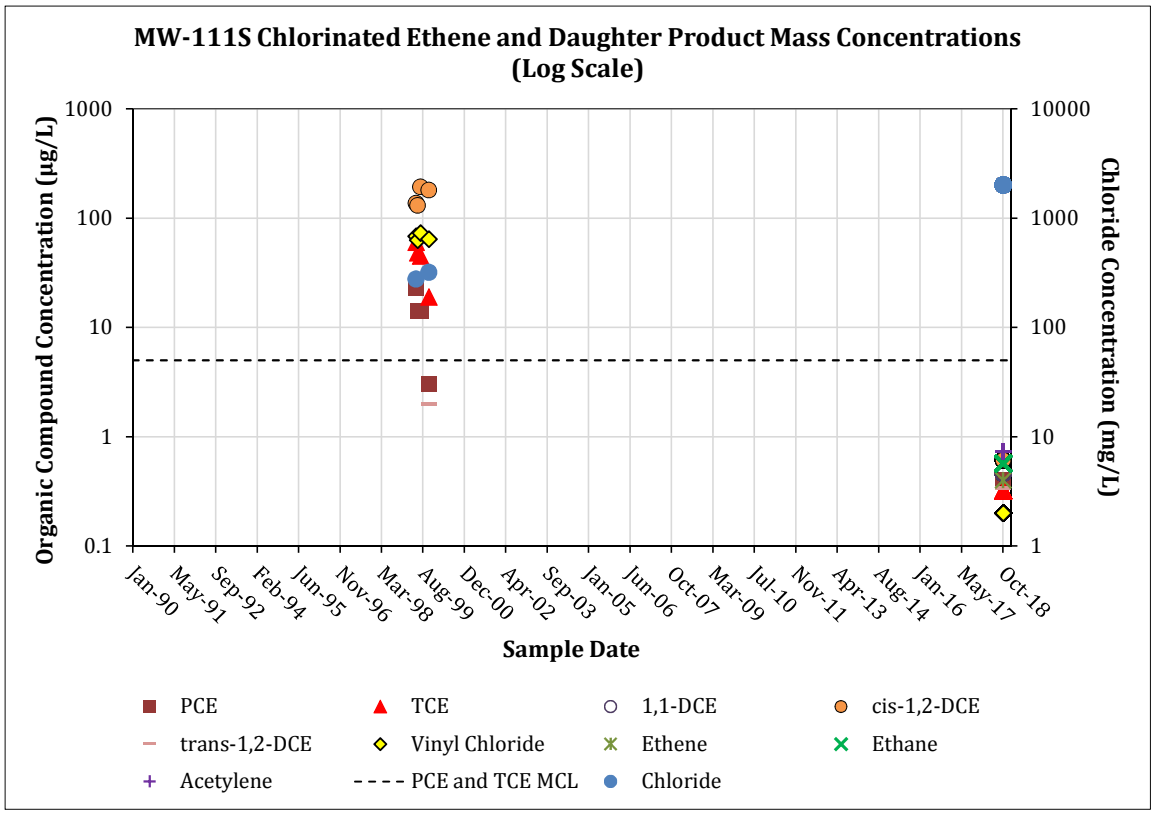

MW-111D Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
10000
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

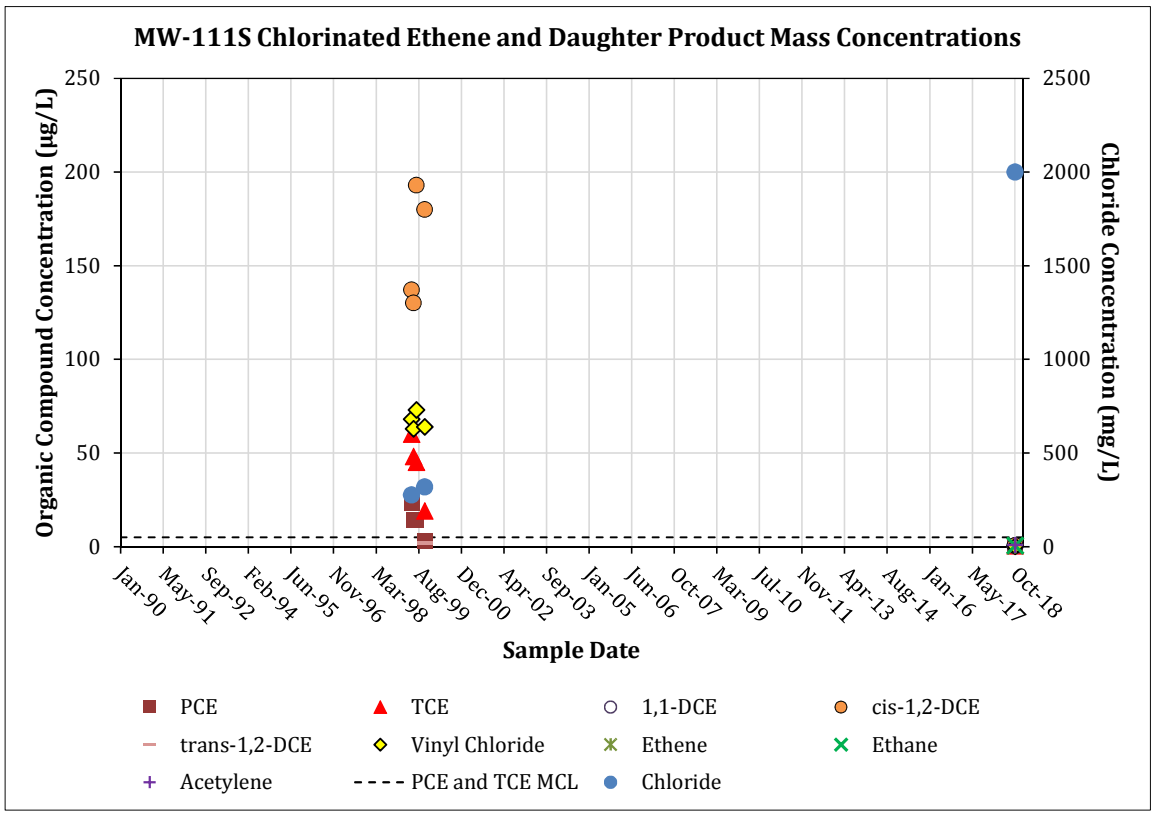

MW-111D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
3500
3000
2500
2000
1500
1000
500
0
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

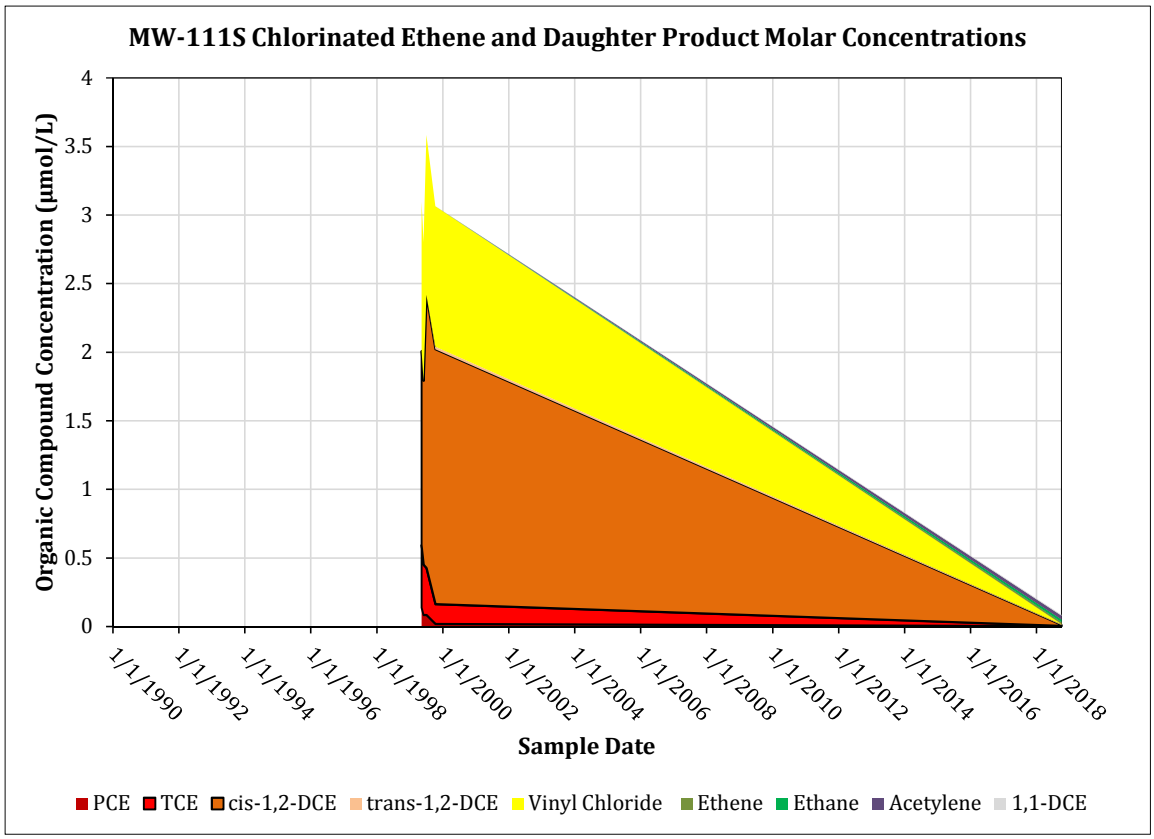

MW-111D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
30
25
20
15
10
5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

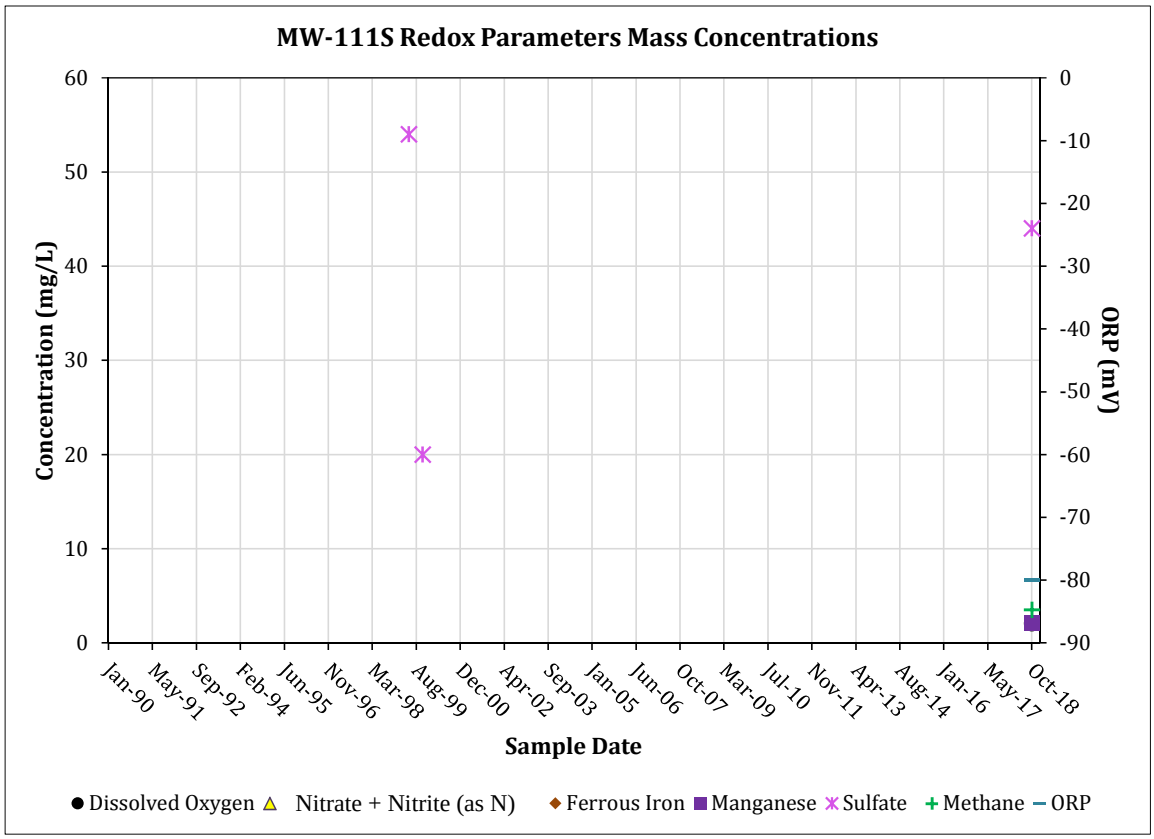

MW-111D Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
0
-10
-20
-30
-40
-50
-60
-70
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

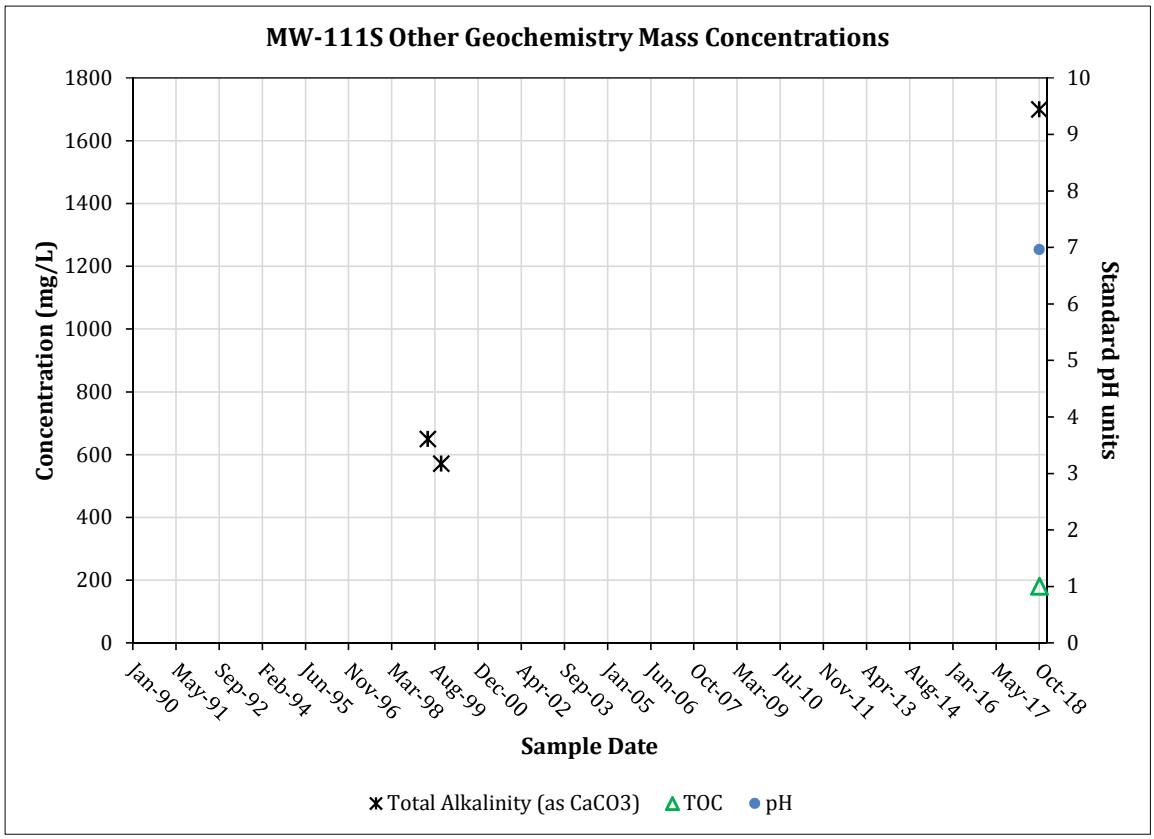

MW-111D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
200
400
600
800
1000
1200
1400
1600
0
1
2
3
4
5
6
7
8
9
10
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

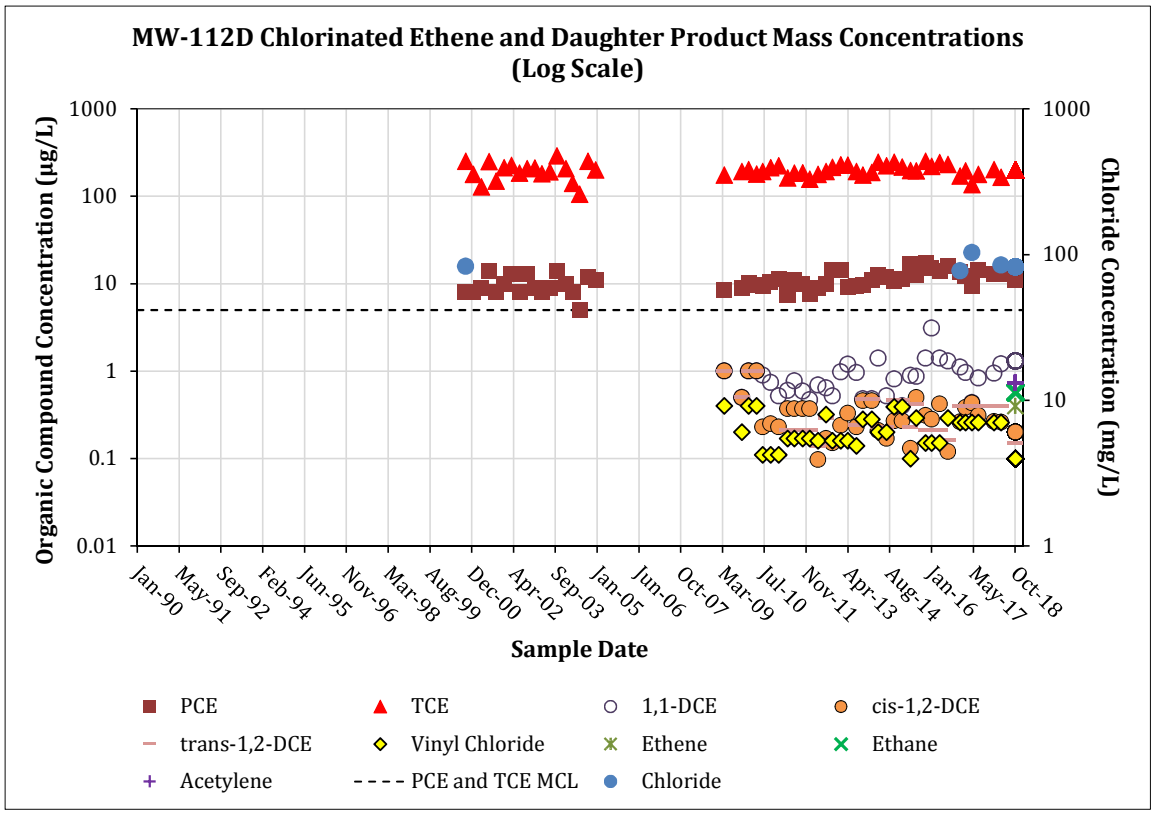

MW-111S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
10000
1000
100
10
1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

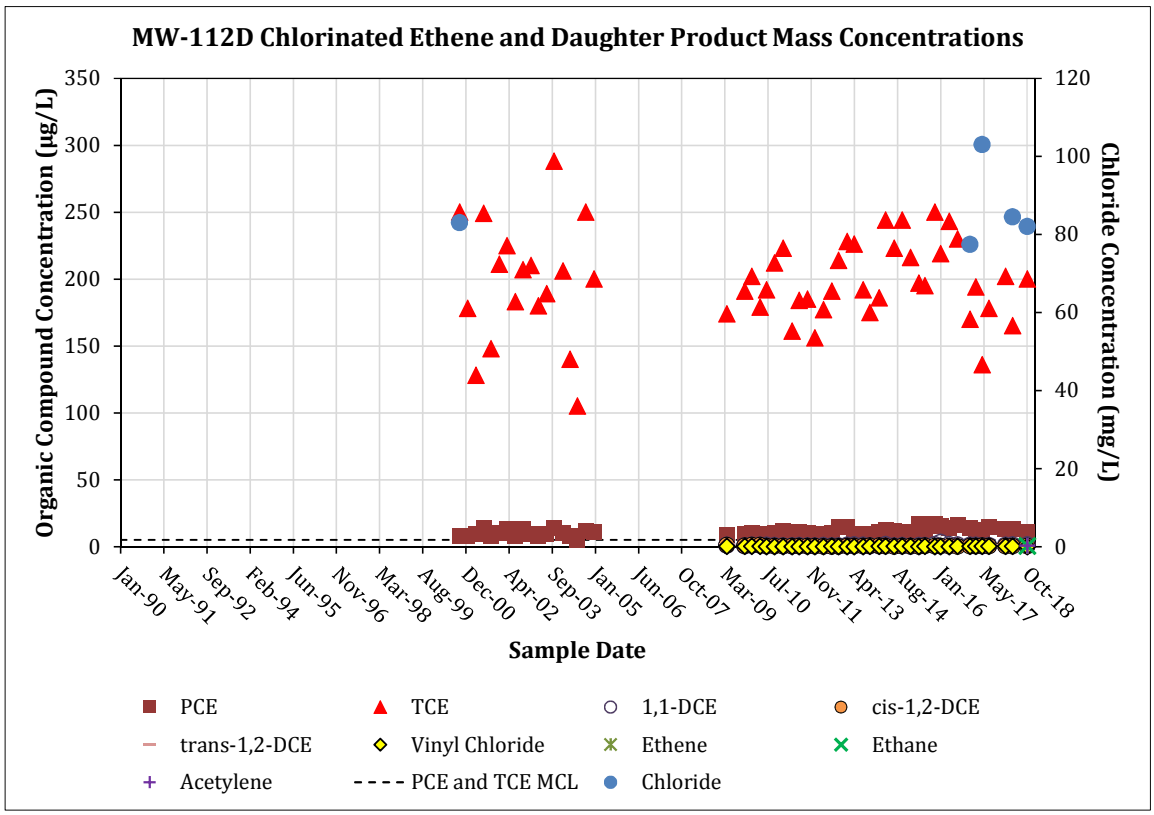

MW-111S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
250
200
150
100
50
0
2500
2000
1500
1000
500
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

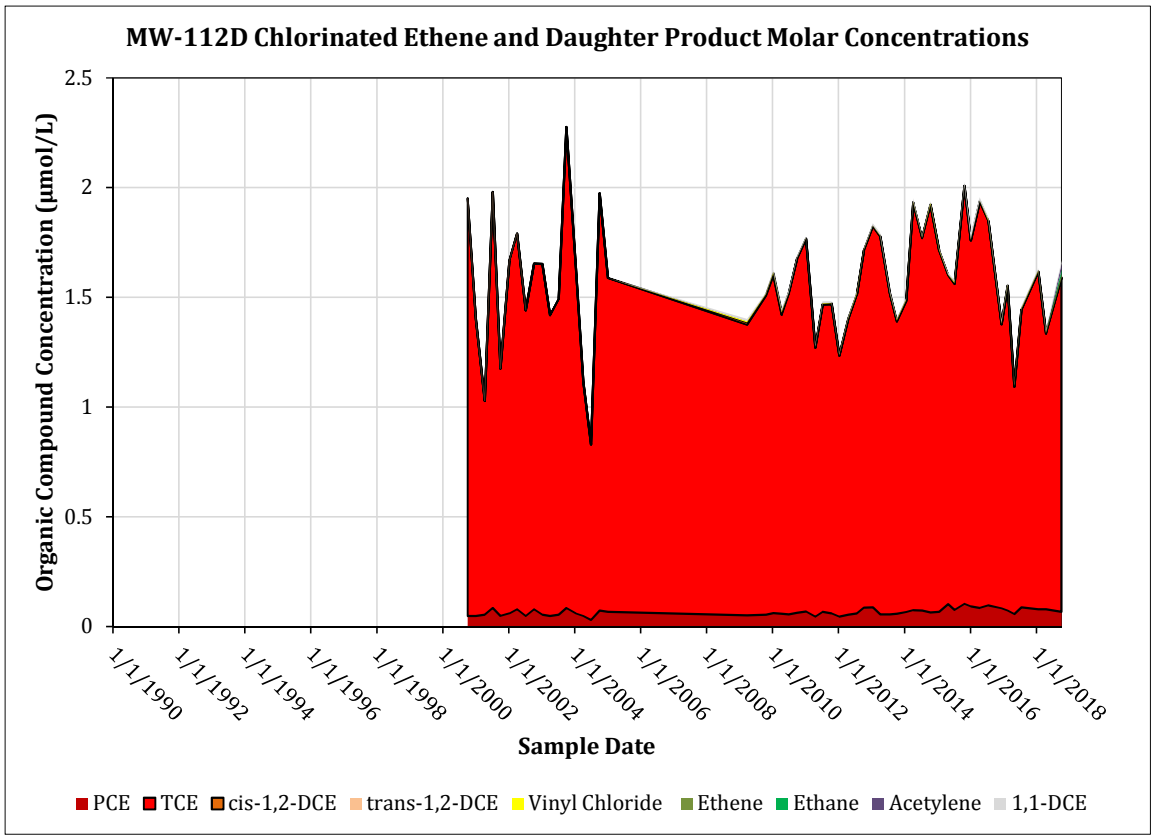

MW-111S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
4
3.5
3
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

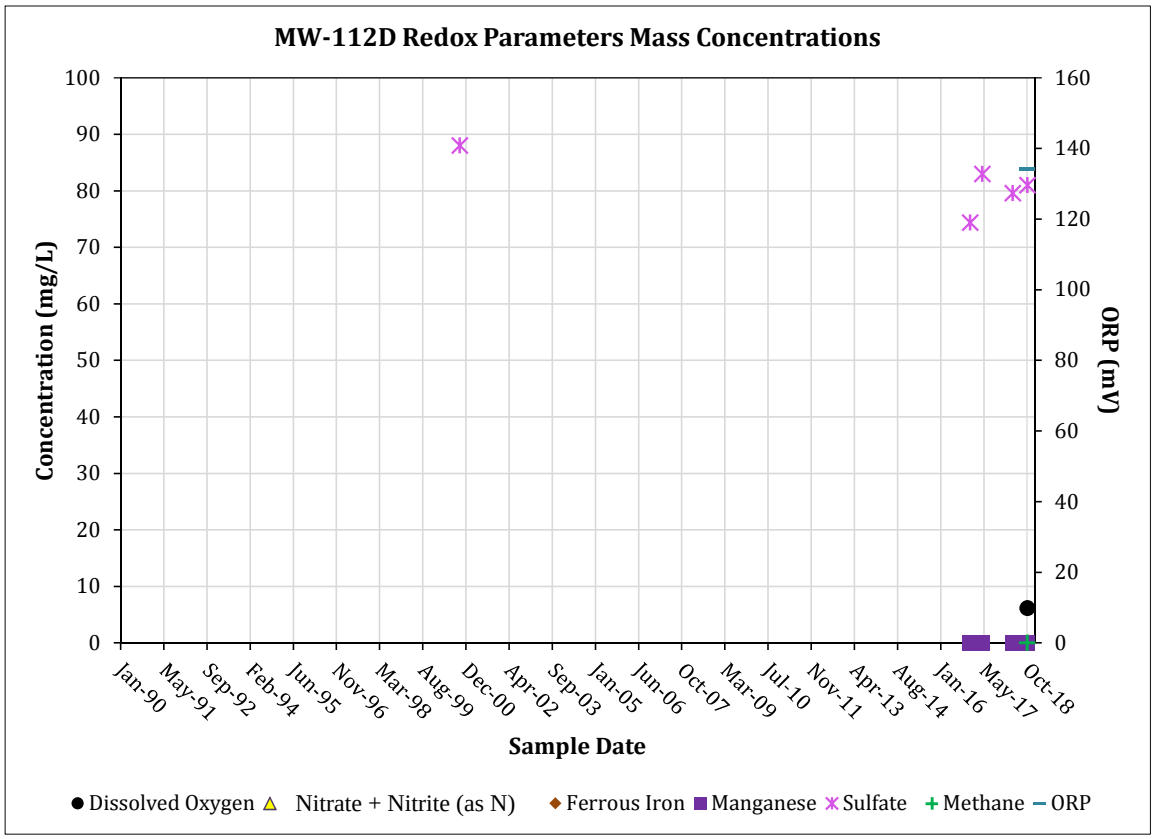

MW-111S Redox Parameters Mass Concentrations
Concentration (mg/L)
60
50
40
30
20
10
0
ORP (mV)
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

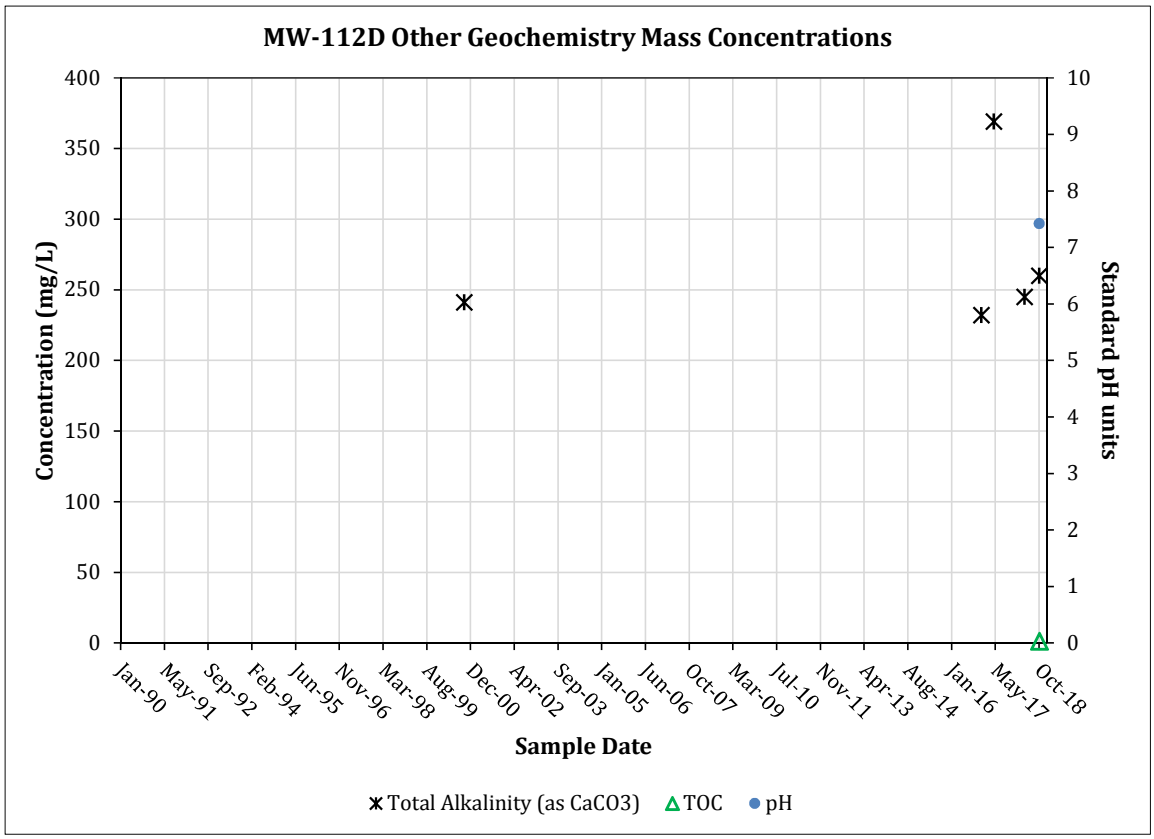

MW-111S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
1800
1600
1400
1200
1000
800
600
400
200
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

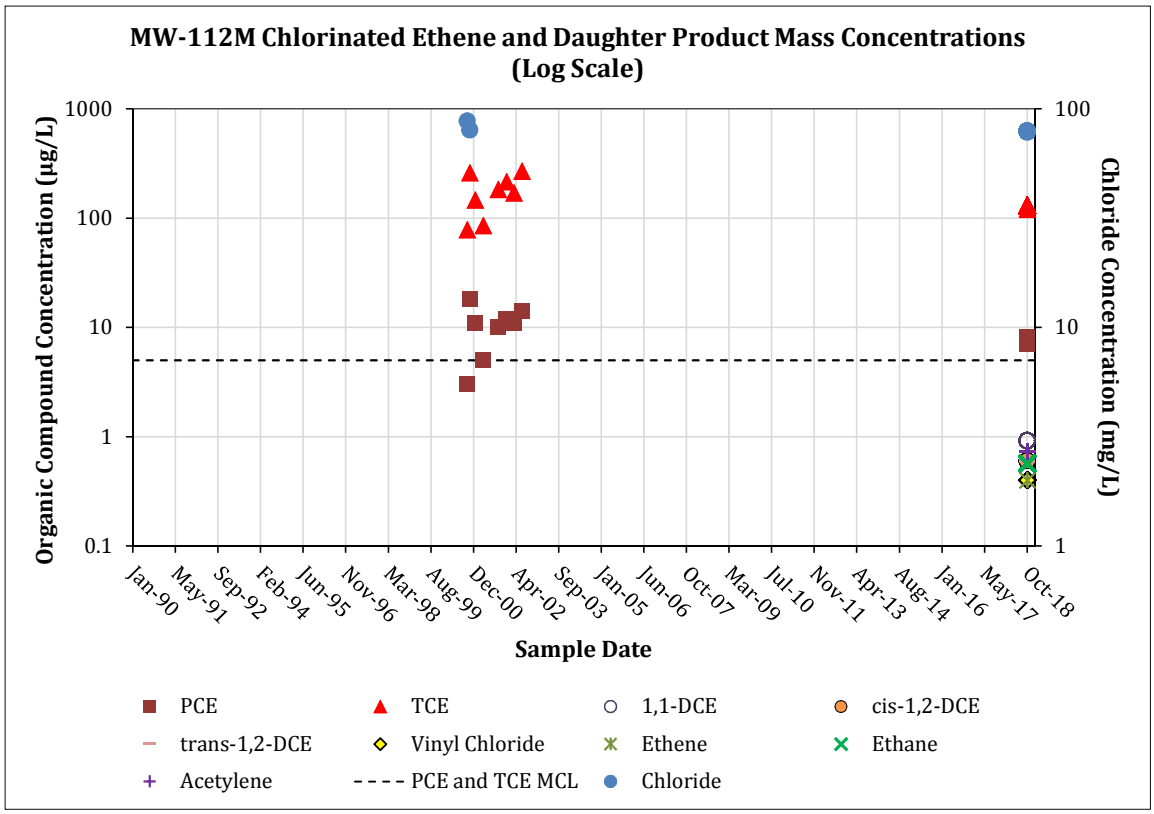

MW-112D Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
0.01
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

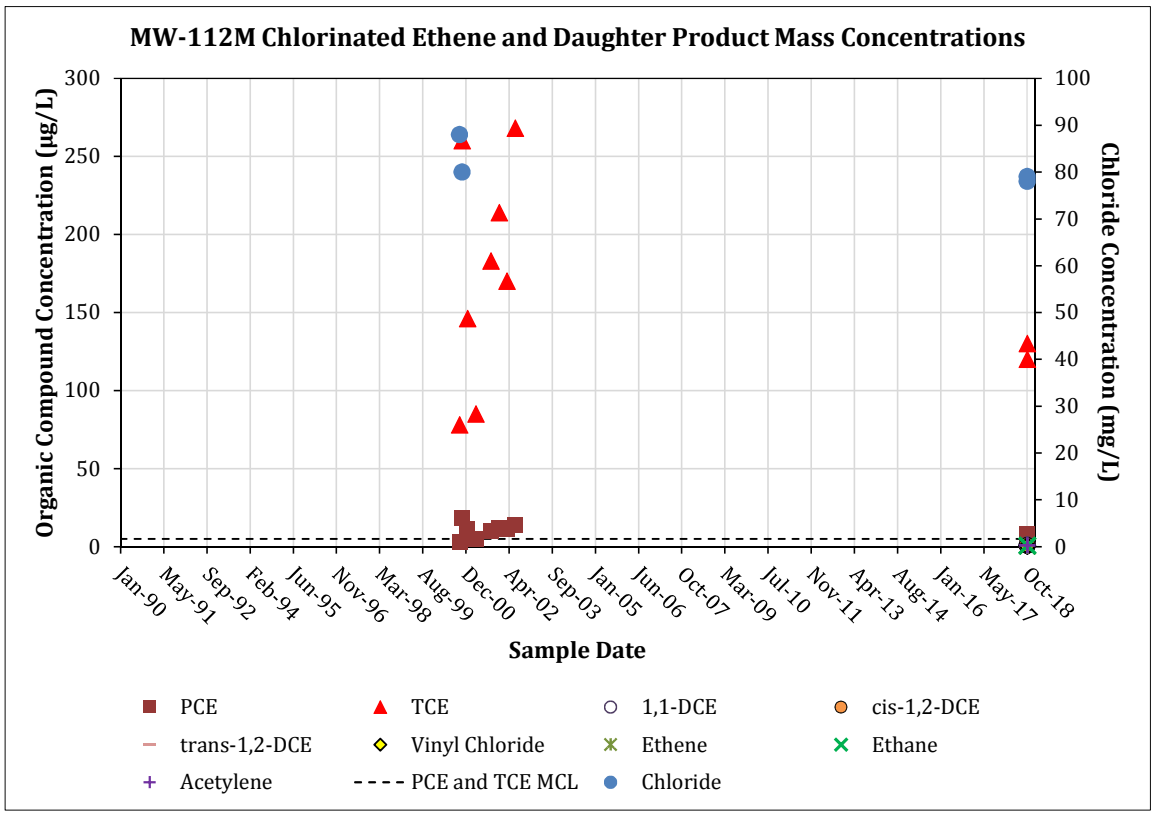

MW-112D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
350
300
250
200
150
100
50
0
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

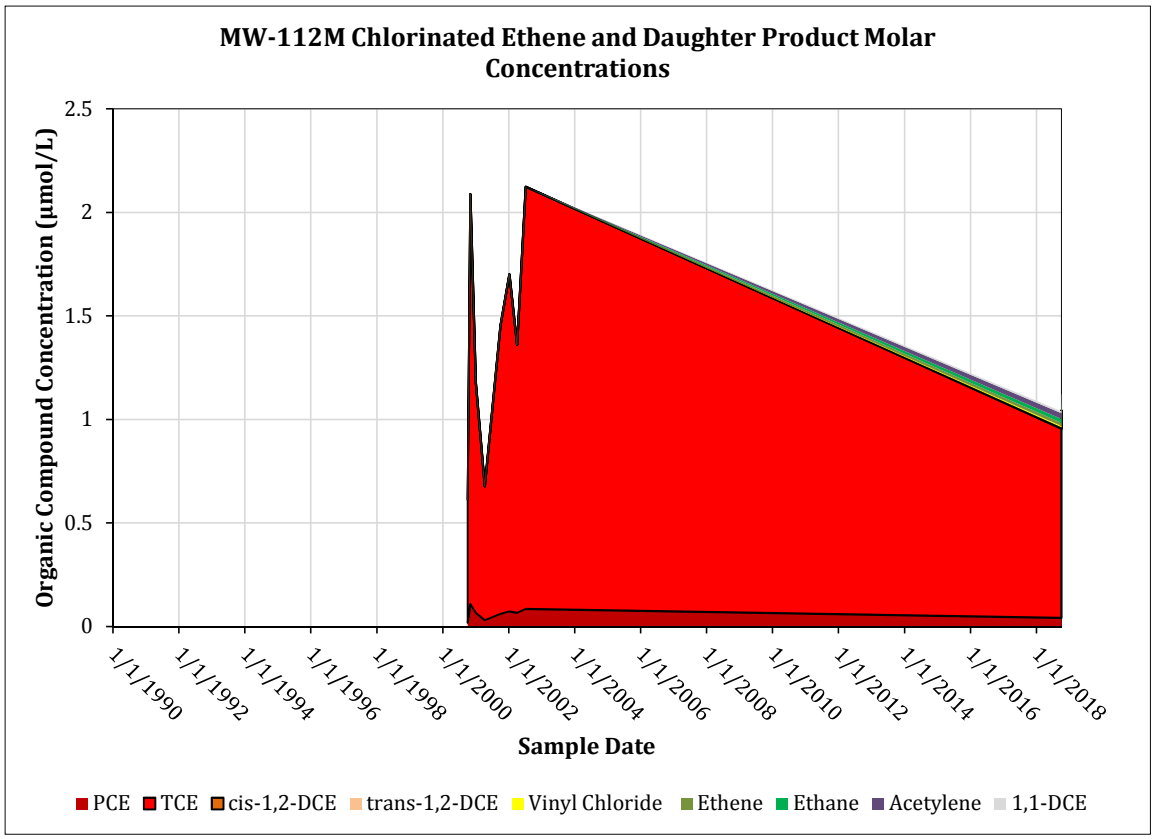

MW-112D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

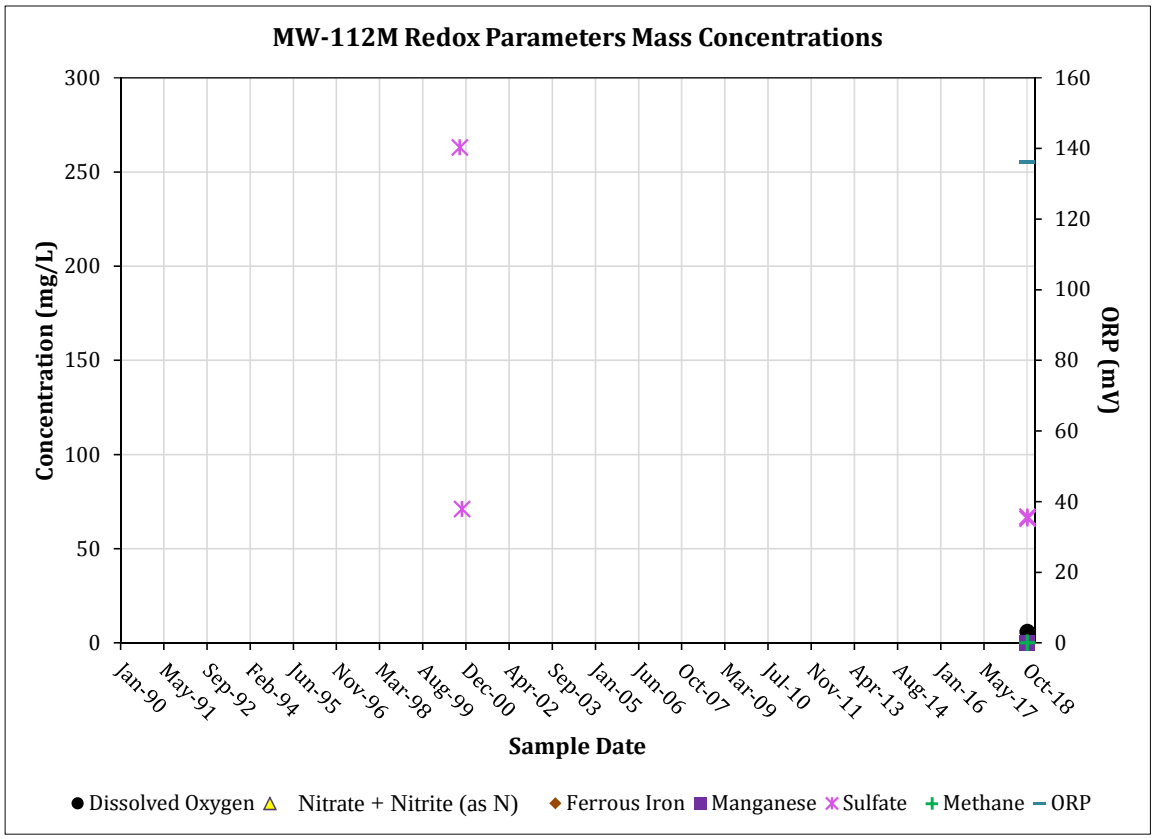

MW-112D Redox Parameters Mass Concentrations
Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
ORP (mV)
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

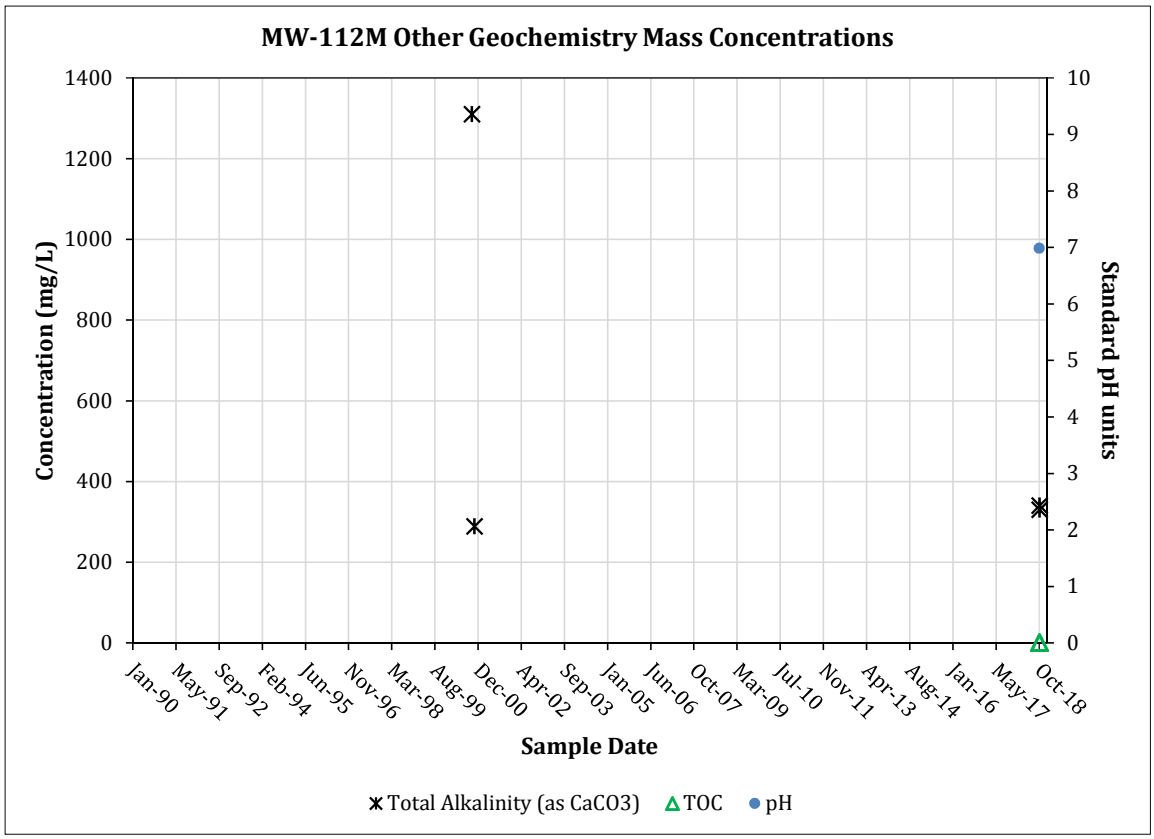

MW-112D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
50
100
150
200
250
300
350
400
0
1
2
3
4
5
6
7
8
9
10
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

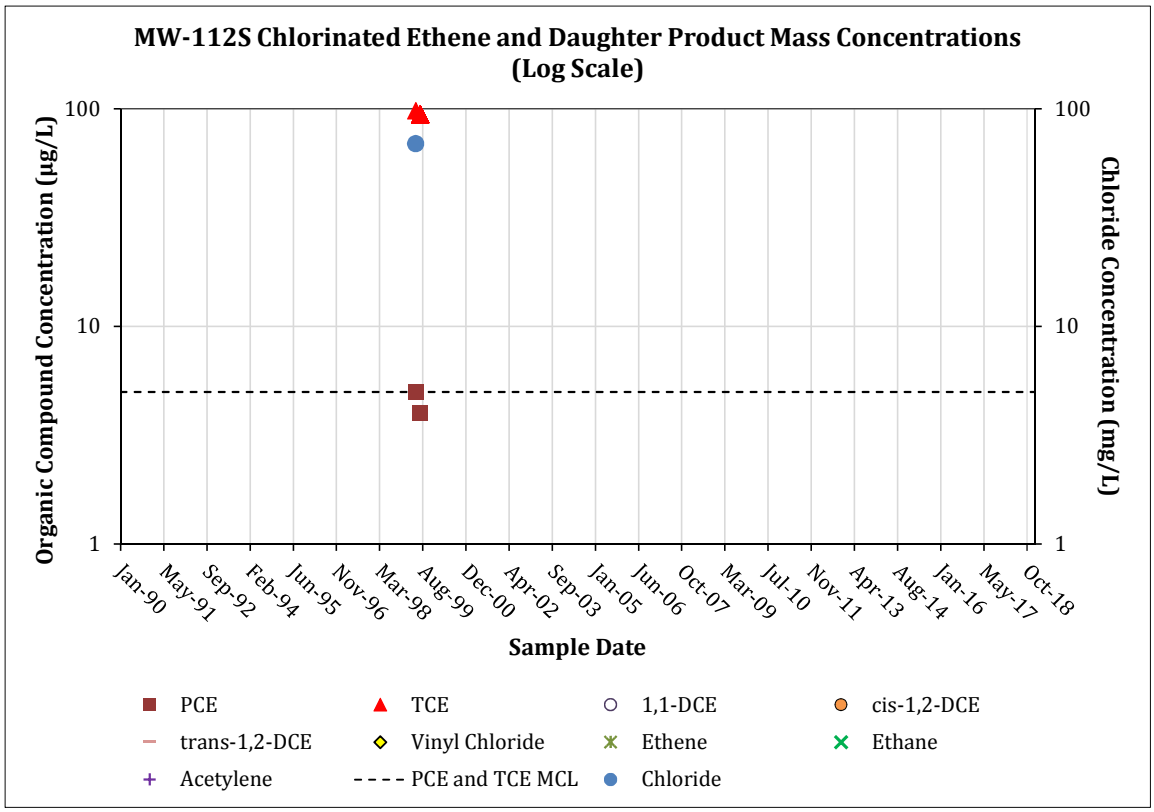

MW-112M Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
1000
100
10
1
0.1
Chloride Concentration (mg/L)
100
10
1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

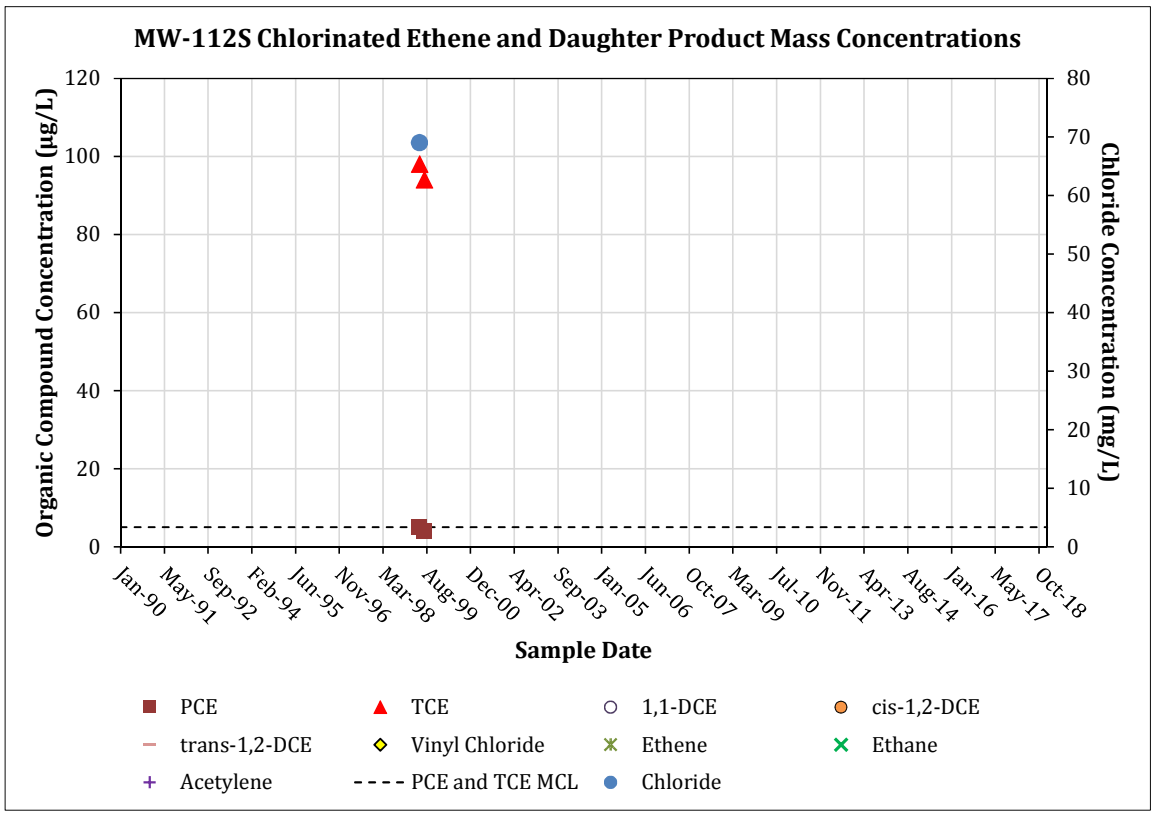

MW-112M Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
300
250
200
150
100
50
0
Chloride Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

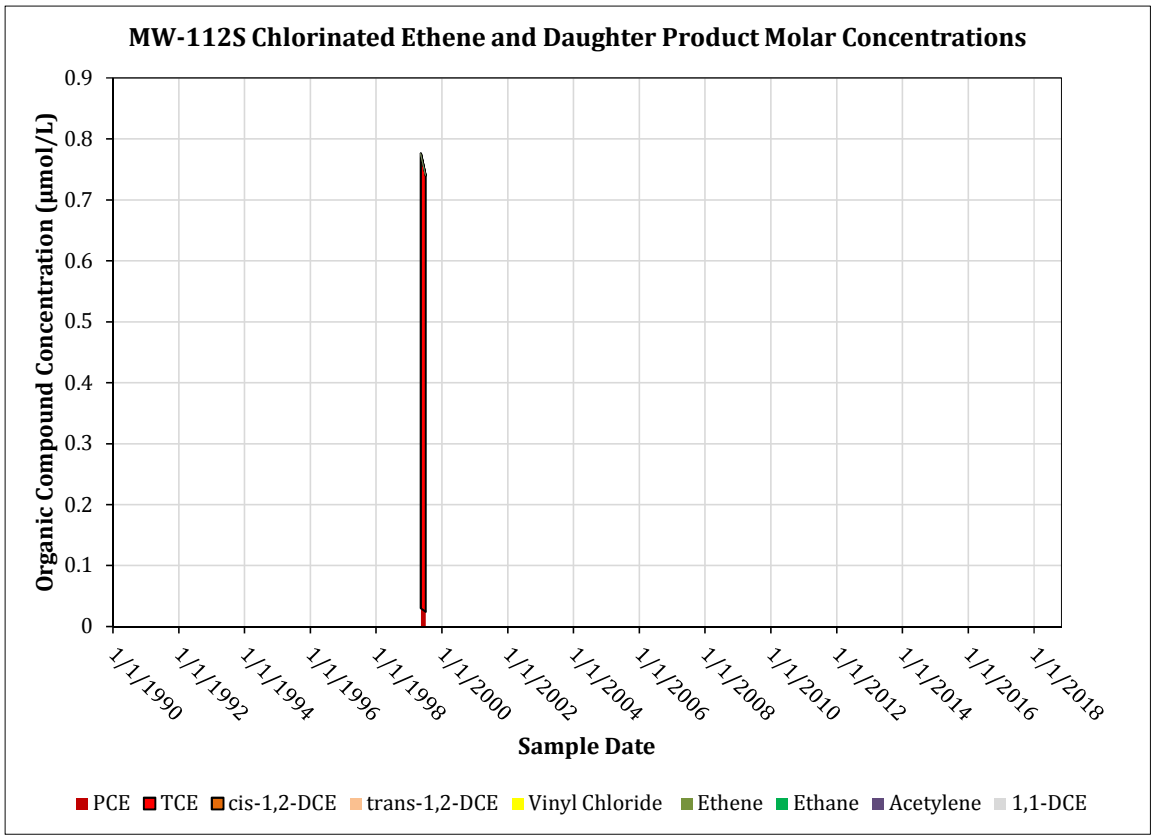

MW-112M Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

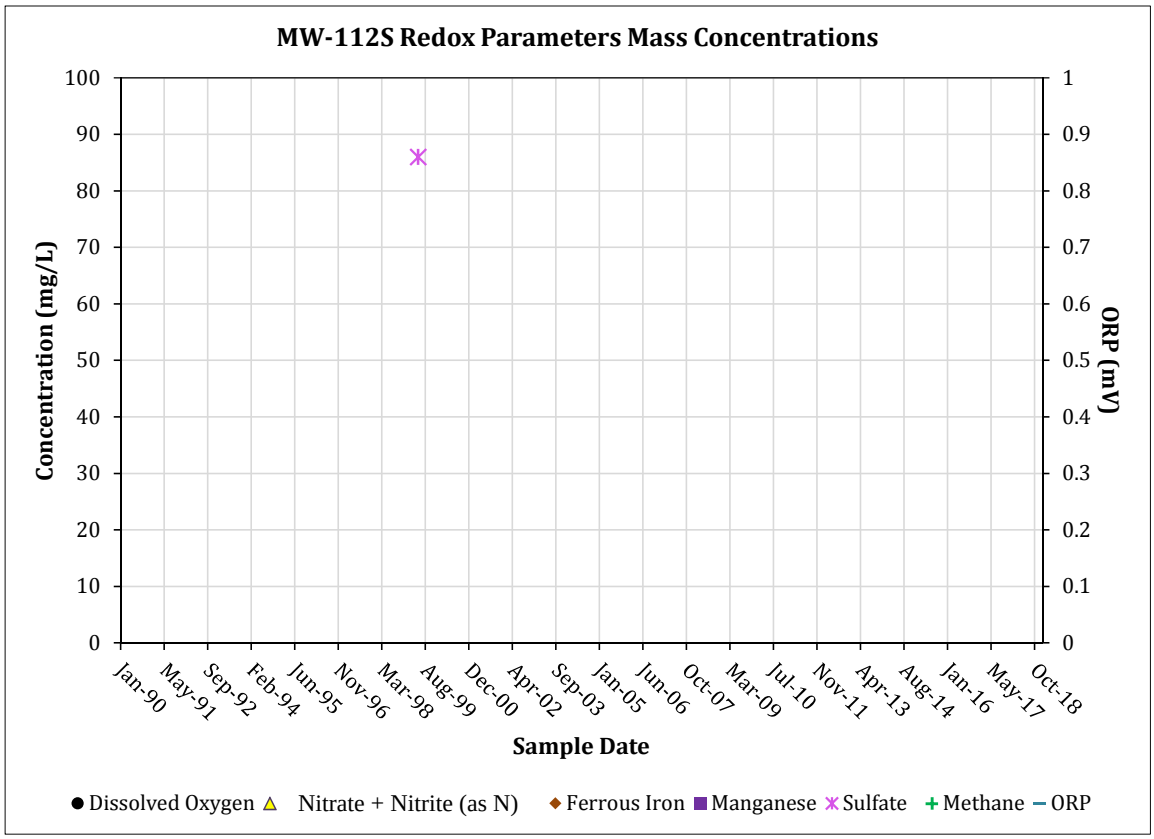

MW-112M Redox Parameters Mass Concentrations
Concentration (mg/L)
300
250
200
150
100
50
0
ORP (mV)
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

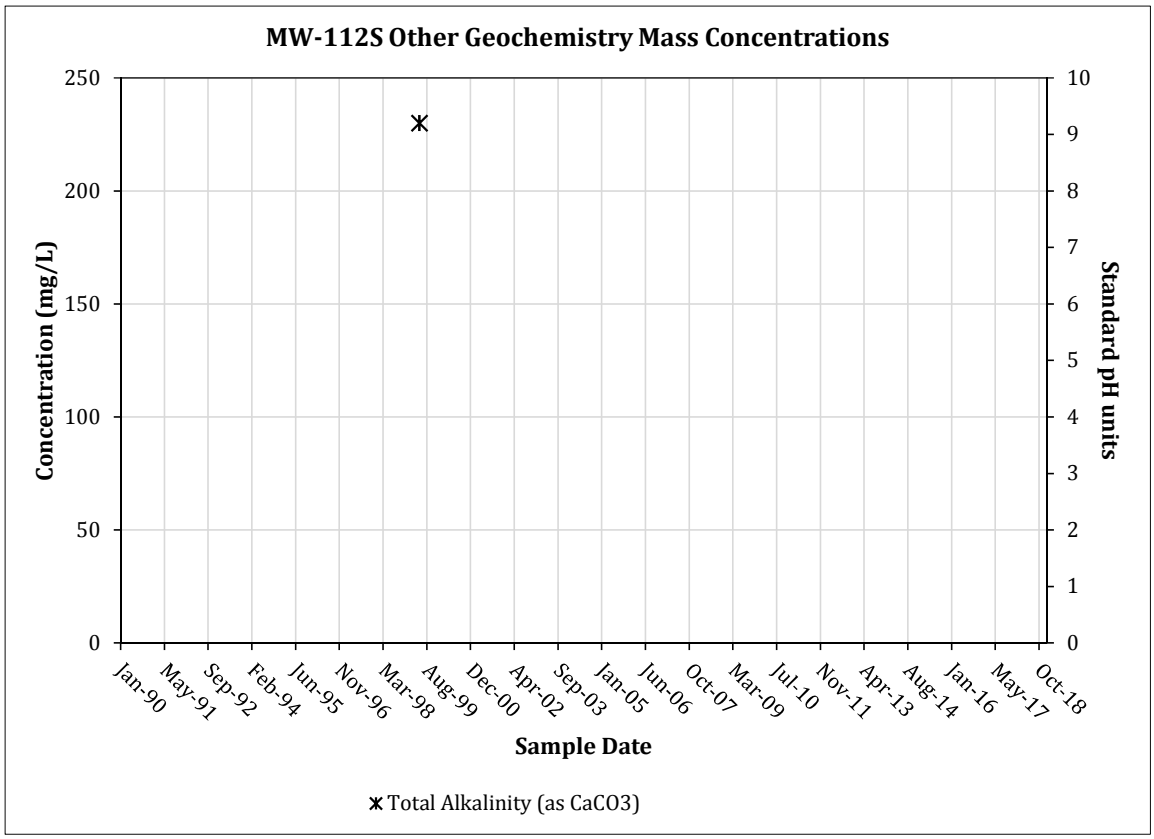

MW-112M Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
1400
1200
1000
800
600
400
200
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

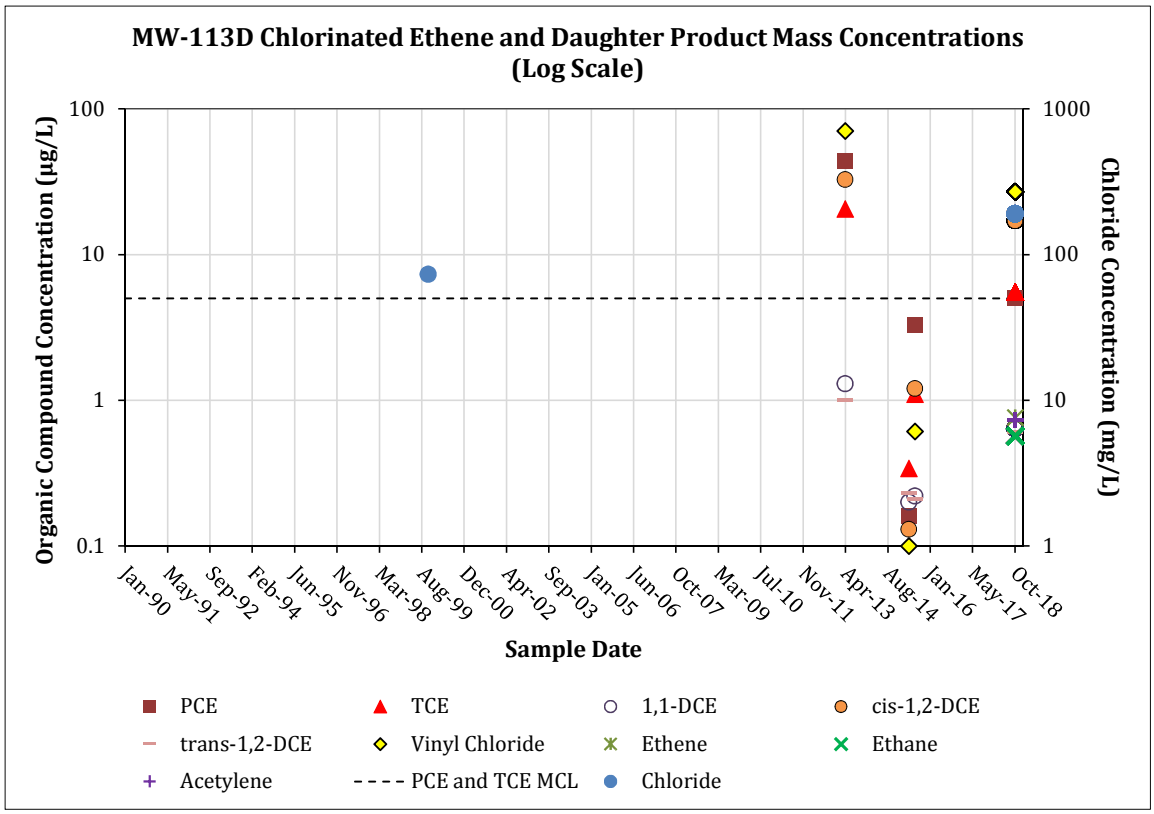

MW-112S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

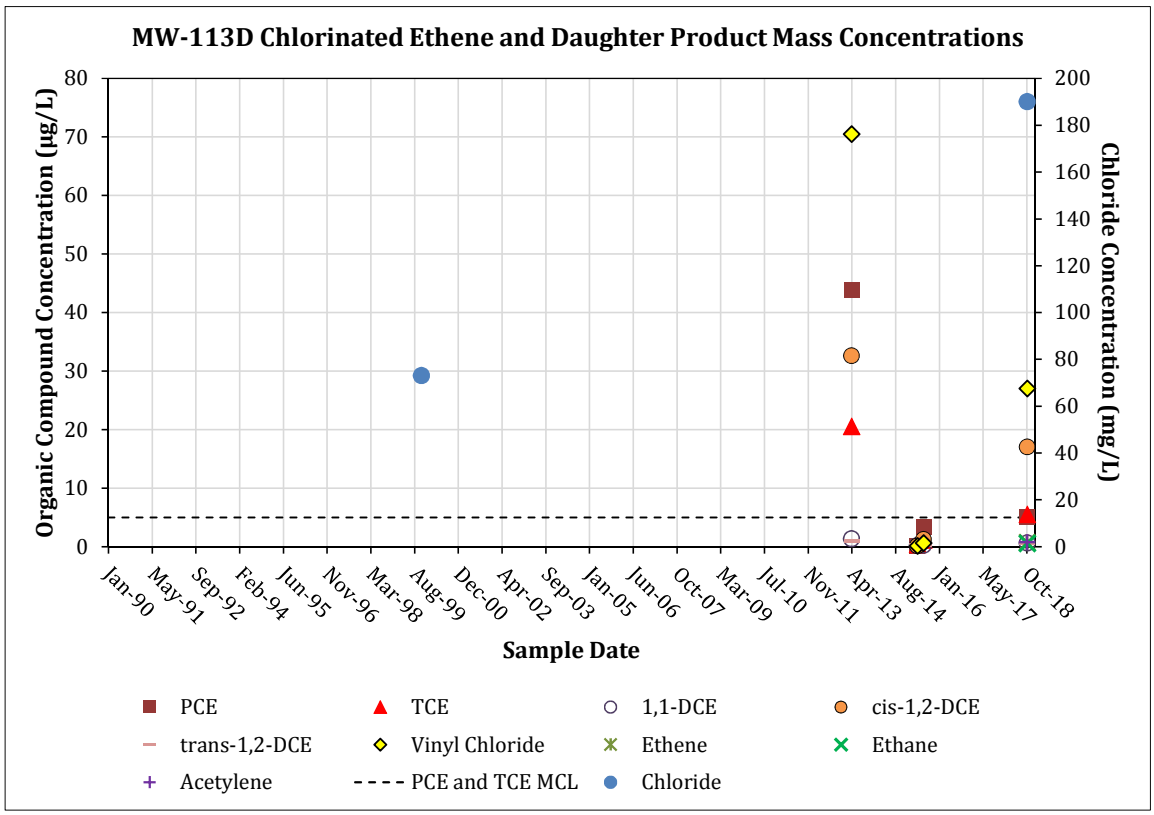

MW-112S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
120
100
80
60
40
20
0
80
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

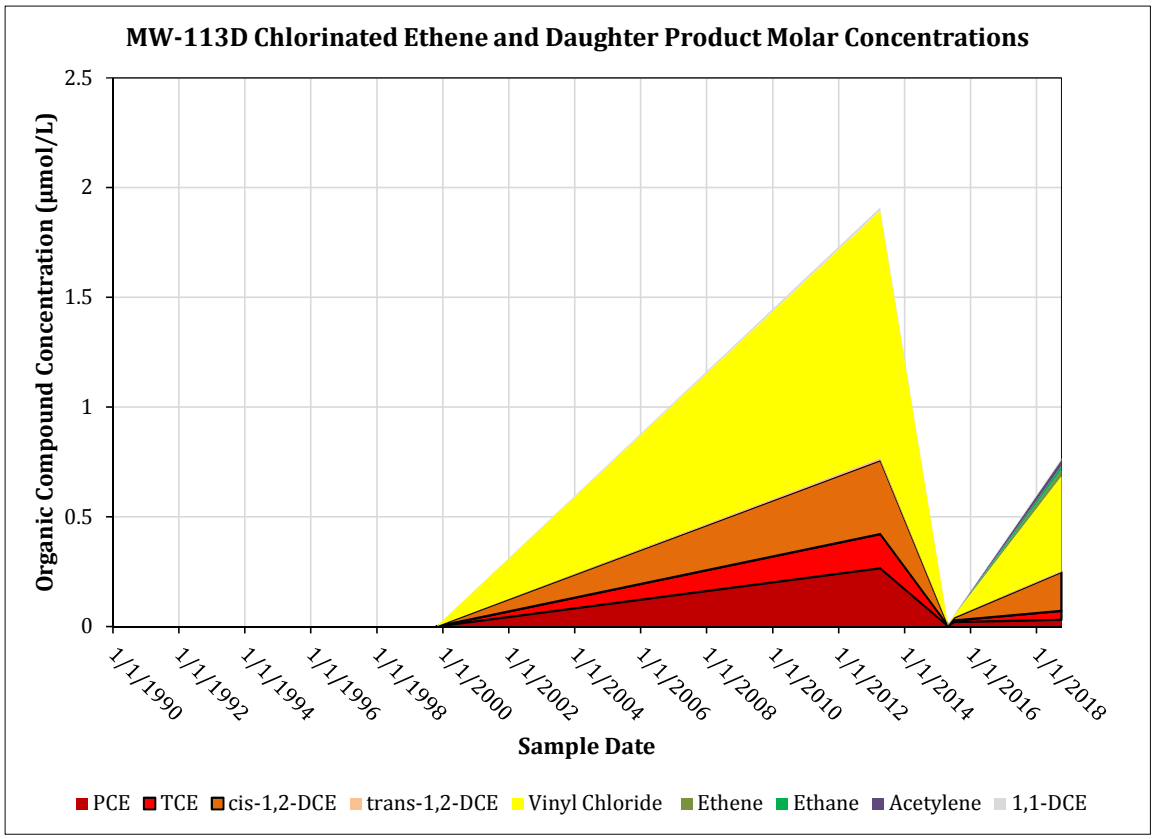

MW-112S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

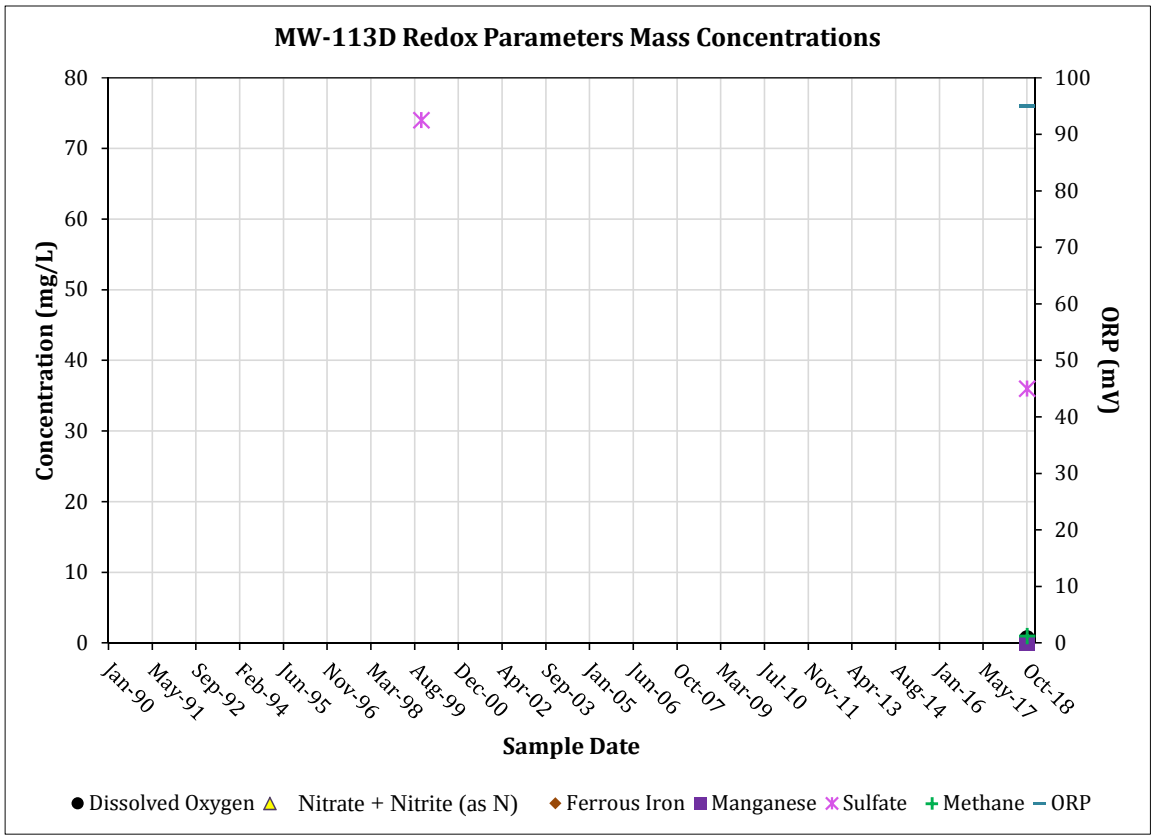

MW-112S Redox Parameters Mass Concentrations
Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
ORP (mV)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

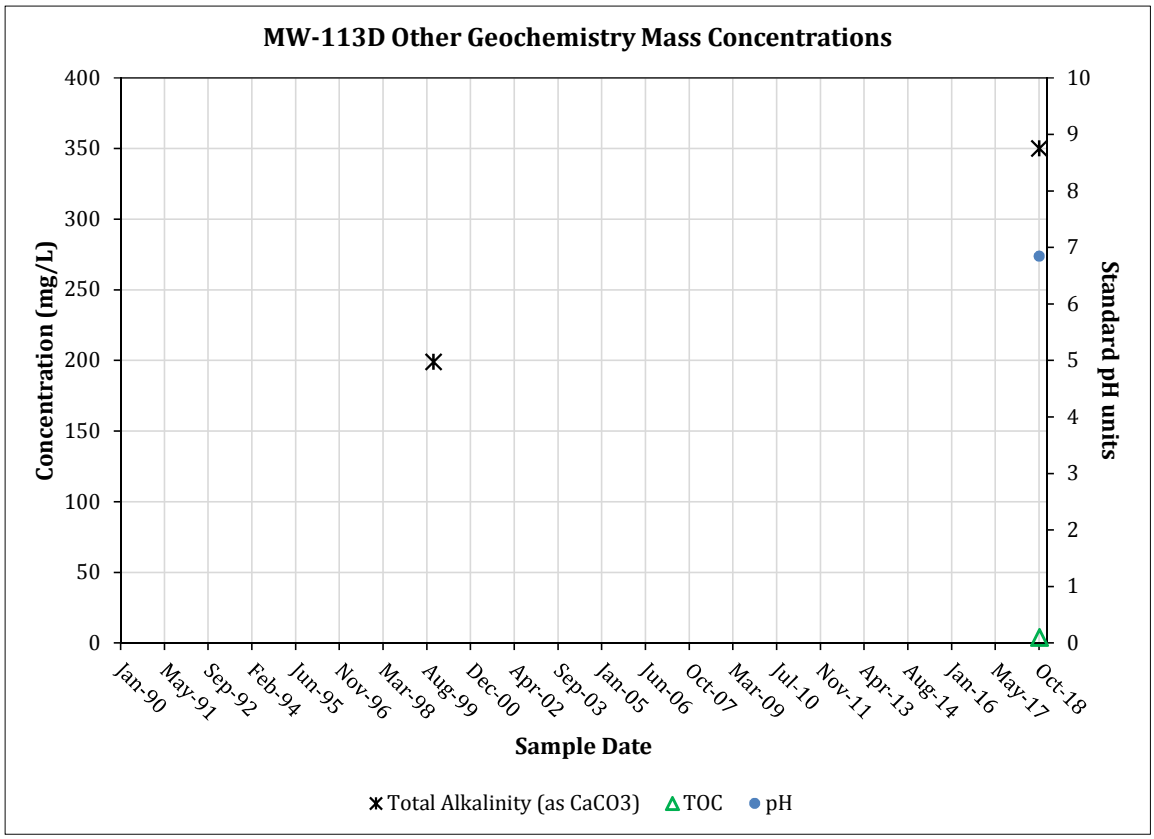

MW-112S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
250
200
150
100
50
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)

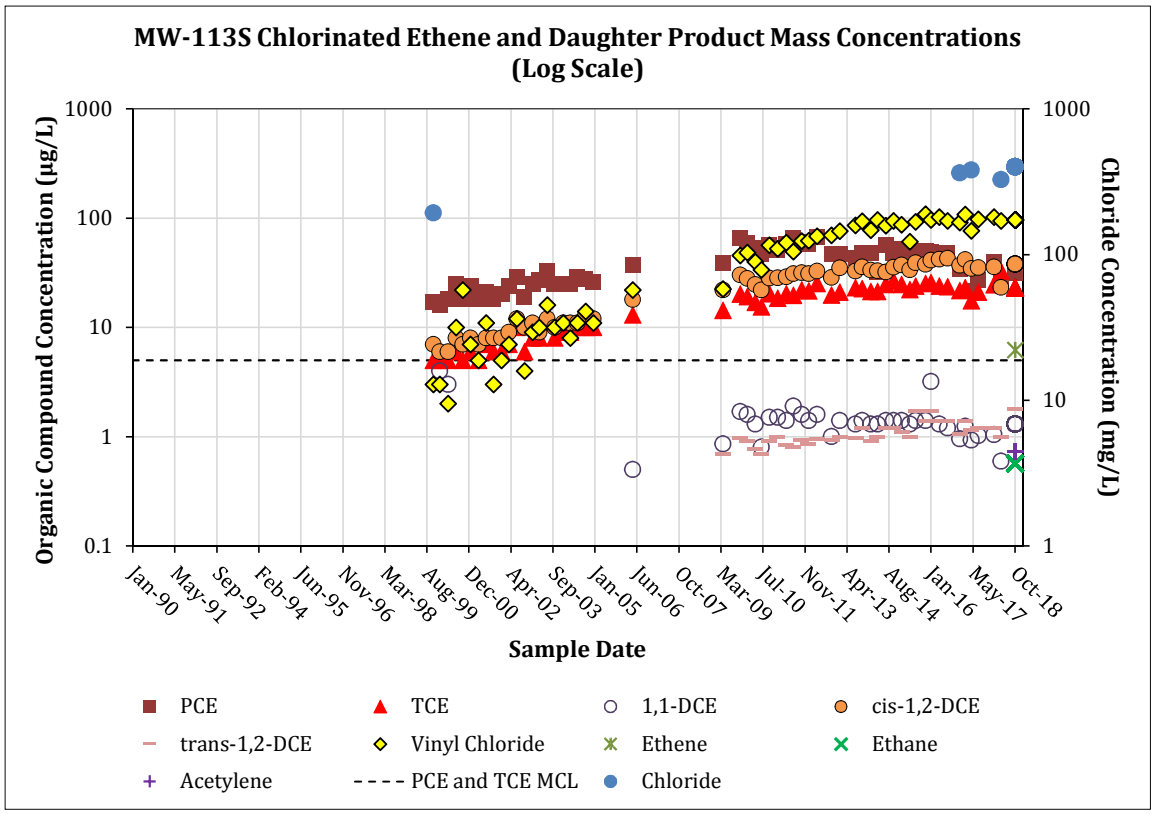

MW-113D Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
1000
100
10
1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

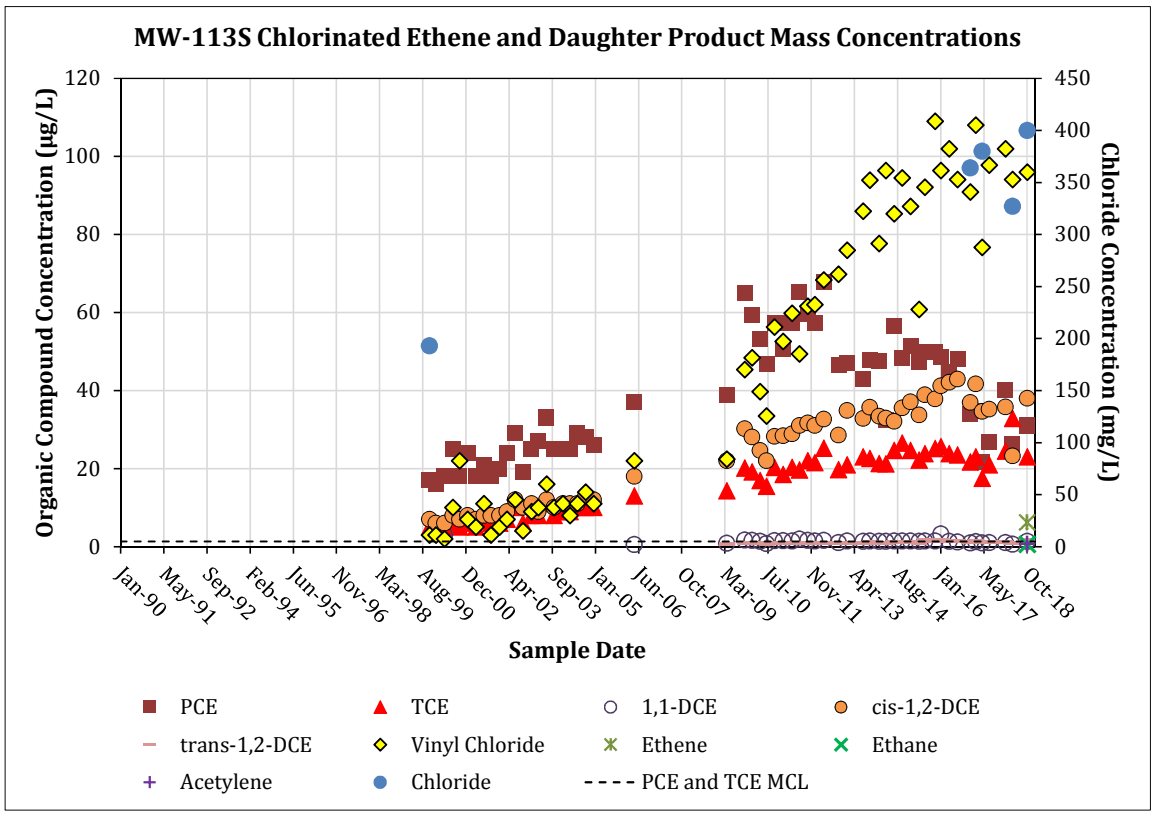

MW-113D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
80
70
60
50
40
30
20
10
0
200
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

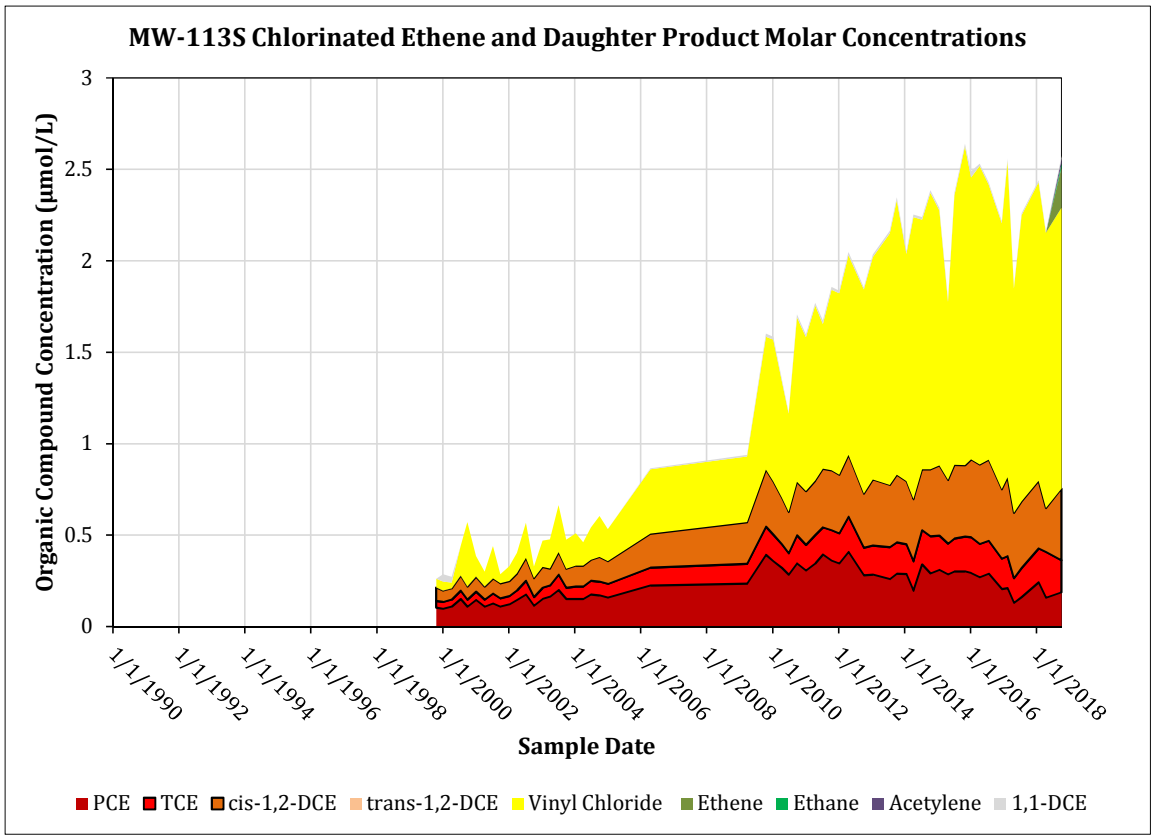

MW-113D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

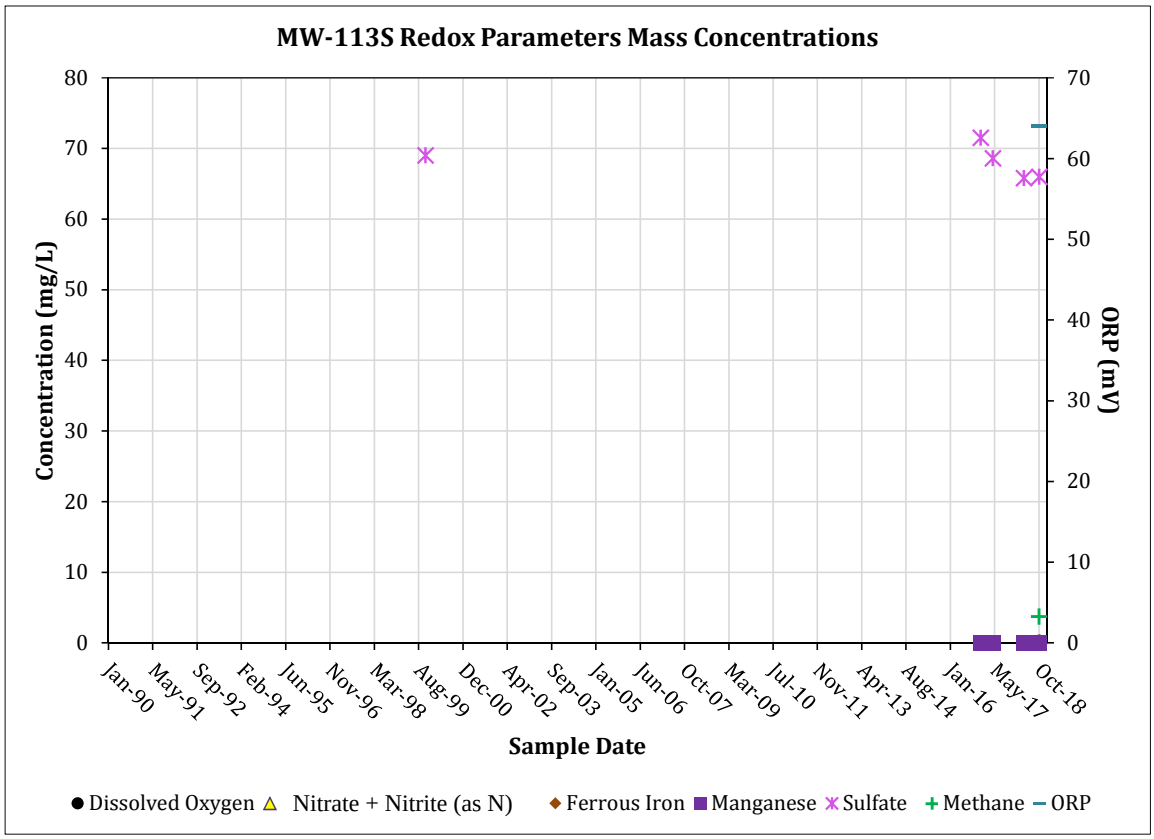

MW-113D Redox Parameters Mass Concentrations
Concentration (mg/L)
80
70
60
50
40
30
20
10
0
ORP (mV)
100
90
80
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

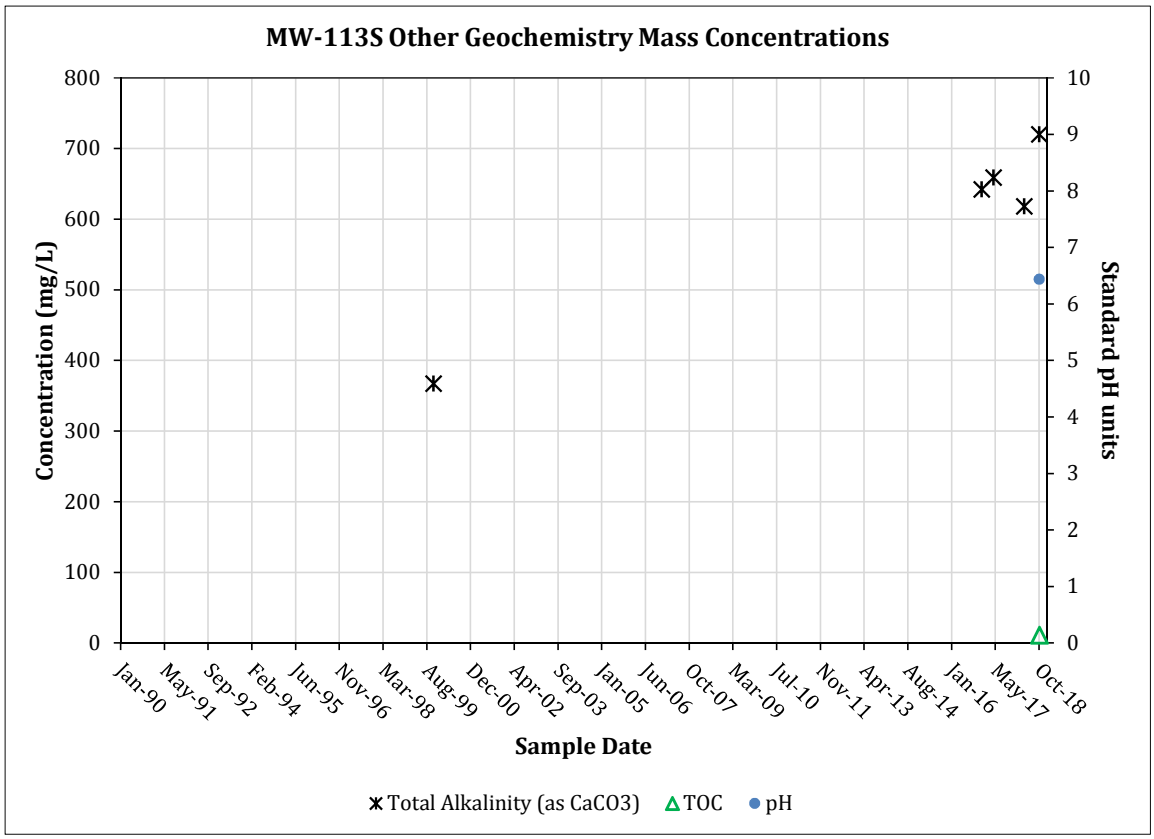

MW-113D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
50
100
150
200
250
300
350
400
0
1
2
3
4
5
6
7
8
9
10
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

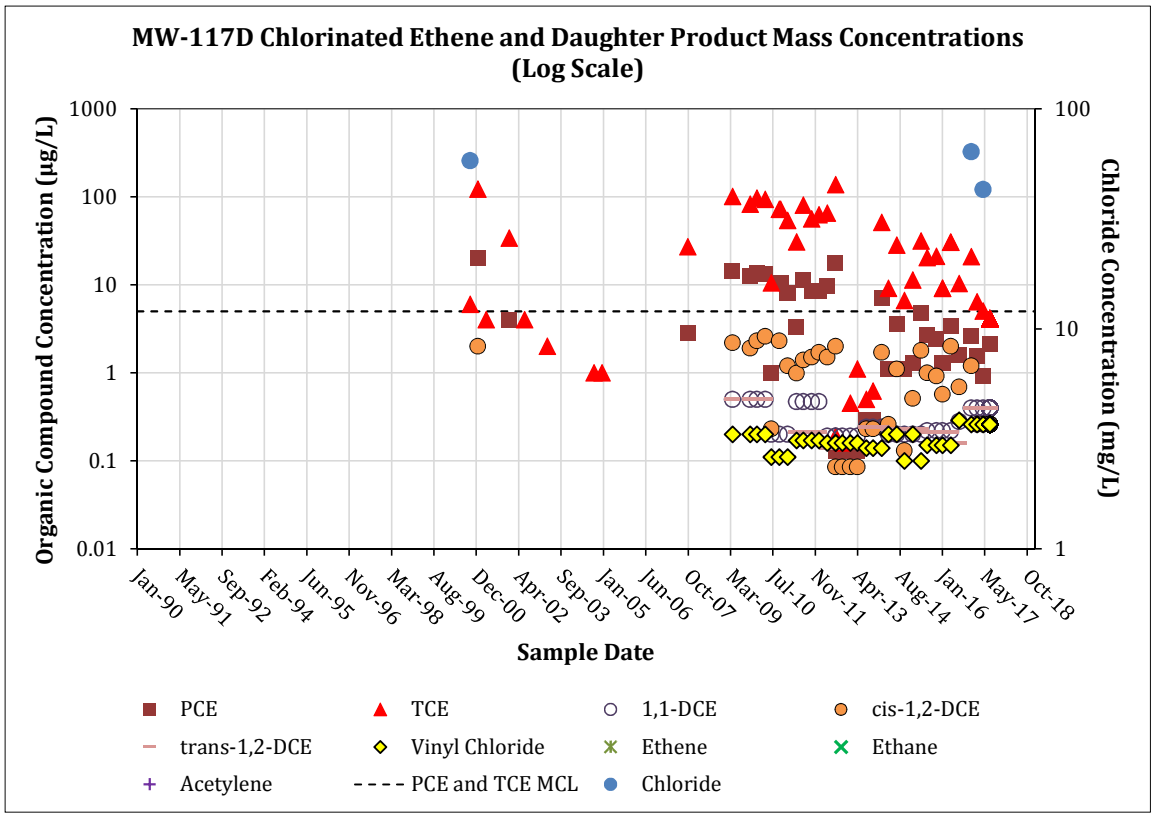

MW-113S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

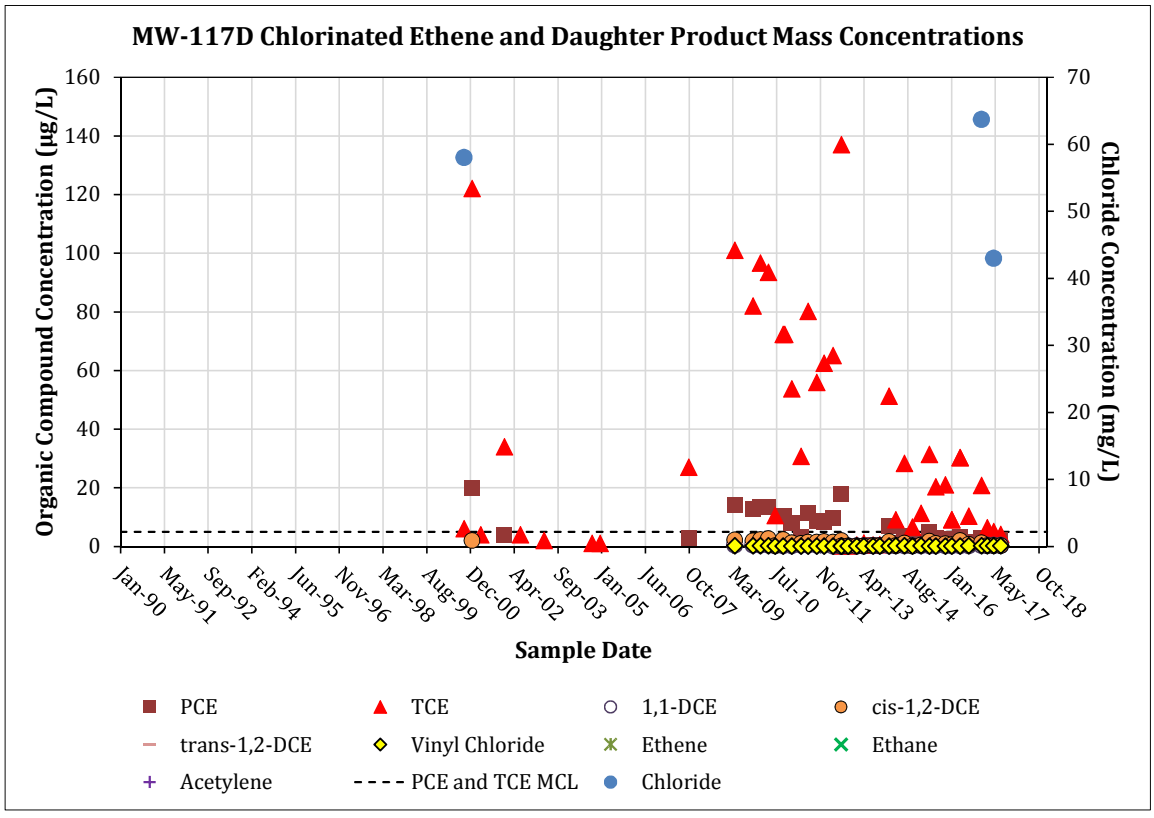

MW-113S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
120
100
80
60
40
20
0
450
400
350
300
250
200
150
100
50
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride
PCE and TCE MCL

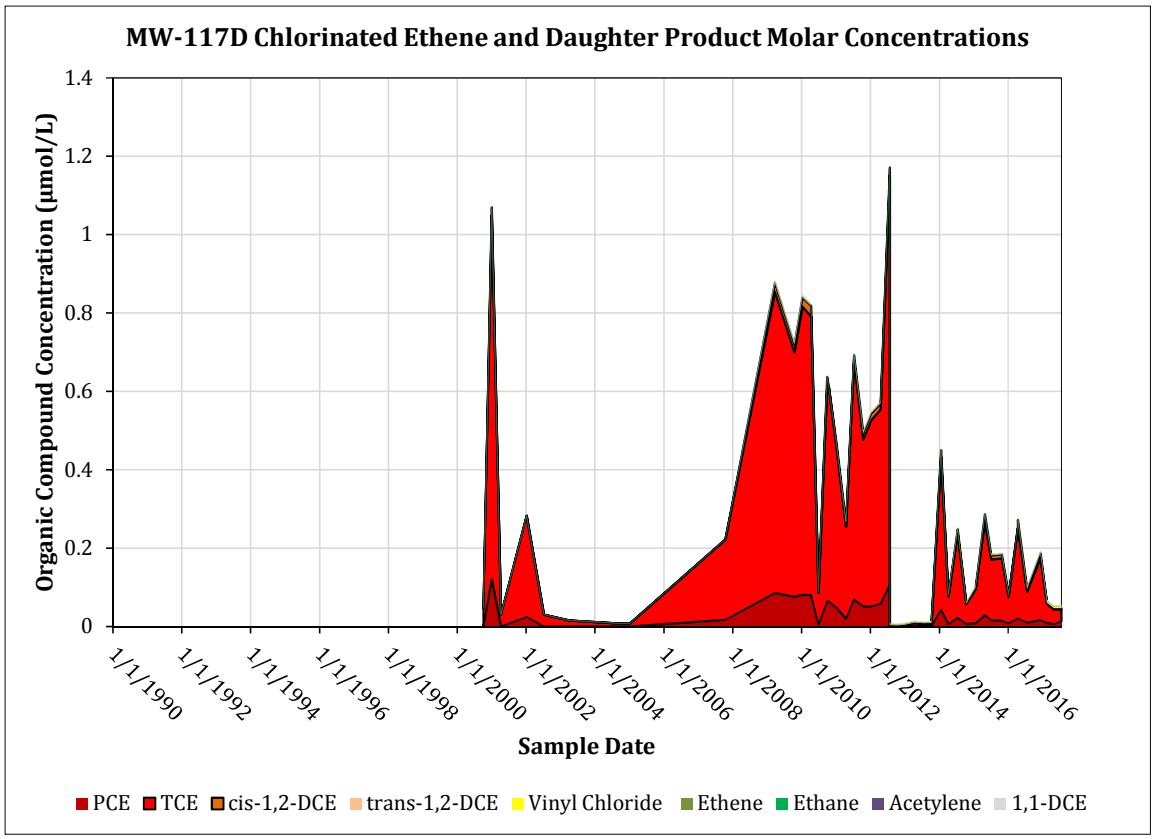

MW-113S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
3
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

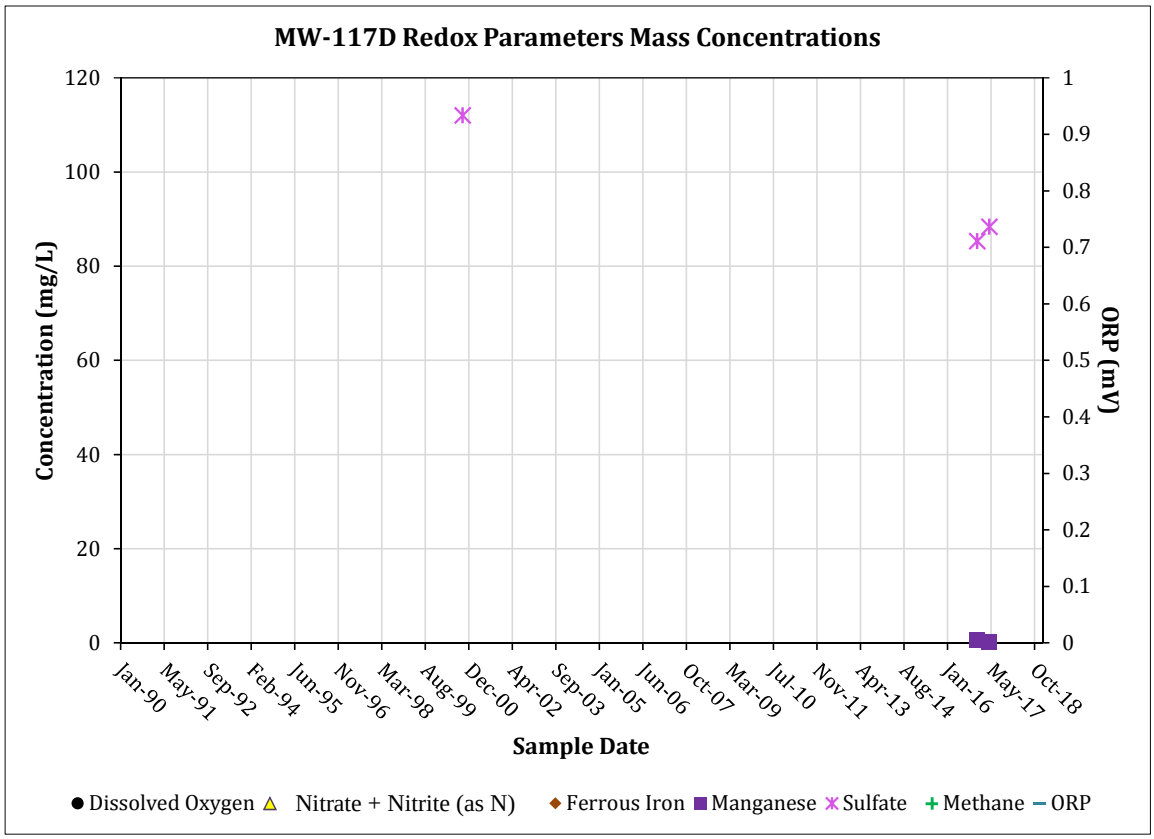

MW-113S Redox Parameters Mass Concentrations
Concentration (mg/L)
80
70
60
50
40
30
20
10
0
ORP (mV)
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

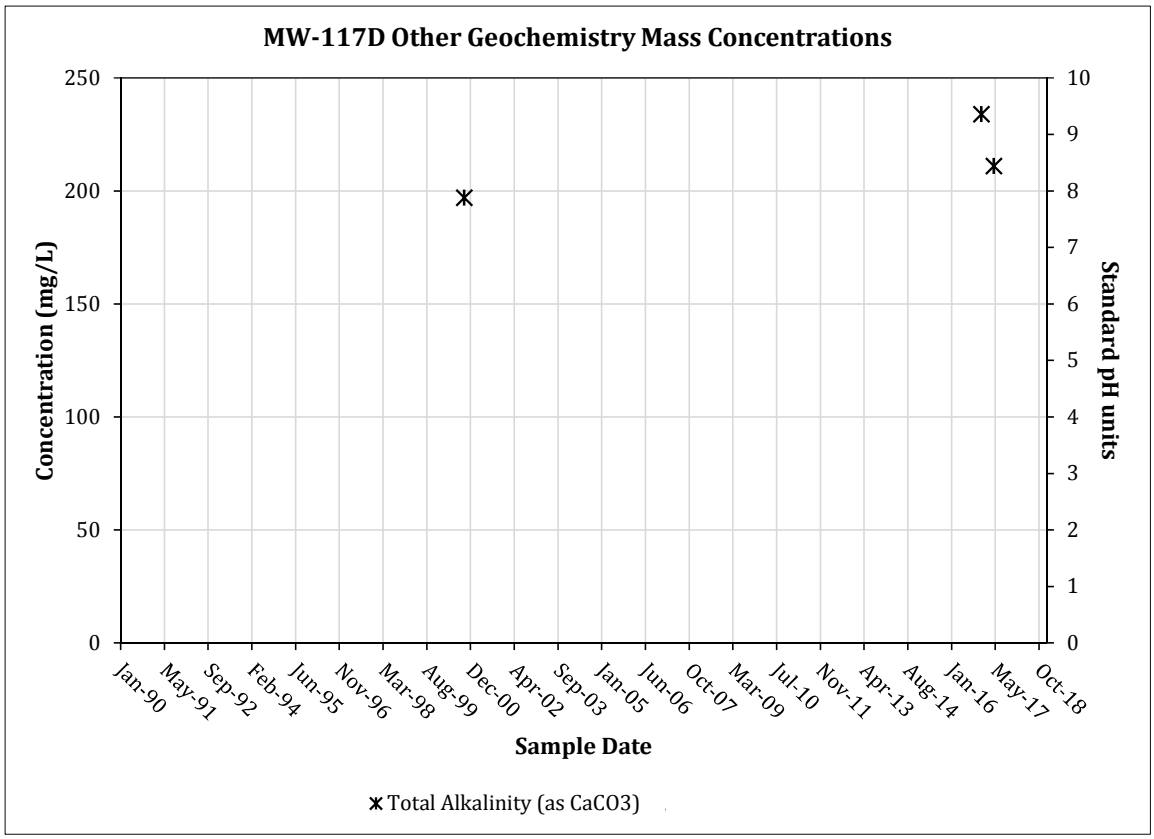

MW-113S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
100
200
300
400
500
600
700
800
0
1
2
3
4
5
6
7
8
9
10
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

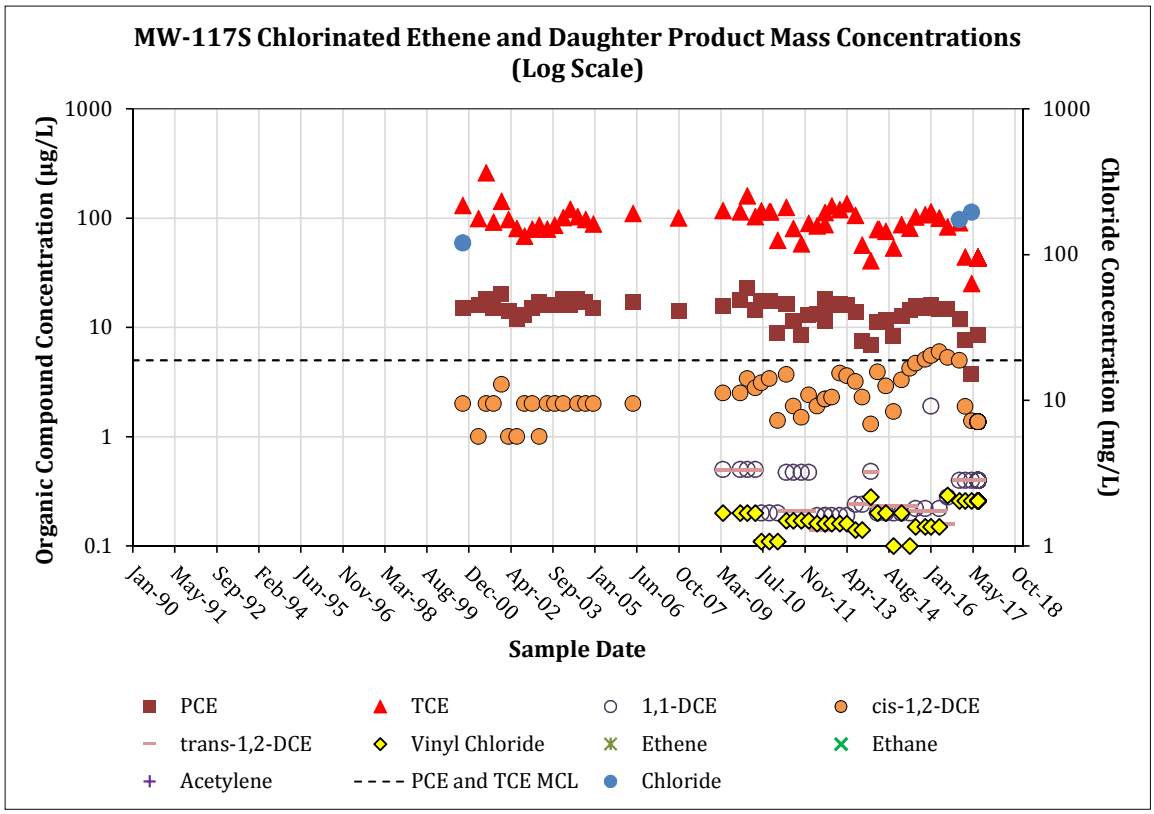

MW-117D Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
1000
100
10
1
0.1
0.01
Chloride Concentration (mg/L)
100
10
1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

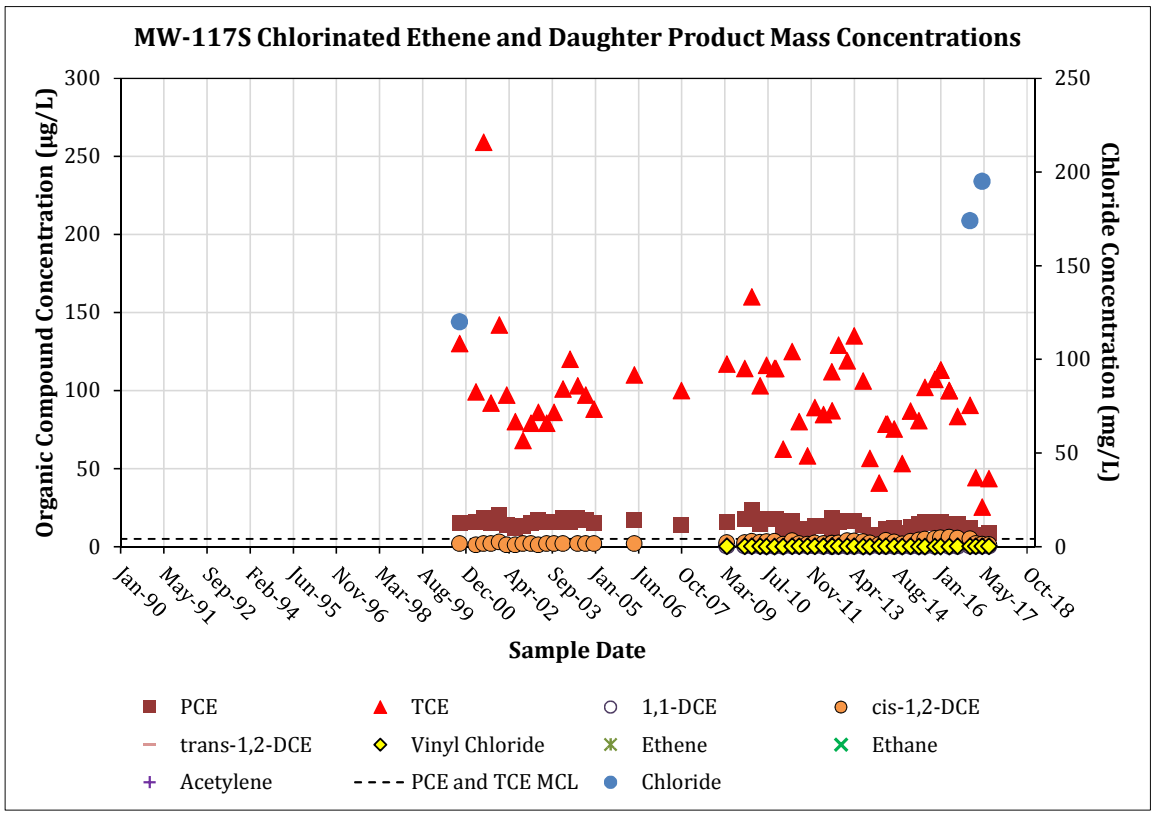

MW-117D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
160
140
120
100
80
60
40
20
0
Chloride Concentration (mg/L)
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

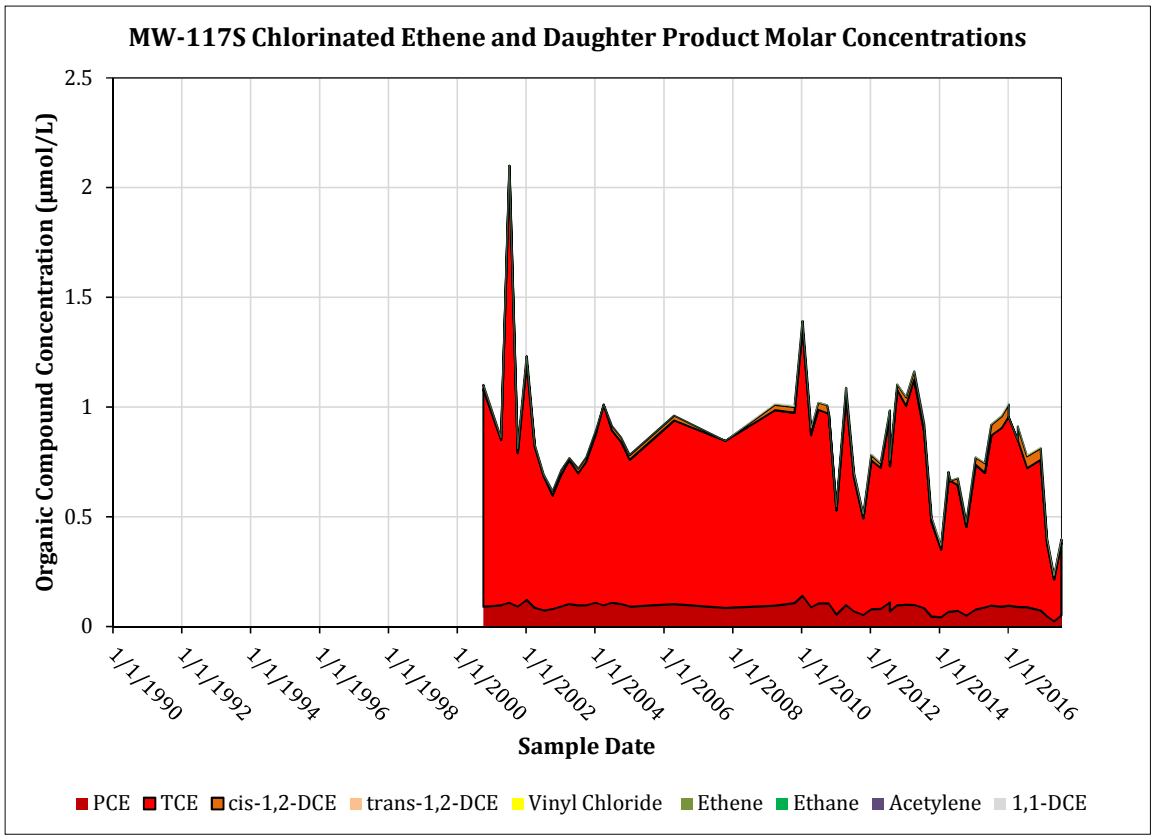

MW-117D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

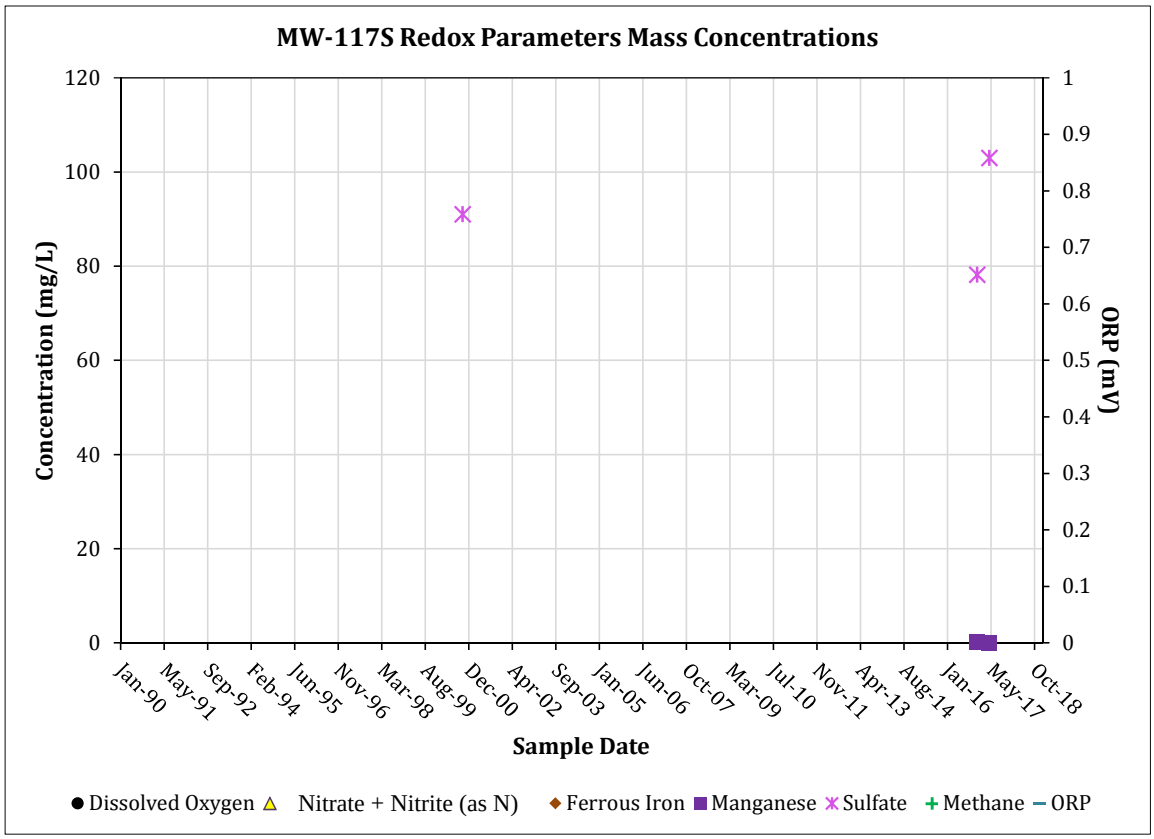

MW-117D Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

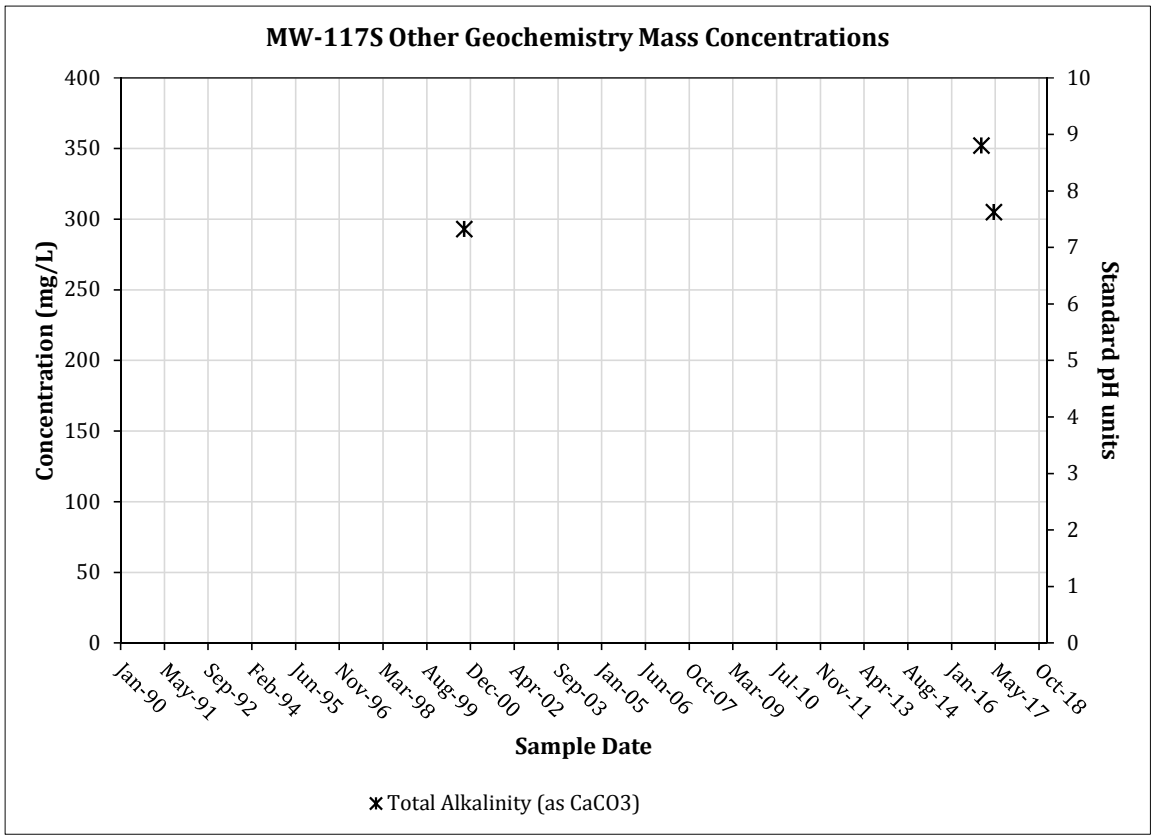

MW-117D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
250
200
150
100
50
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)

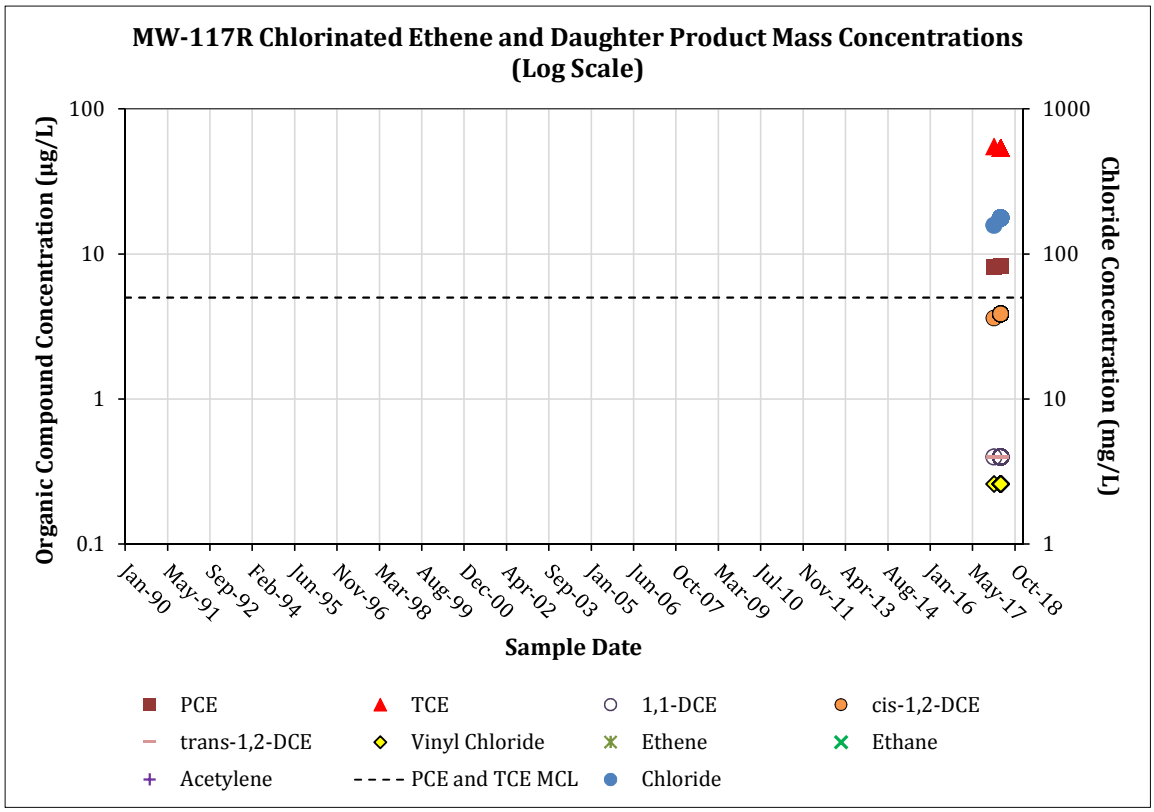

MW-117S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

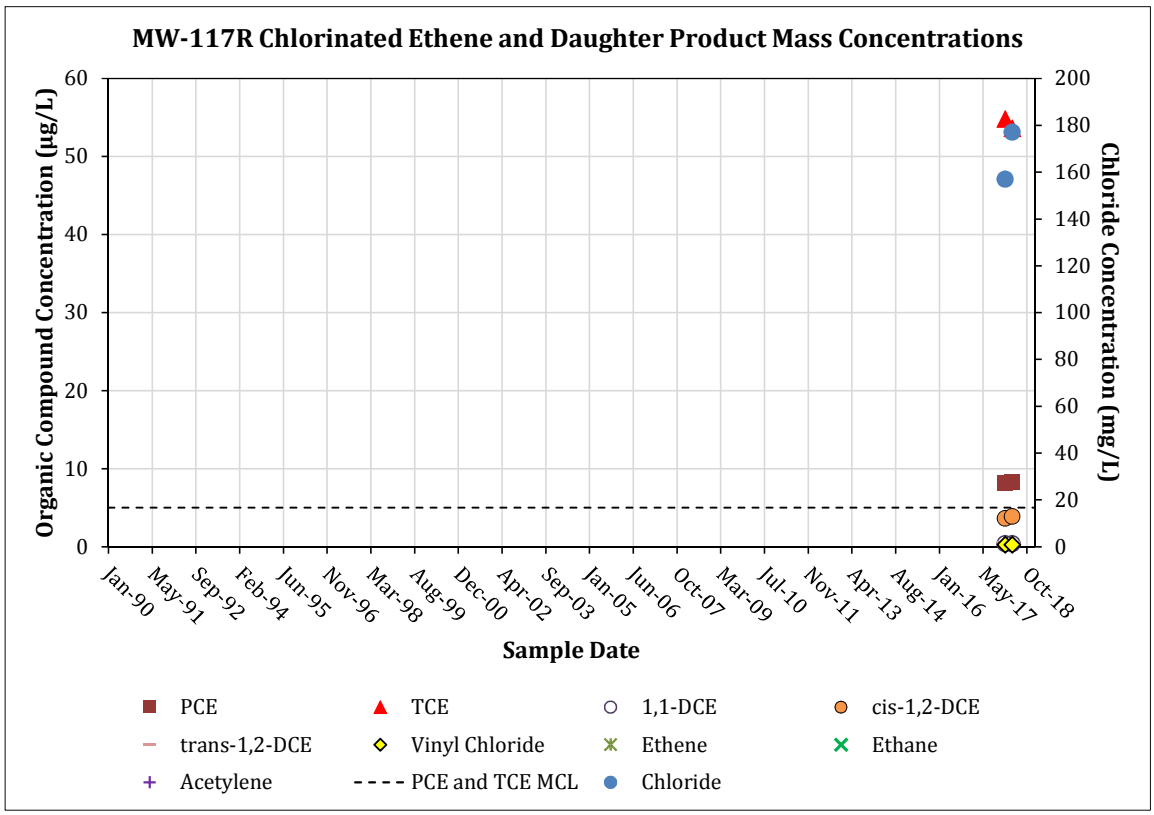

MW-117S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
300
250
200
150
100
50
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

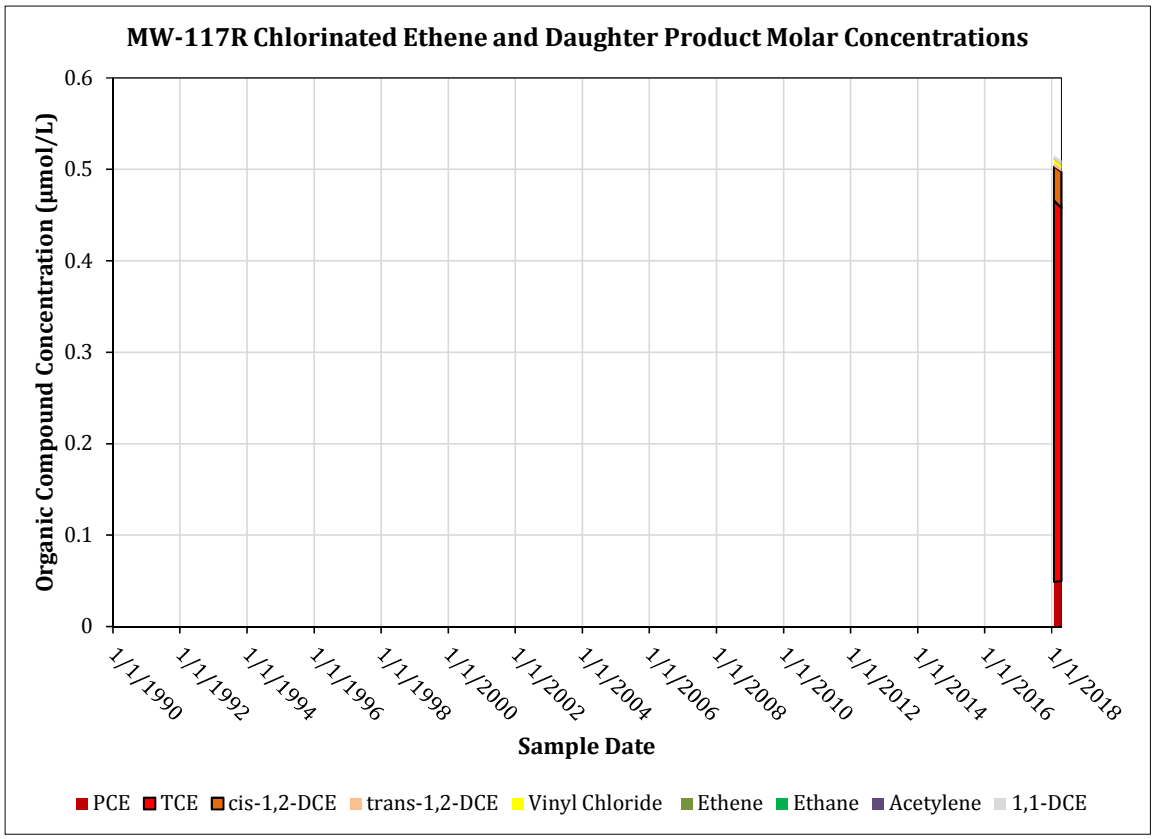

MW-117S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

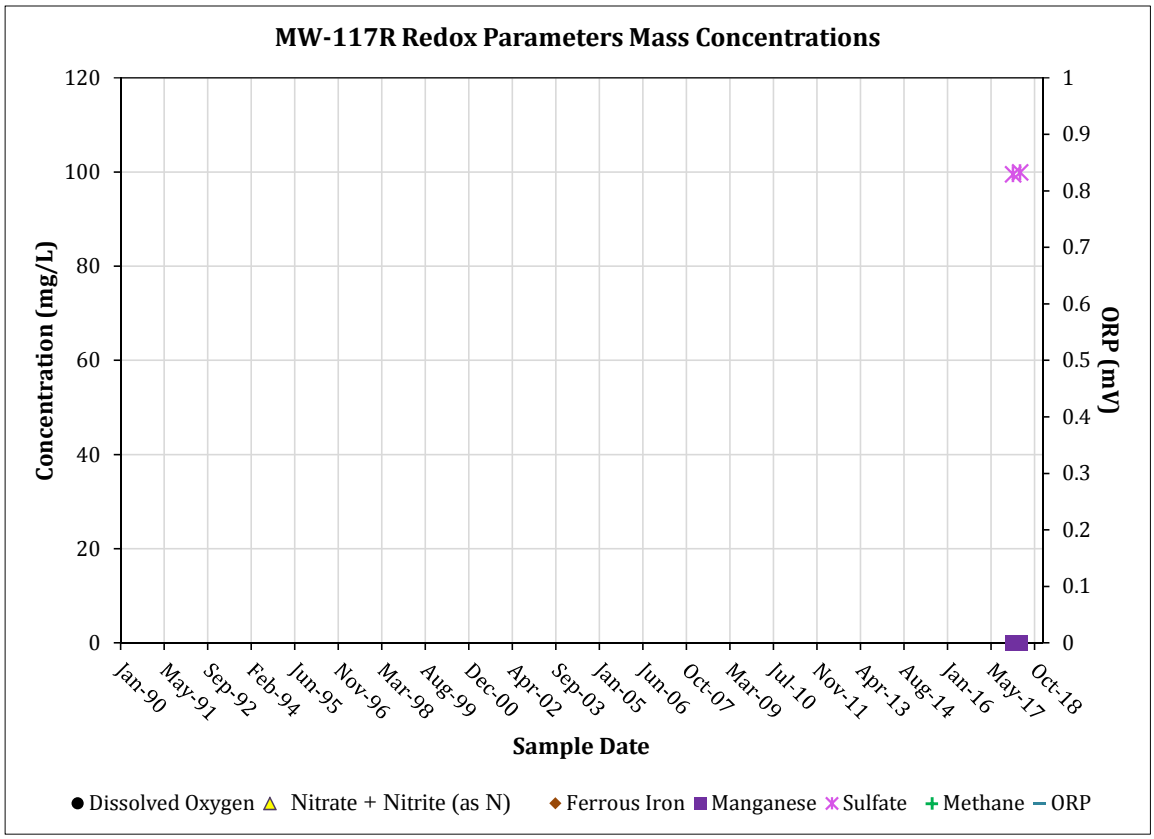

MW-117S Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

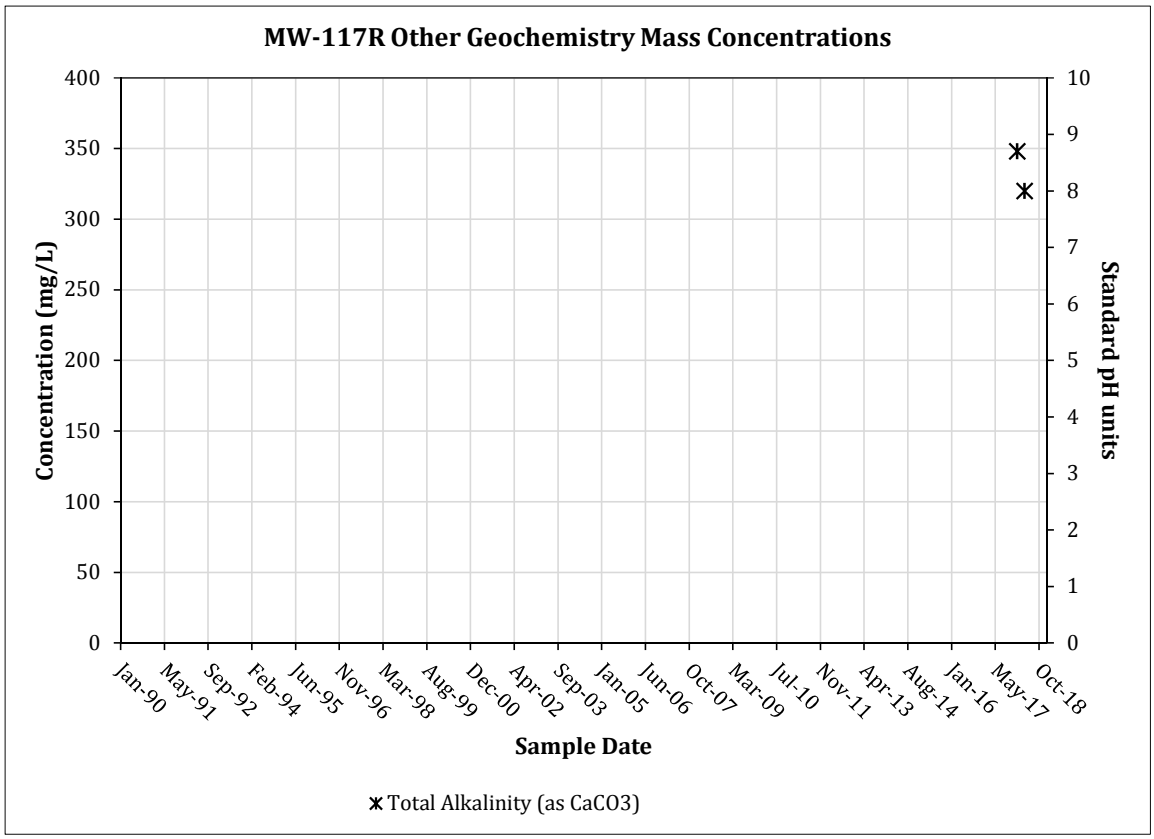

MW-117S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
0
50
100
150
200
250
300
350
400
0
1
2
3
4
5
6
7
8
9
10
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

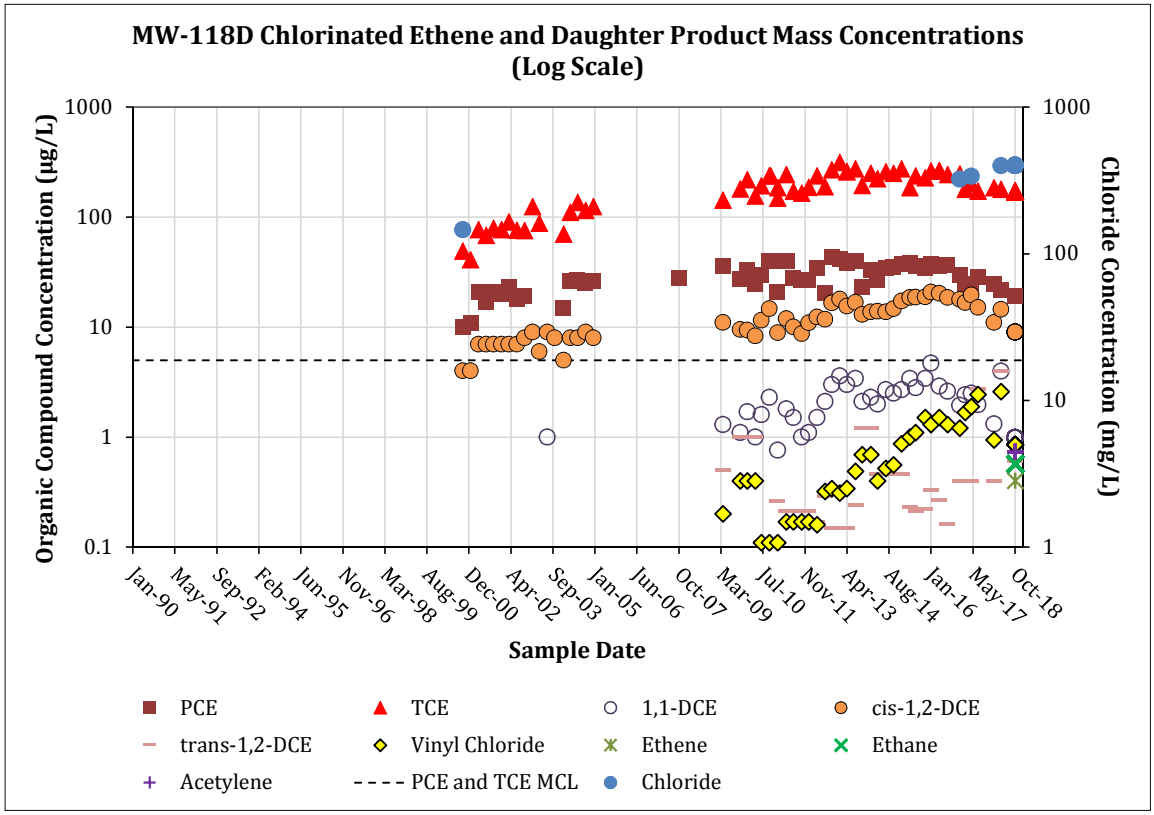

MW-117R Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
1000
100
10
1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

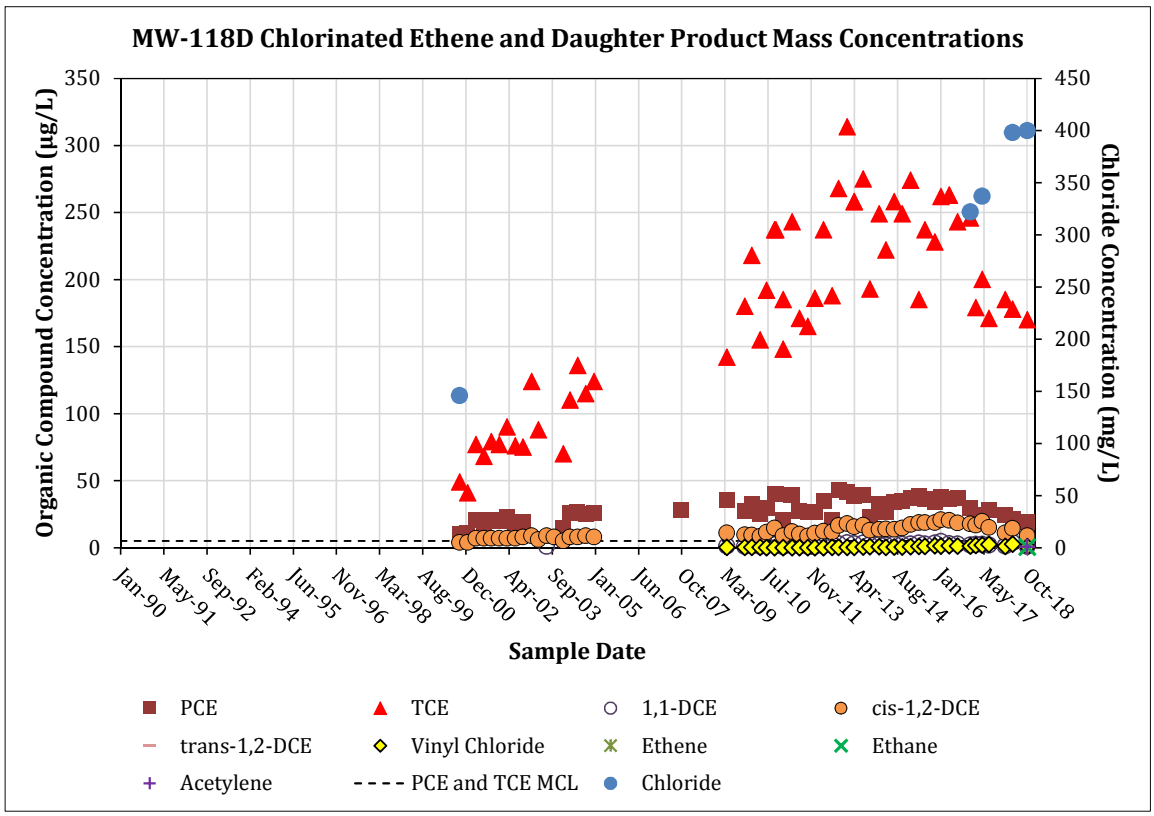

MW-117R Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
60
50
40
30
20
10
0
200
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

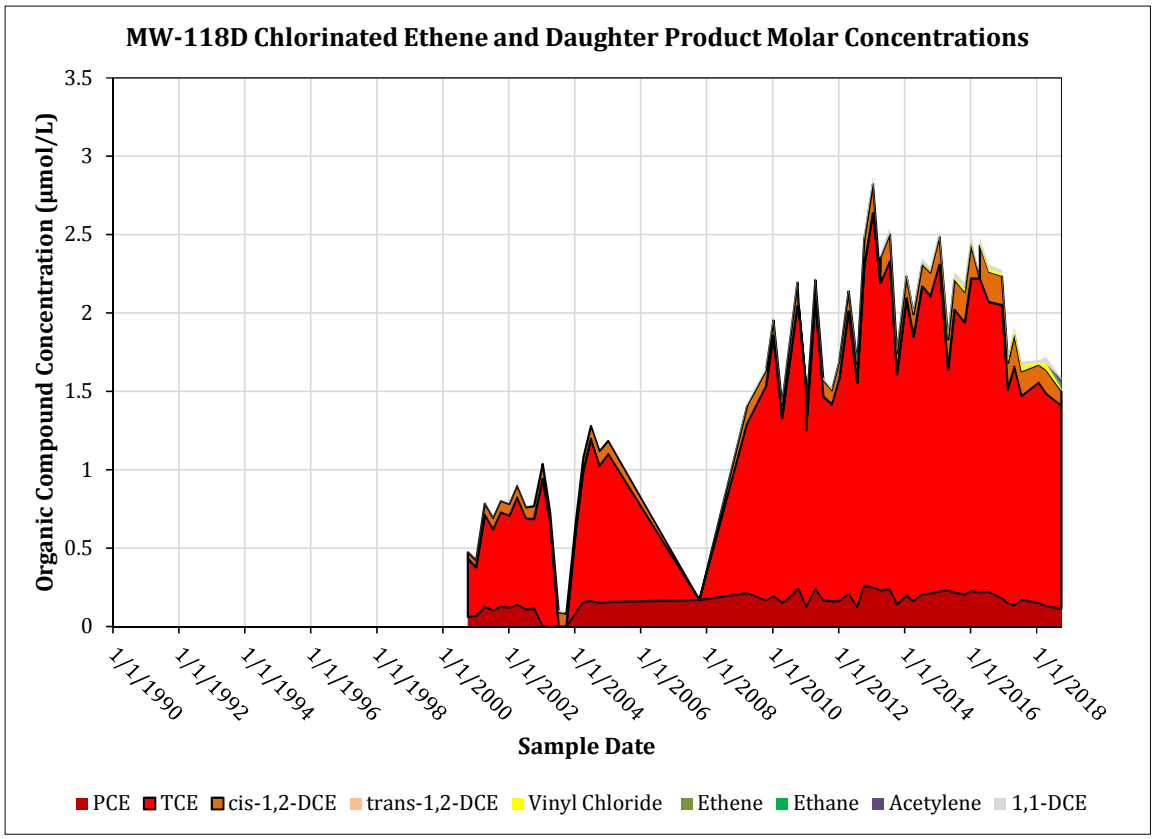

MW-117R Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

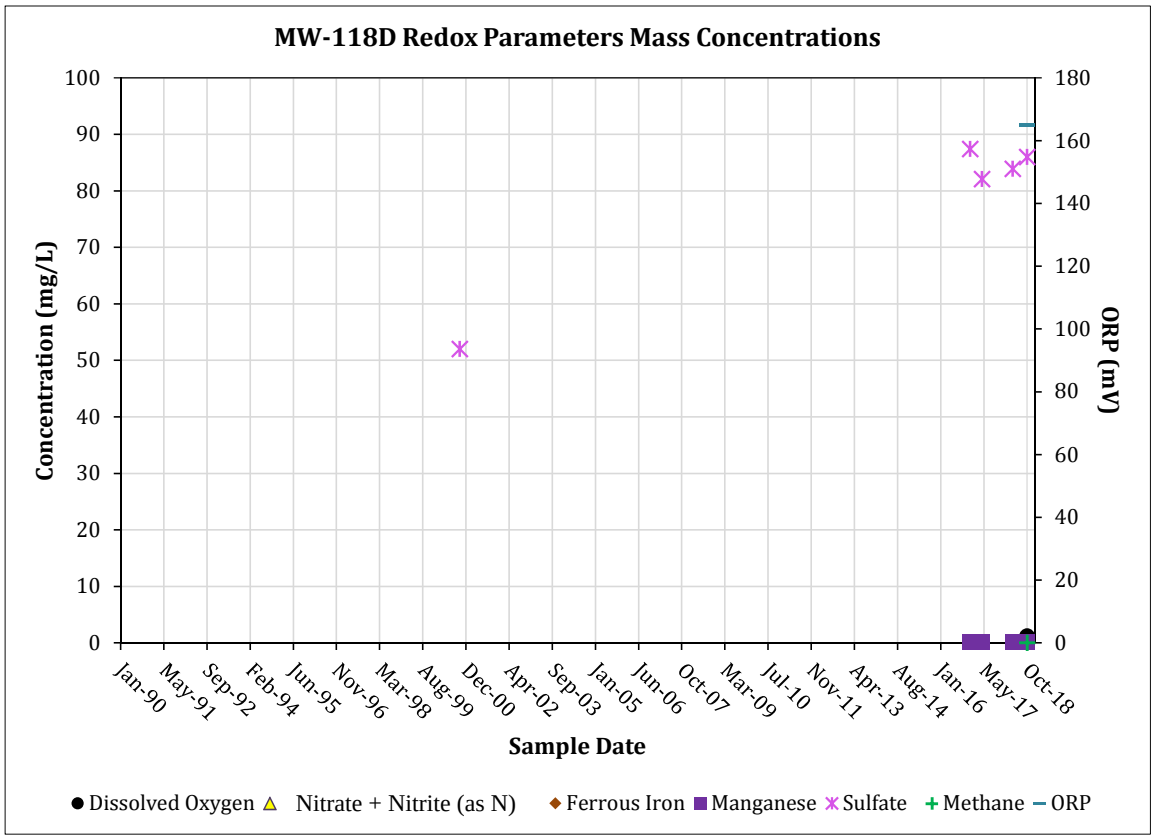

MW-117R Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

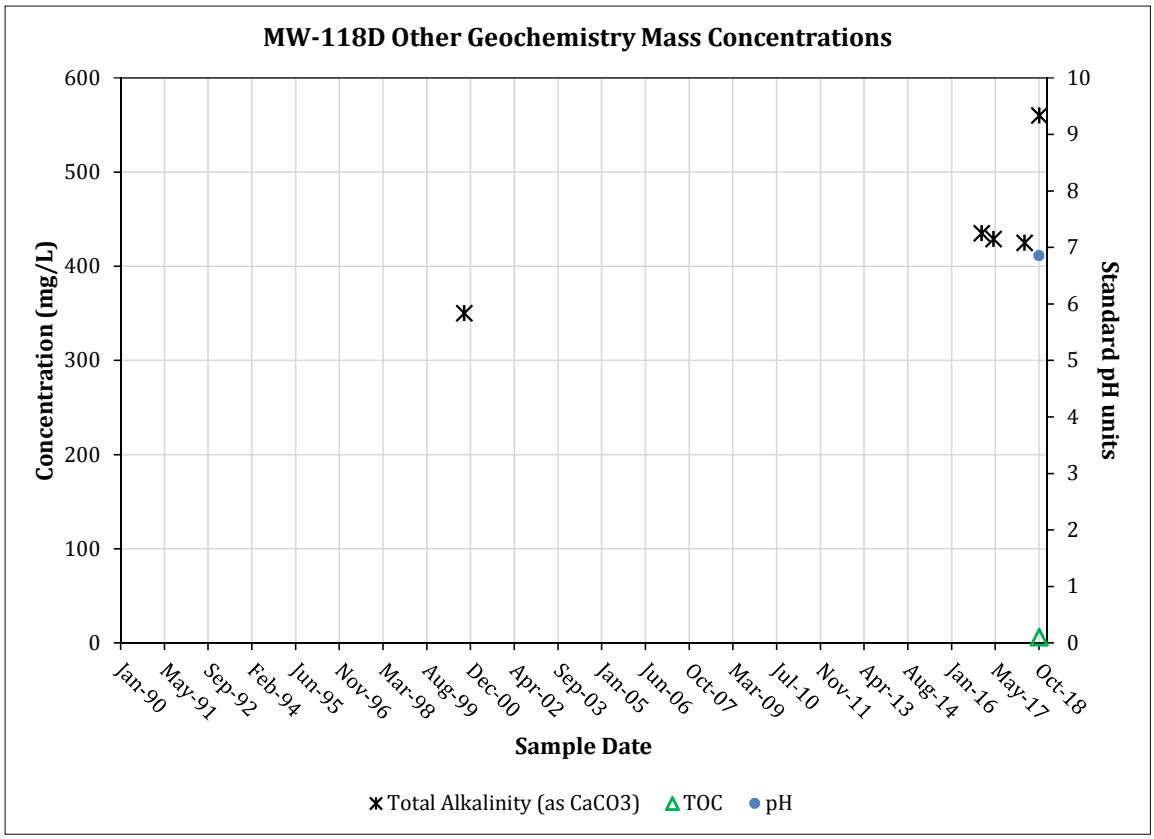

MW-117R Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
400
350
300
250
200
150
100
50
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)

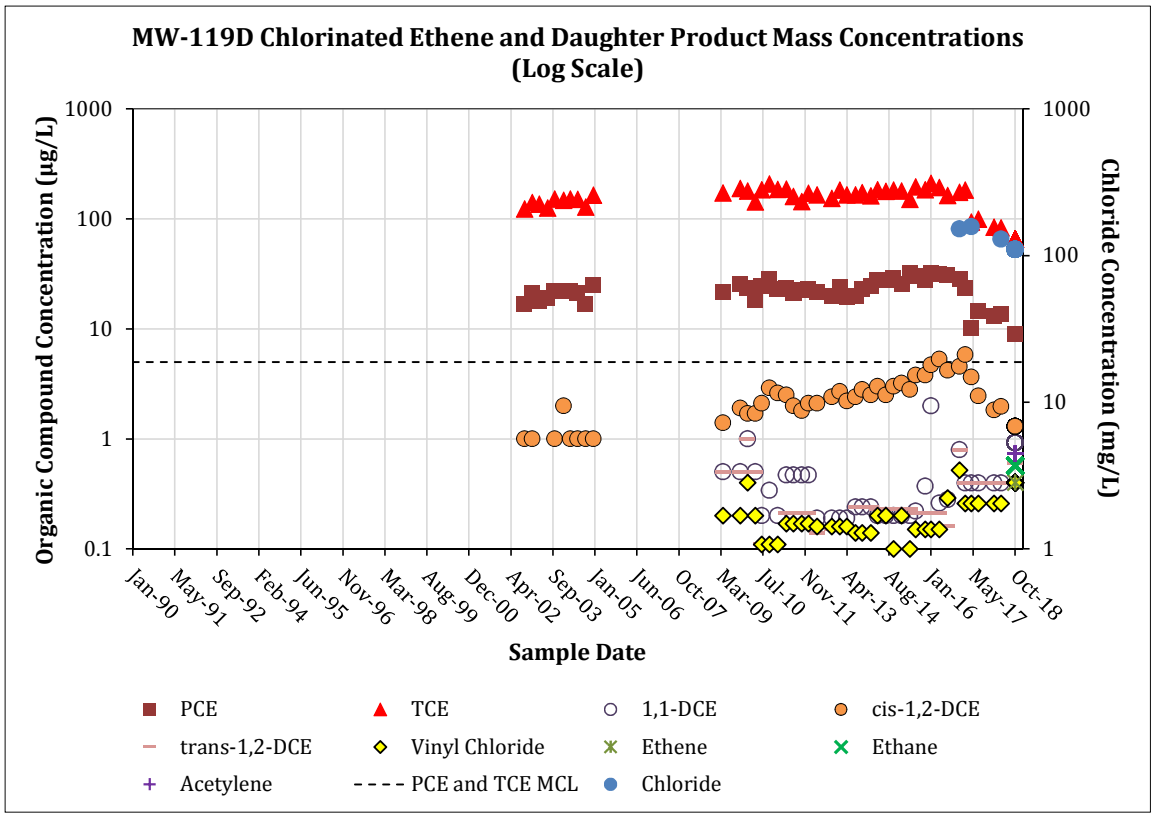

MW-118D Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

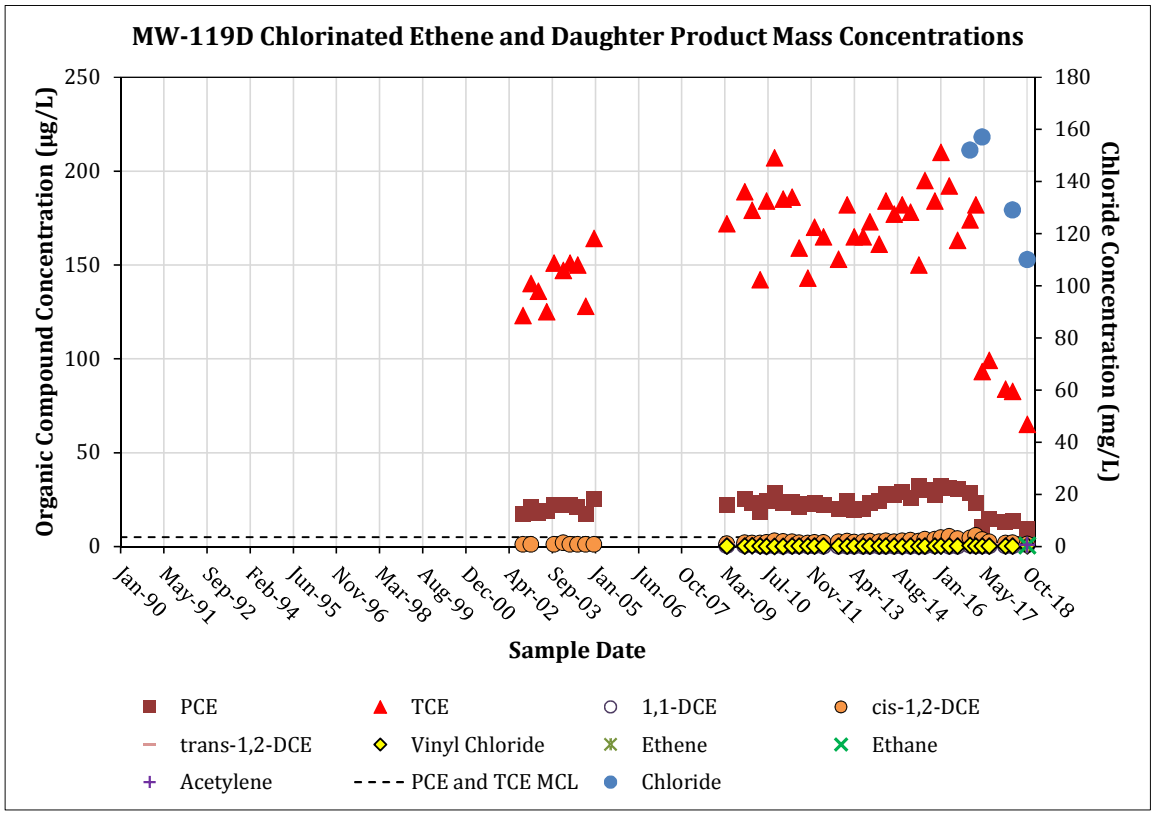

MW-118D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
350
300
250
200
150
100
50
0
450
400
350
300
250
200
150
100
50
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

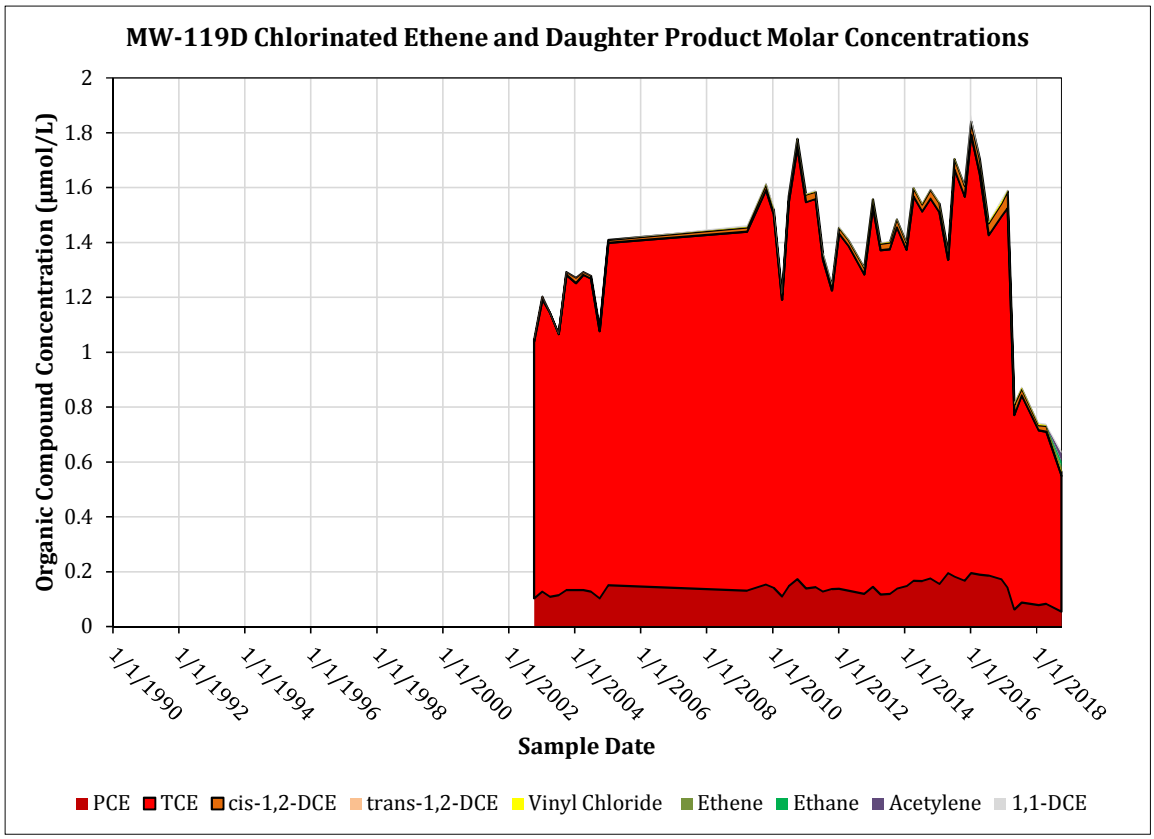

MW-118D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
3.5
3
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

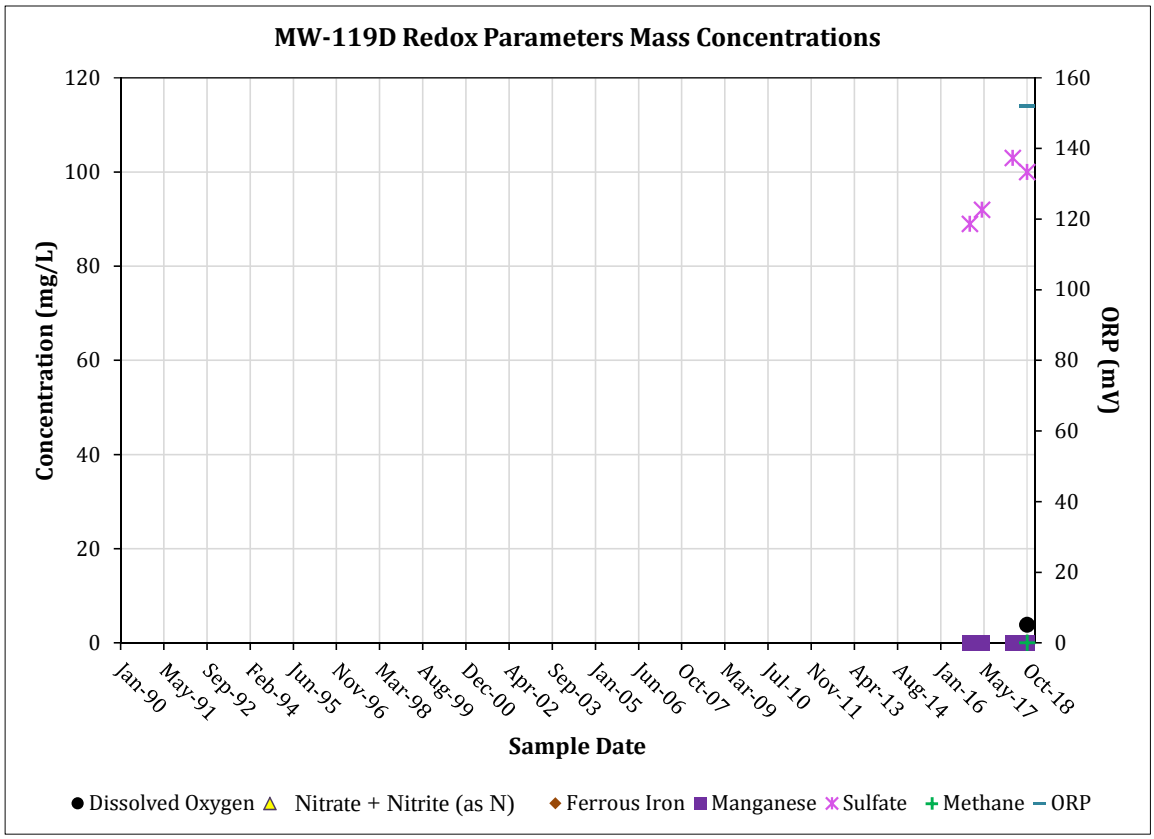

MW-118D Redox Parameters Mass Concentrations
Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
ORP (mV)
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

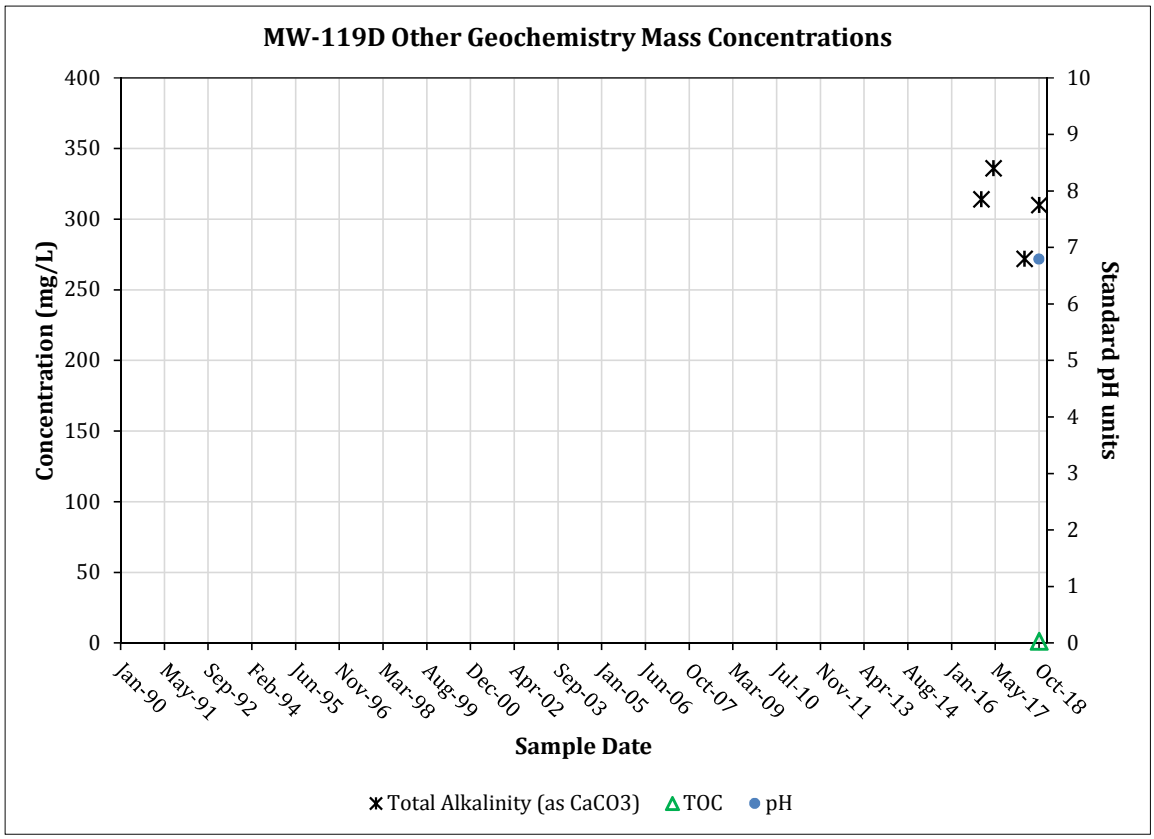

MW-118D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
100
200
300
400
500
600
0
1
2
3
4
5
6
7
8
9
10
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

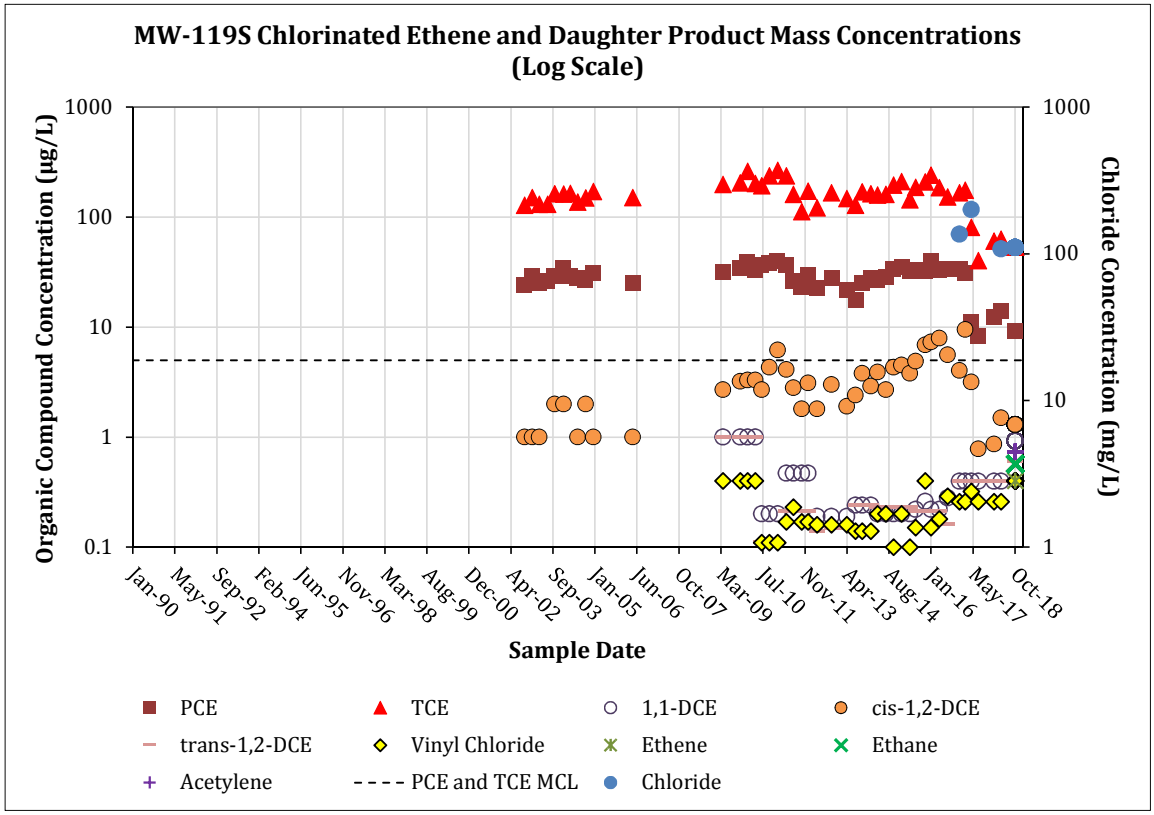

MW-119D Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

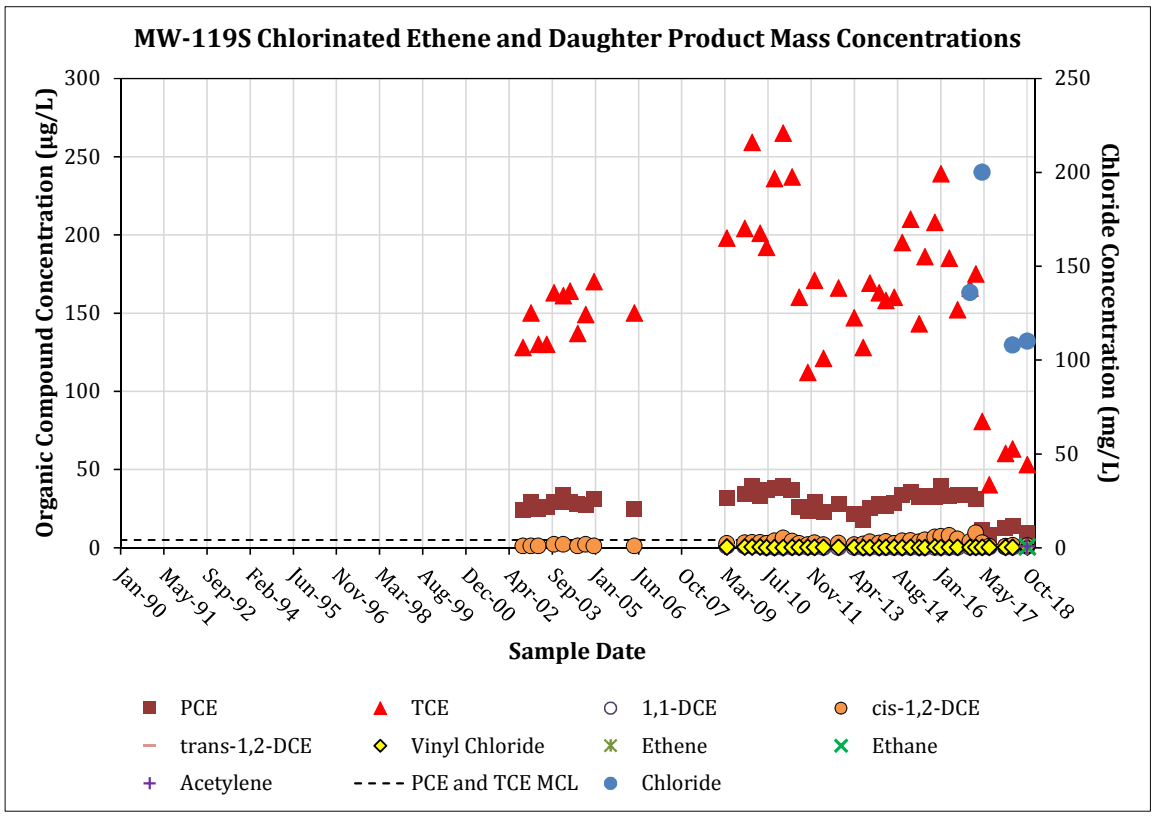

MW-119D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
250
200
150
100
50
0
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

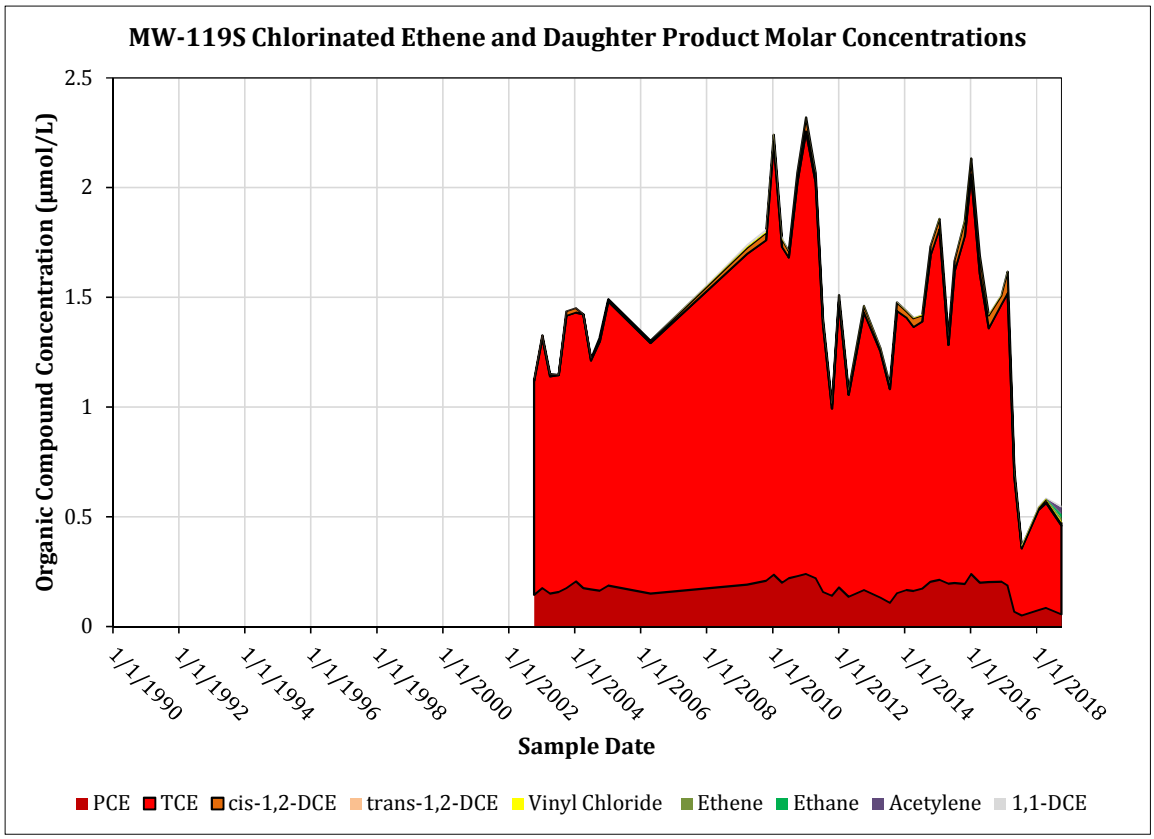

MW-119D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

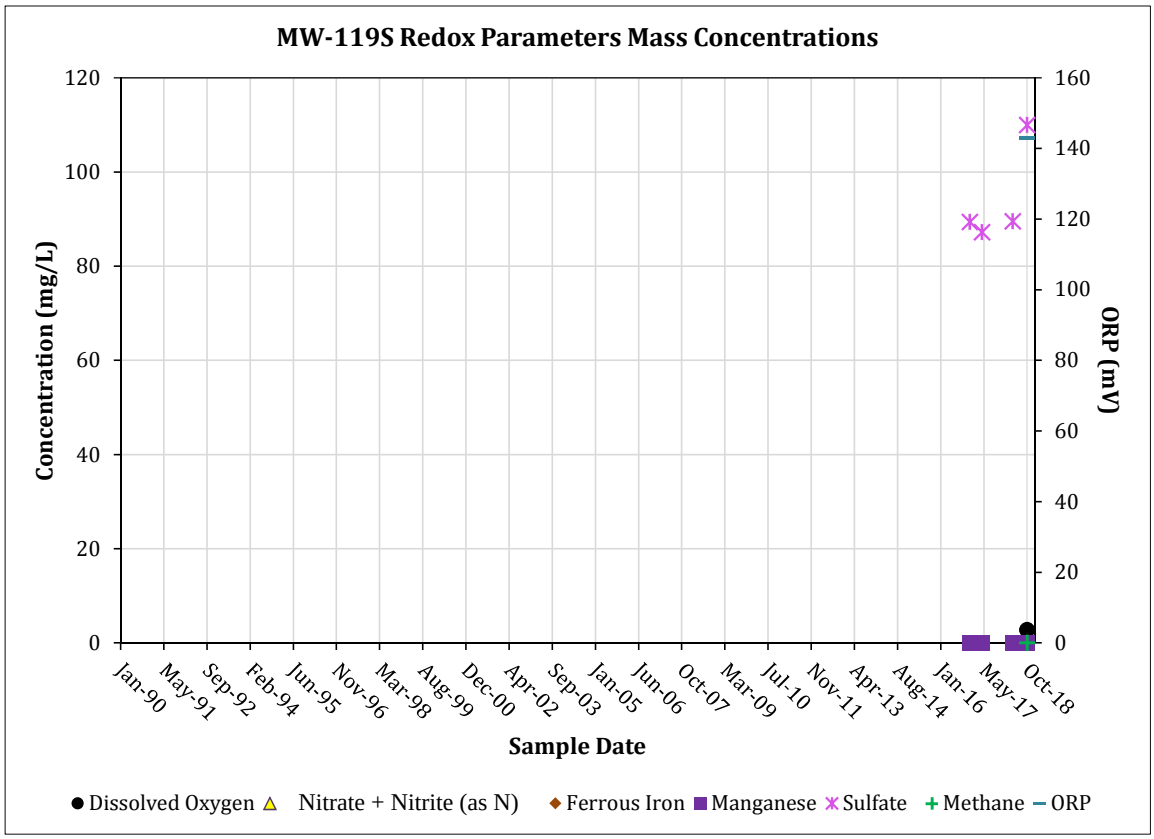

MW-119D Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

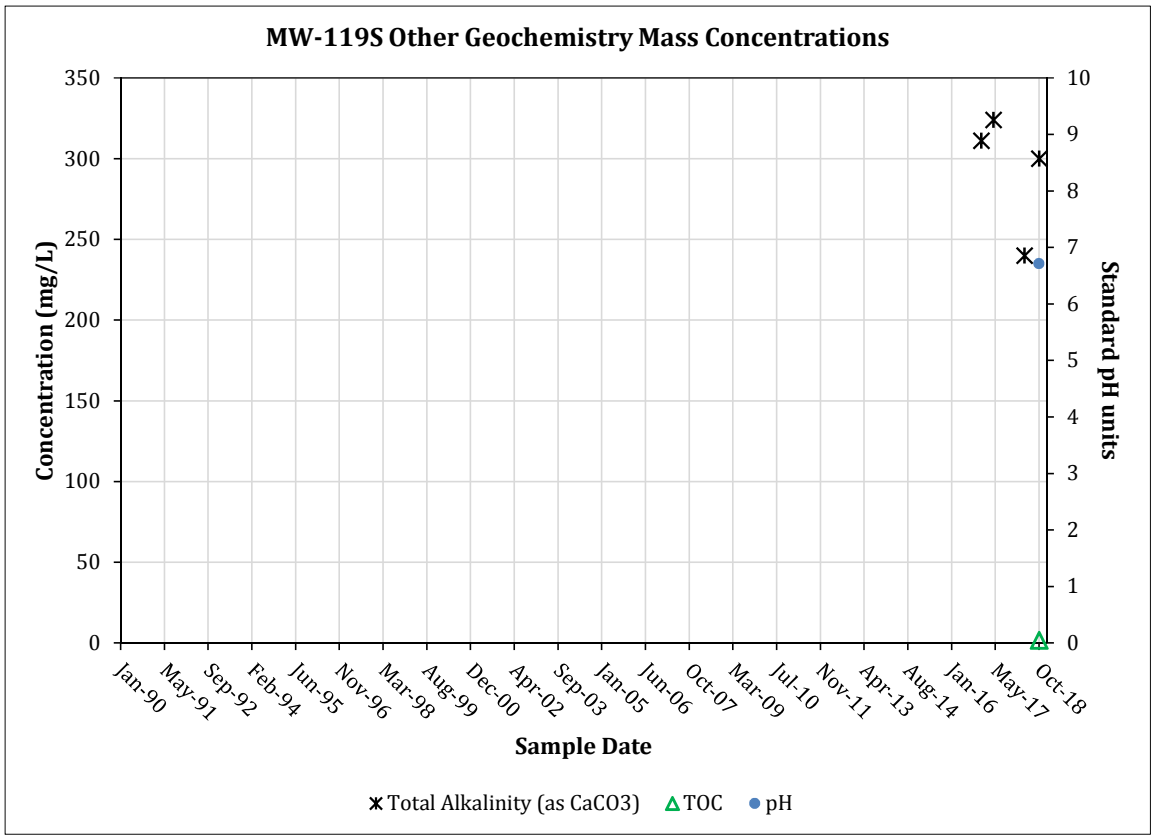

MW-119D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
50
100
150
200
250
300
350
400
0
1
2
3
4
5
6
7
8
9
10
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

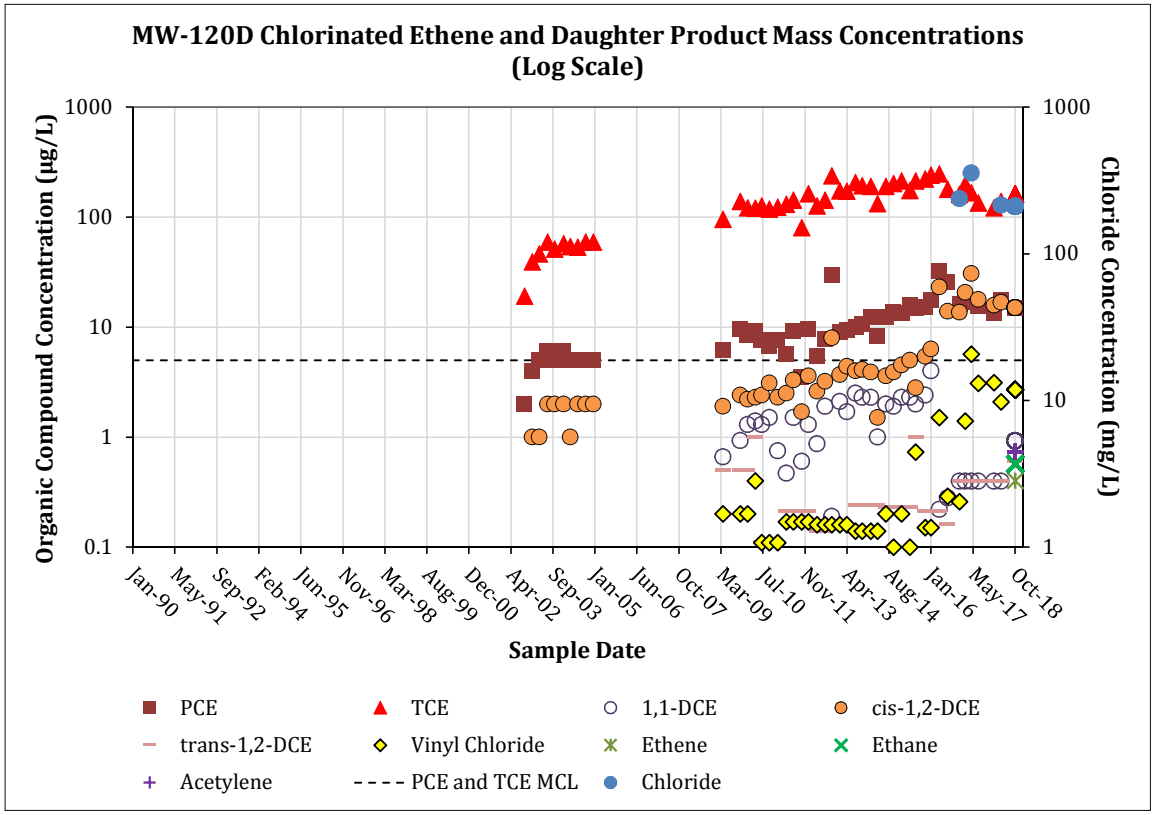

MW-119S Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

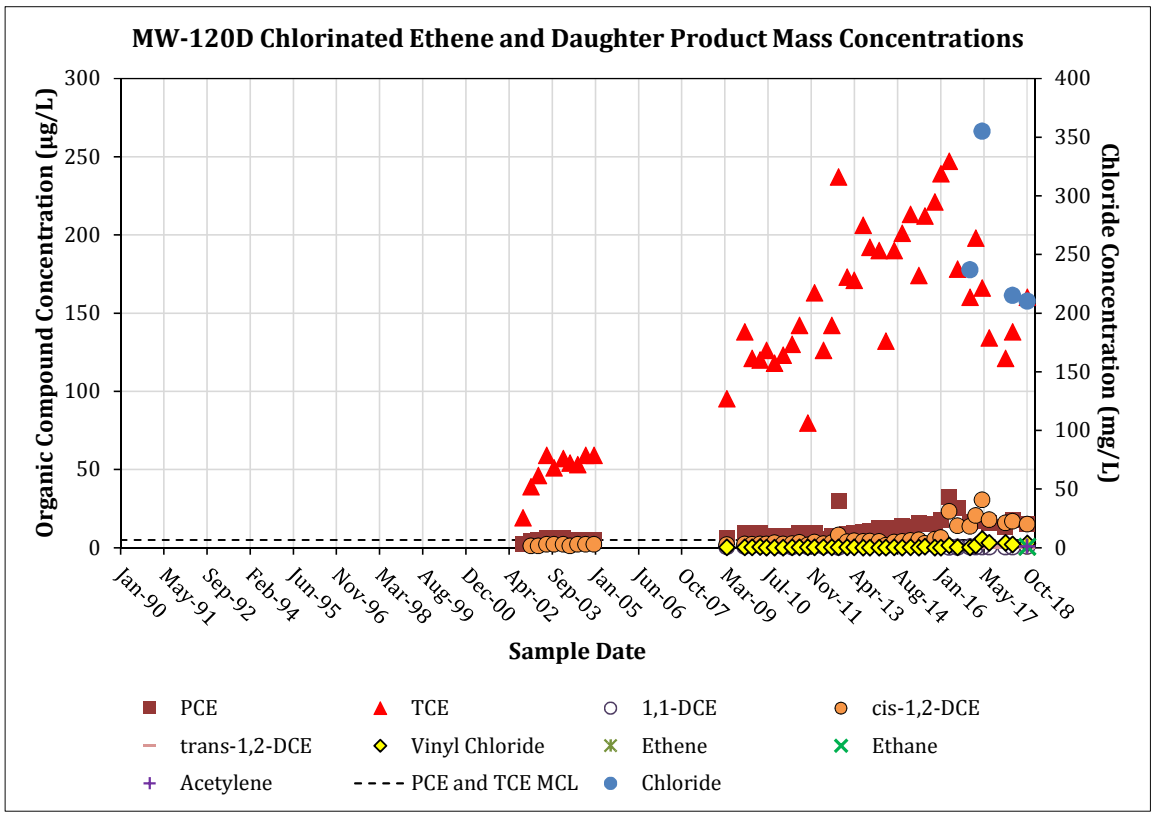

MW-119S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
300
250
200
150
100
50
0
250
200
150
100
50
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

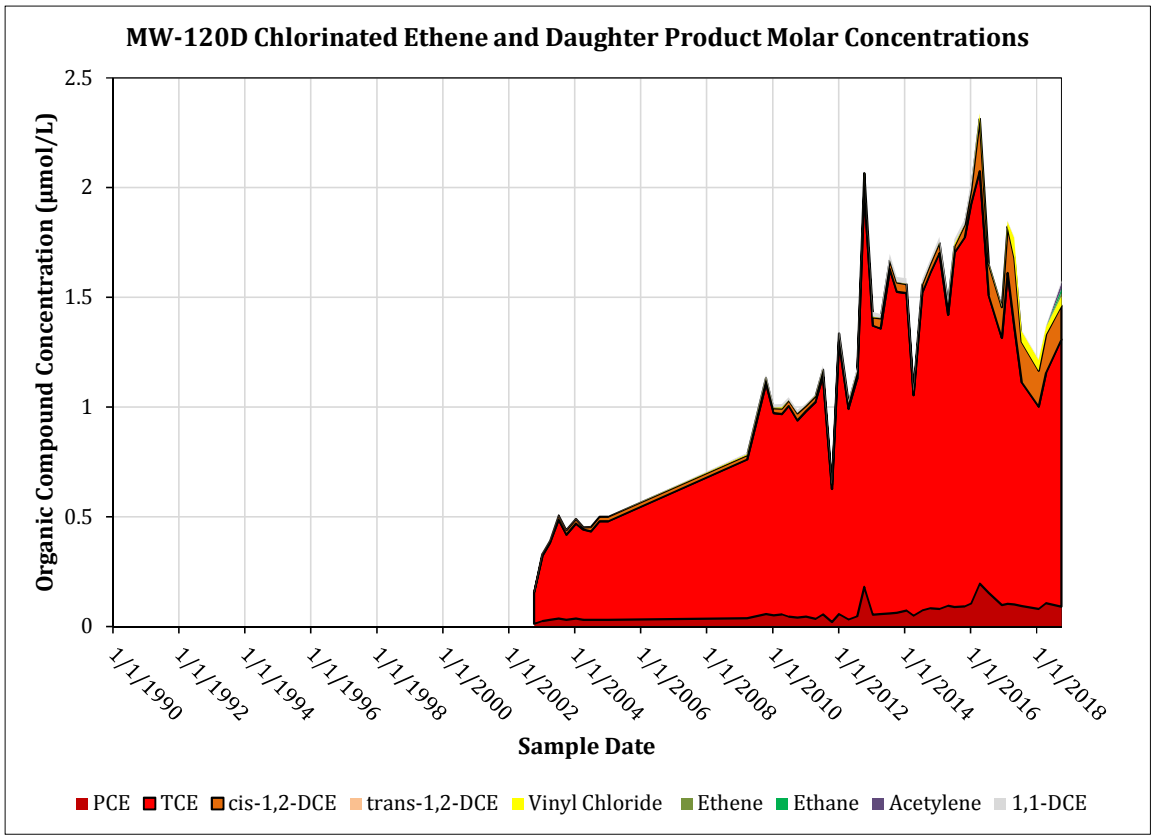

MW-119S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

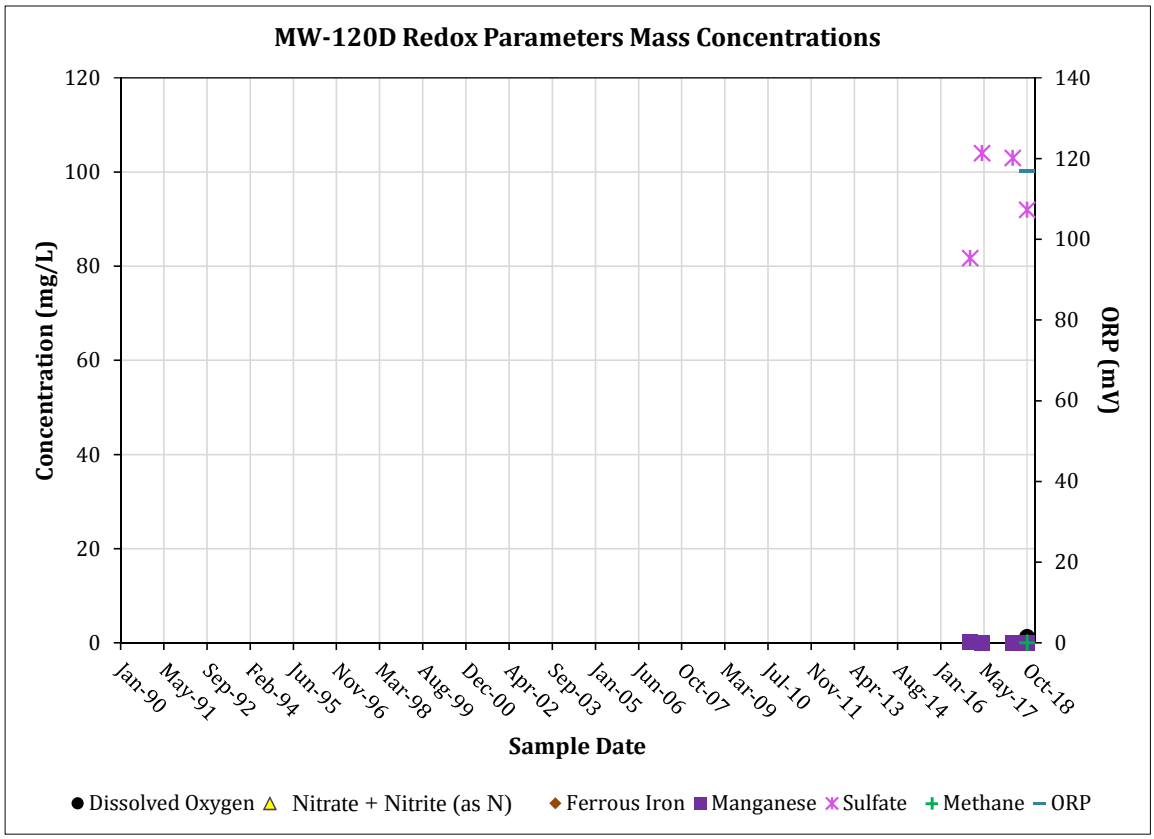

MW-119S Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

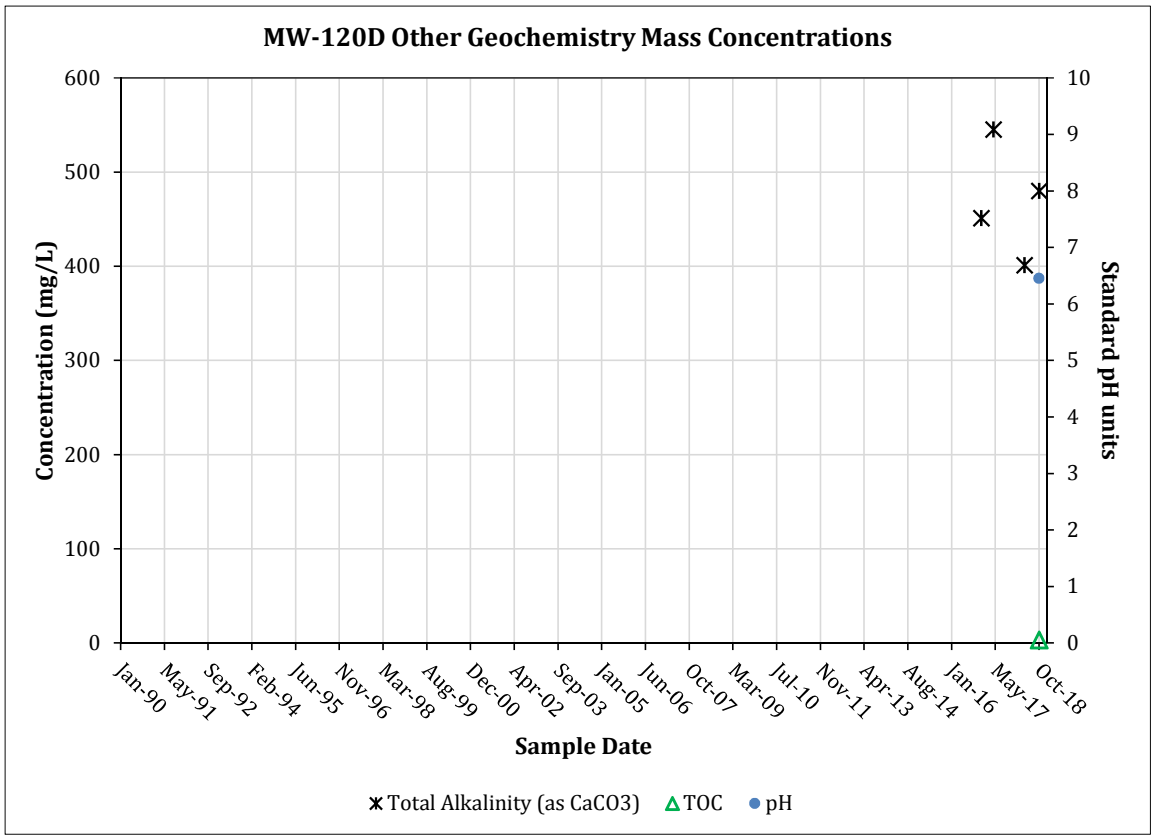

MW-119S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
50
100
150
200
250
300
350
0
1
2
3
4
5
6
7
8
9
10
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

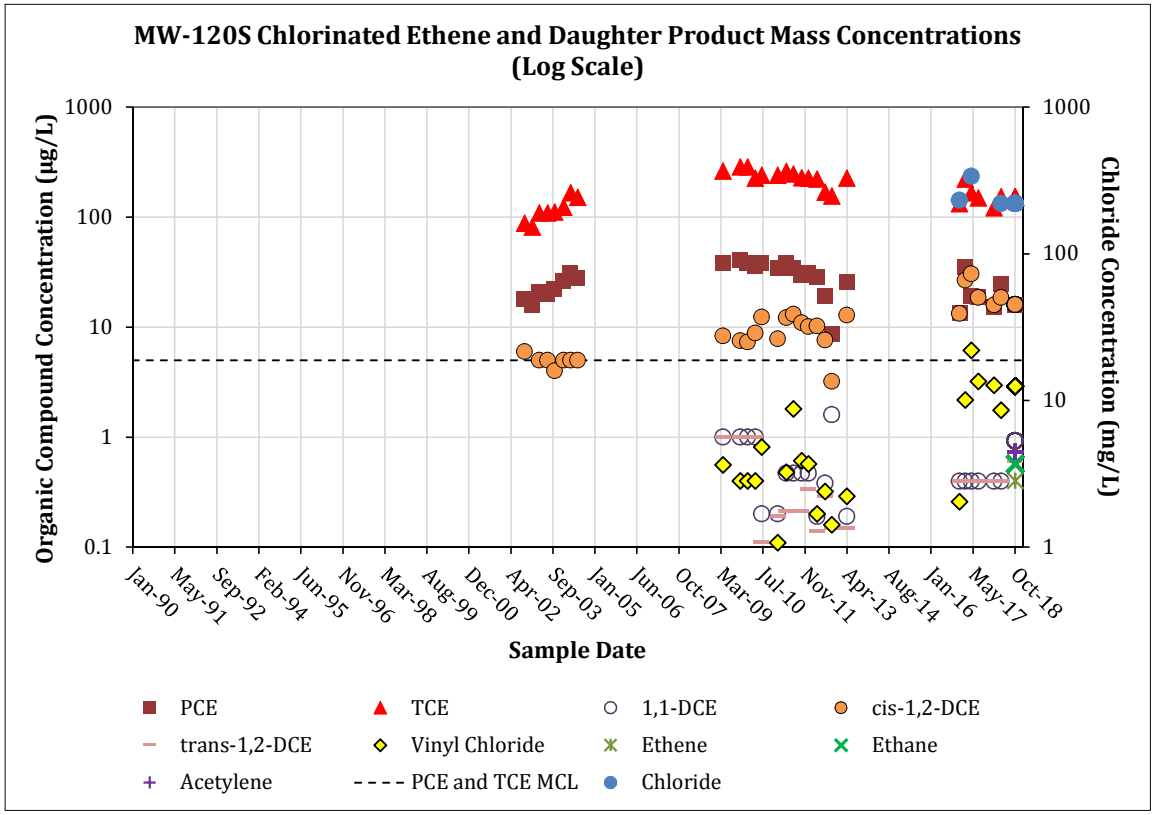

MW-120D Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

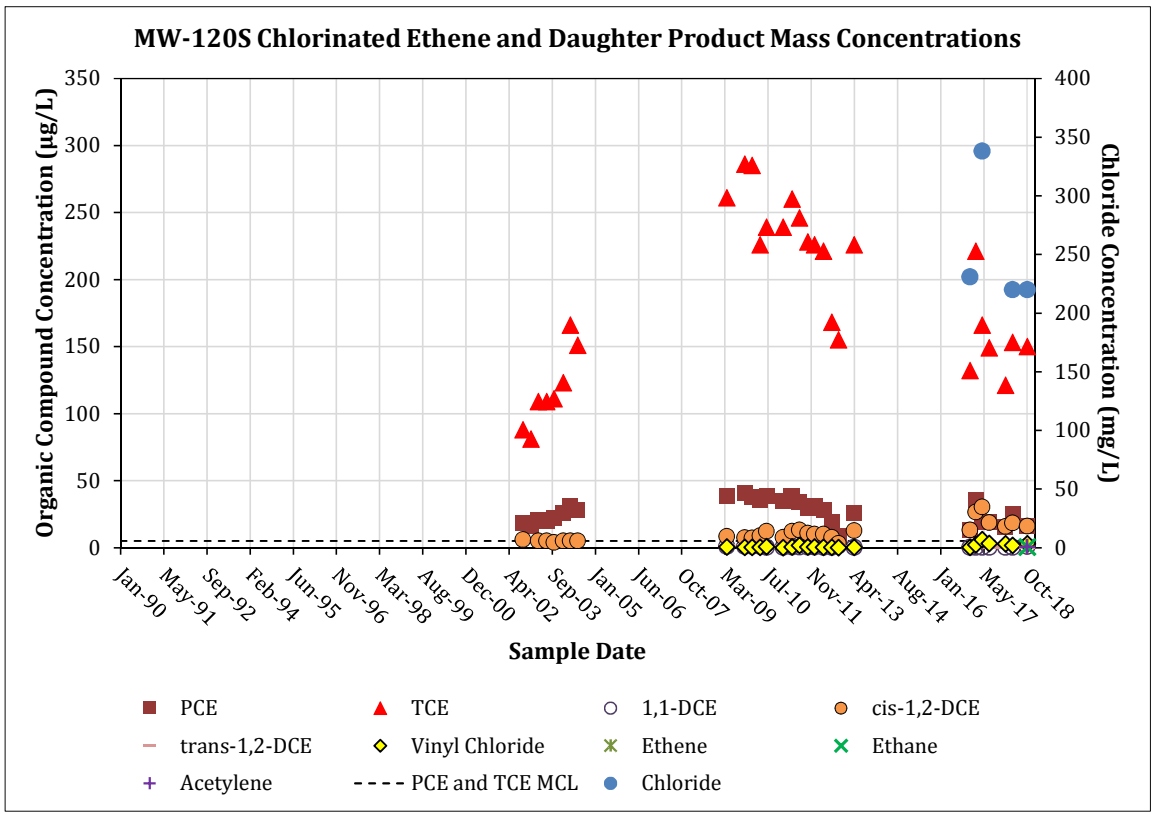

MW-120D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
300
250
200
150
100
50
0
400
350
300
250
200
150
100
50
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

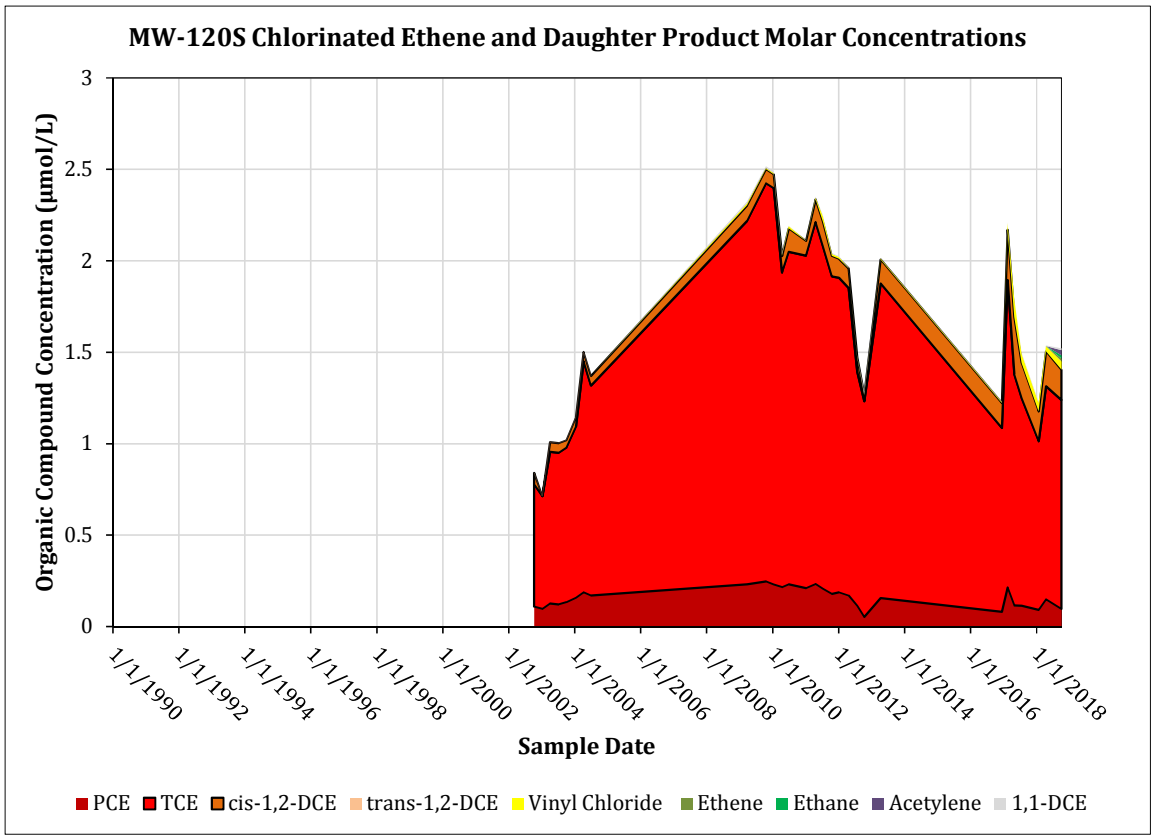

MW-120D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

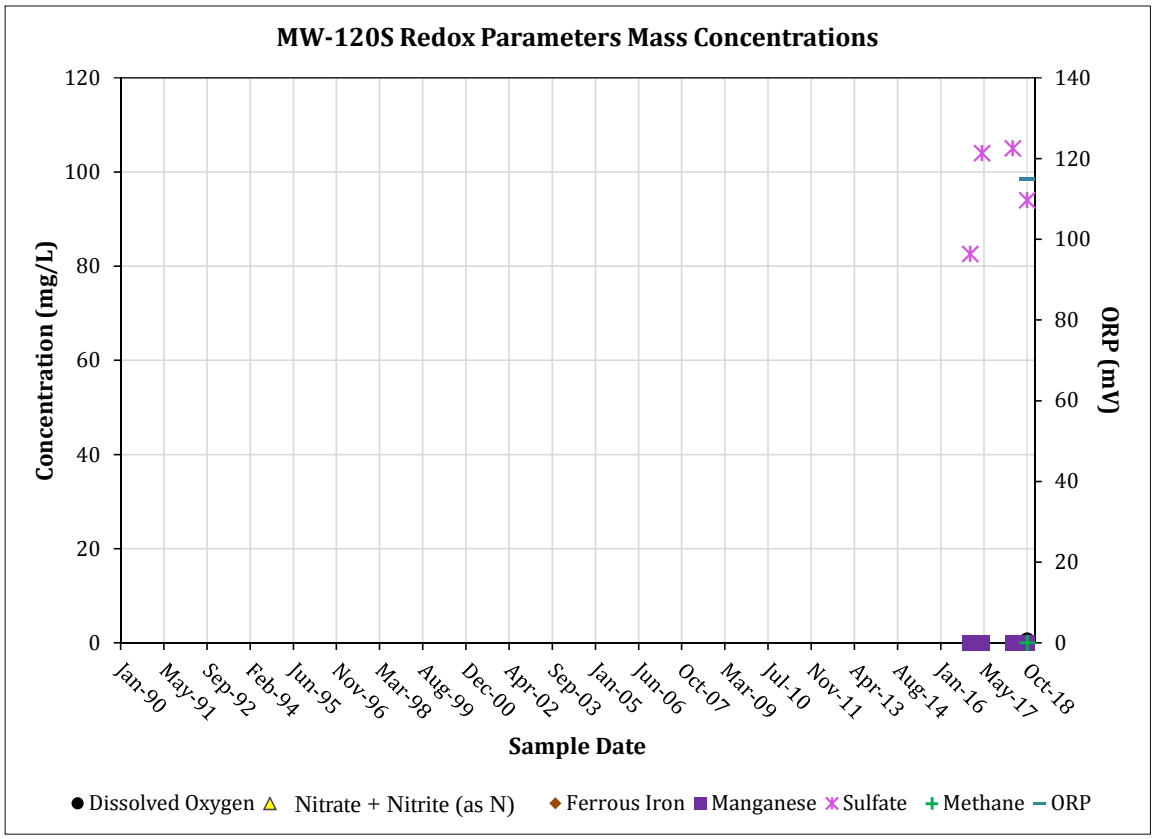

MW-120D Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

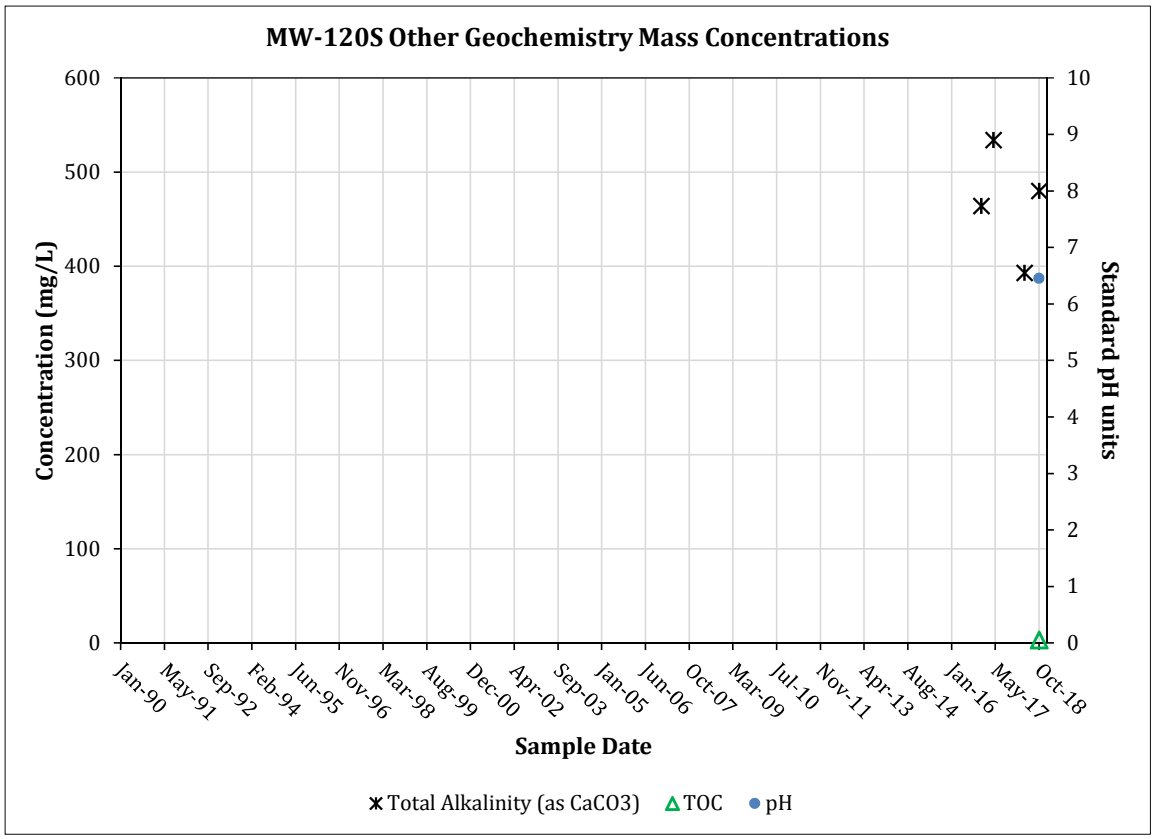

MW-120D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
600
500
400
300
200
100
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Total Alkalinity (as CaCO3)
TOC
pH

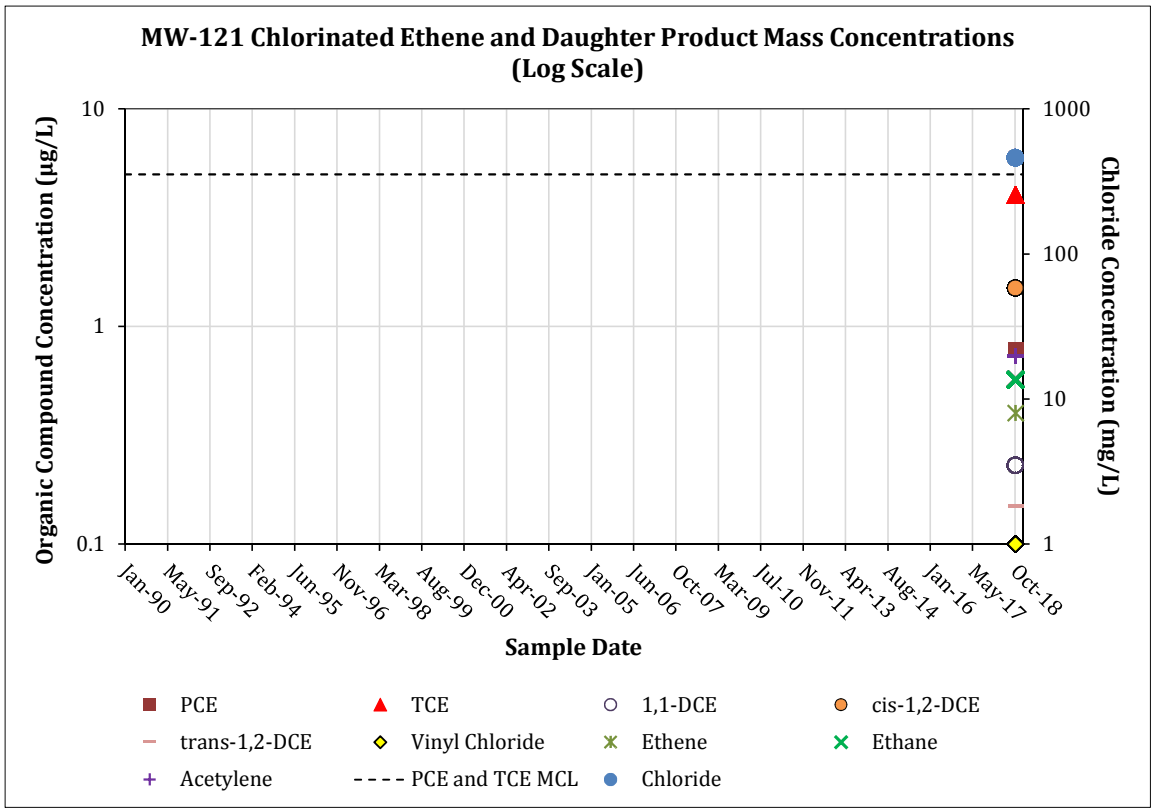

MW-120S Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

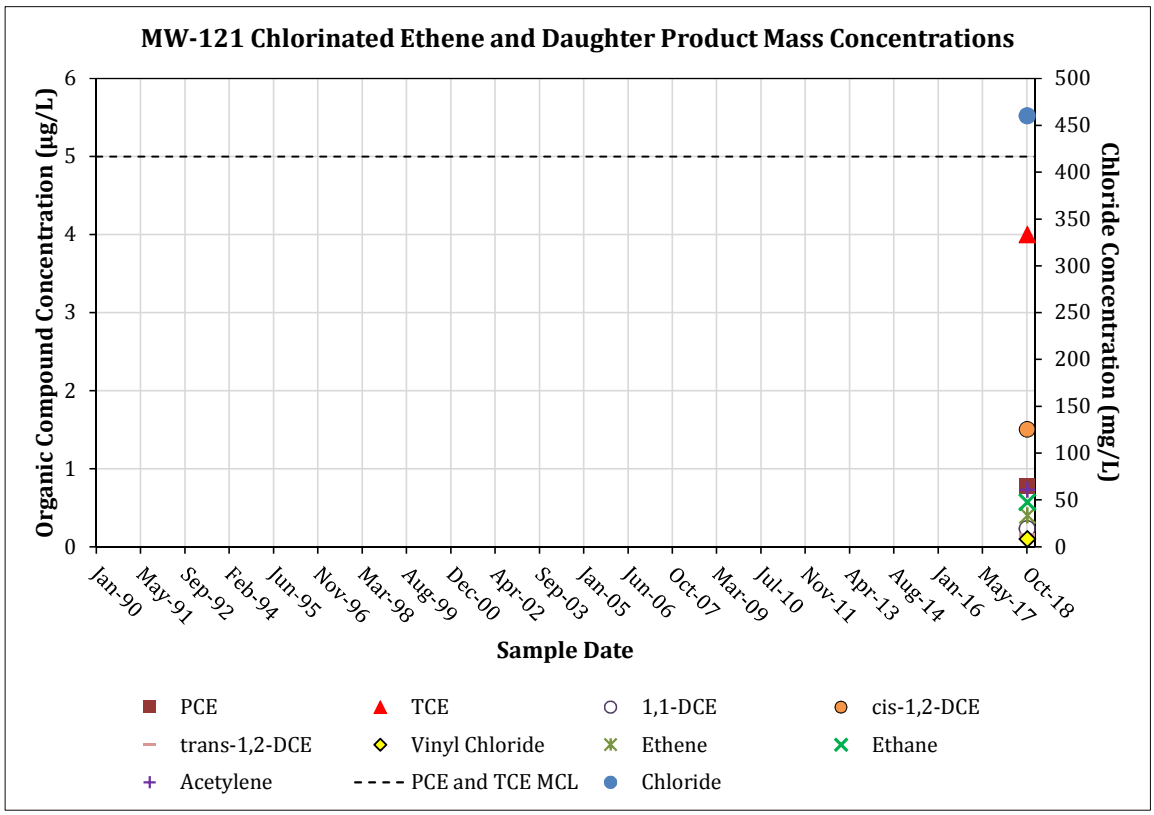

MW-120S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
350
300
250
200
150
100
50
0
400
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

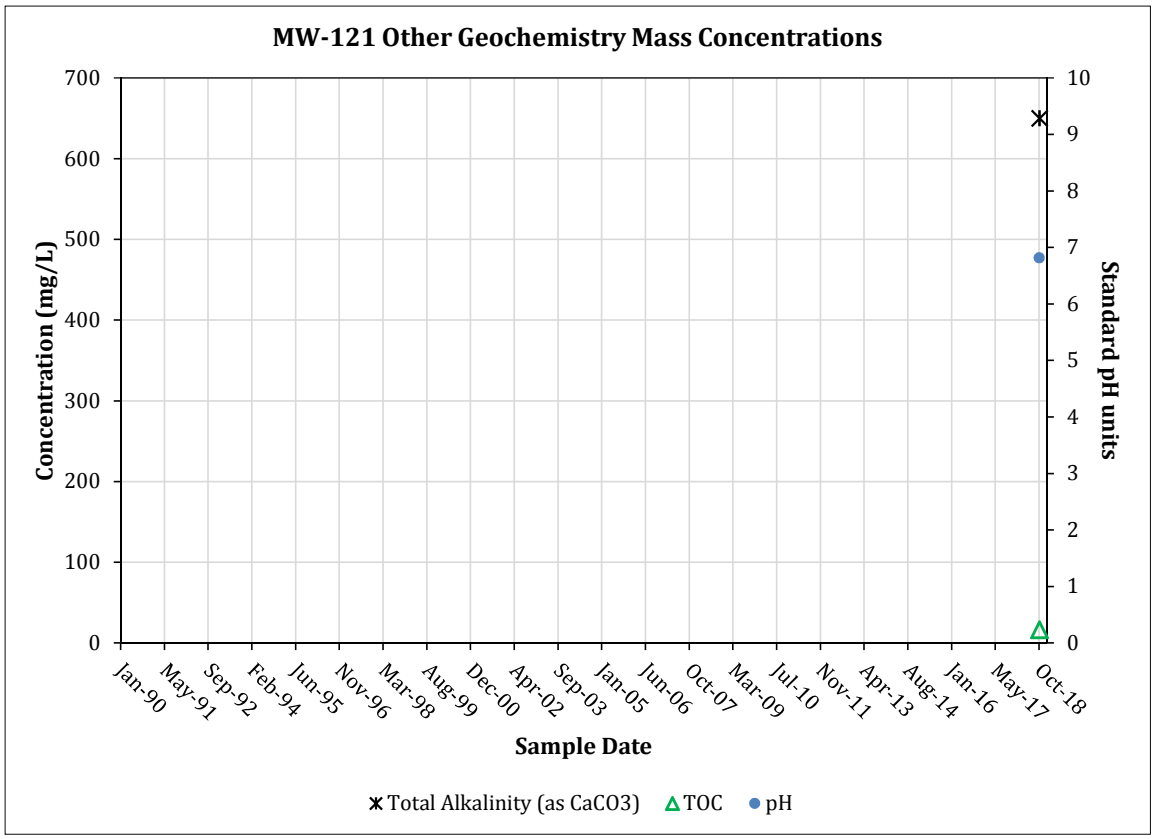

MW-120S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
3
2.5
2
1.5
1
0.5
0
1/1/1990
1/1/1992
1/1/1994
1/1/1996
1/1/1998
1/1/2000
1/1/2002
1/1/2004
1/1/2006
1/1/2008
1/1/2010
1/1/2012
1/1/2014
1/1/2016
1/1/2018
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
1,1-DCE

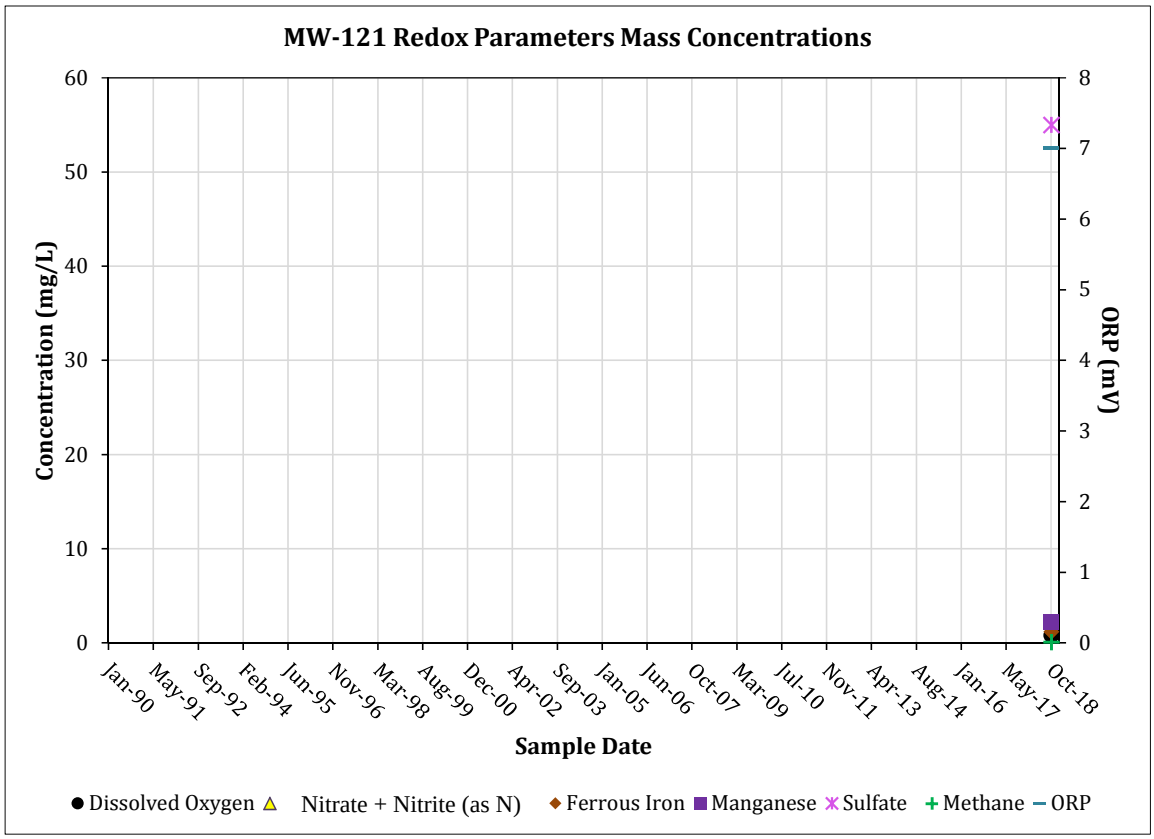

MW-120S Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP


MW-120S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
600
500
400
300
200
100
0
10
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Total Alkalinity (as CaCO3)
TOC
pH


MW-121 Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
10
1
0.1
1000
100
10
1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

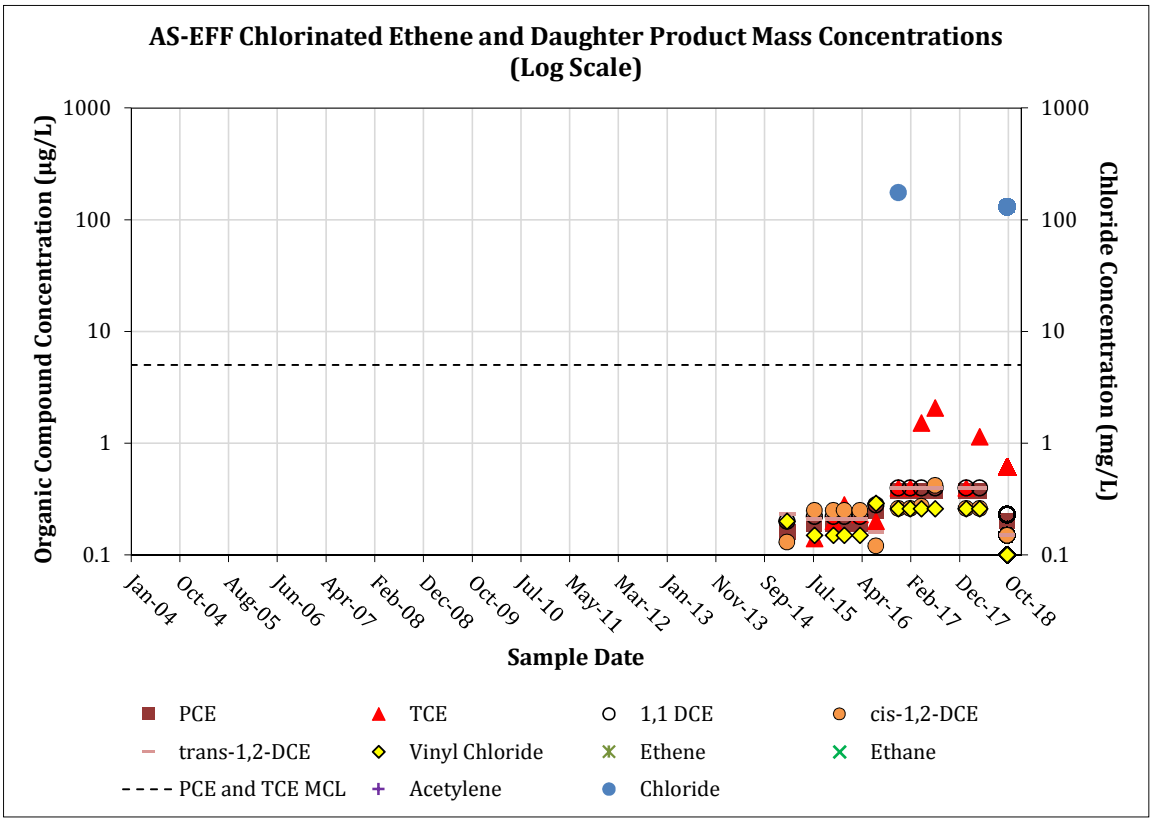

MW-121 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
6
5
4
3
2
1
0
500
450
400
350
300
250
200
150
100
50
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
PCE and TCE MCL
Chloride

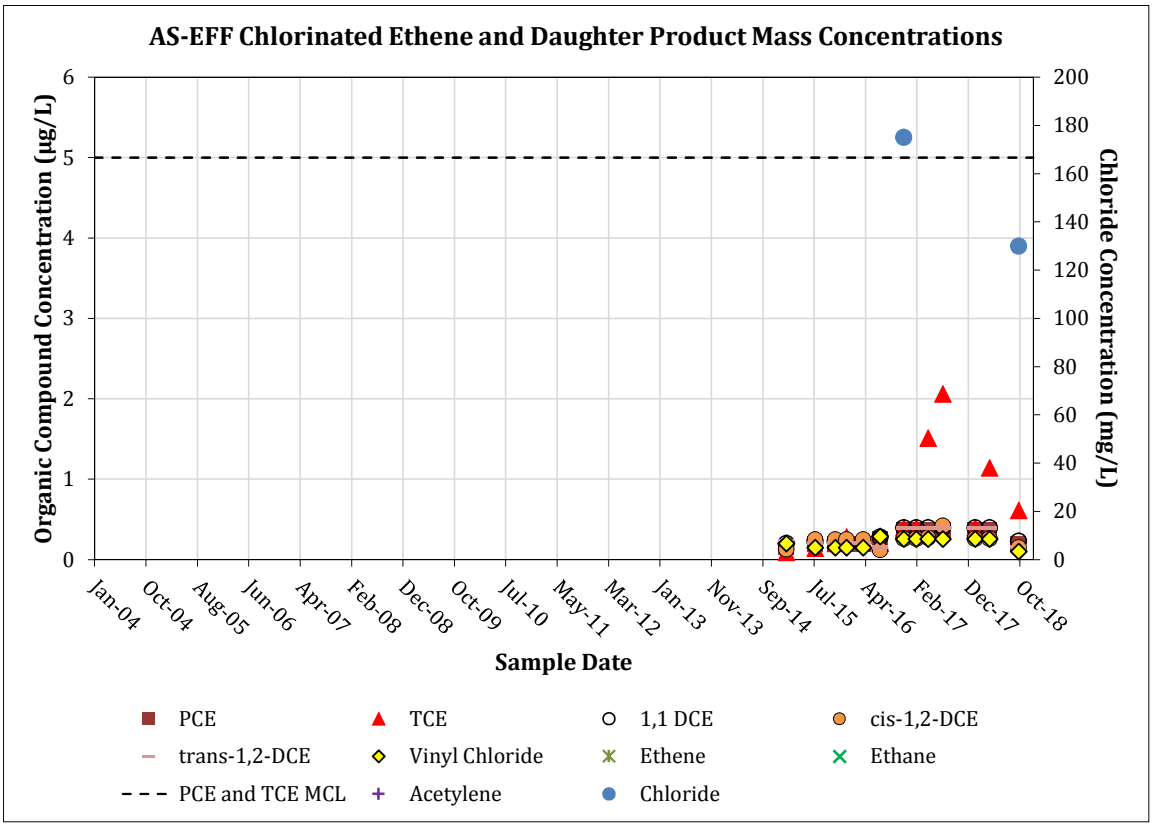

MW-121 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

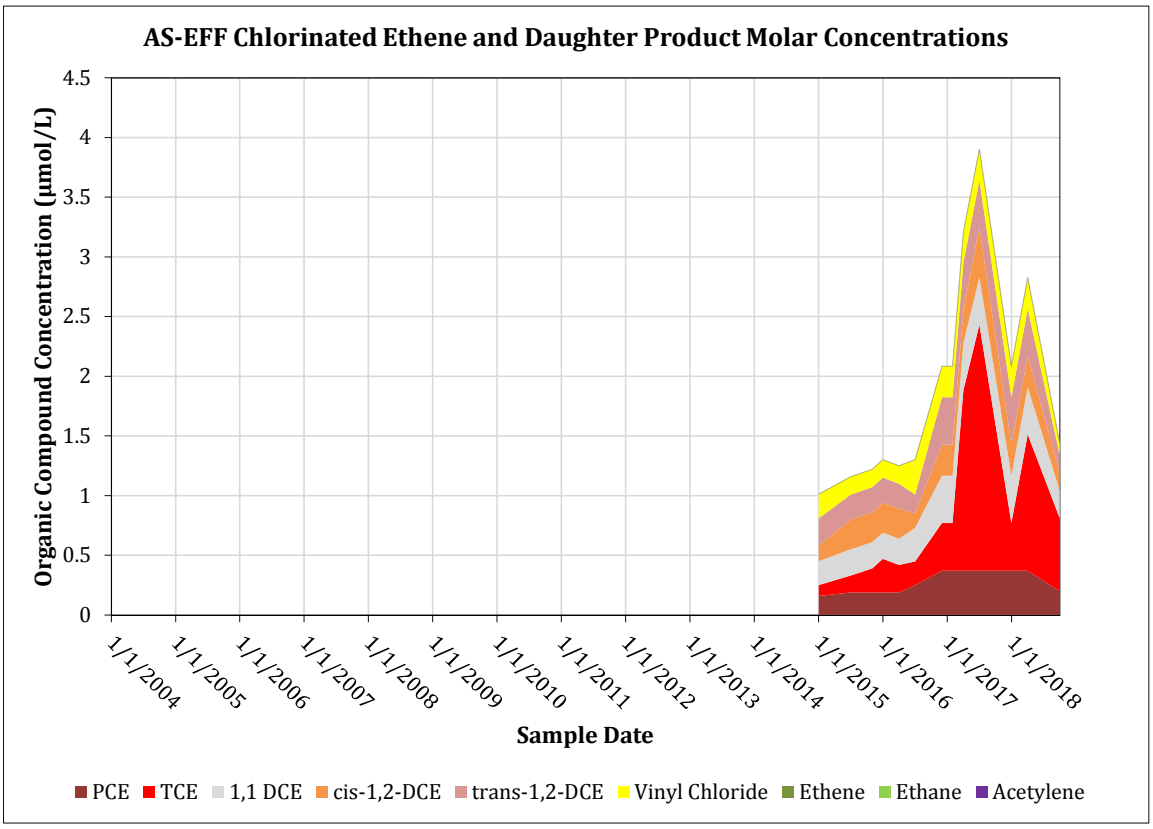

MW-121 Redox Parameters Mass Concentrations
Concentration (mg/L)
ORP (mV)
Sample Date
Dissolved Oxygen
Nitrate + Nitrite (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

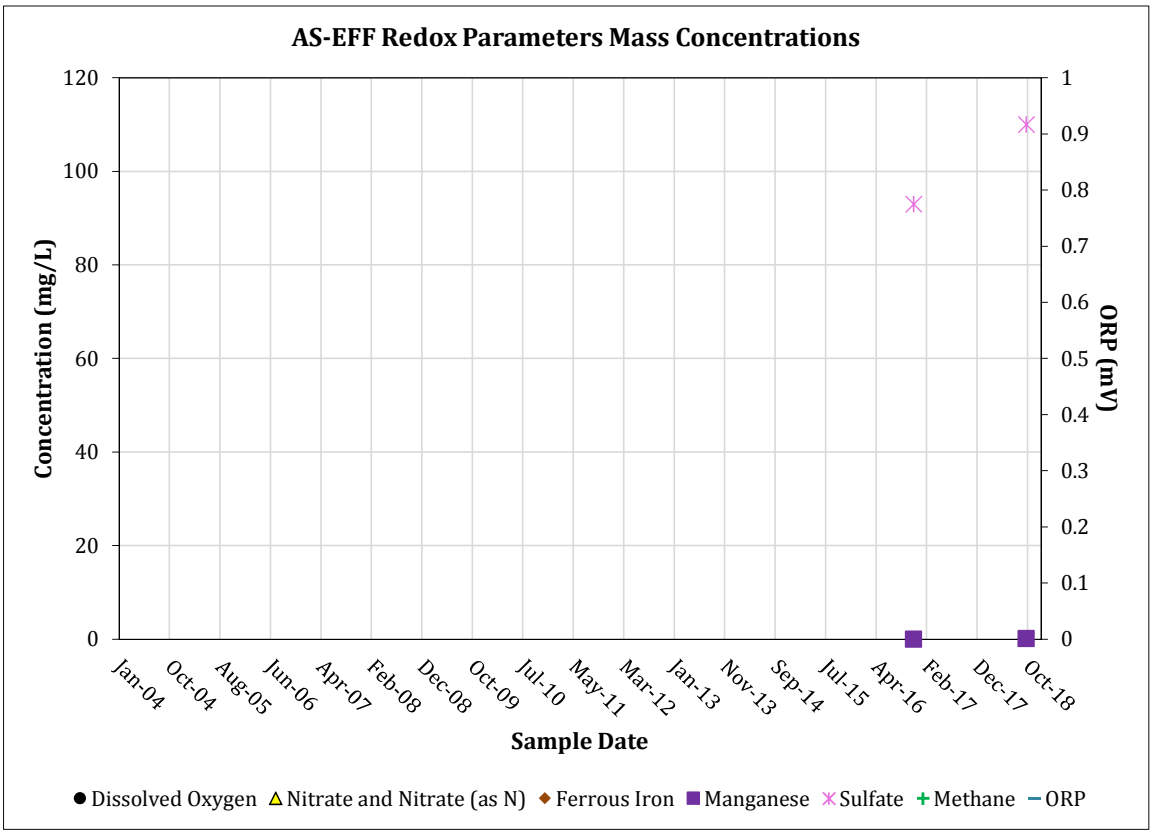
Section 2

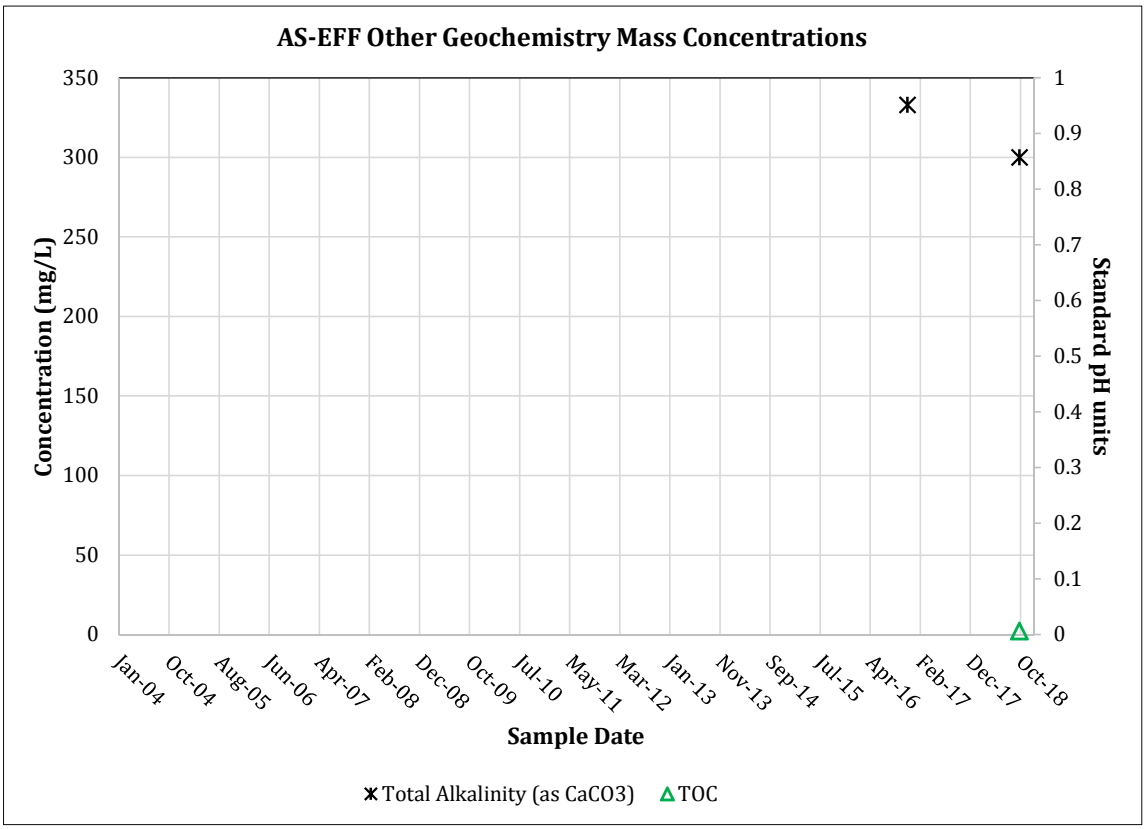
VOC and Geochemistry Trend Charts - Remediation System

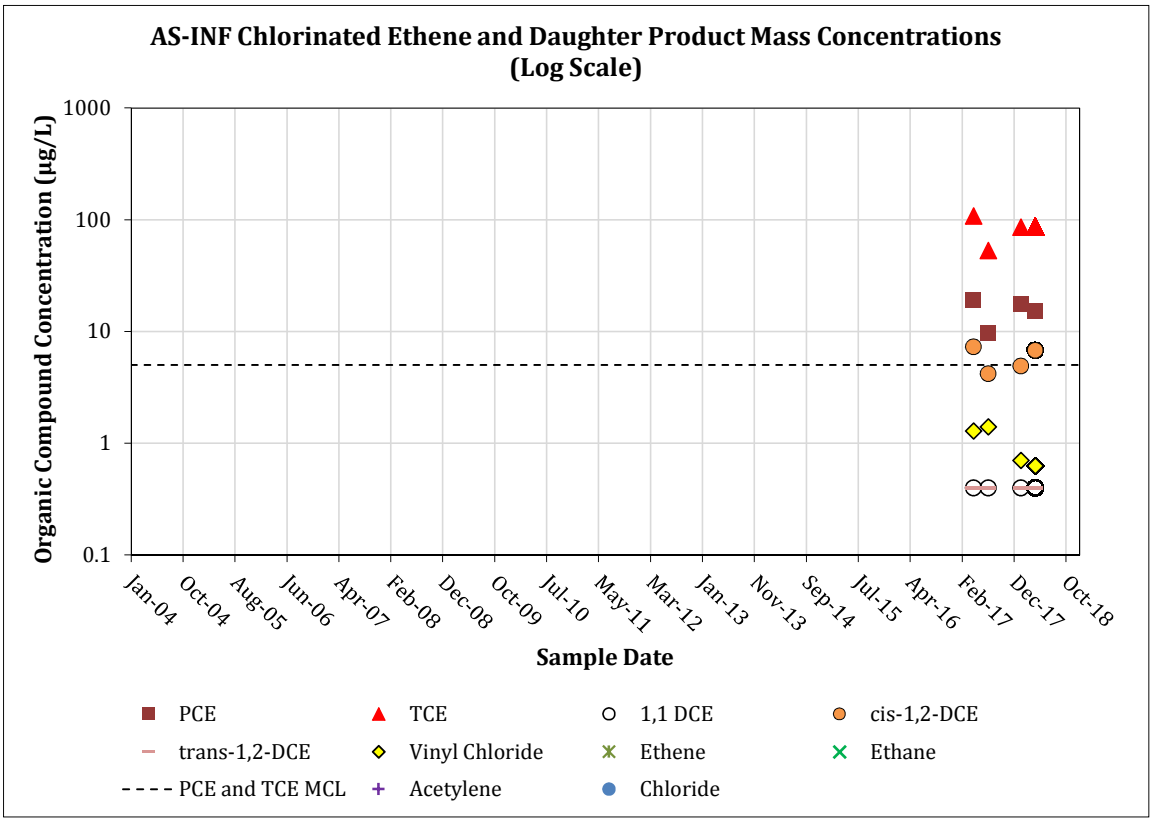

AS-EFF Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

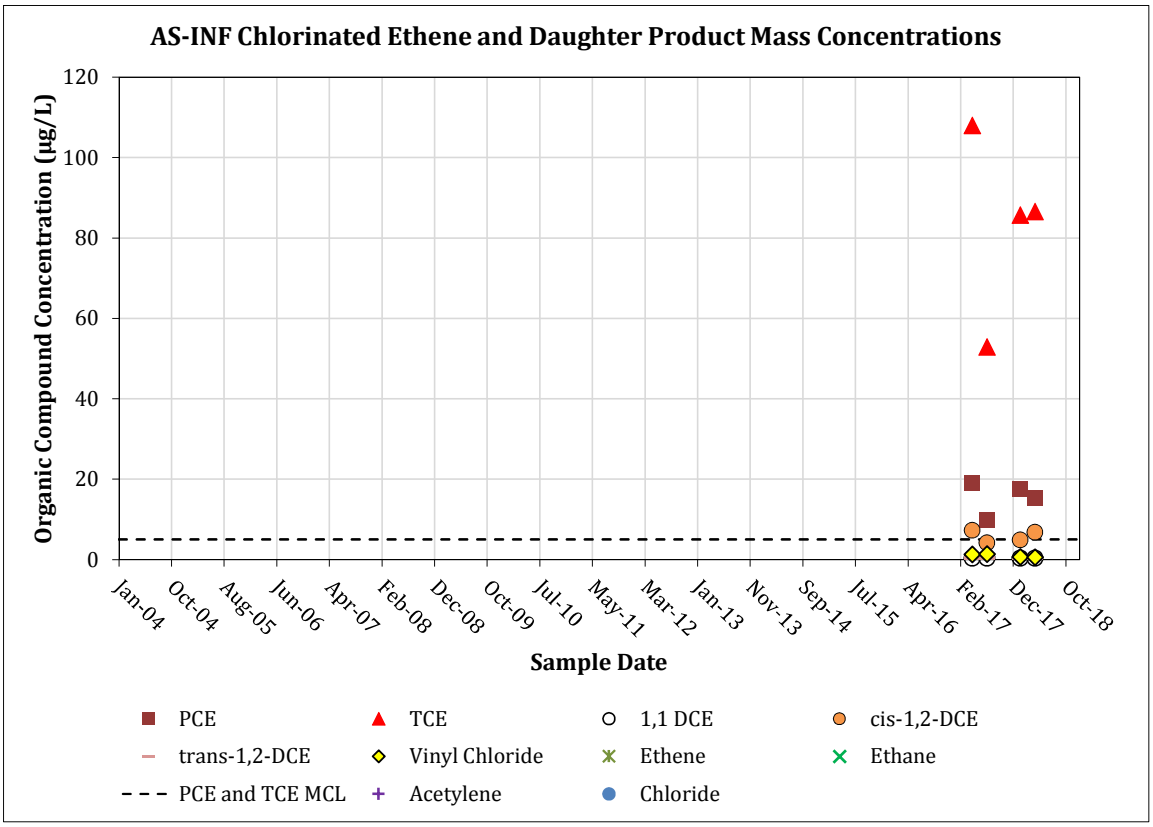

AS-EFF Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
6
5
4
3
2
1
0
200
180
160
140
120
100
80
60
40
20
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

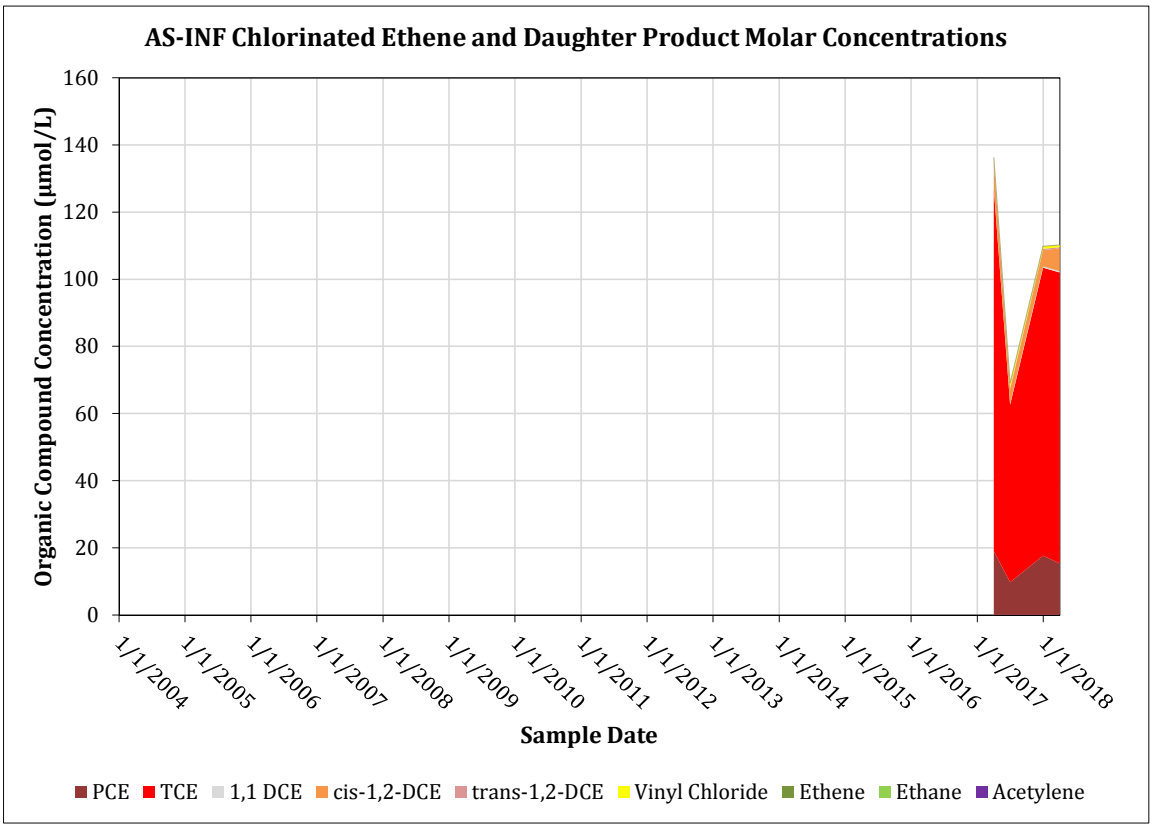

AS-EFF Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

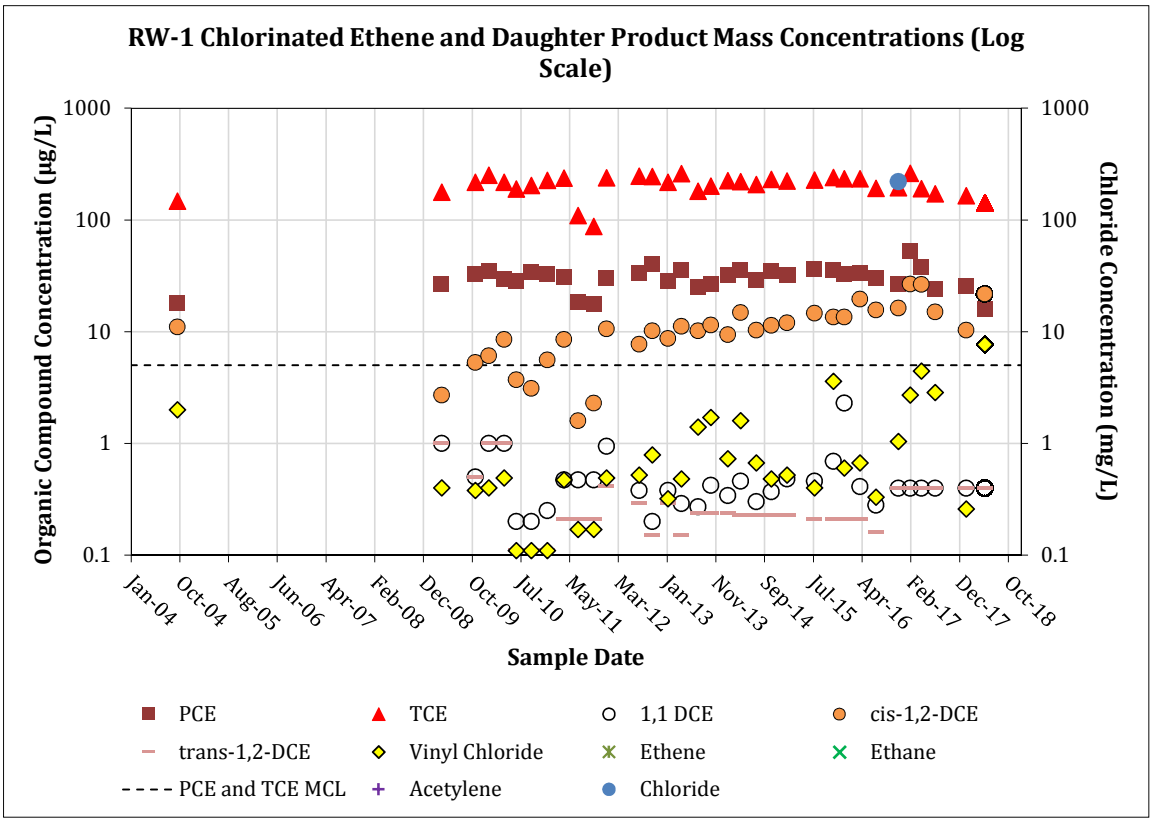

AS-EFF Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

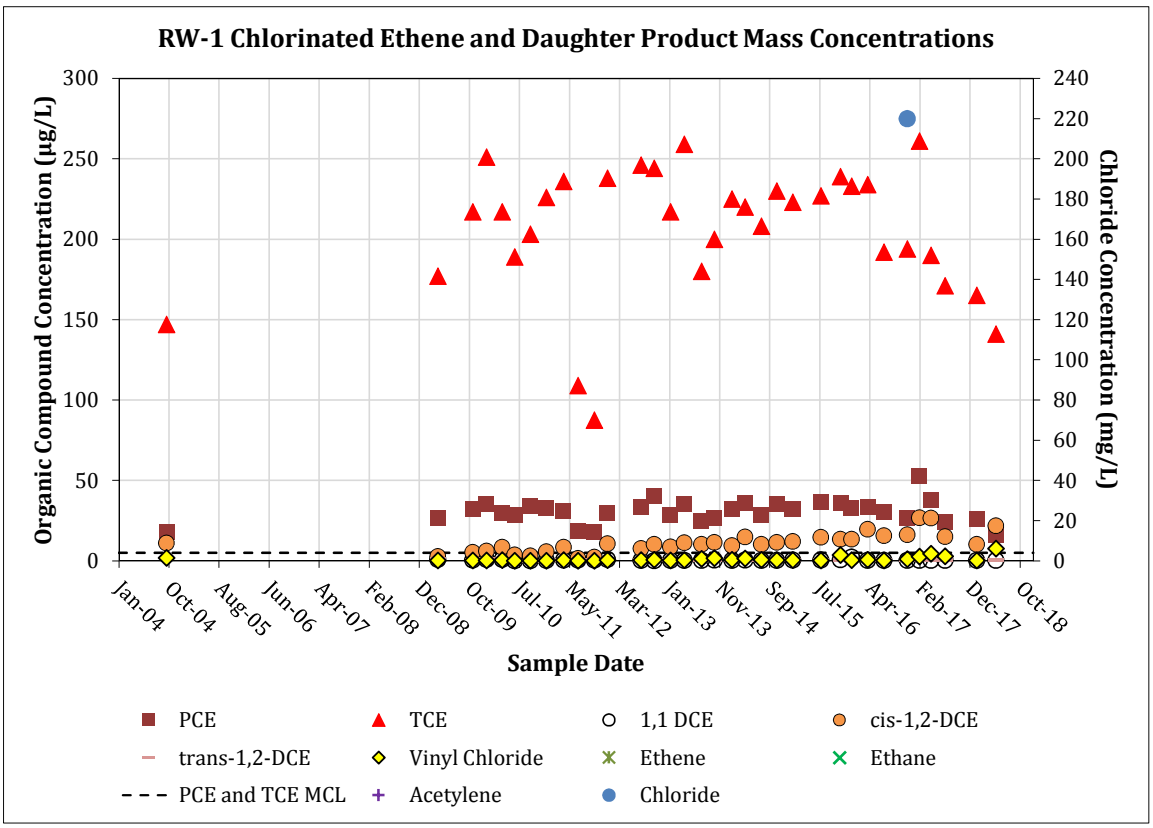

AS-EFF Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
350
300
250
200
150
100
50
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC

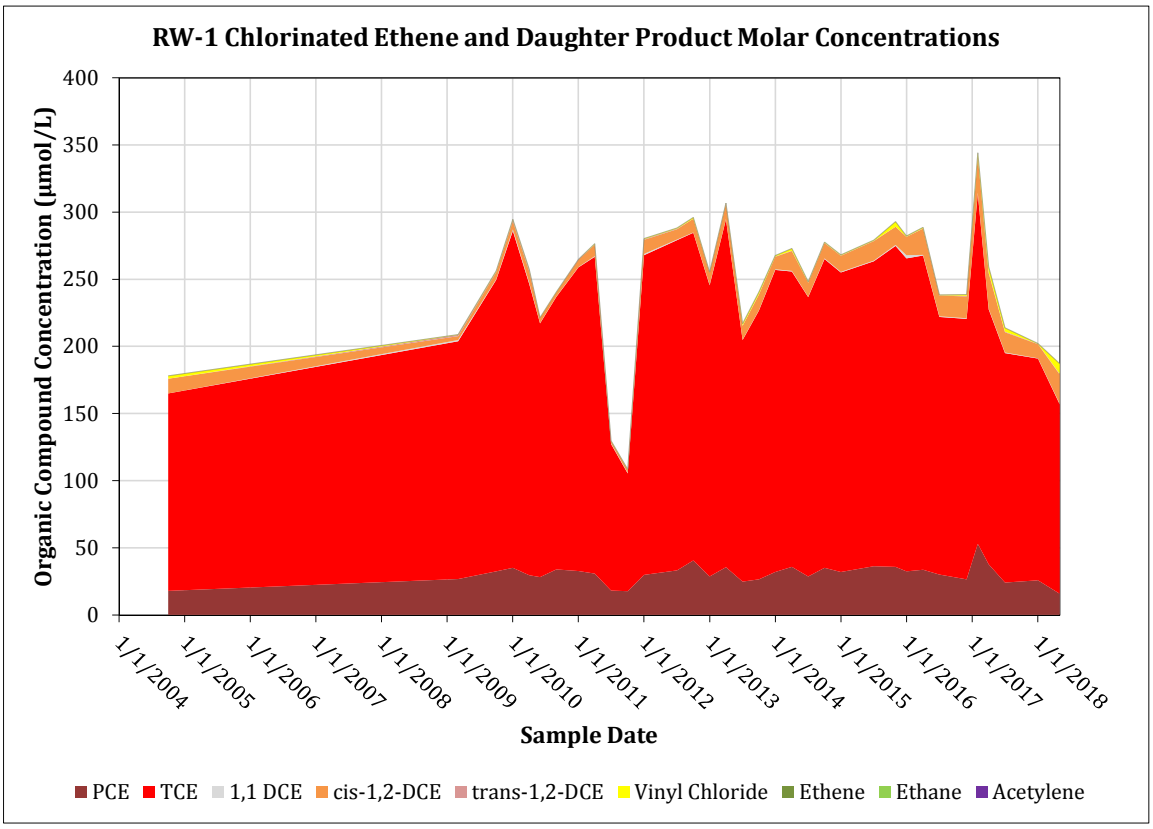

AS-INF Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

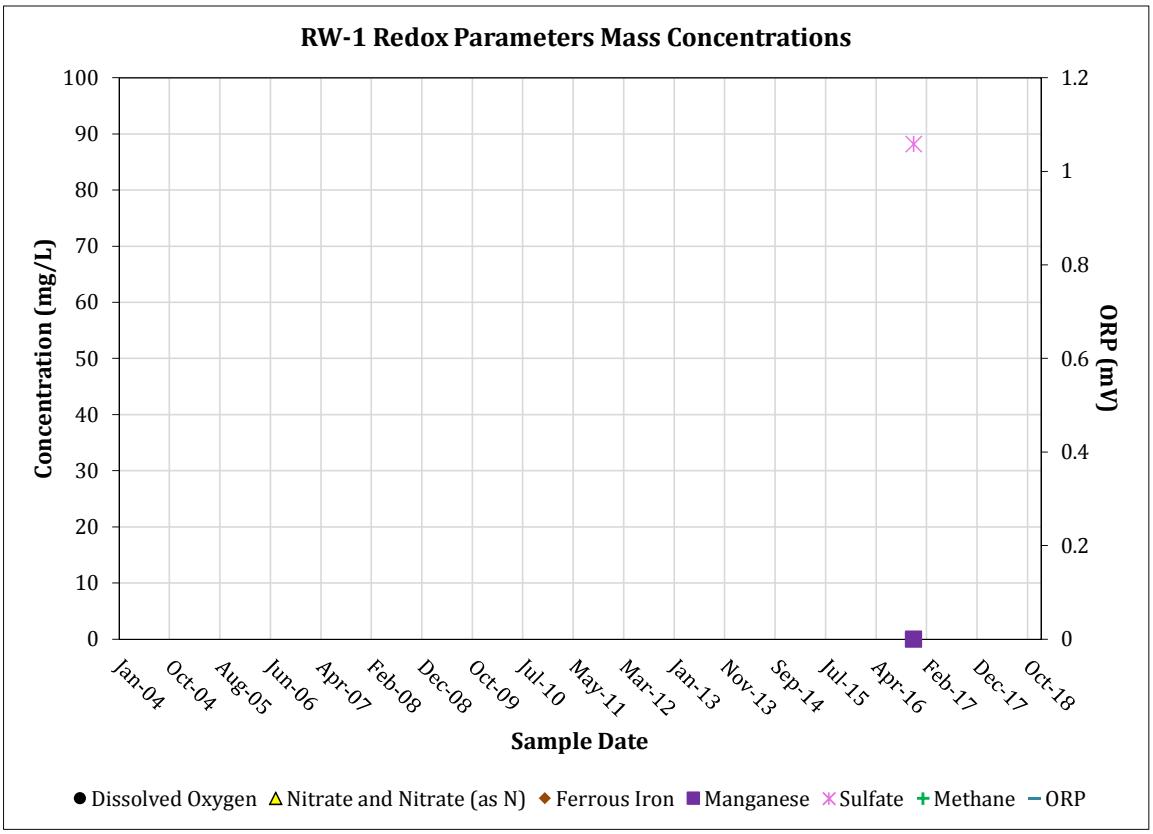

AS-INF Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
120
100
80
60
40
20
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

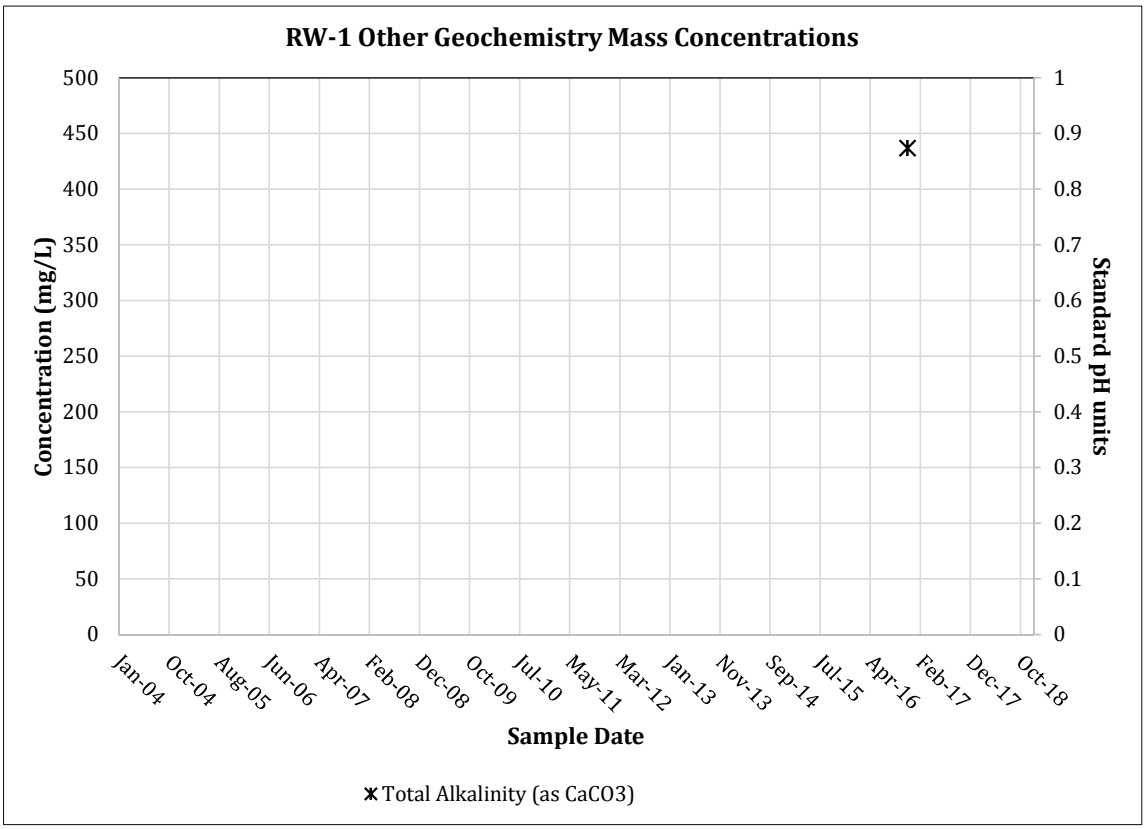

AS-INF Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
160
140
120
100
80
60
40
20
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

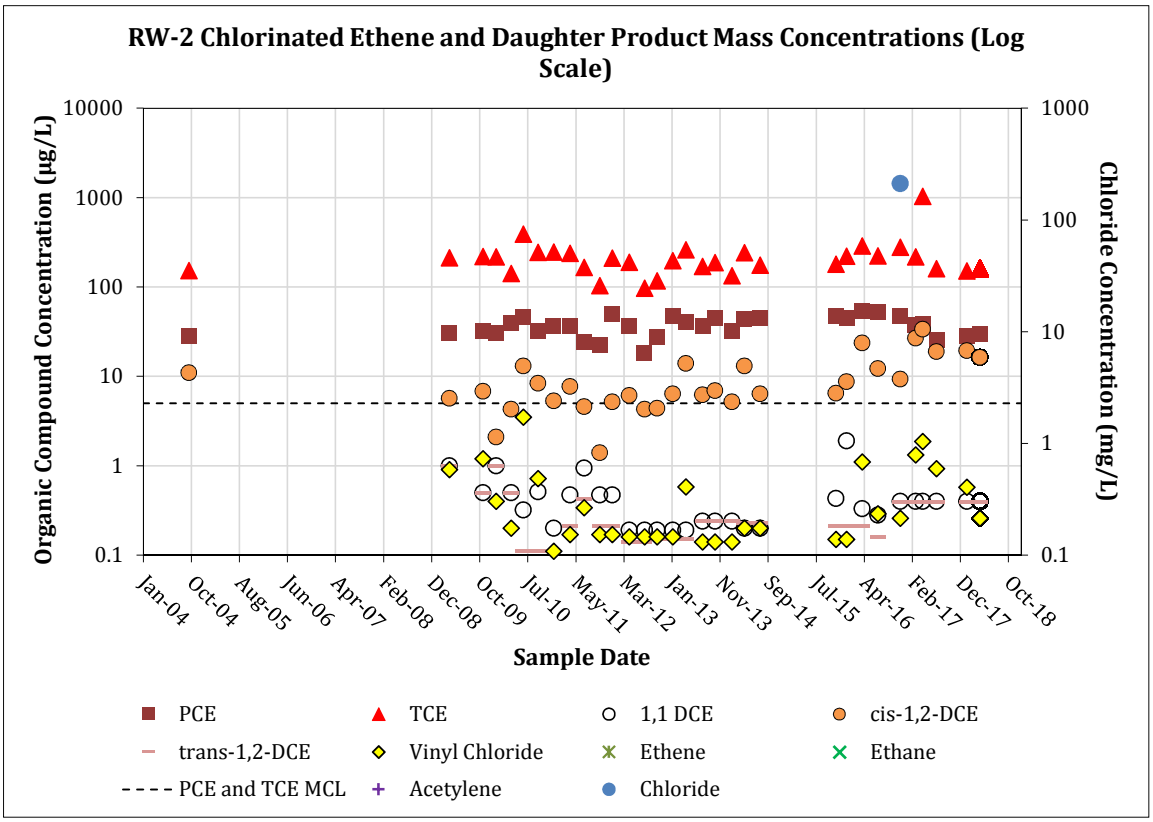

RW-1 Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

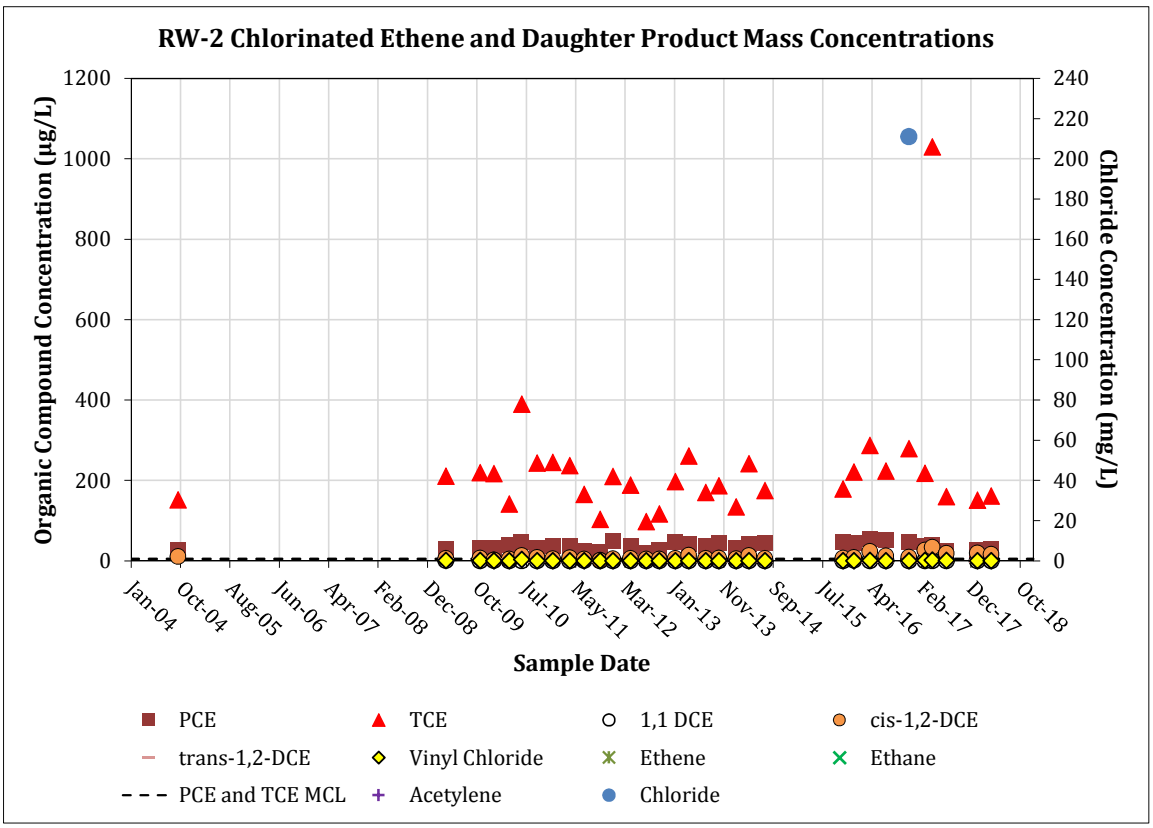

RW-1 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
300
250
200
150
100
50
0
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

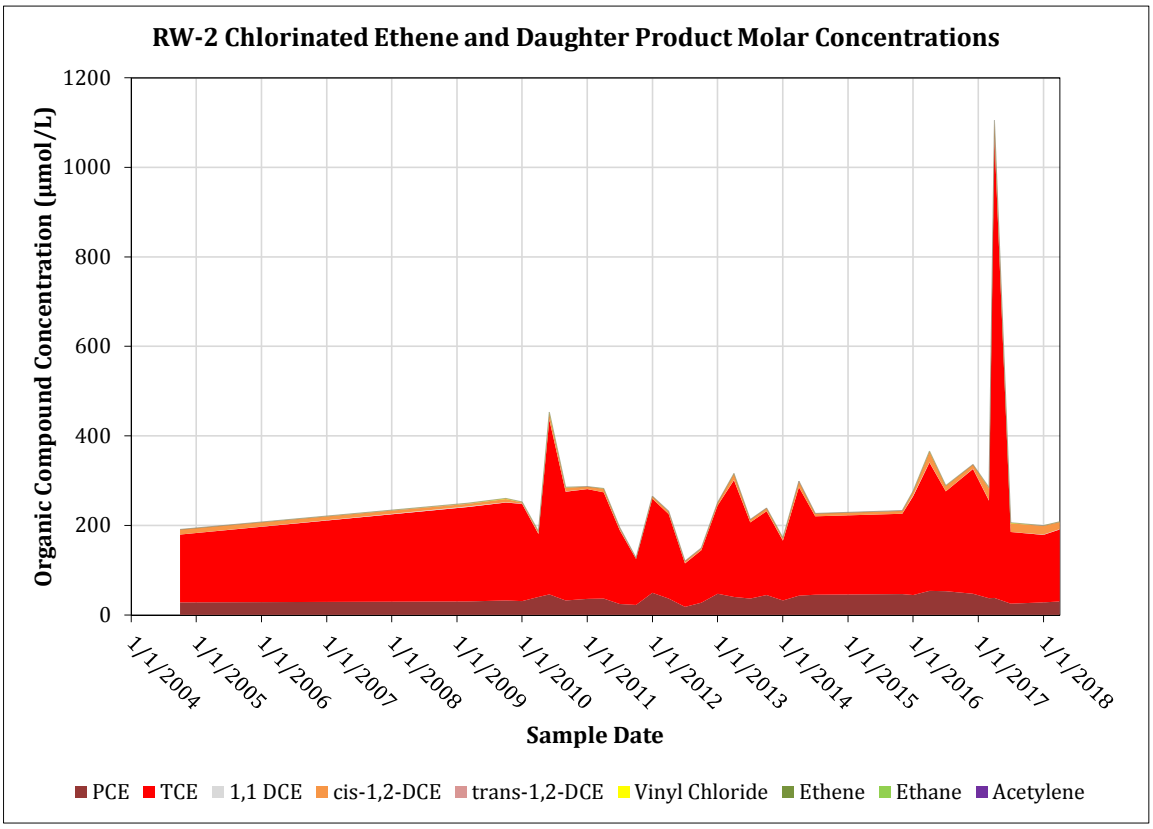

RW-1 Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
400
350
300
250
200
150
100
50
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

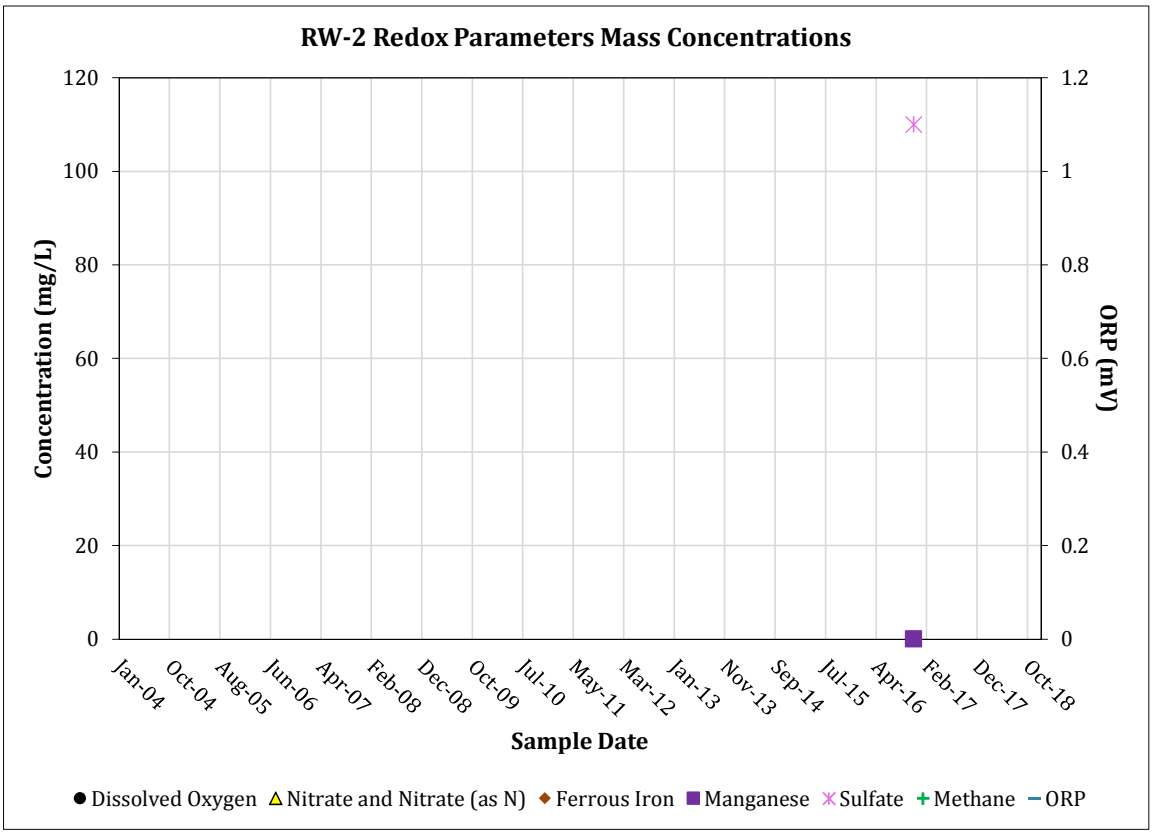

RW-1 Redox Parameters Mass Concentrations
Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
ORP (mV)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

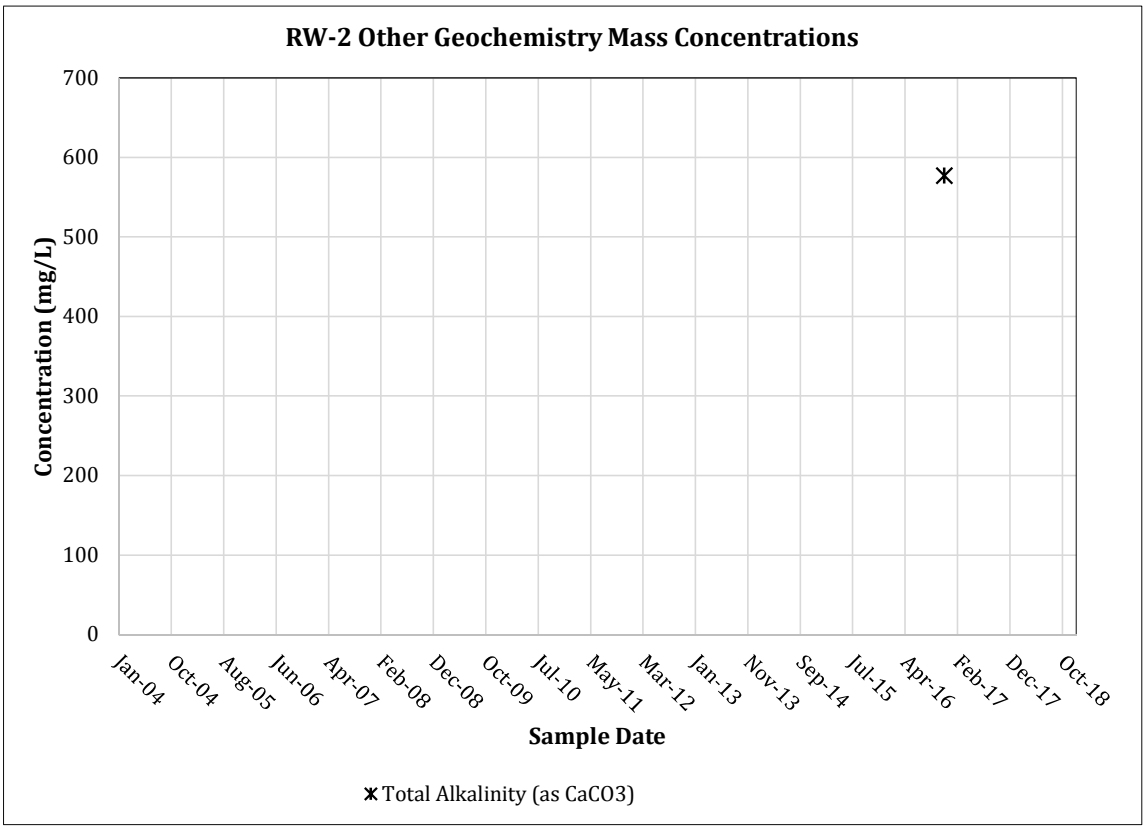

RW-1 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
500
450
400
350
300
250
200
150
100
50
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)

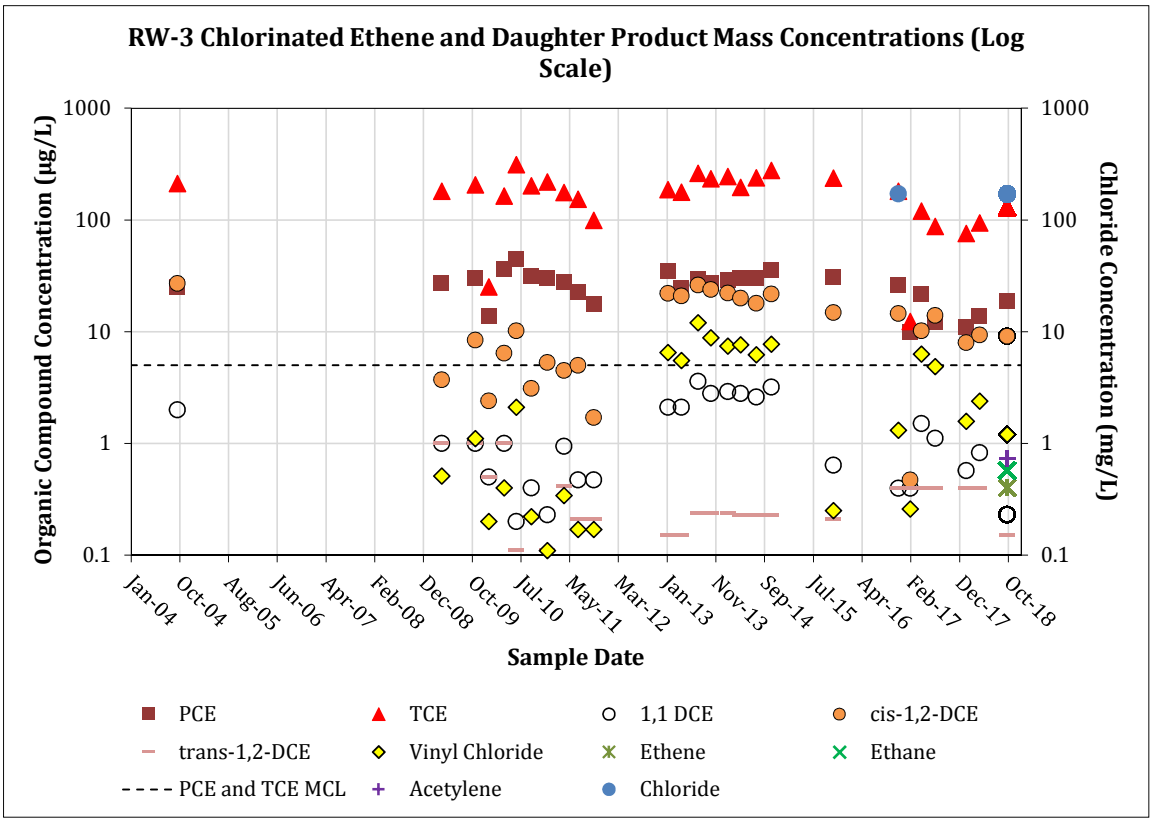

RW-2 Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
10000
1000
100
10
1
0.1
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

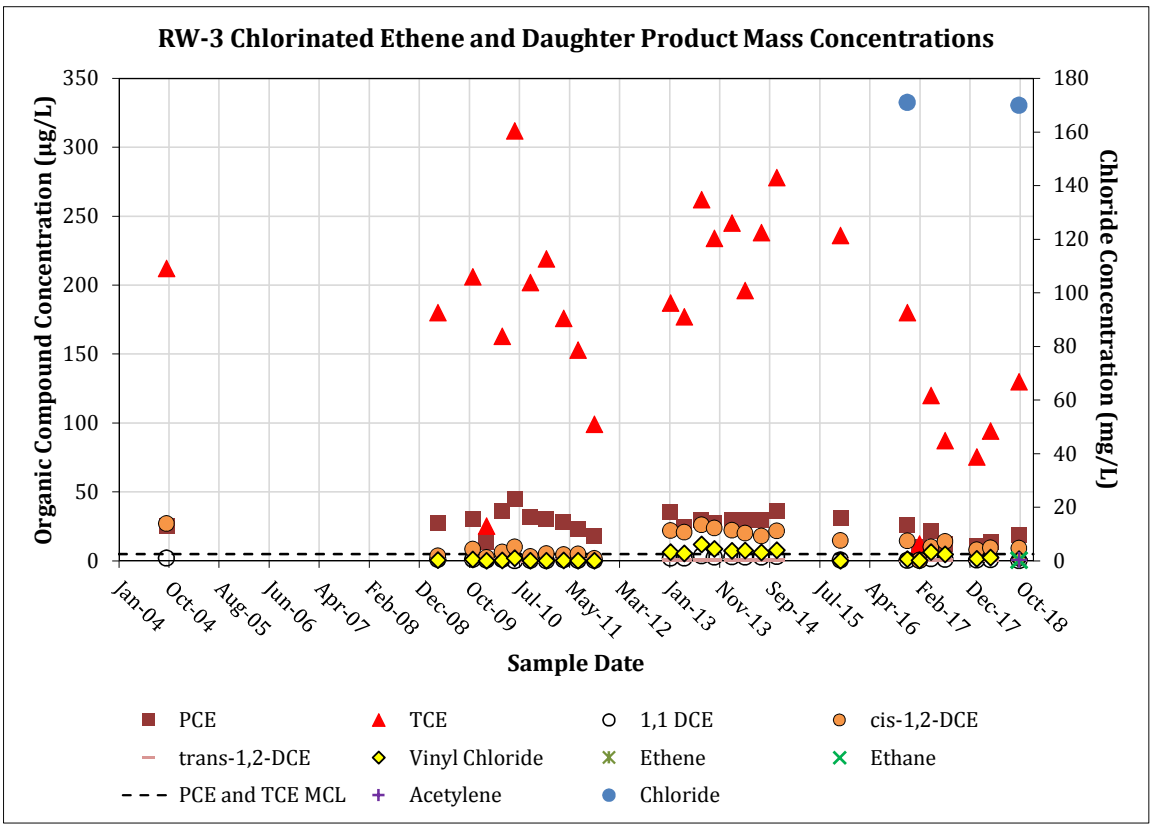

RW-2 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1200
1000
800
600
400
200
0
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

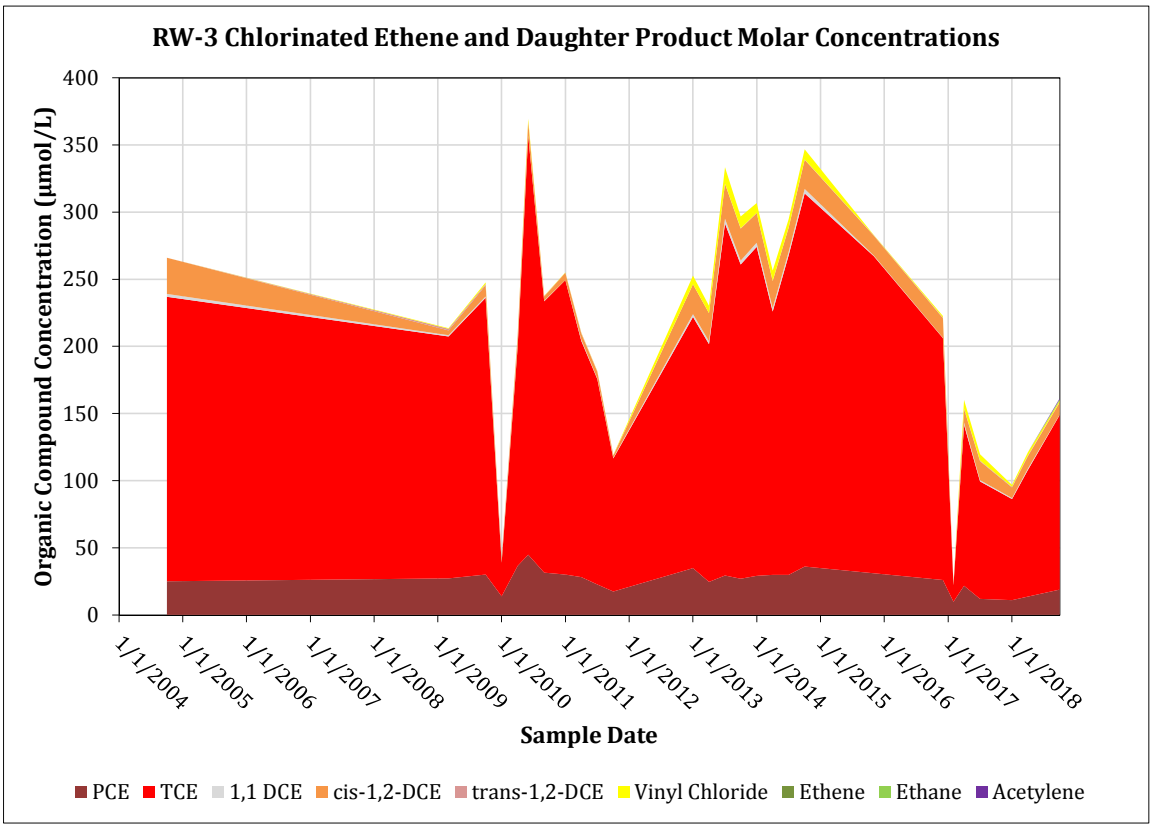

RW-2 Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
1200
1000
800
600
400
200
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

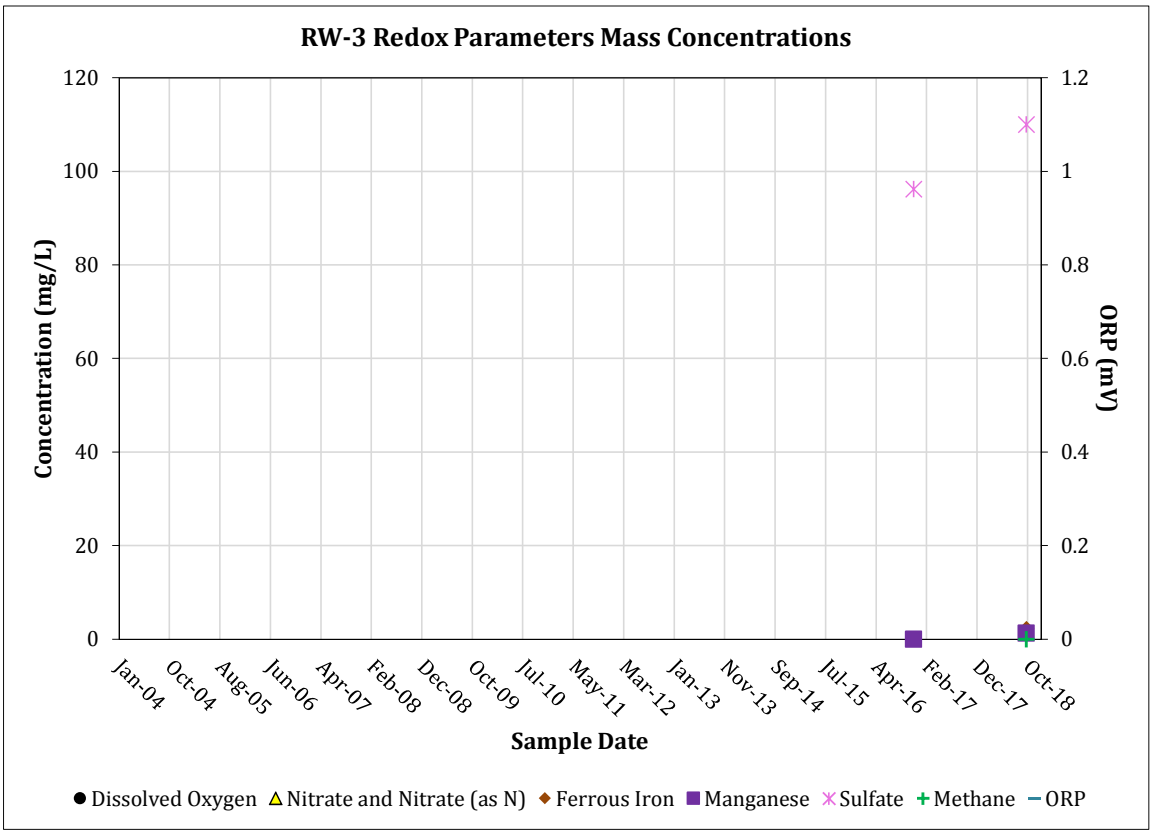

RW-2 Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
1.2
1
0.8
0.6
0.4
0.2
0
ORP (mV)
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

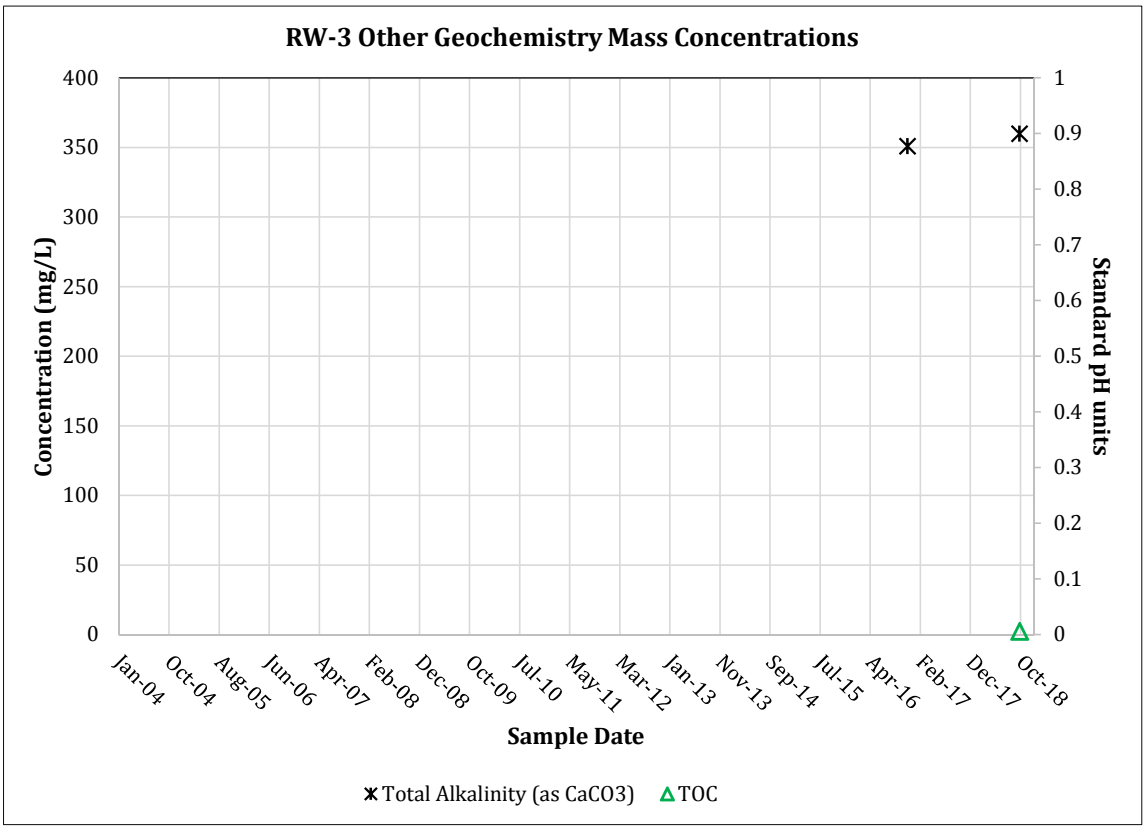

RW-2 Other Geochemistry Mass Concentrations
Concentration (mg/L)
700
600
500
400
300
200
100
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)

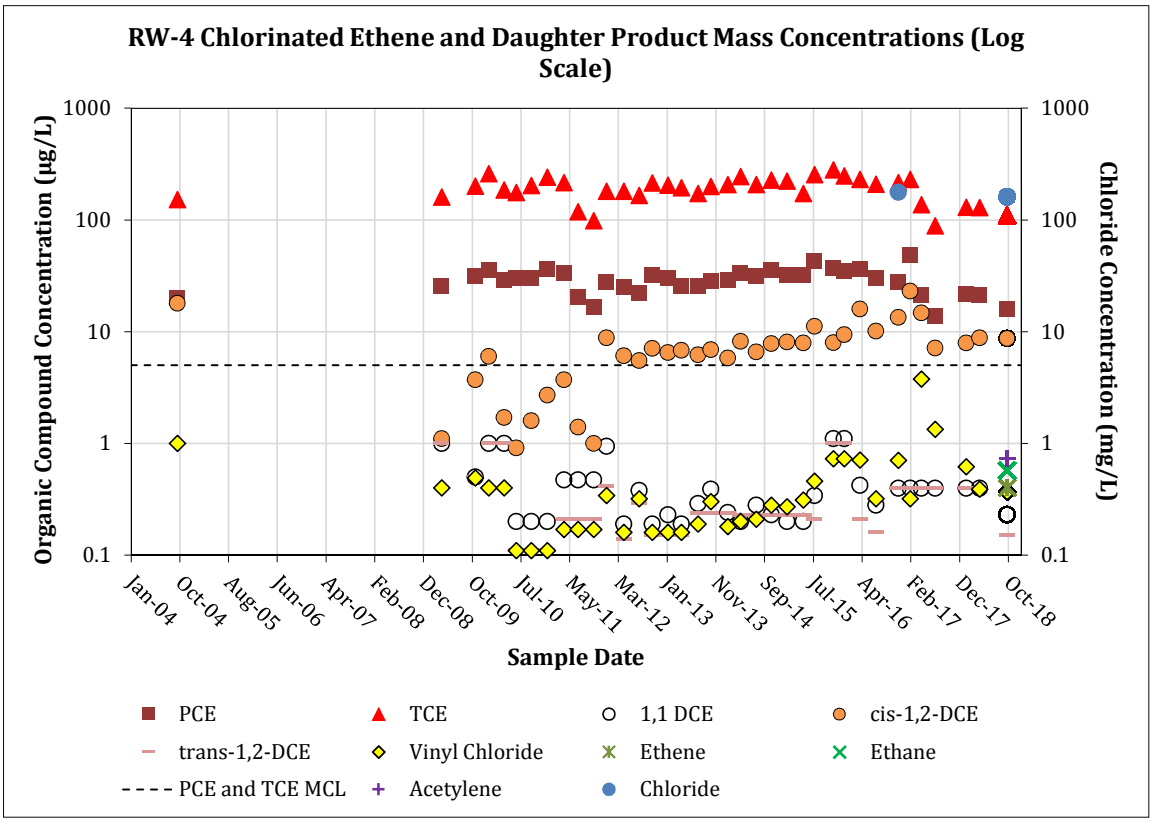

RW-3 Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

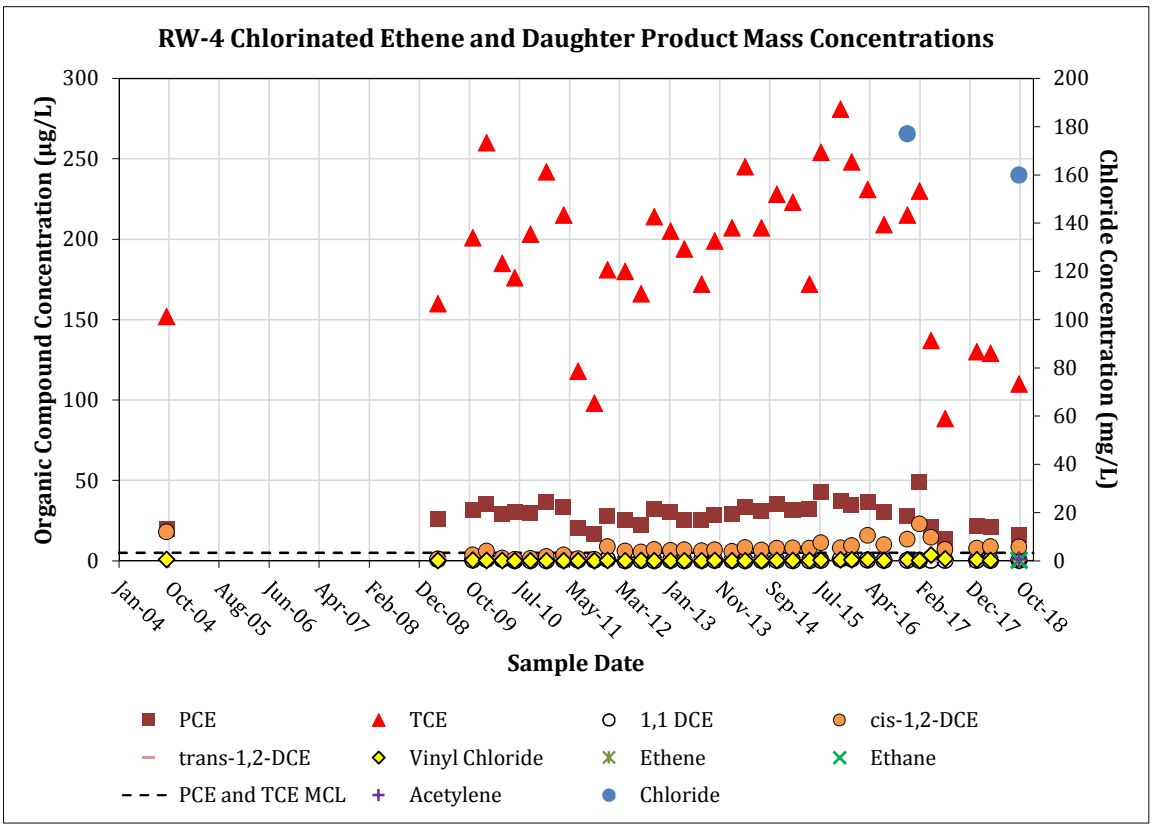

RW-3 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
350
300
250
200
150
100
50
0
180
160
140
120
100
80
60
40
20
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

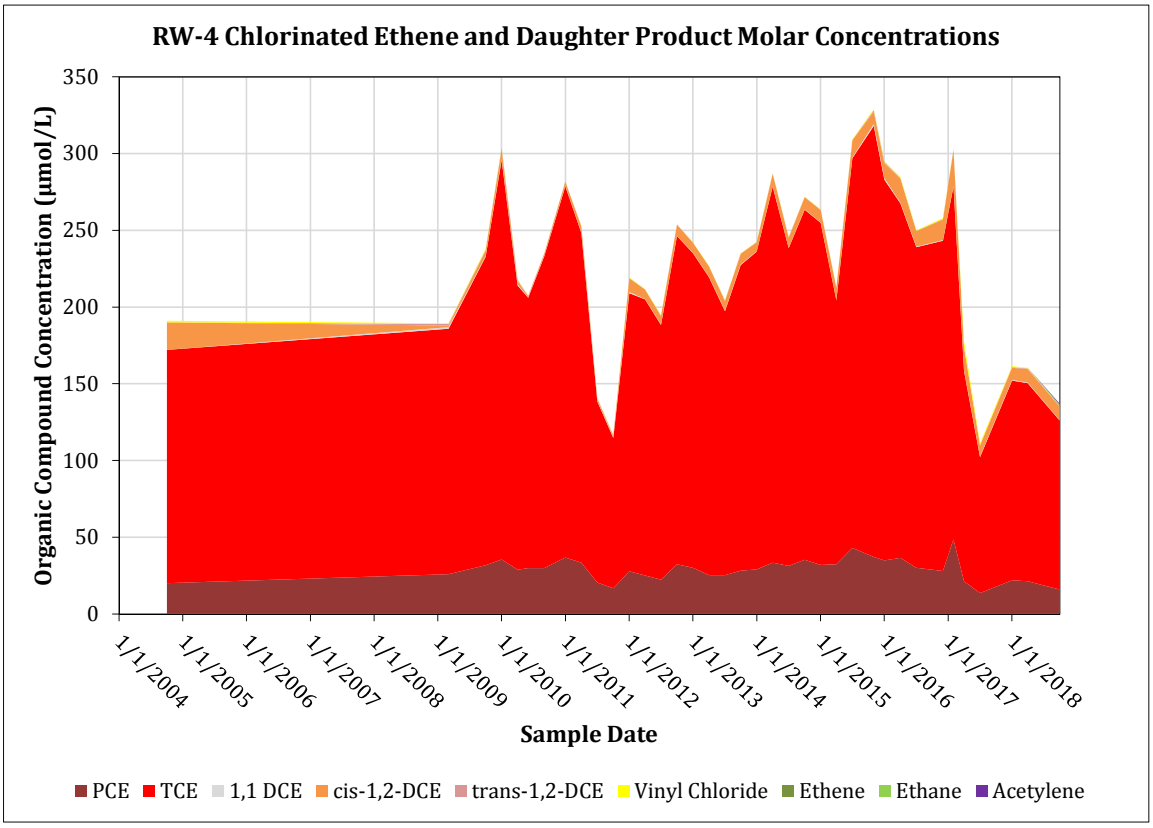

RW-3 Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
400
350
300
250
200
150
100
50
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

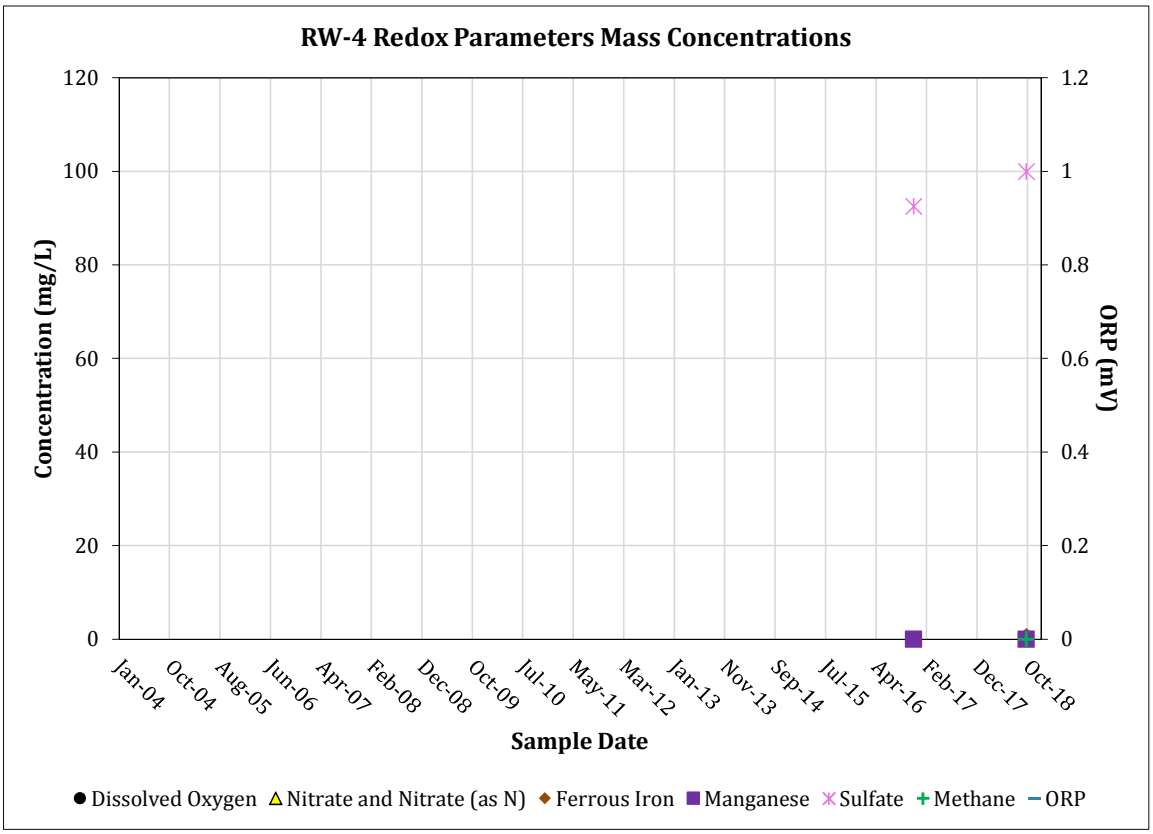

RW-3 Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

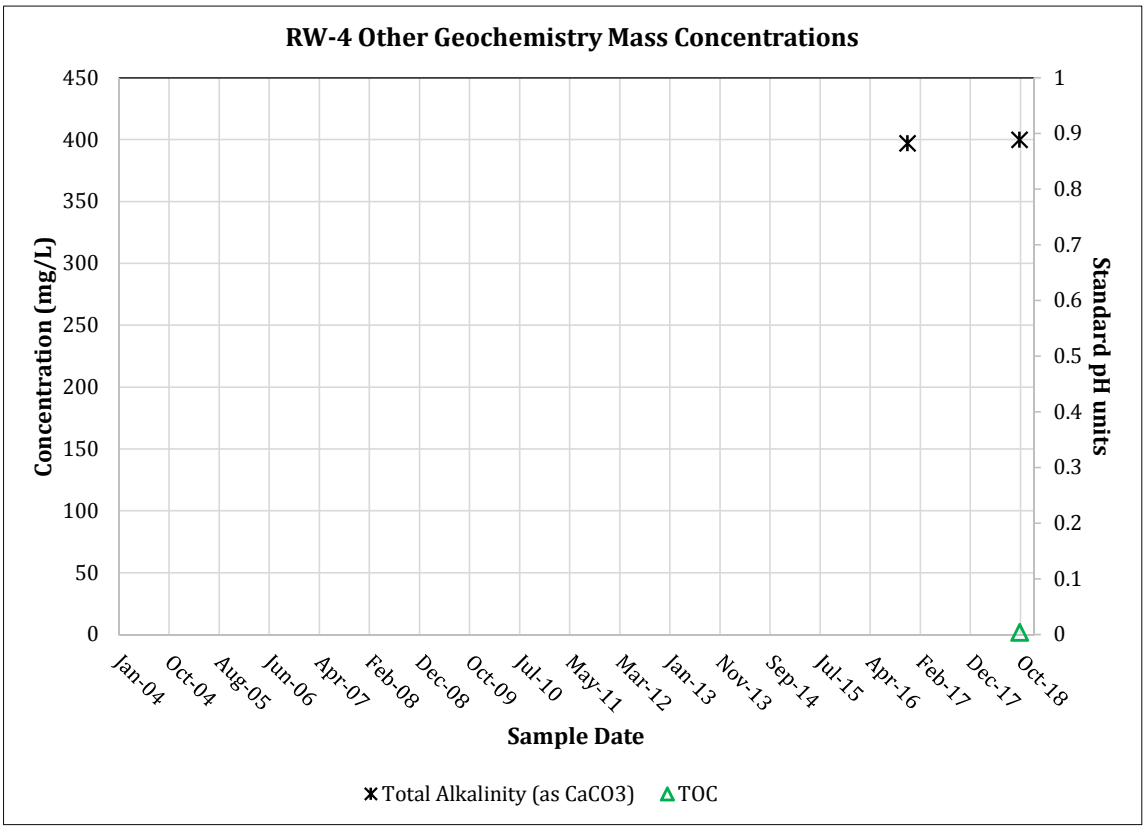

RW-3 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
400
350
300
250
200
150
100
50
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC

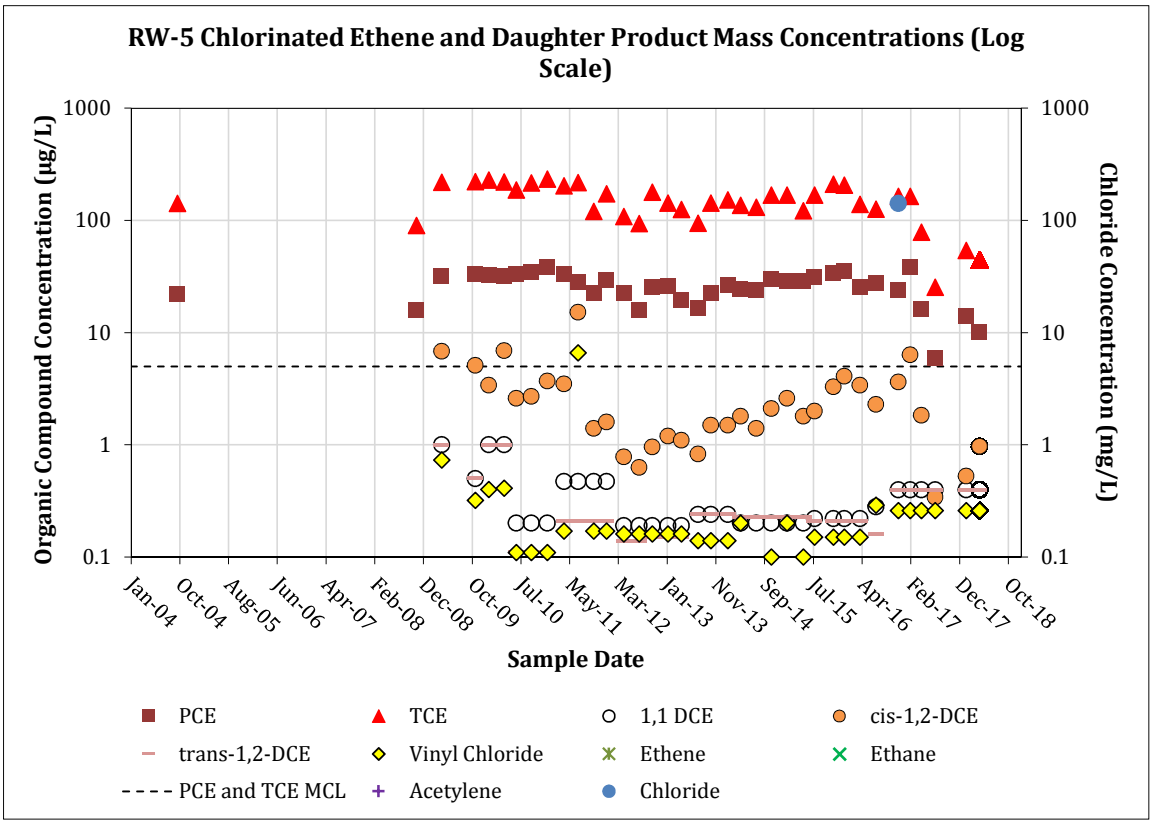

RW-4 Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

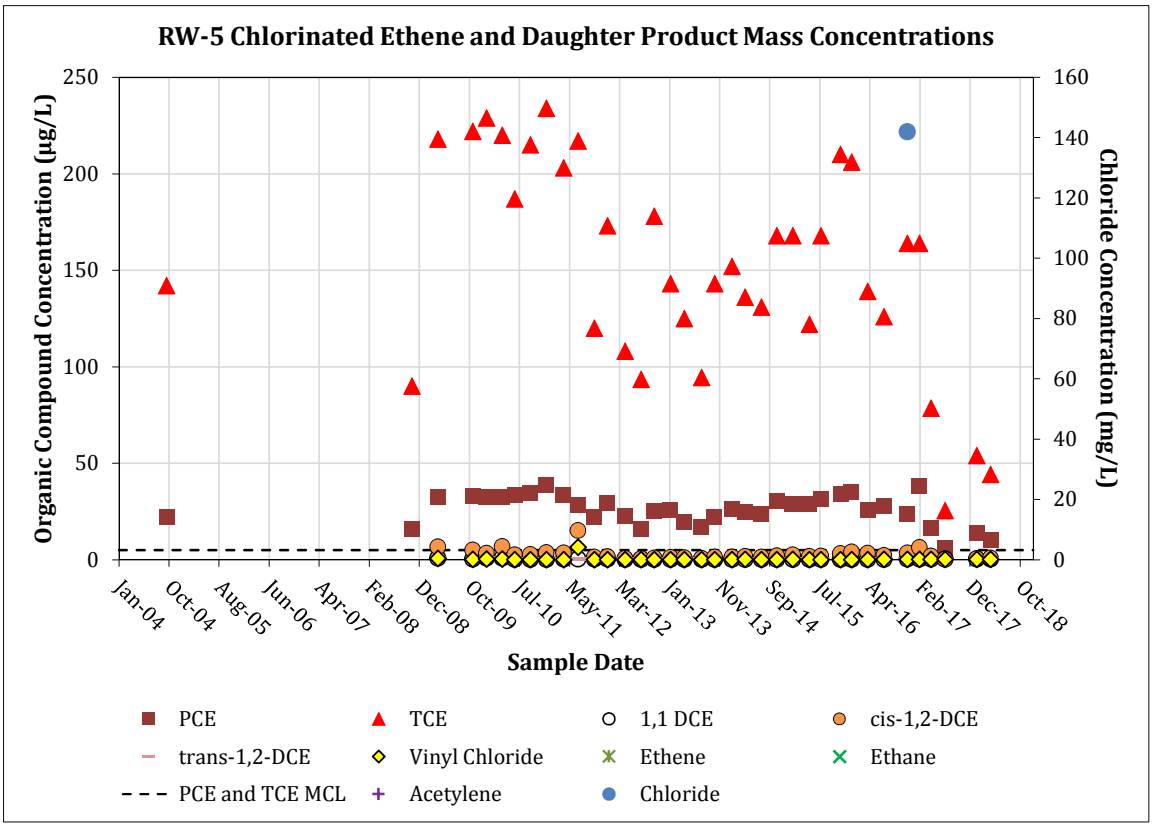

RW-4 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
300
250
200
150
100
50
0
200
180
160
140
120
100
80
60
40
20
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

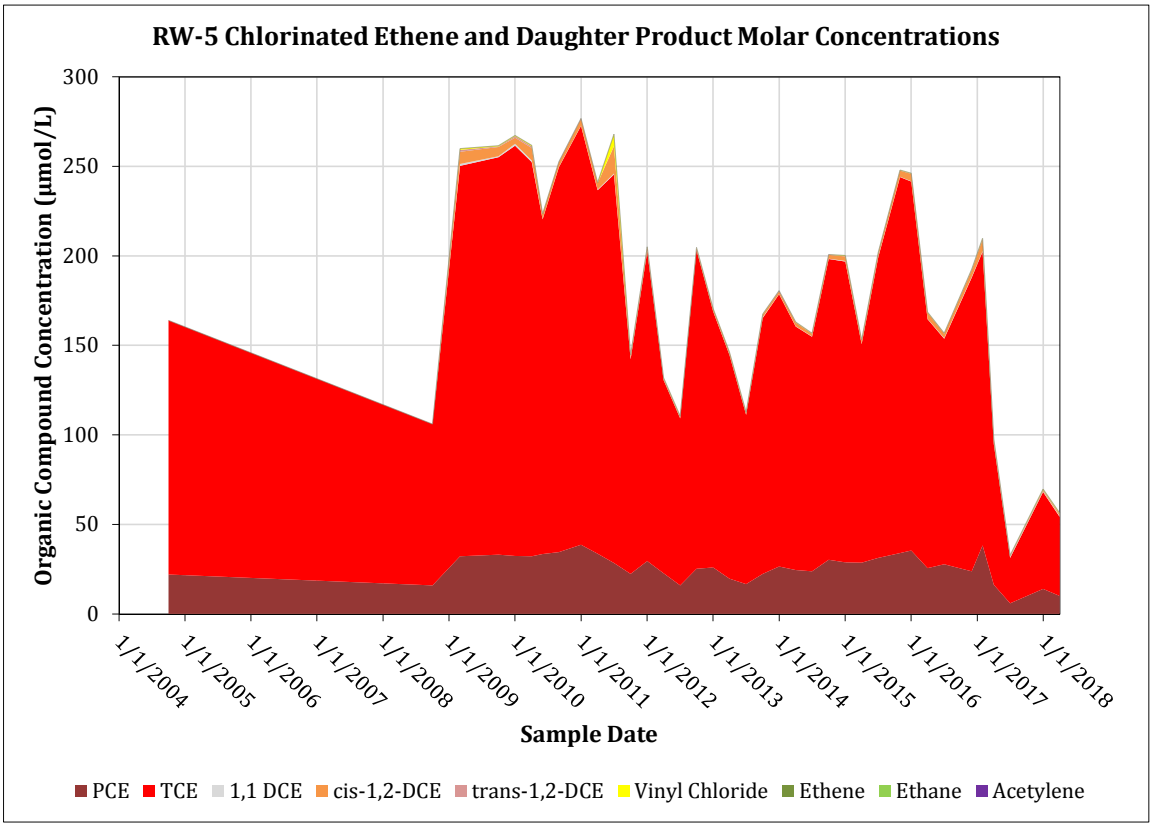

RW-4 Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
350
300
250
200
150
100
50
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

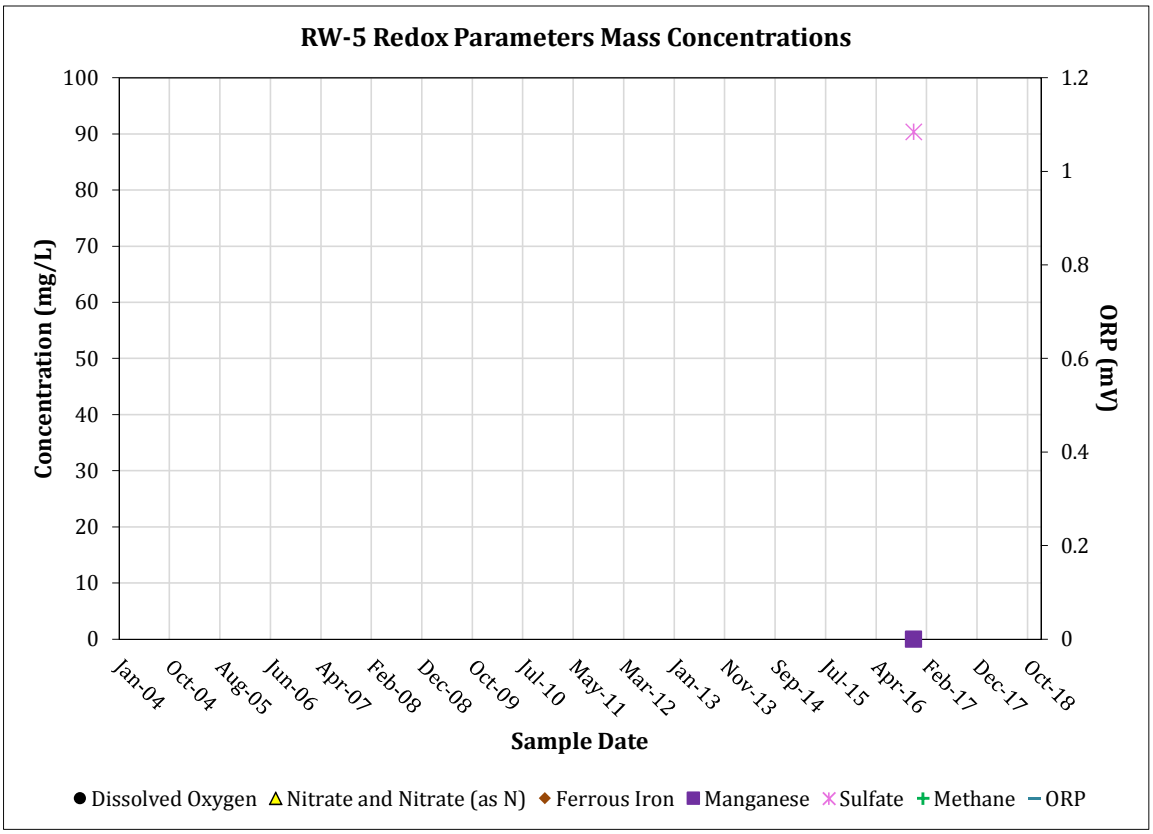

RW-4 Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

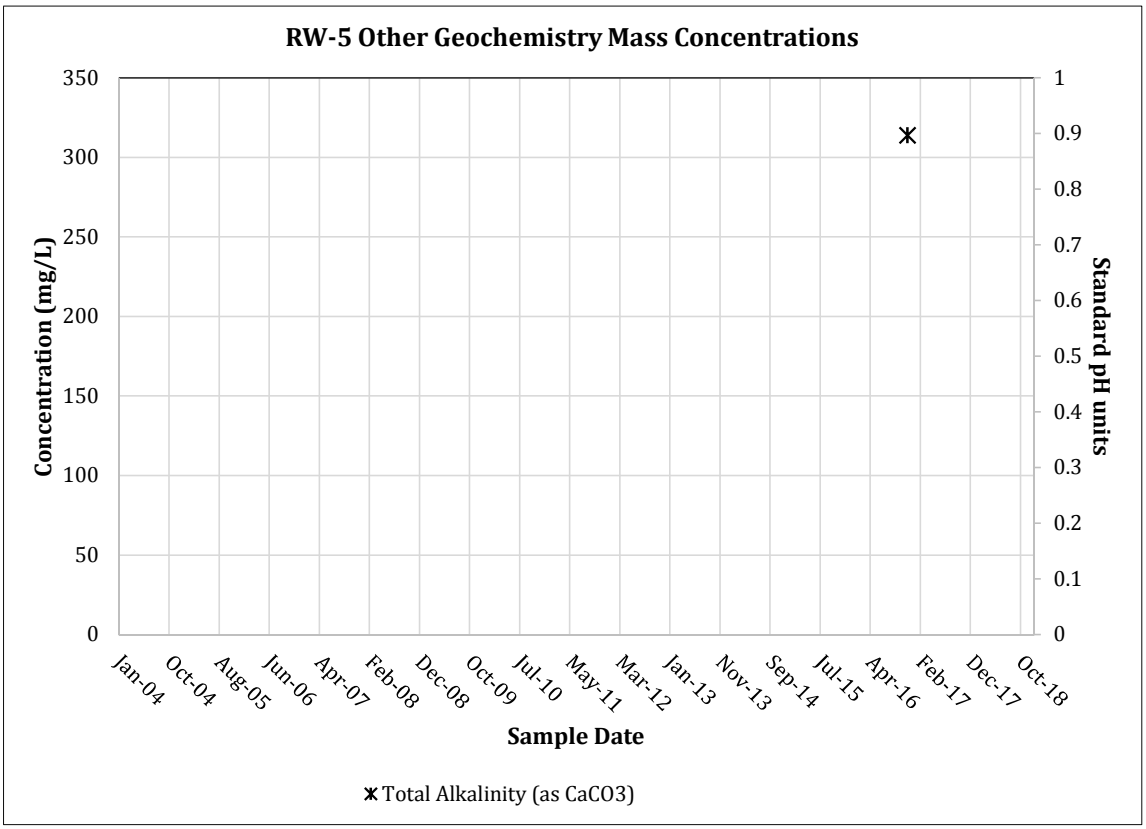

RW-4 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
450
400
350
300
250
200
150
100
50
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC

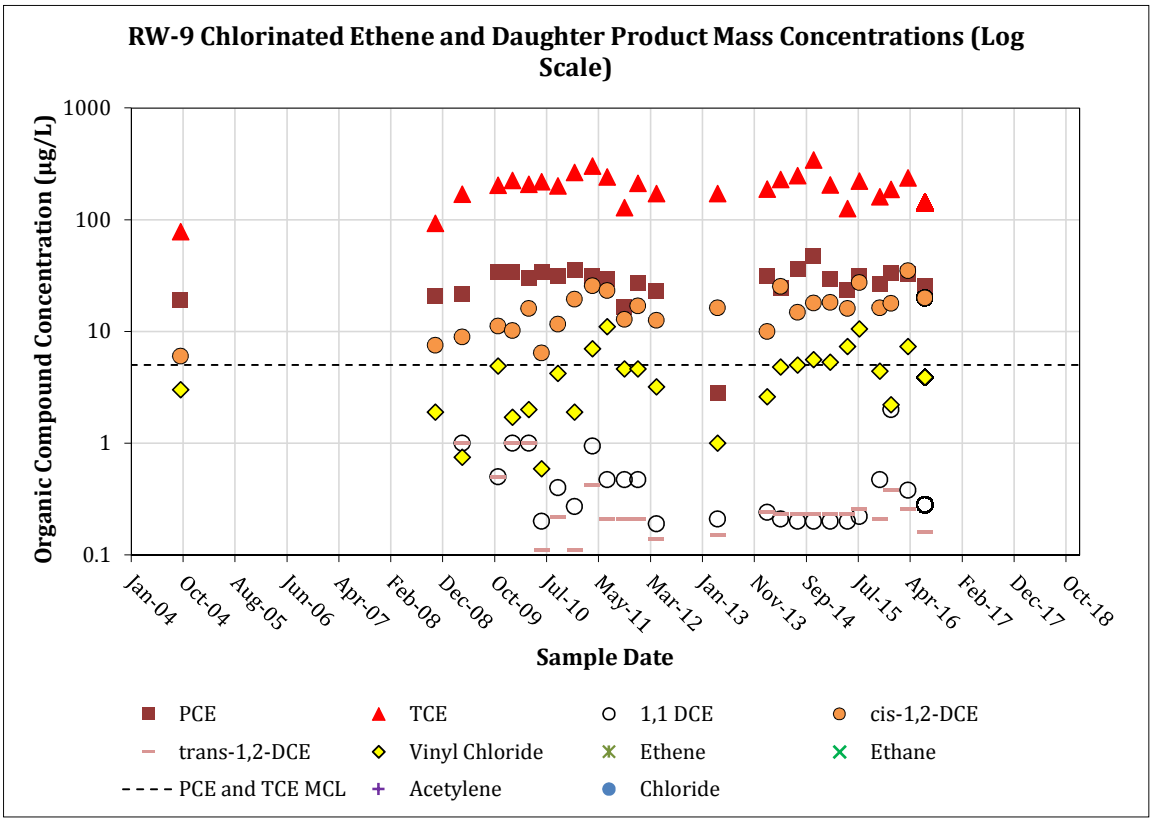

RW-5 Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

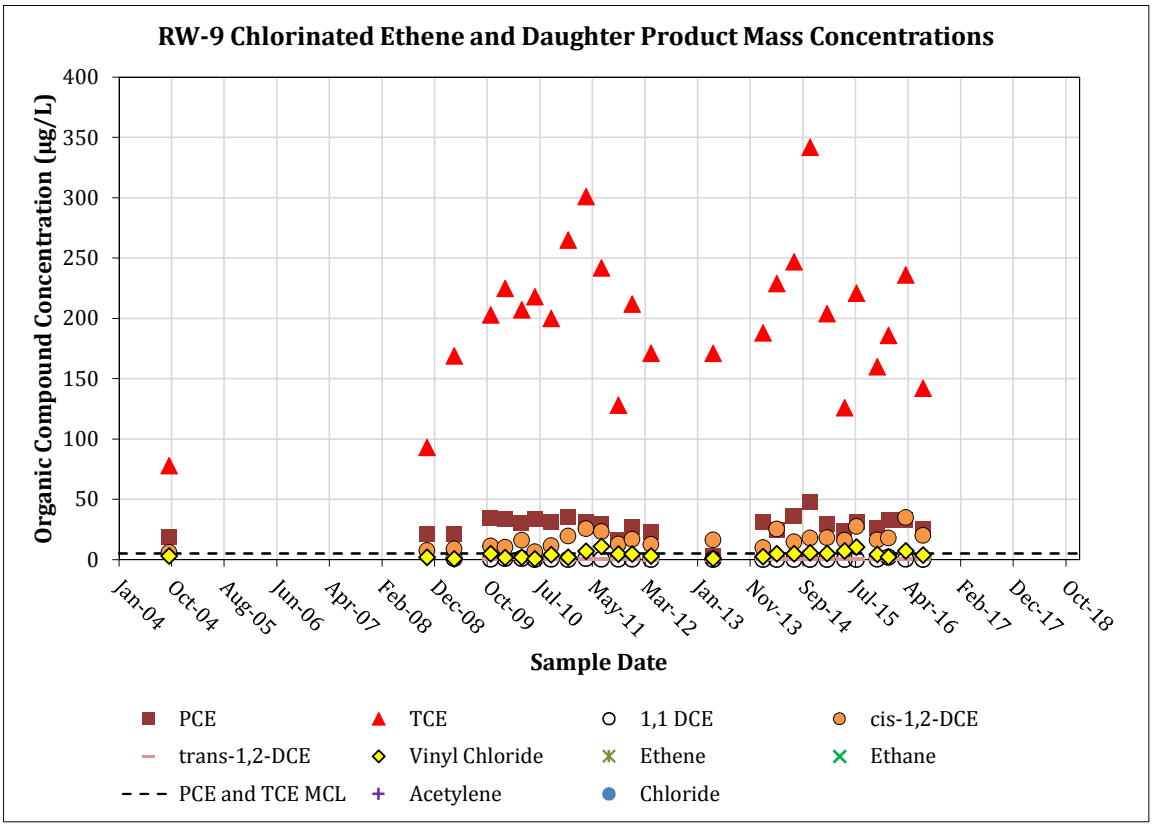

RW-5 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
250
200
150
100
50
0
160
140
120
100
80
60
40
20
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

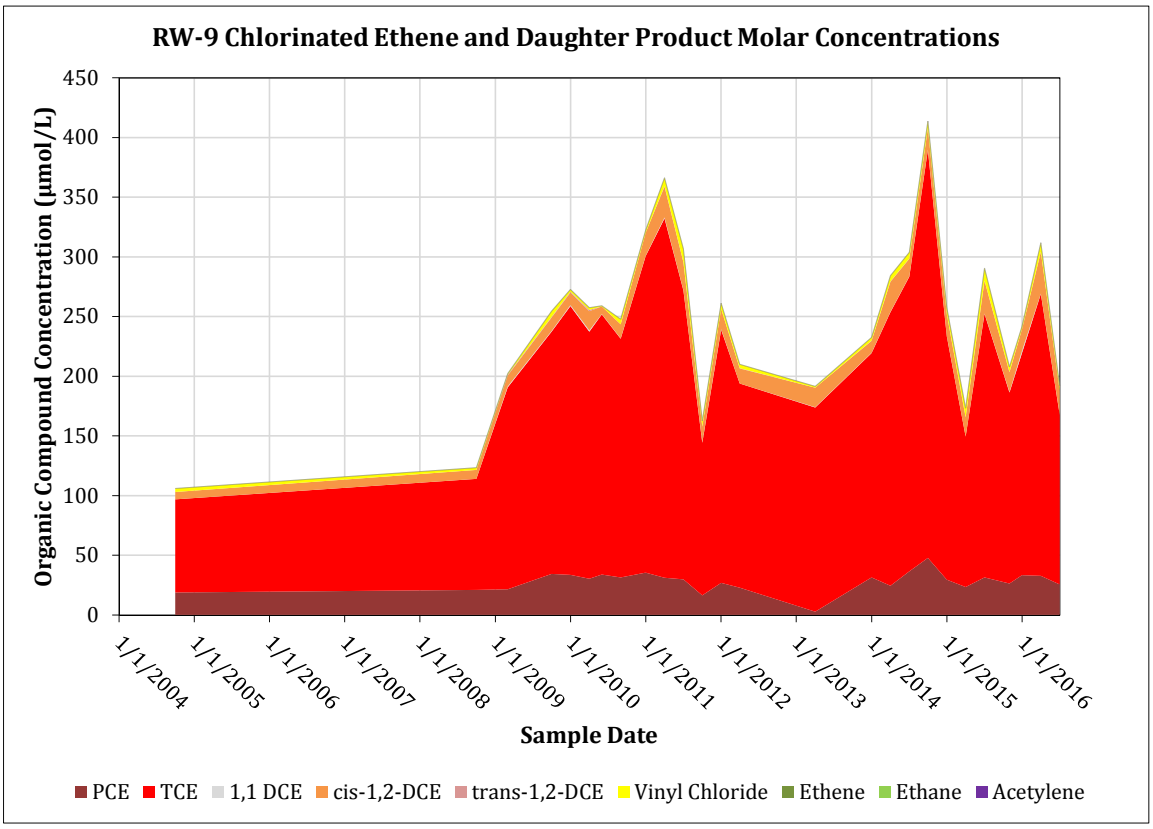

RW-5 Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
300
250
200
150
100
50
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

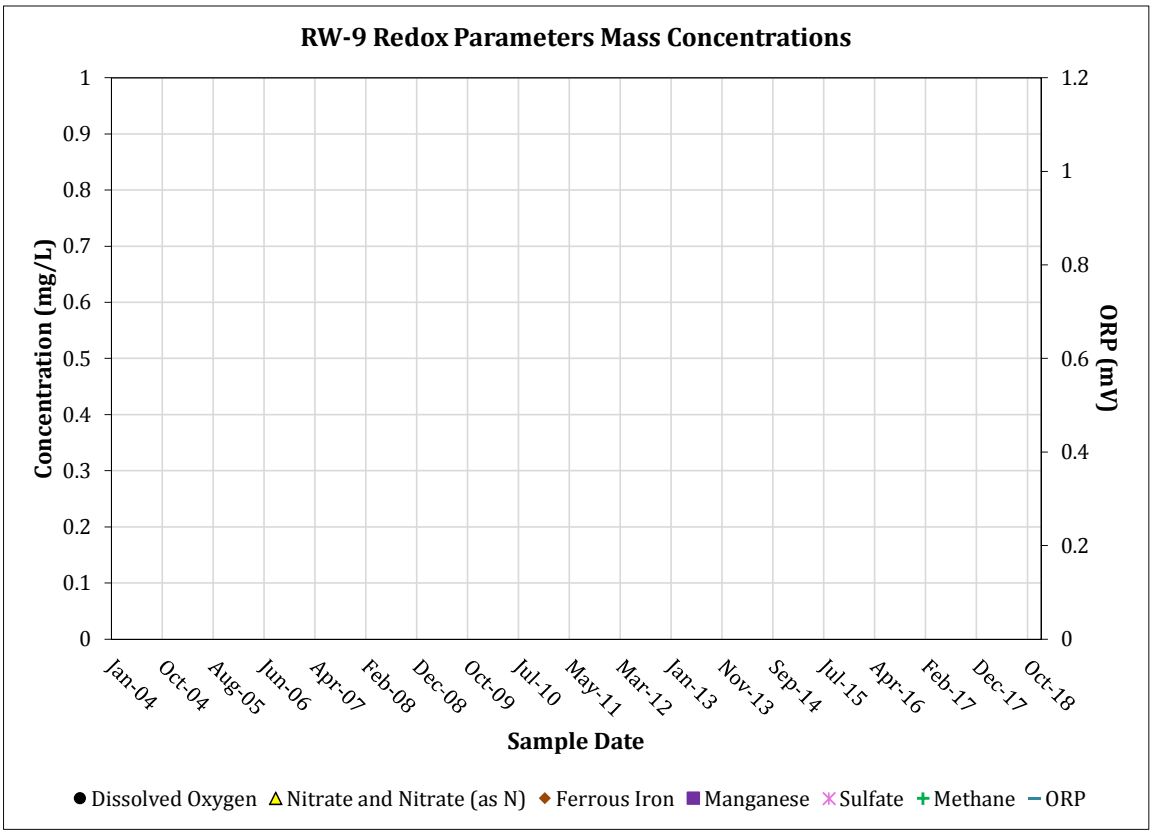

RW-5 Redox Parameters Mass Concentrations
Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
ORP (mV)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

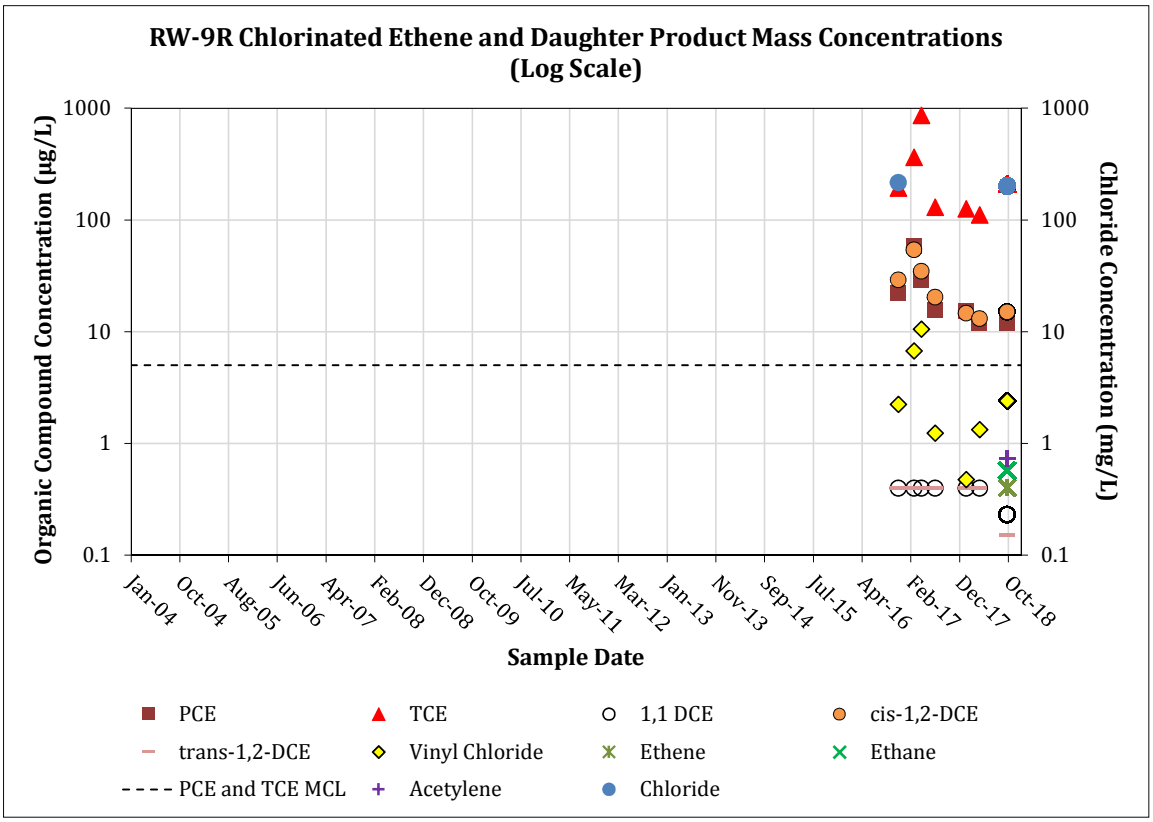

RW-5 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
350
300
250
200
150
100
50
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)

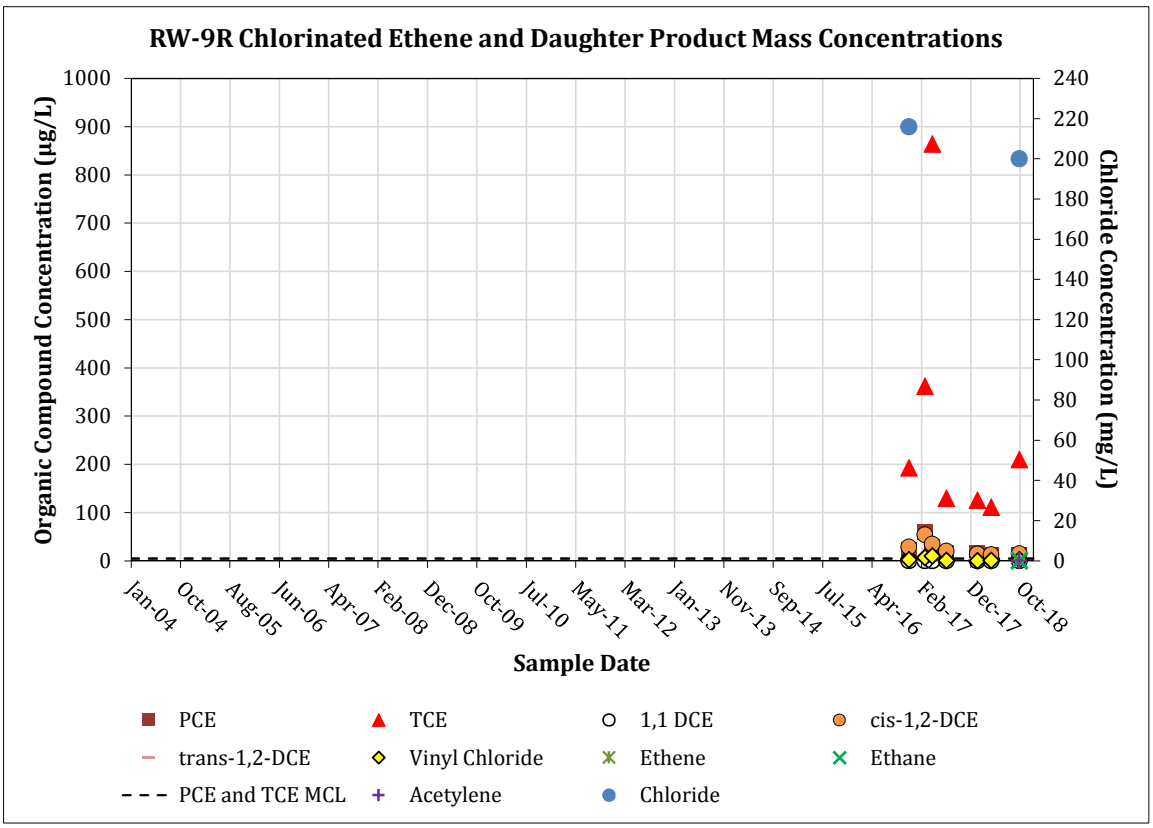

RW-9 Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

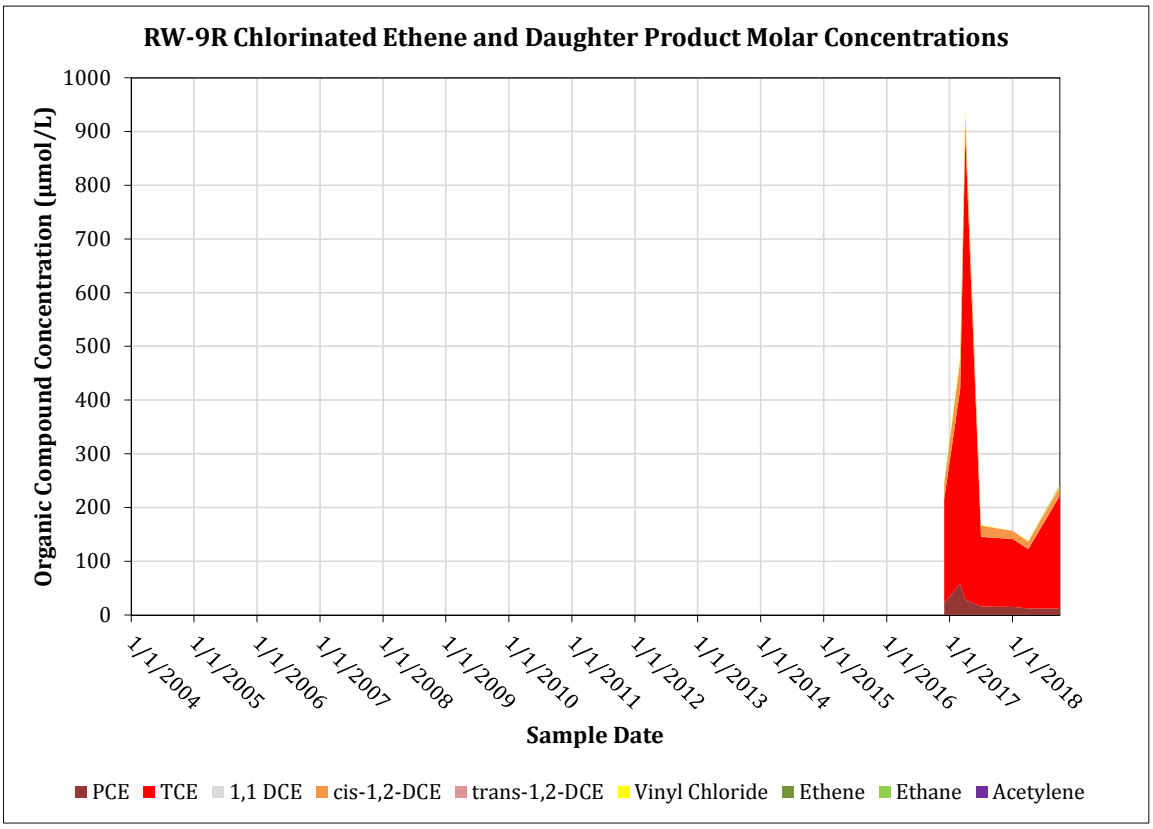

RW-9 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
400
350
300
250
200
150
100
50
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

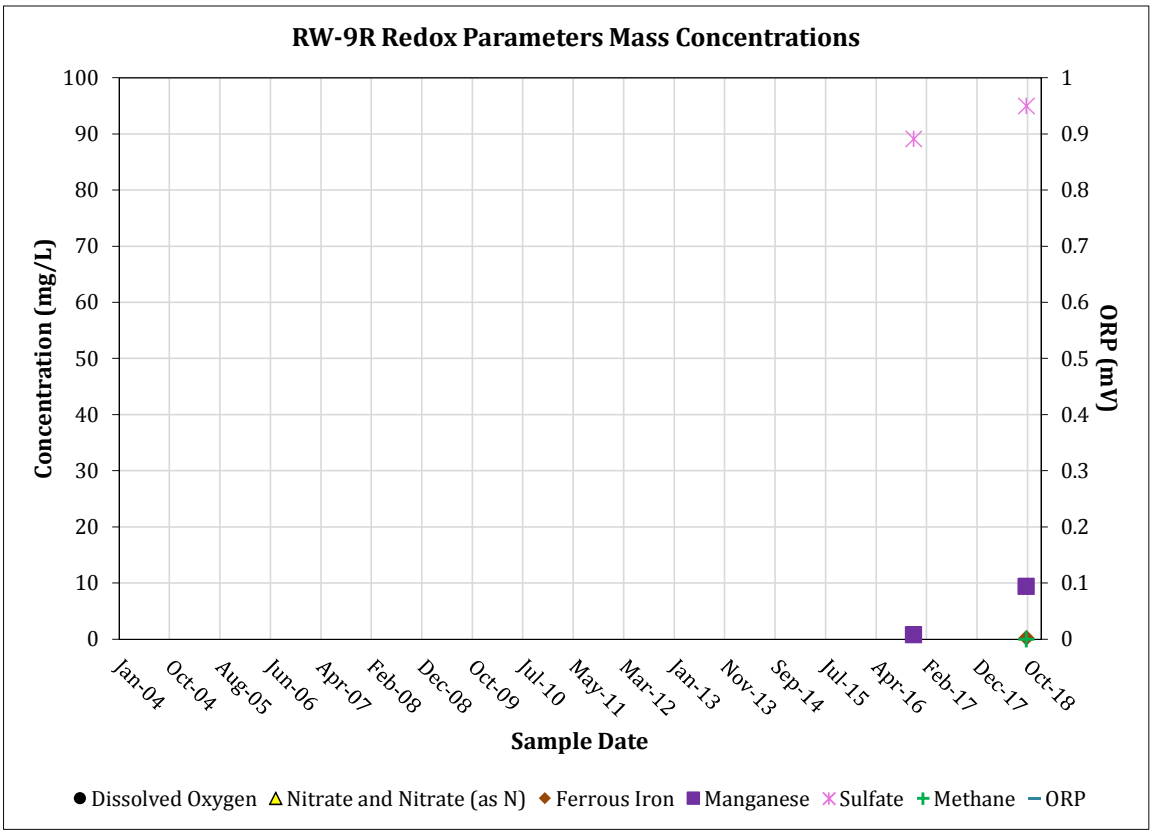

RW-9 Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
450
400
350
300
250
200
150
100
50
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

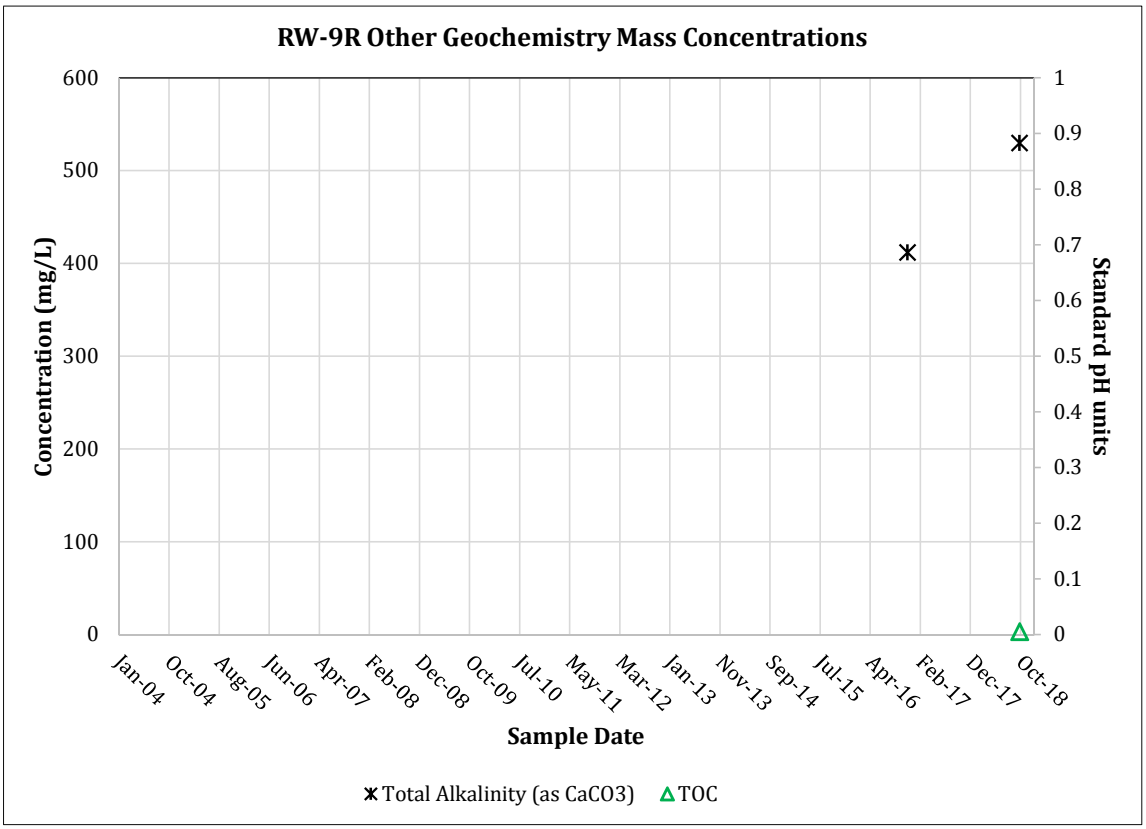

RW-9 Redox Parameters Mass Concentrations
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
ORP (mV)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

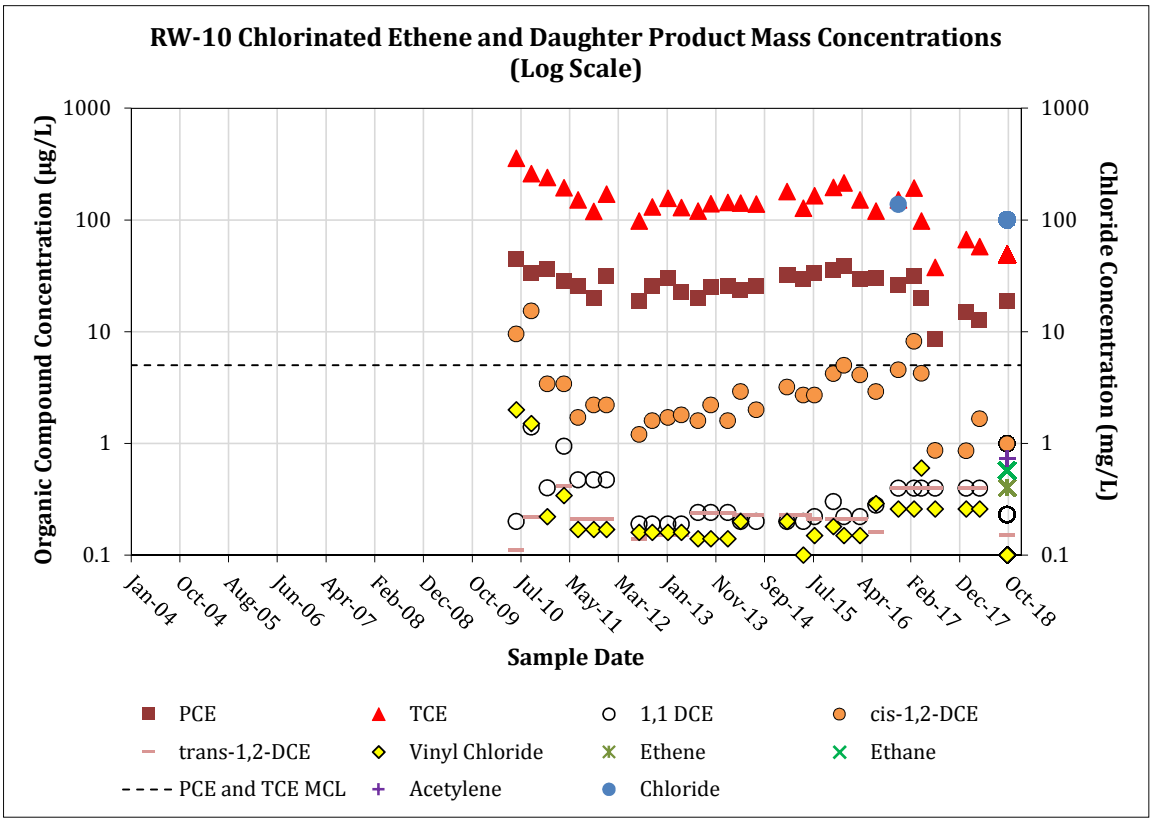

RW-9R Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

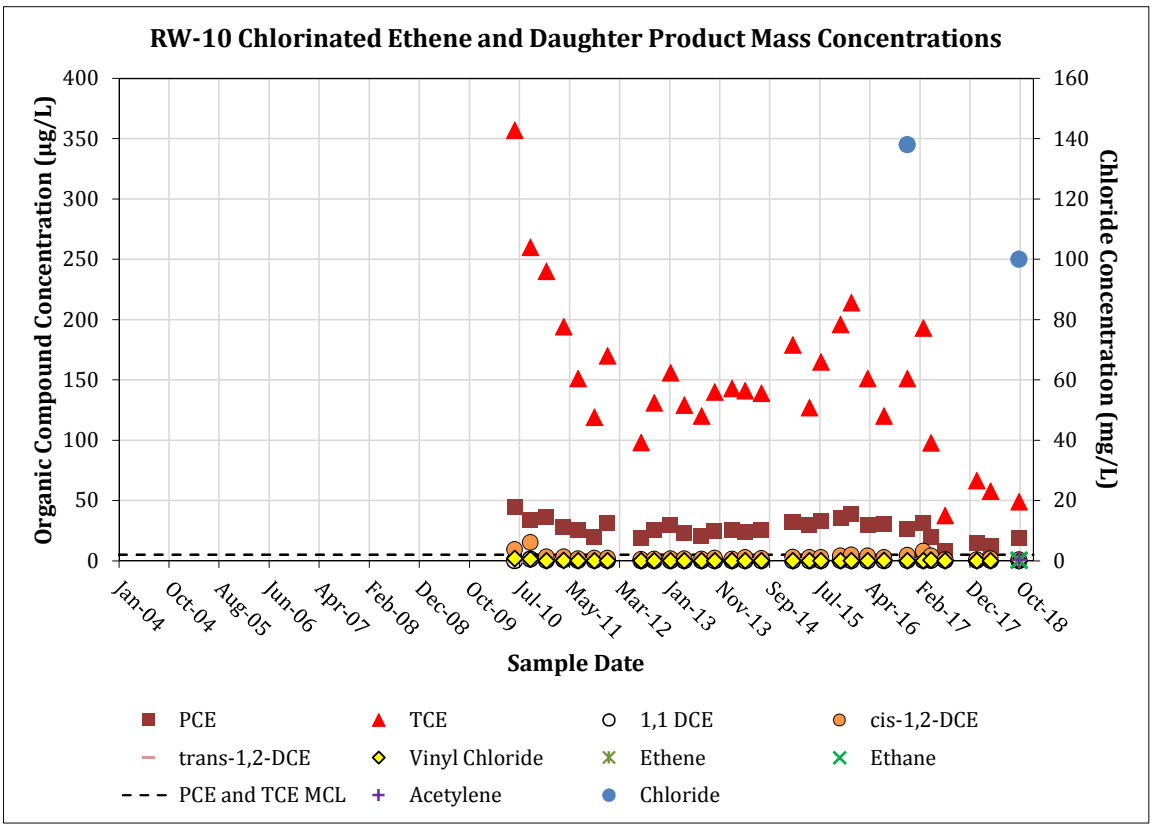

RW-9R Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
240
220
200
180
160
140
120
100
80
60
40
20
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

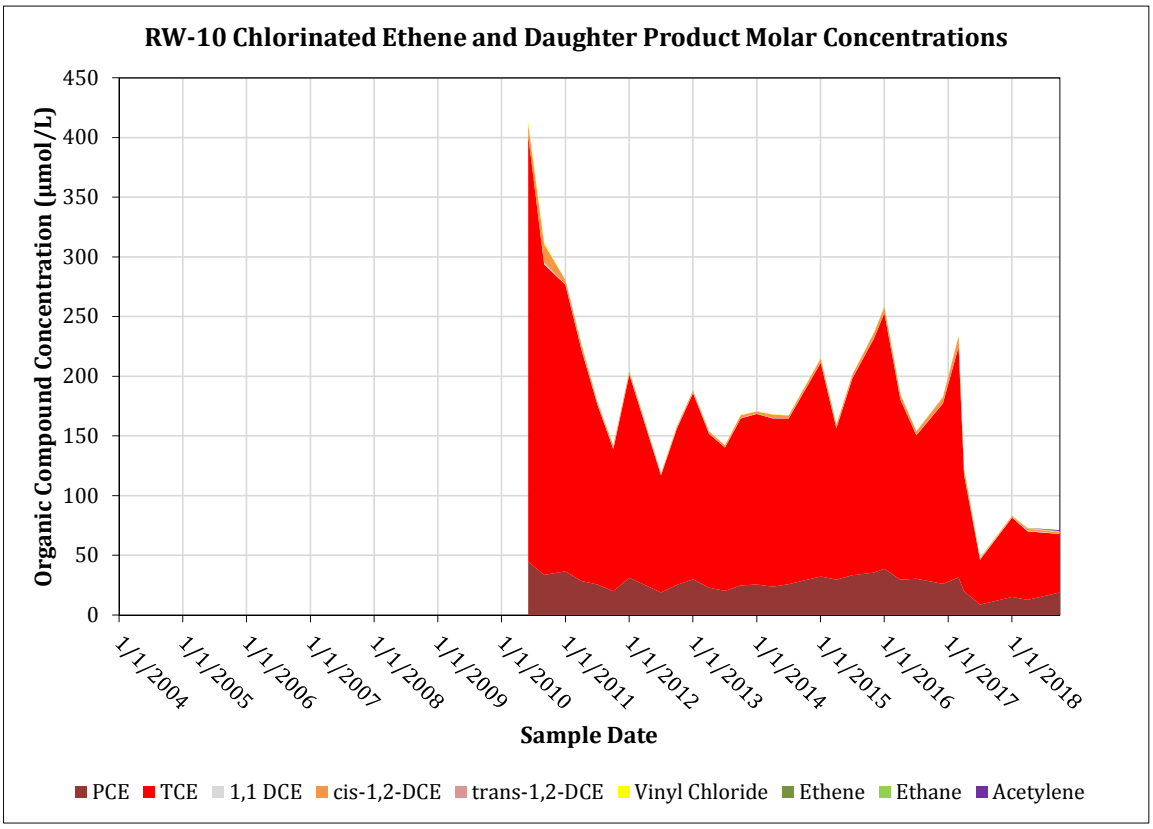

RW-9R Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
1000
900
800
700
600
500
400
300
200
100
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

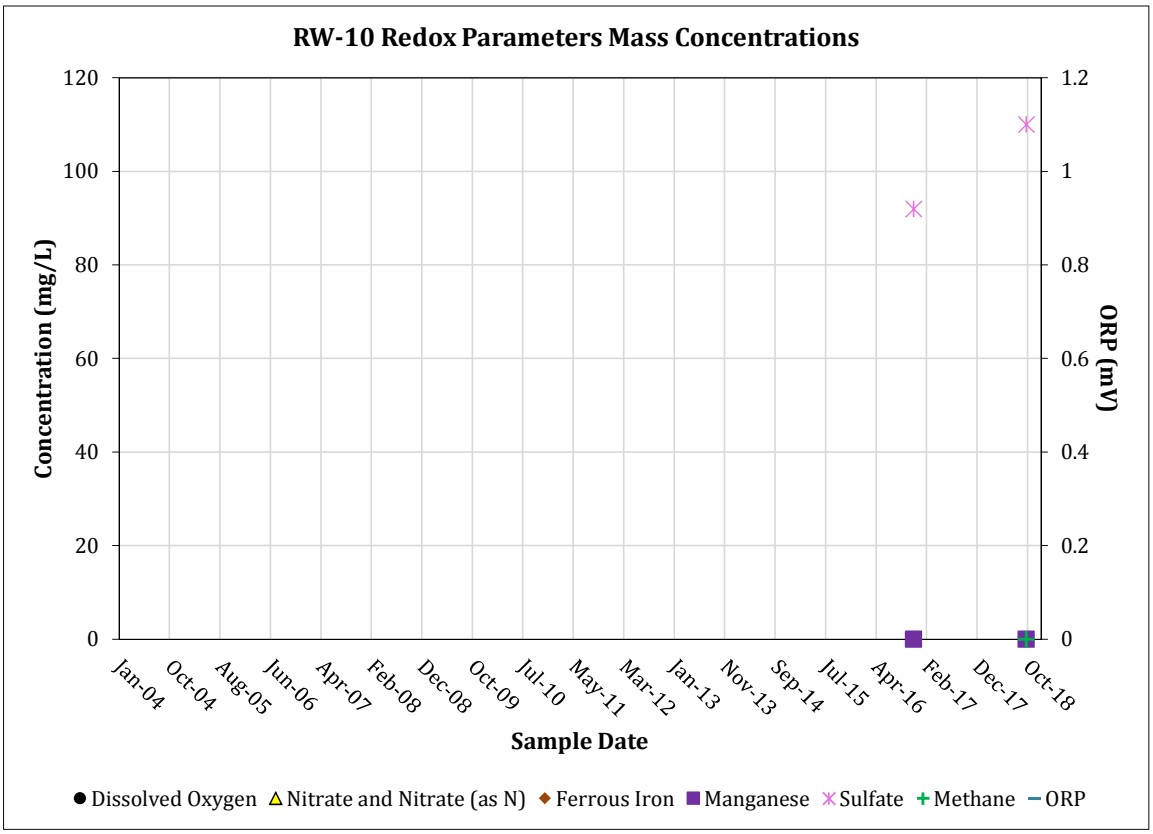

RW-9R Redox Parameters Mass Concentrations
Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
ORP (mV)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

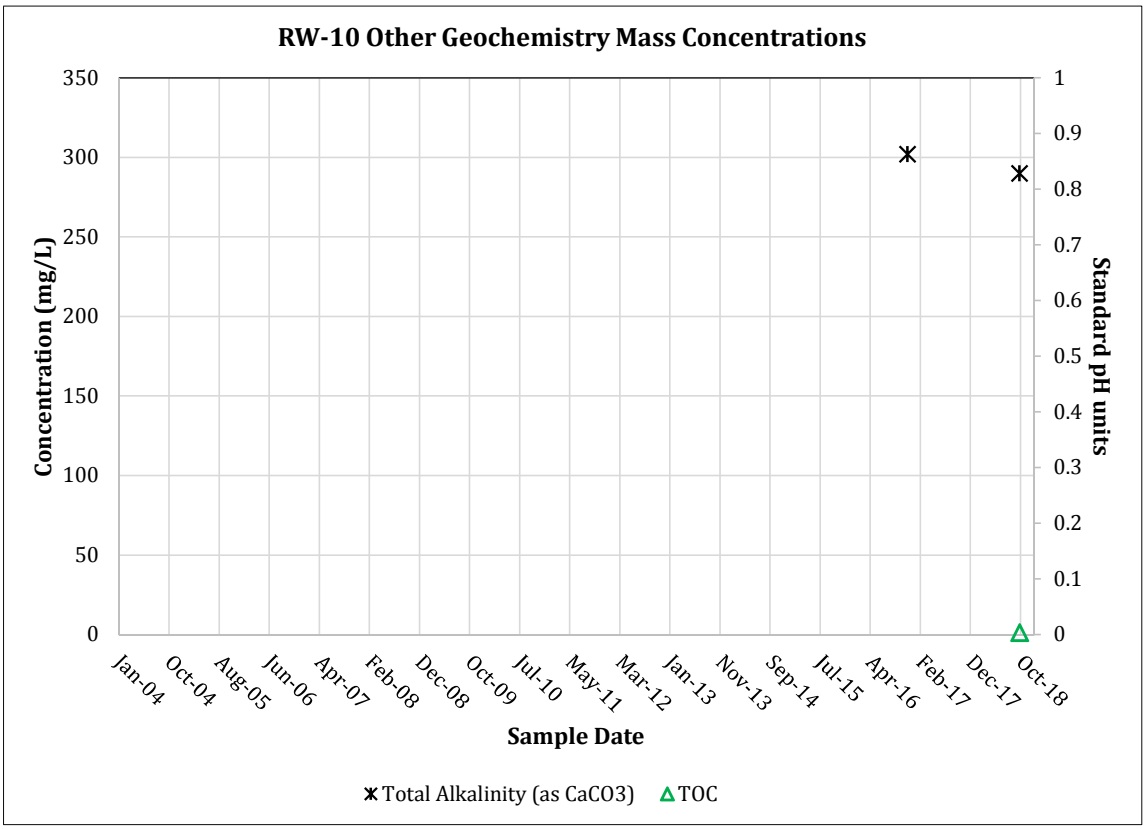

RW-9R Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
600
500
400
300
200
100
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC

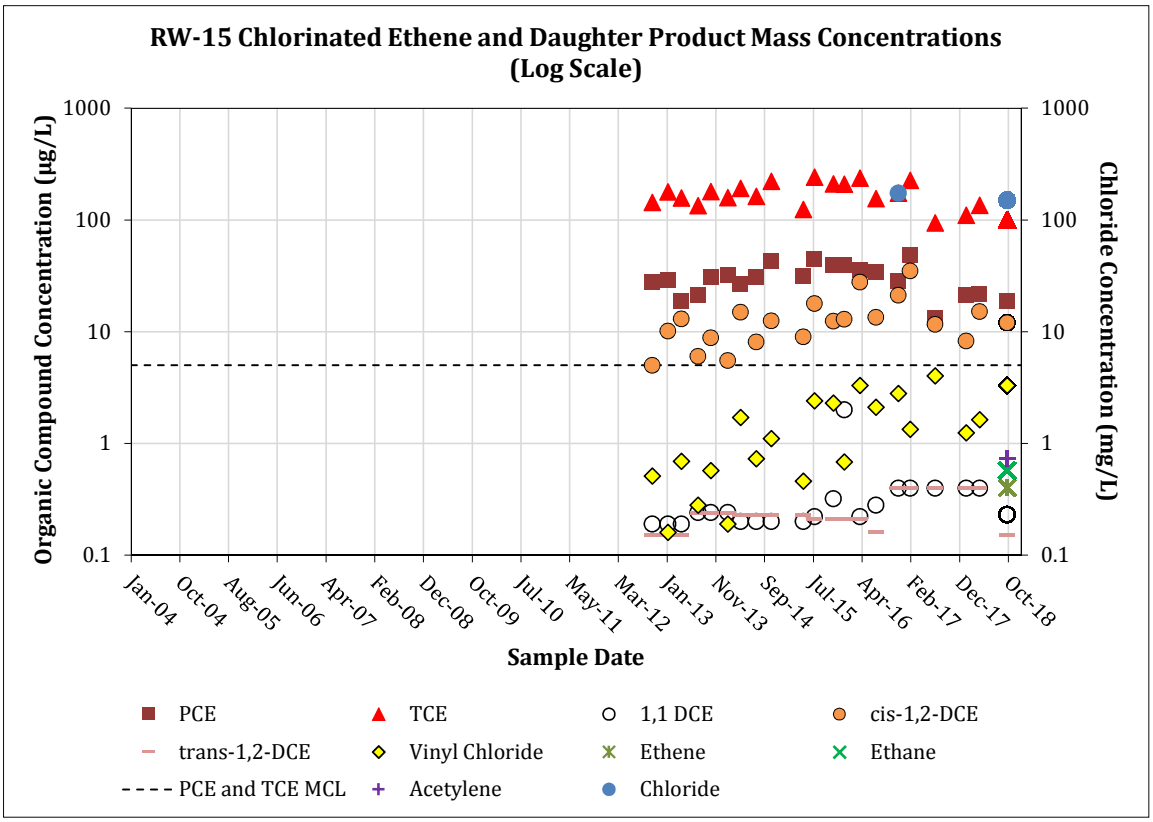

RW-10 Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

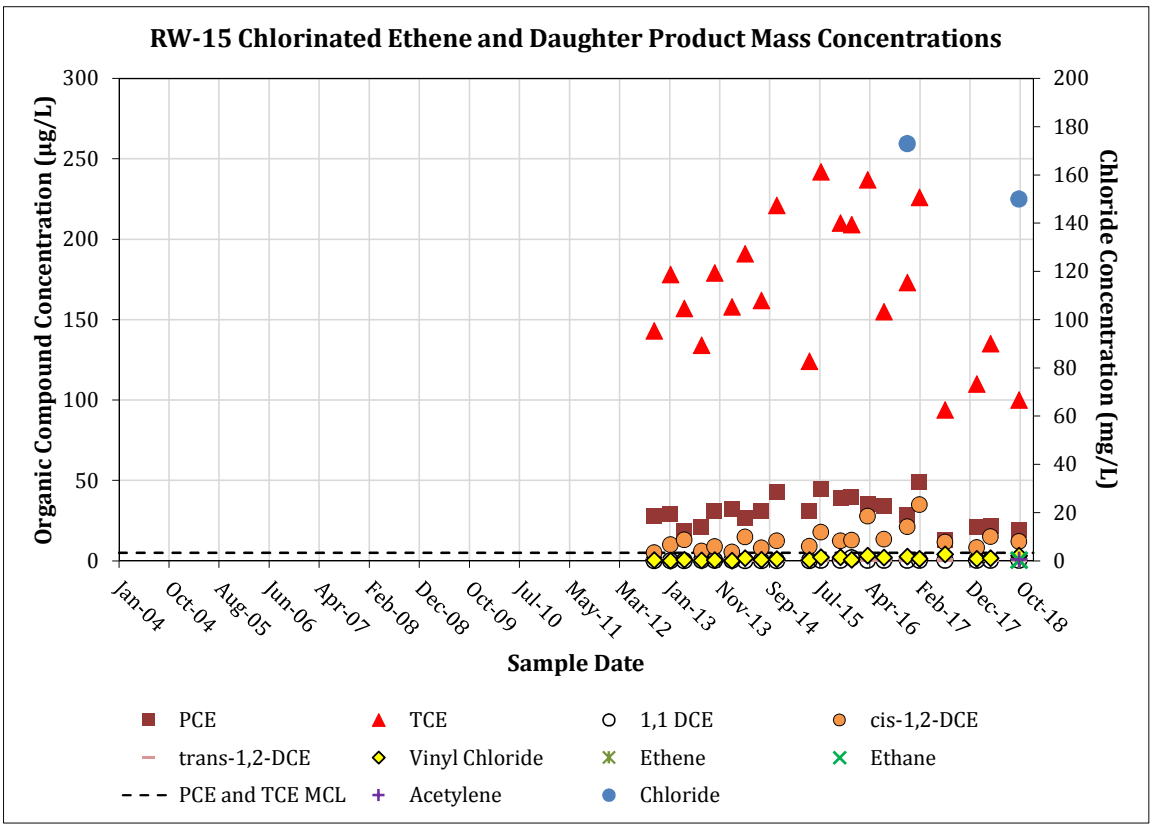

RW-10 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
400
350
300
250
200
150
100
50
0
160
140
120
100
80
60
40
20
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

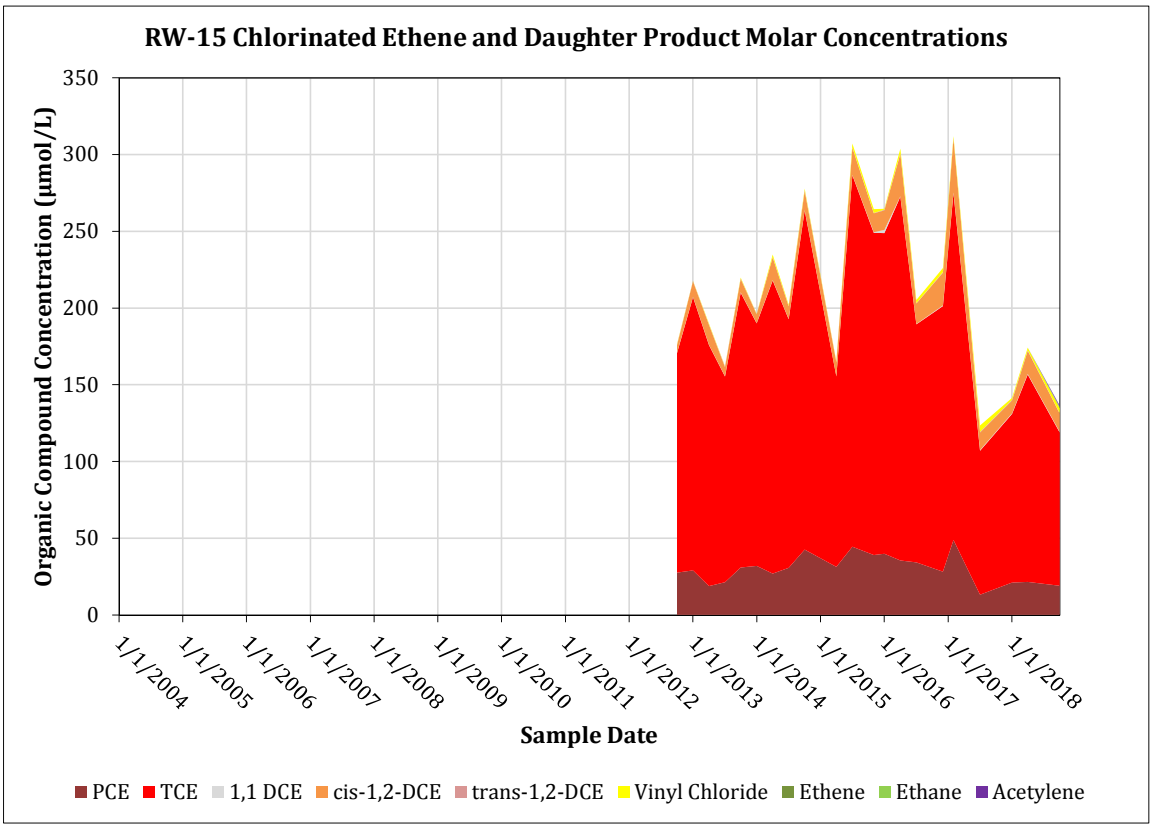

RW-10 Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
450
400
350
300
250
200
150
100
50
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

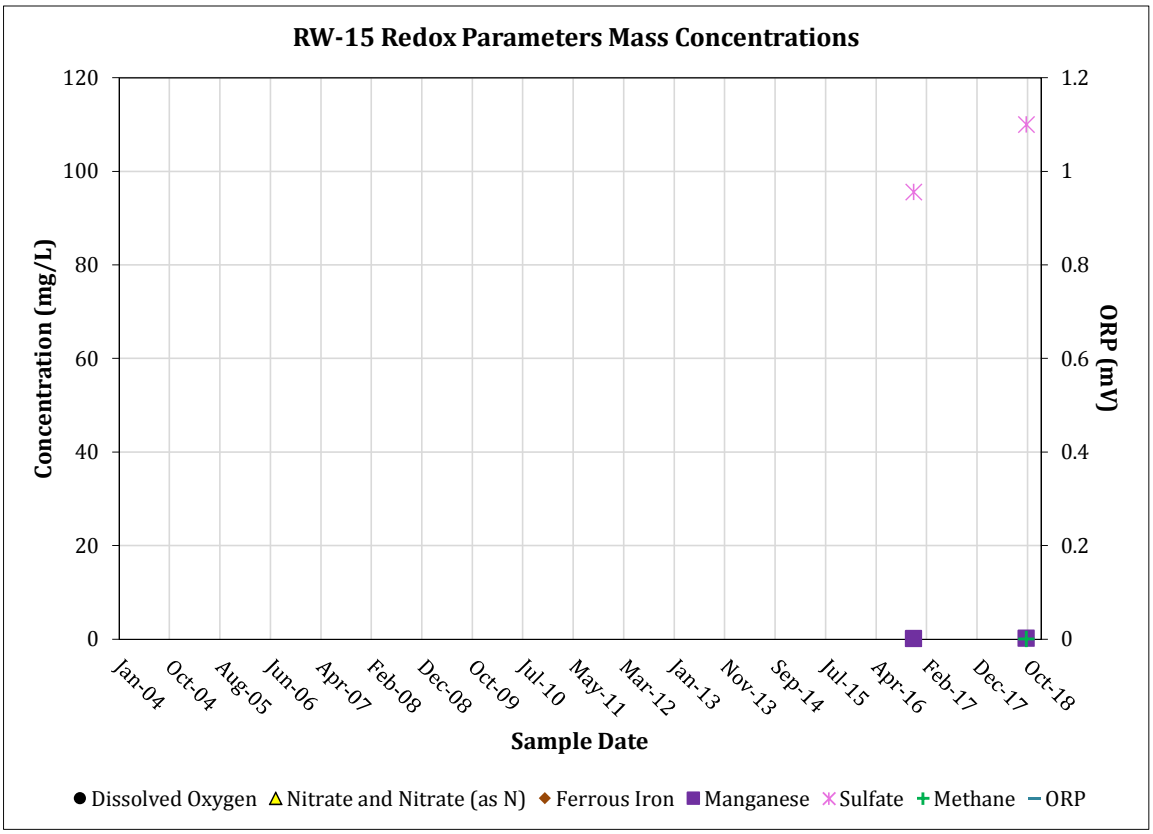

RW-10 Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

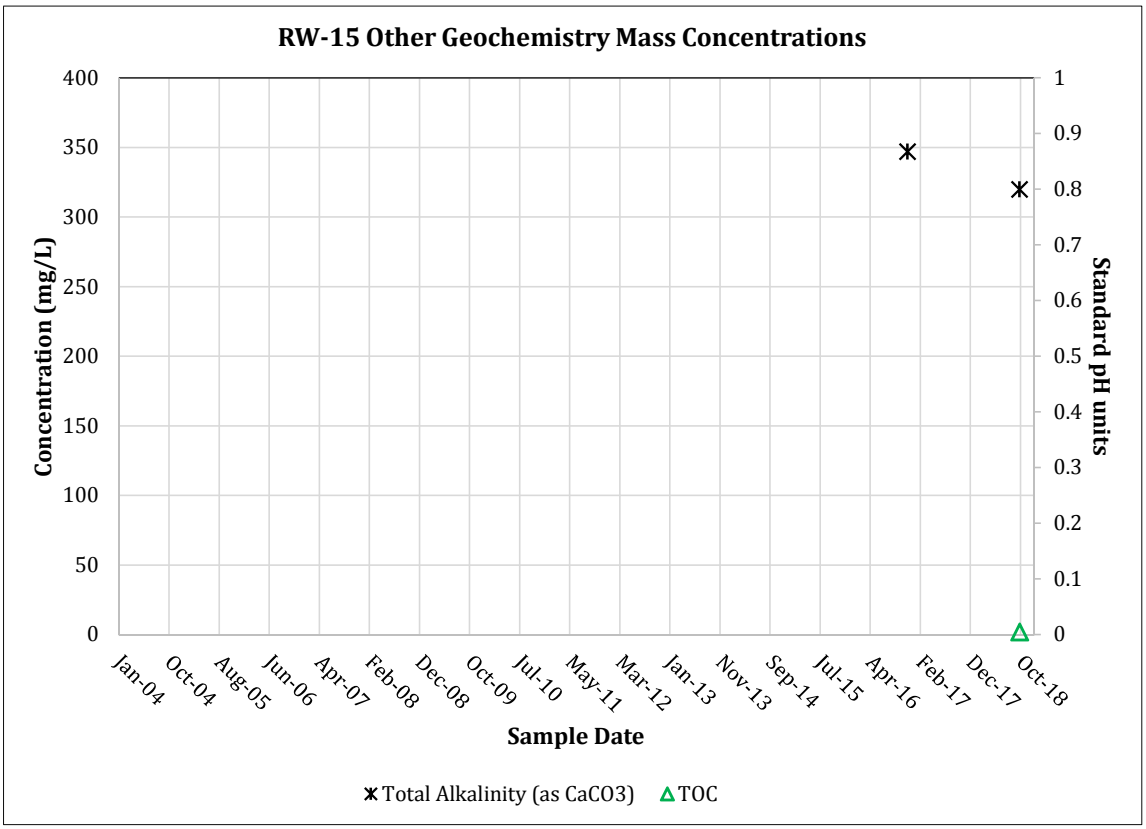

RW-10 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
350
300
250
200
150
100
50
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC

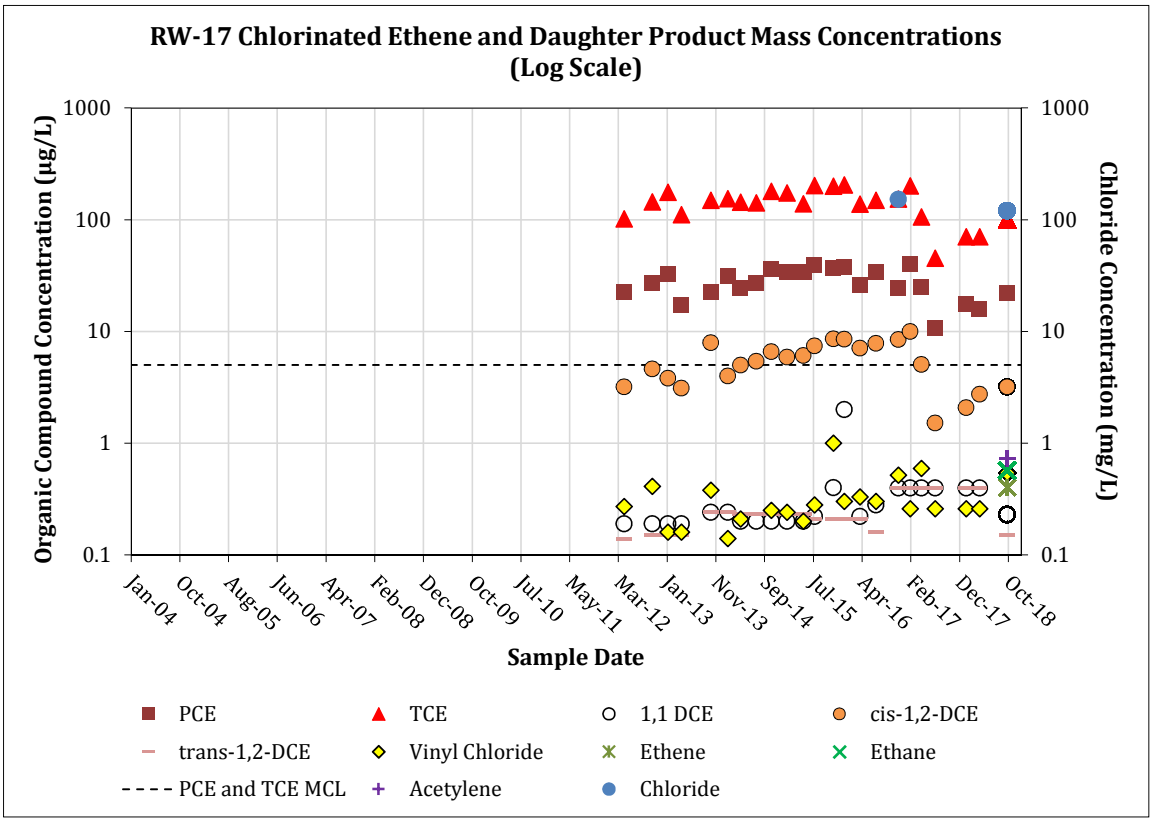

RW-15 Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

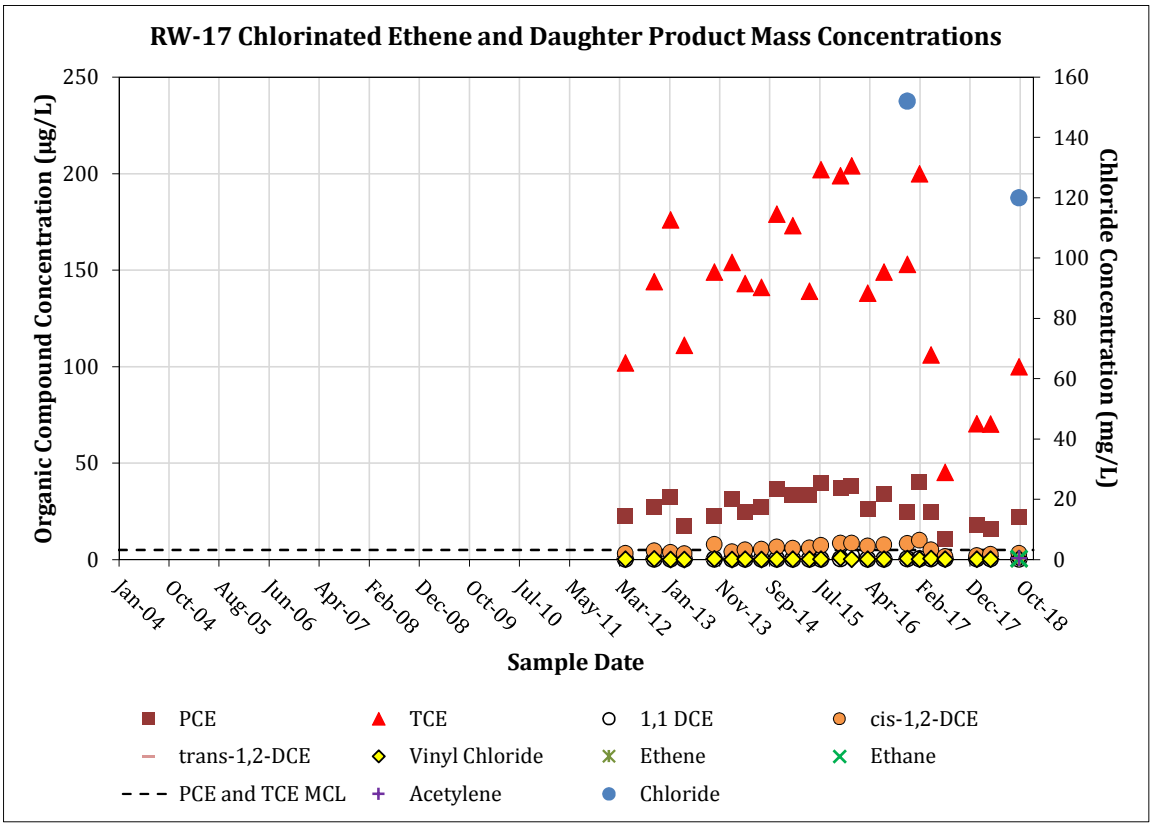

RW-15 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
300
250
200
150
100
50
0
200
180
160
140
120
100
80
60
40
20
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

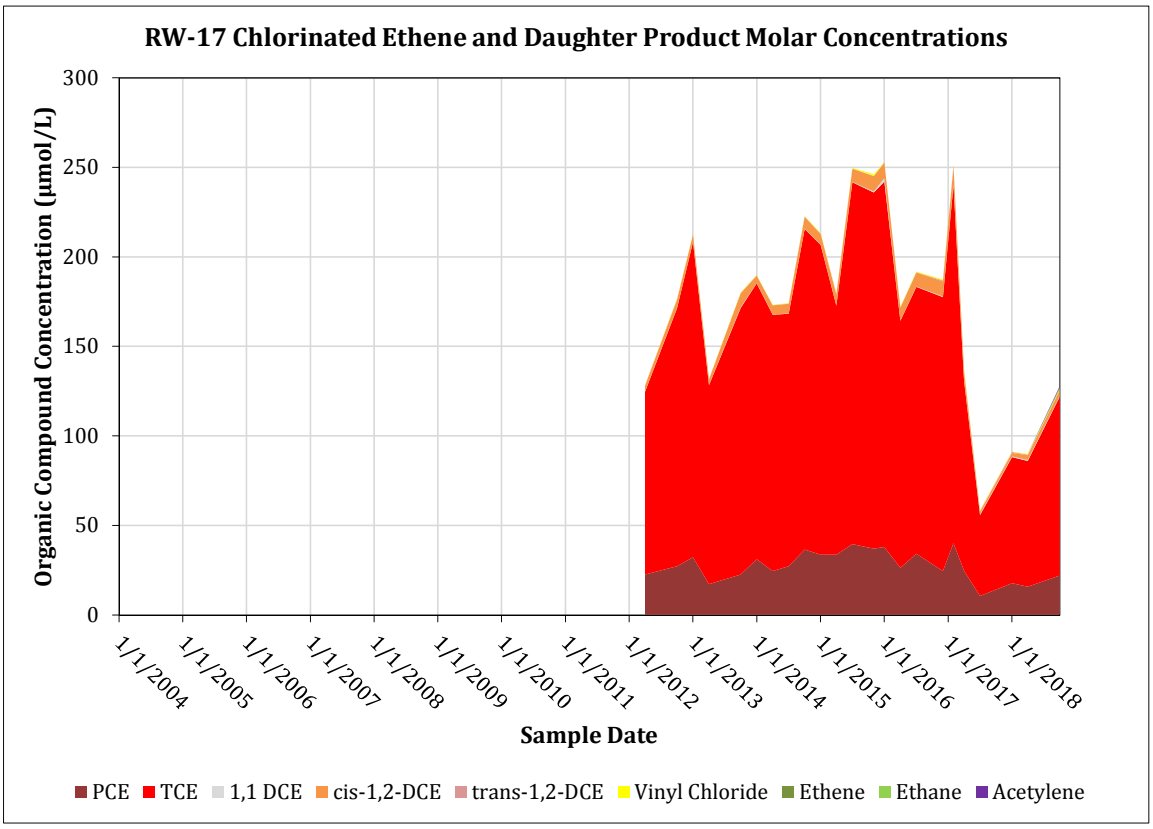

RW-15 Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
350
300
250
200
150
100
50
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

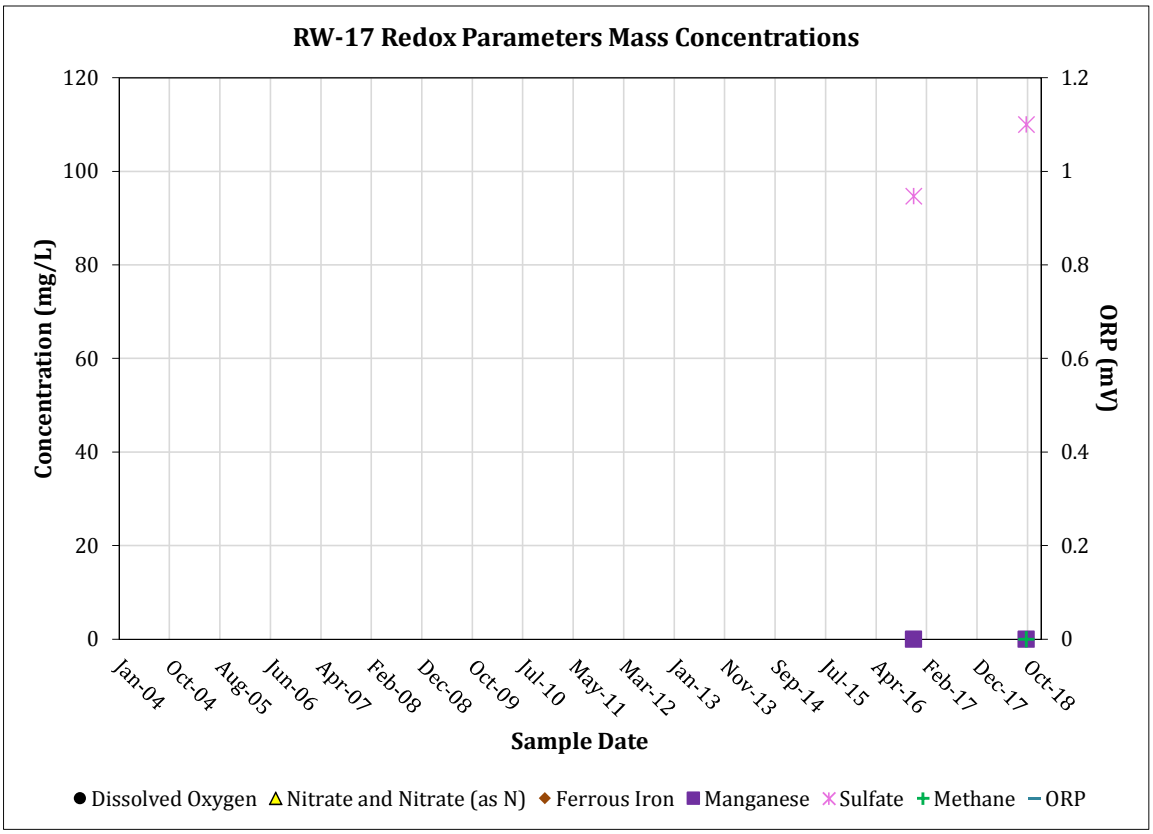

RW-15 Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

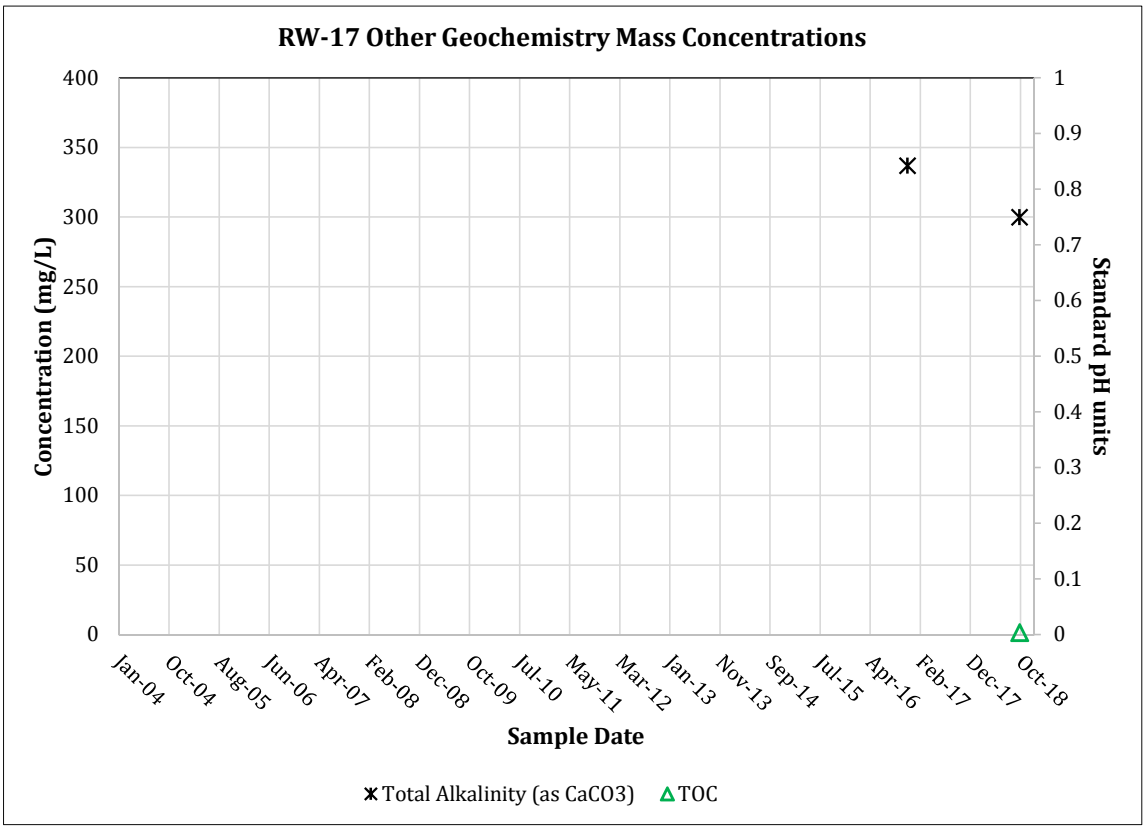

RW-15 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
400
350
300
250
200
150
100
50
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC


RW-17 Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
1000
100
10
1
0.1
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride


RW-17 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
250
200
150
100
50
0
160
140
120
100
80
60
40
20
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
PCE and TCE MCL
Acetylene
Chloride

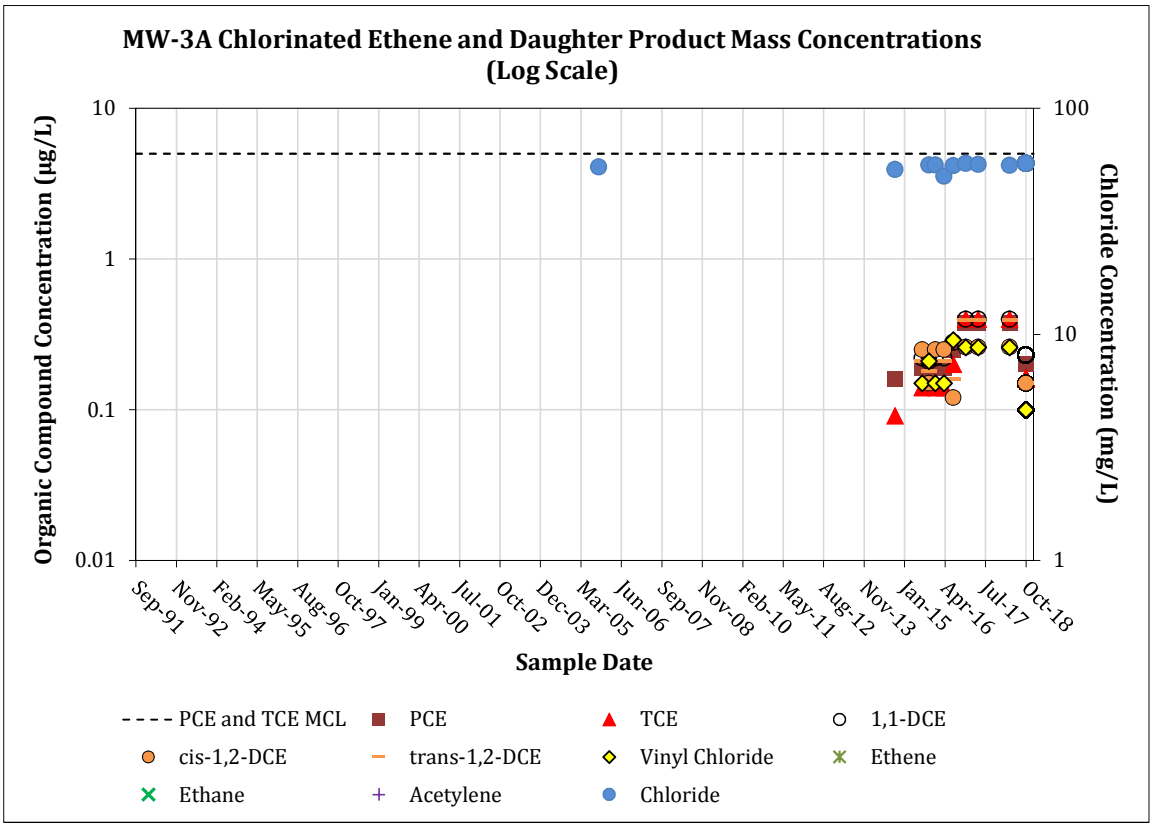

RW-17 Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
300
250
200
150
100
50
0
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
Sample Date
PCE
TCE
1,1 DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

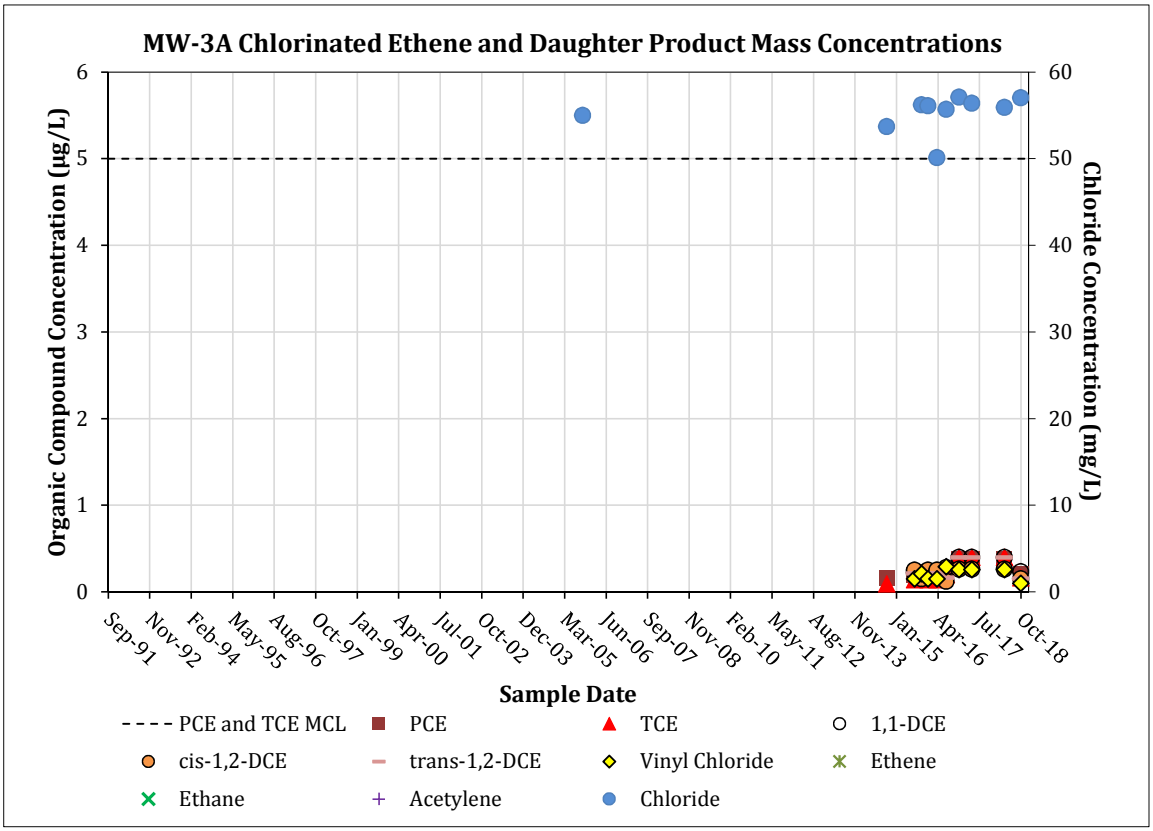

RW-17 Redox Parameters Mass Concentrations
Concentration (mg/L)
120
100
80
60
40
20
0
ORP (mV)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

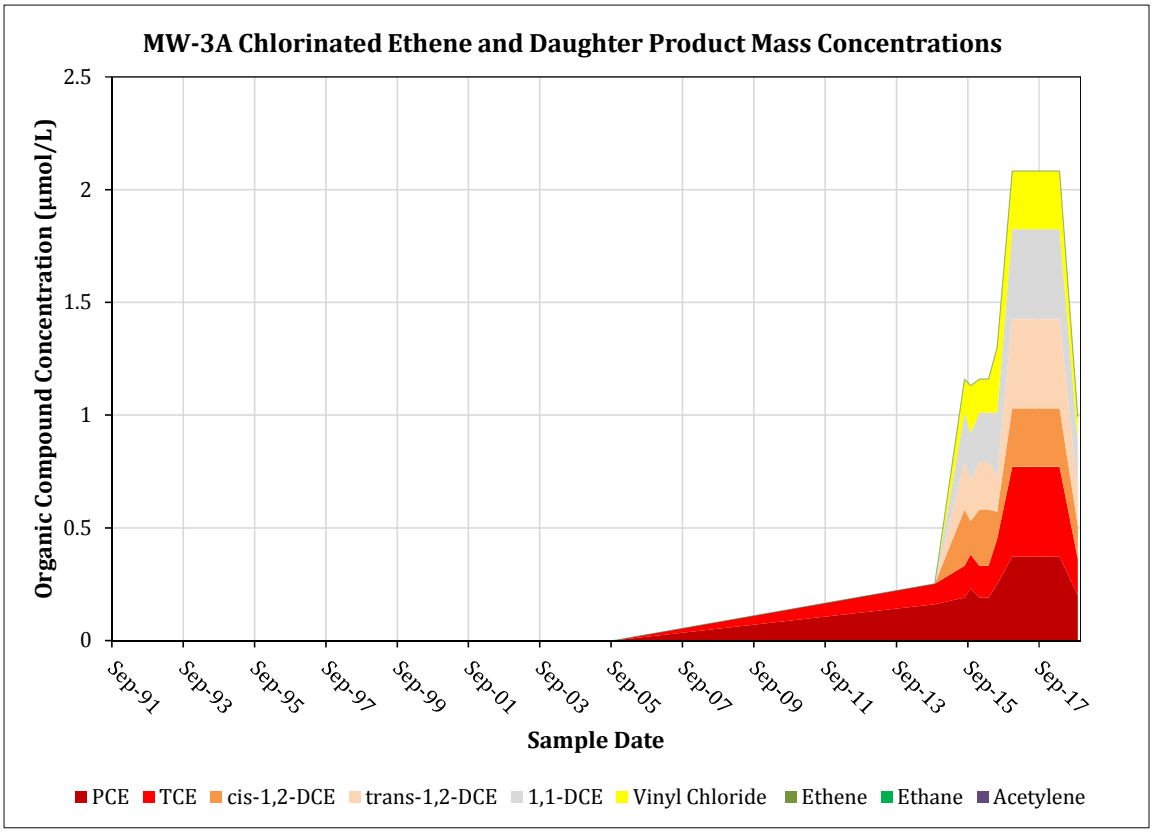

RW-17 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
400
350
300
250
200
150
100
50
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-04
Oct-04
Aug-05
Jun-06
Apr-07
Feb-08
Dec-08
Oct-09
Jul-10
May-11
Mar-12
Jan-13
Nov-13
Sep-14
Jul-15
Apr-16
Feb-17
Dec-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC

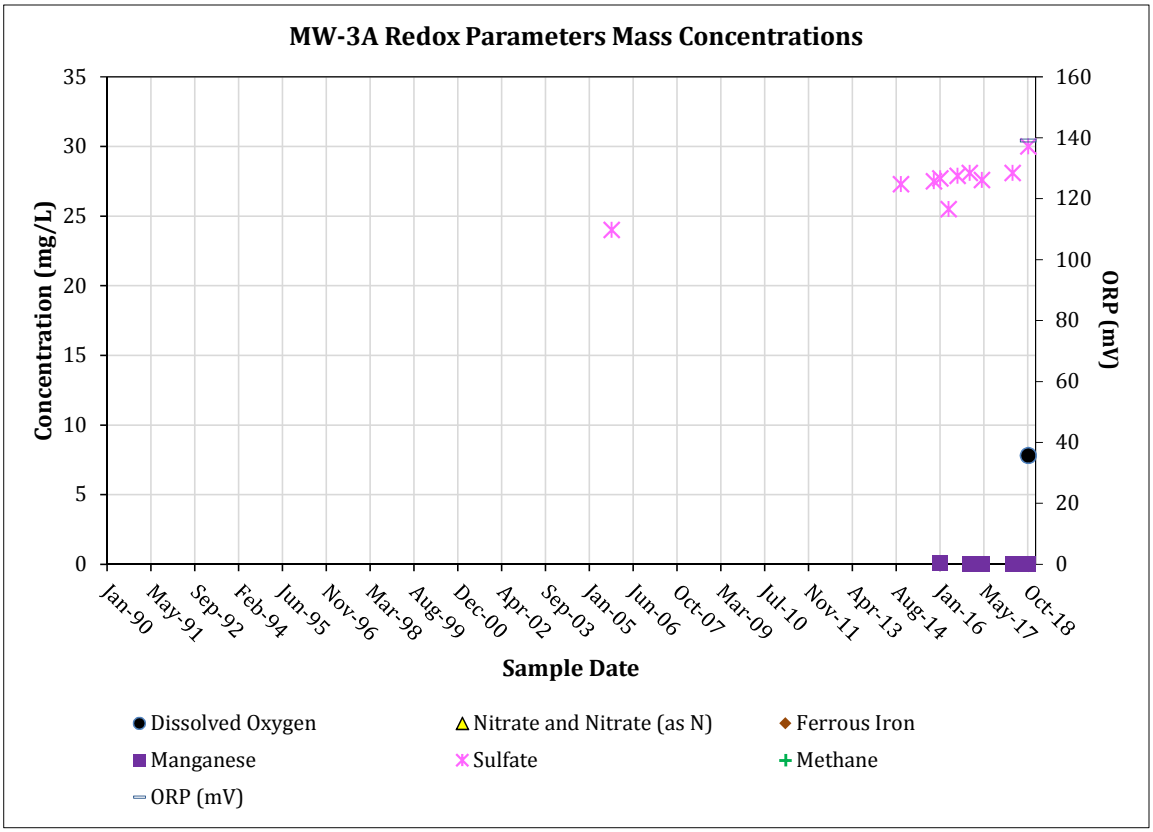
Section 3

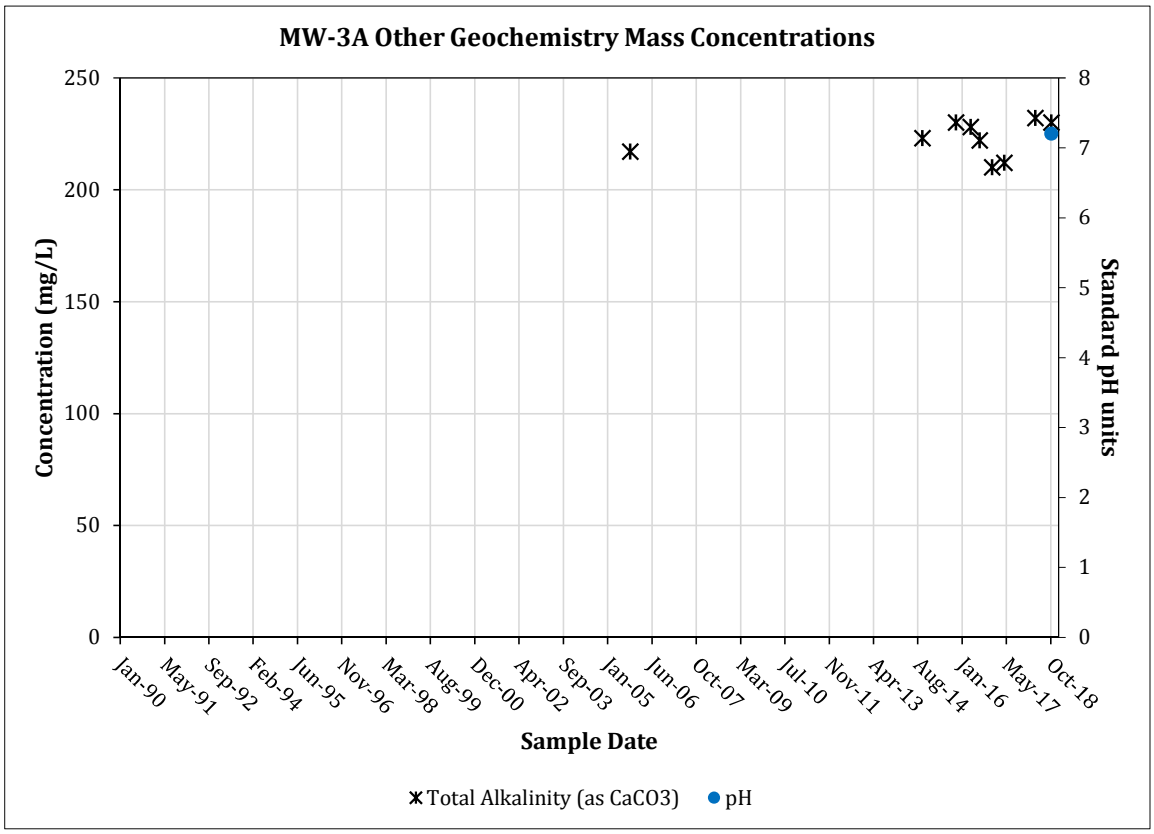
VOC and Geochemistry Trend Charts - Cells 2 and 4 Monitoring Wells

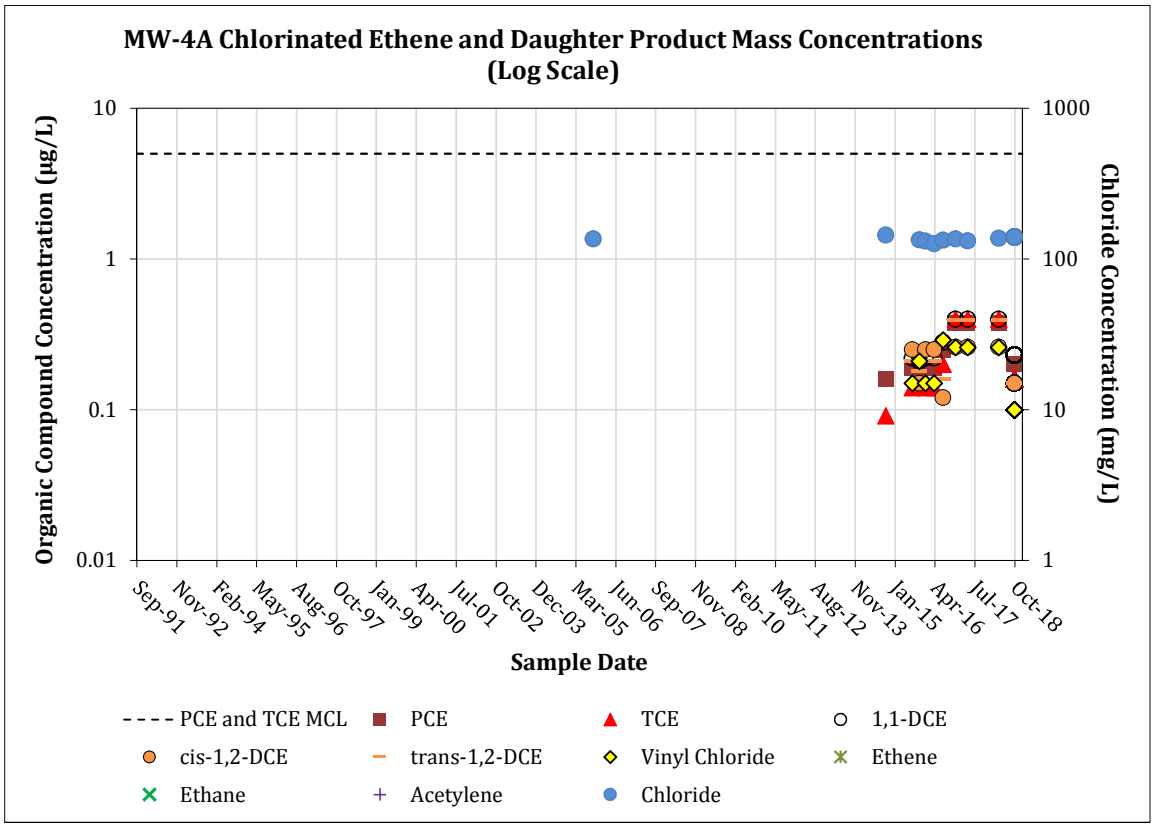

MW-3A Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
10
1
0.1
0.01
100
10
1
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

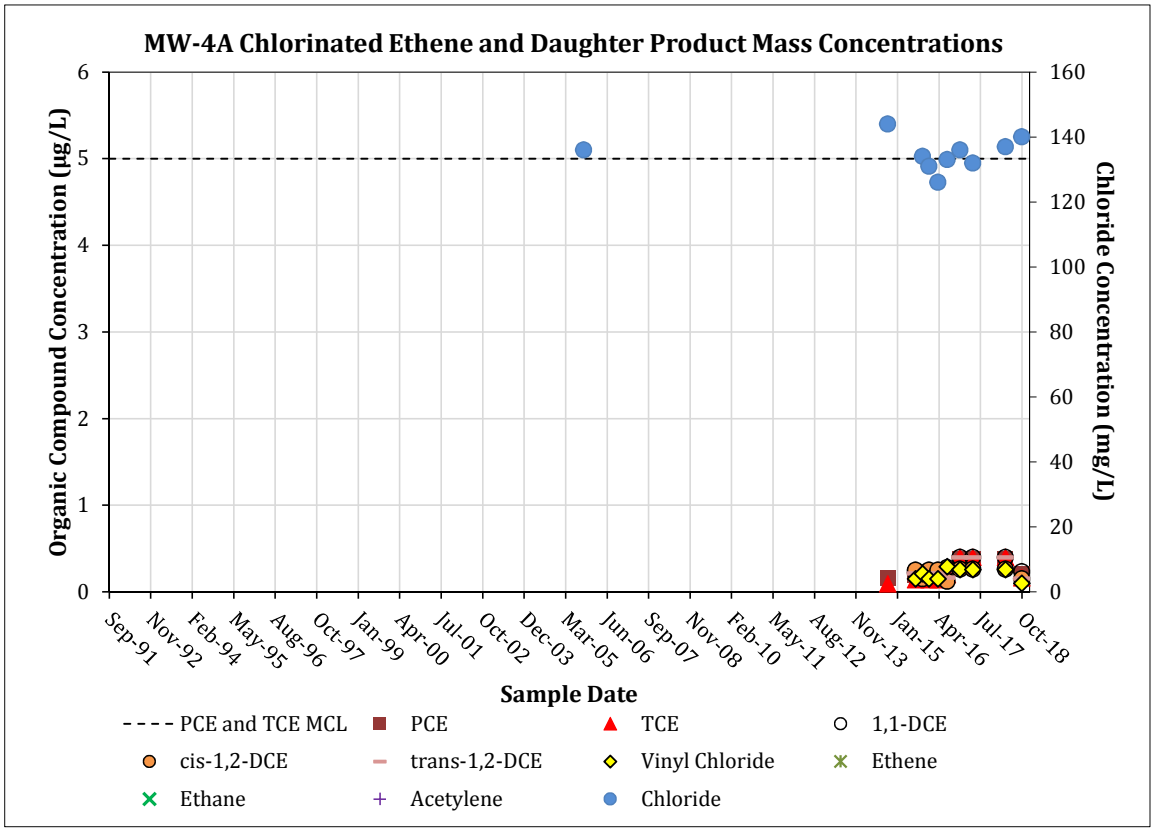

MW-3A Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
6
5
4
3
2
1
0
60
50
40
30
20
10
0
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

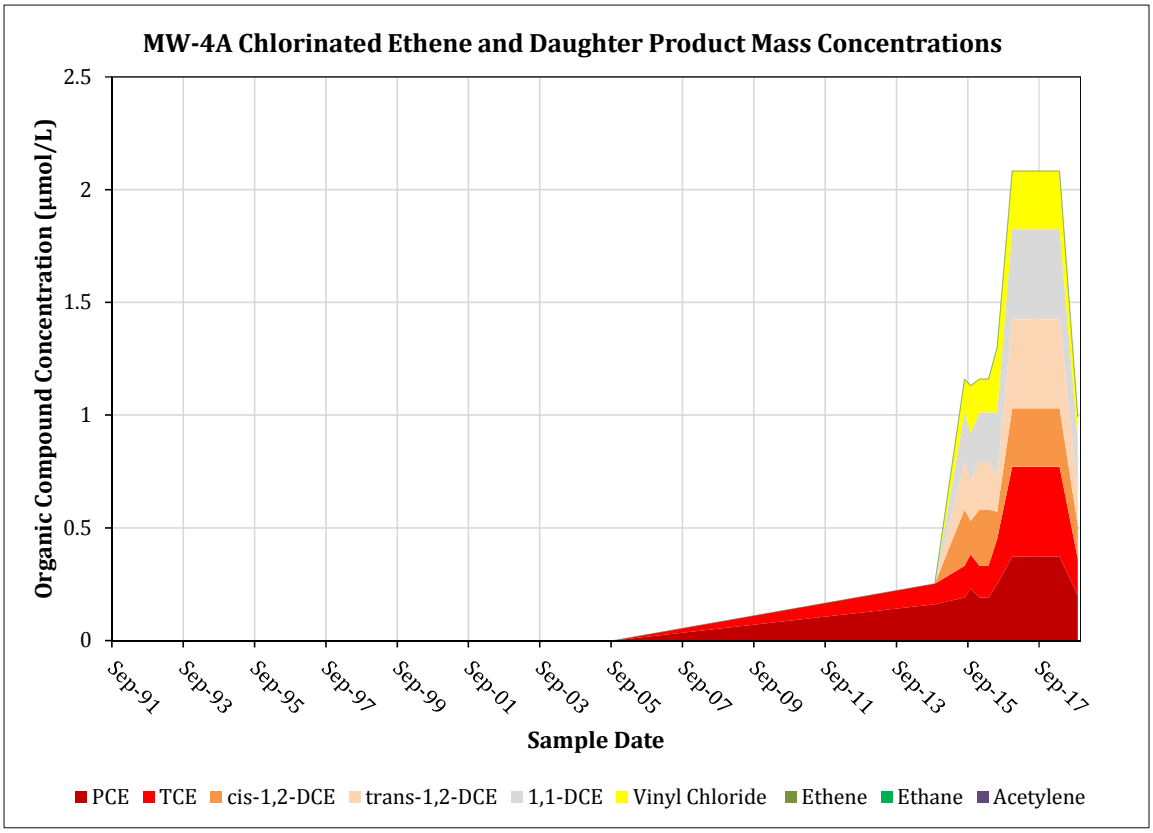

MW-3A Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µmol/L)
2.5
2
1.5
1
0.5
0
Sep-91
Sep-93
Sep-95
Sep-97
Sep-99
Sep-01
Sep-03
Sep-05
Sep-07
Sep-09
Sep-11
Sep-13
Sep-15
Sep-17
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
1,1-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

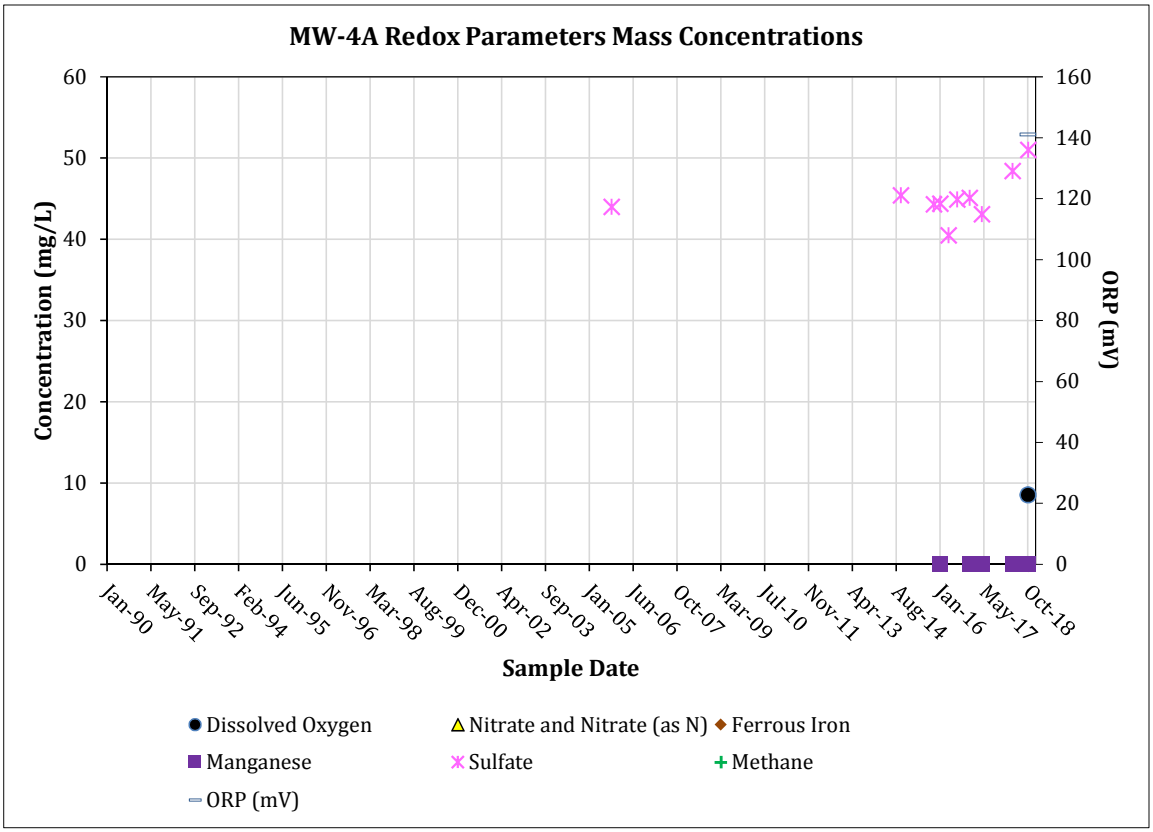

MW-3A Redox Parameters Mass Concentrations
Concentration (mg/L)
35
30
25
20
15
10
5
0
ORP (mV)
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP (mV)

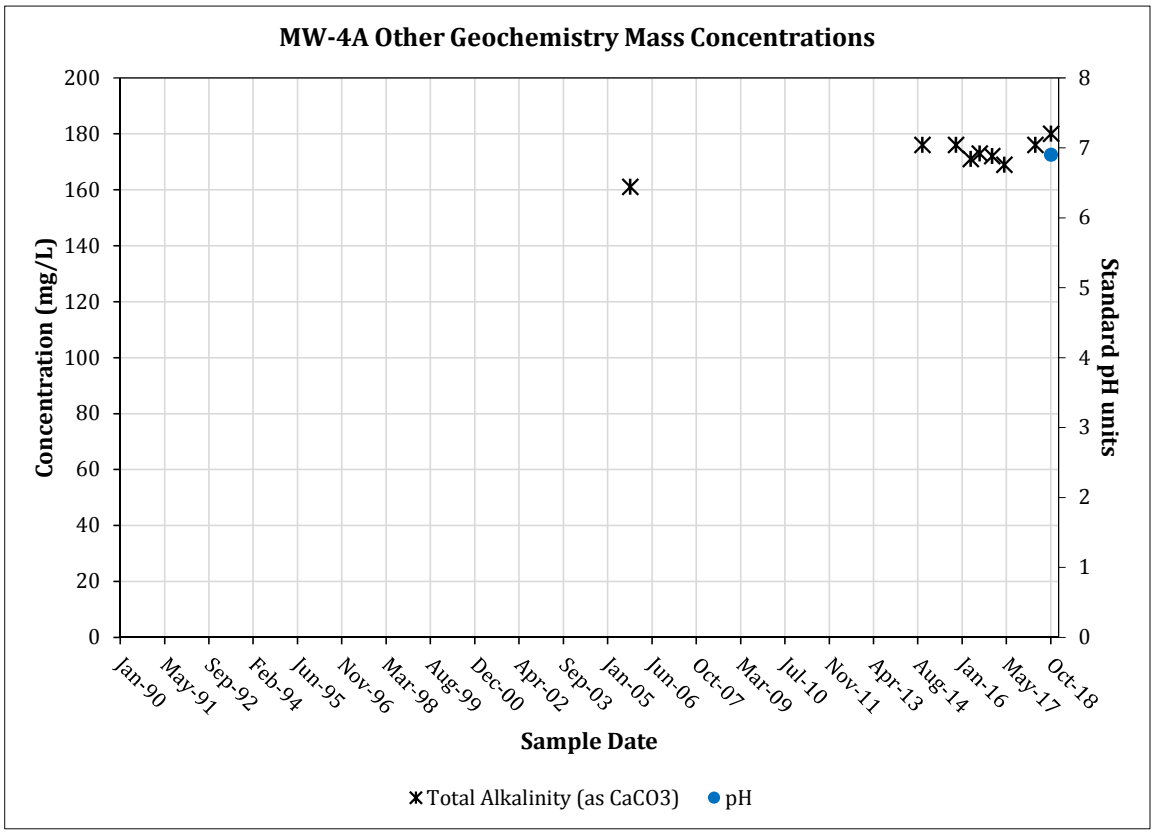

MW-3A Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
250
200
150
100
50
0
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
pH

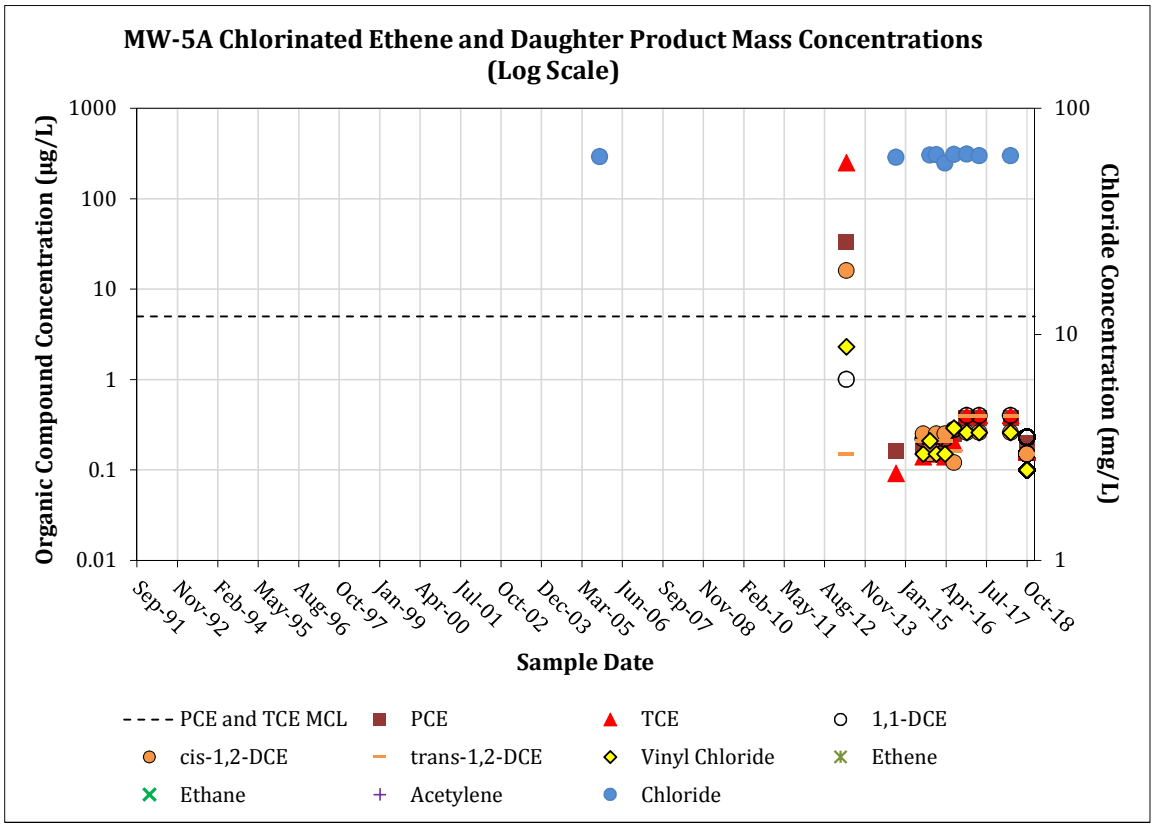

MW-4A Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
10
1
0.1
0.01
1000
100
10
1
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

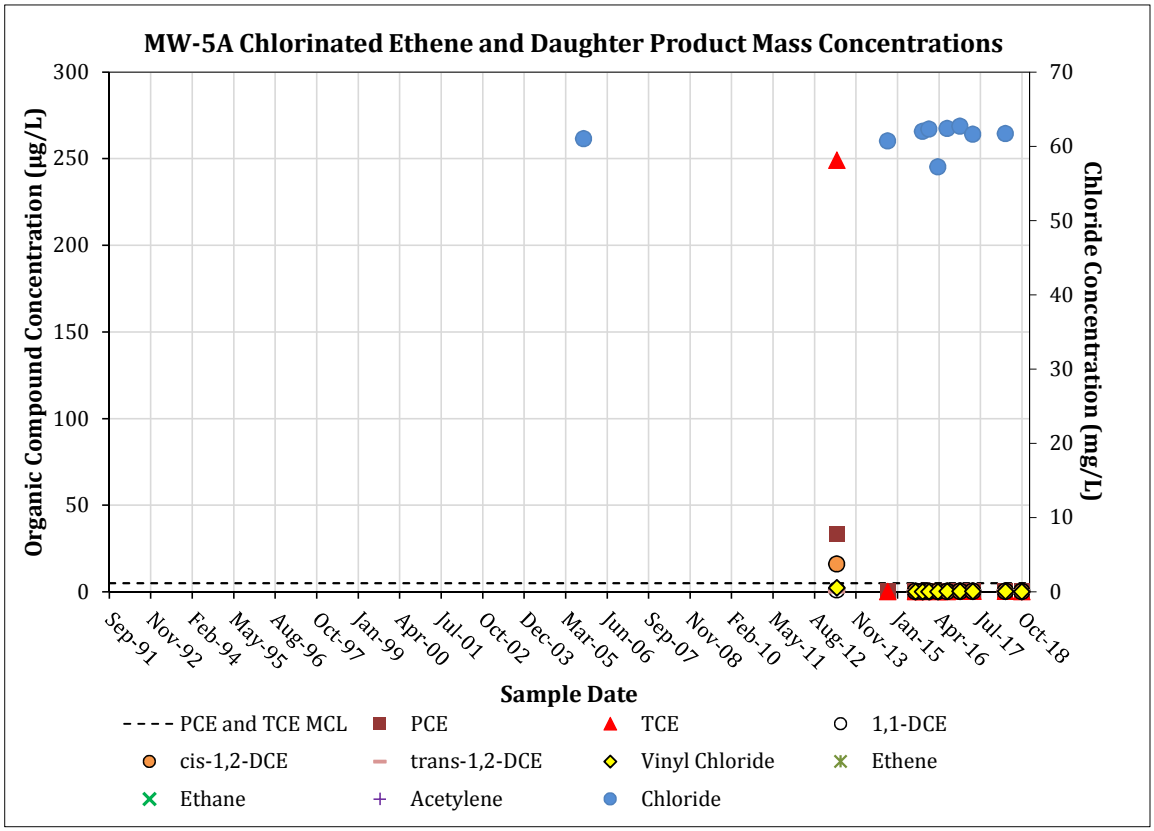

MW-4A Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
6
5
4
3
2
1
0
160
140
120
100
80
60
40
20
0
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

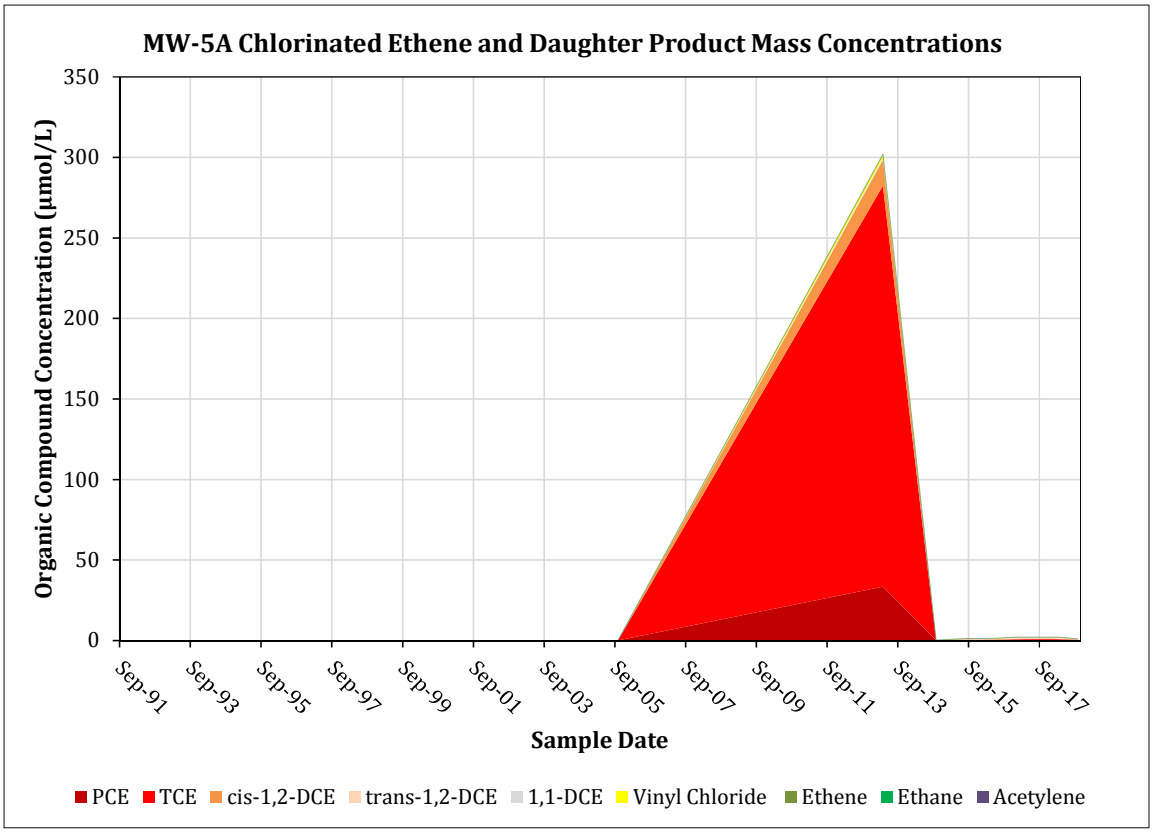

MW-4A Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µmol/L)
2.5
2
1.5
1
0.5
0
Sep-91
Sep-93
Sep-95
Sep-97
Sep-99
Sep-01
Sep-03
Sep-05
Sep-07
Sep-09
Sep-11
Sep-13
Sep-15
Sep-17
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
1,1-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

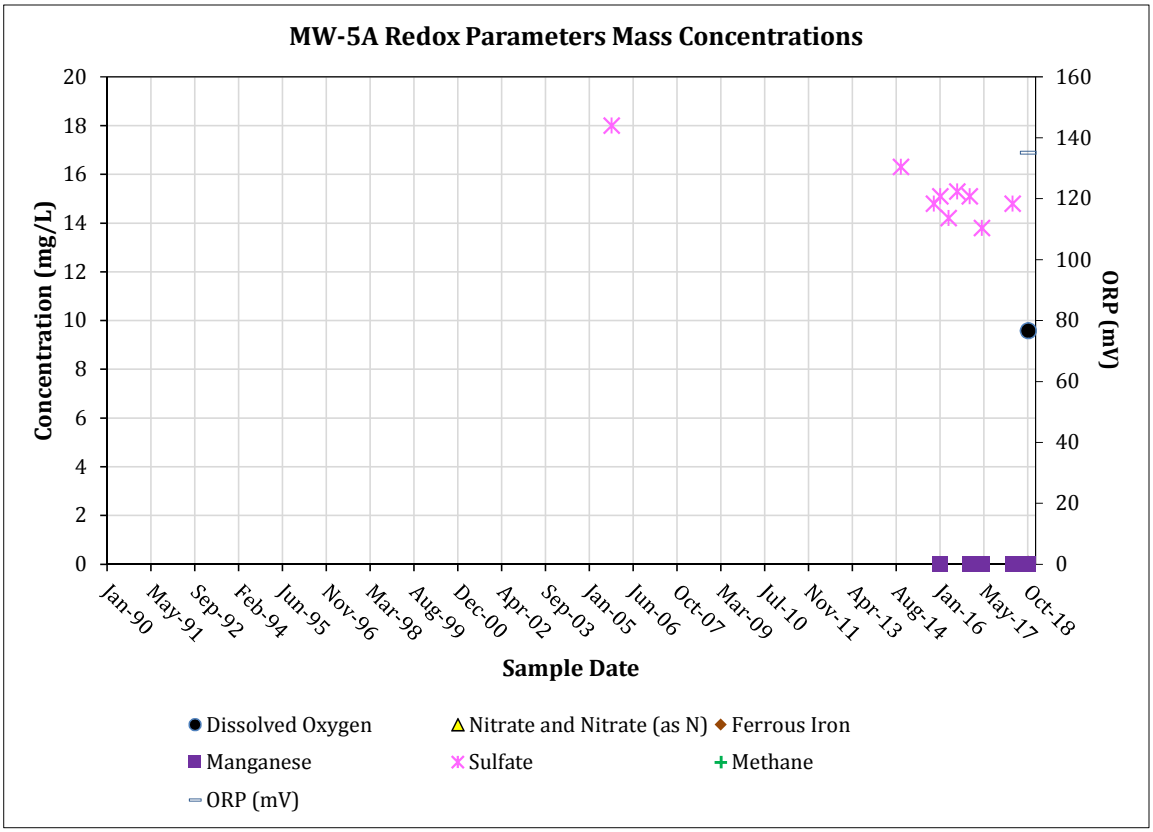

MW-4A Redox Parameters Mass Concentrations
Concentration (mg/L)
60
50
40
30
20
10
0
ORP (mV)
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP (mV)

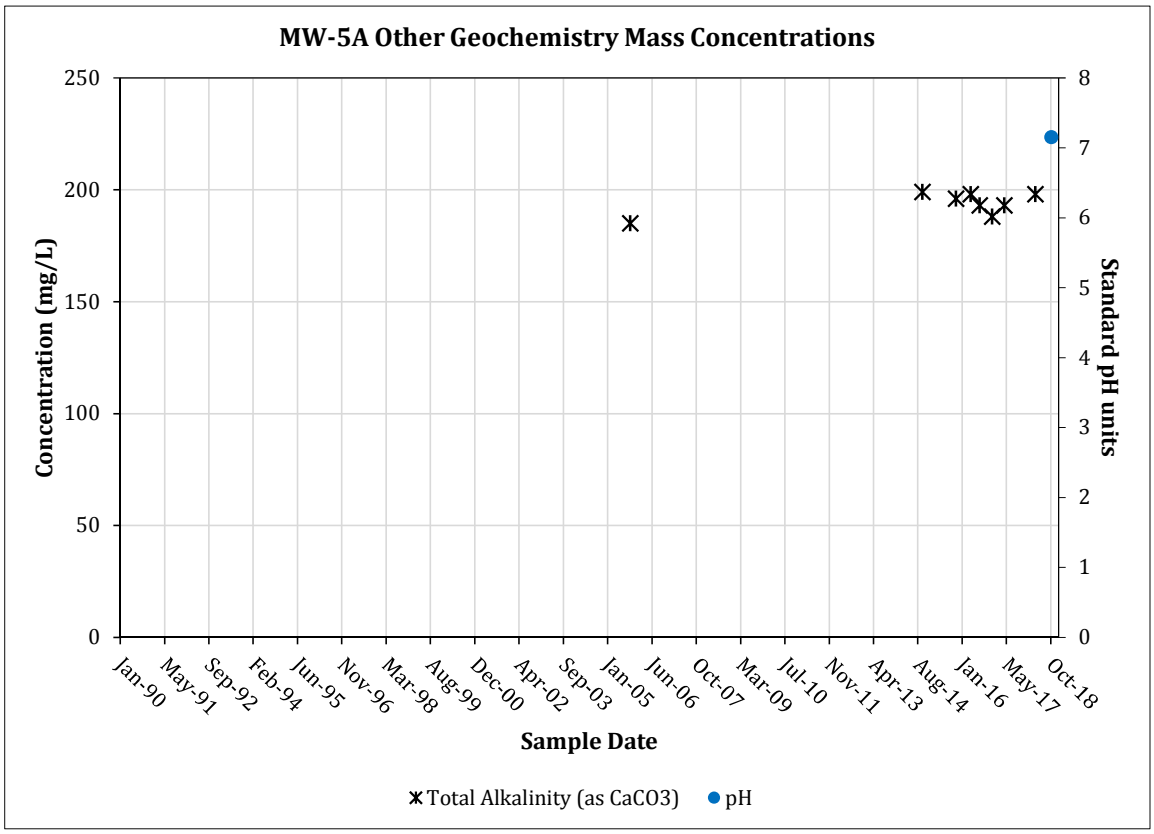

MW-4A Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
pH
0
20
40
60
80
100
120
140
160
180
200
0
1
2
3
4
5
6
7
8
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

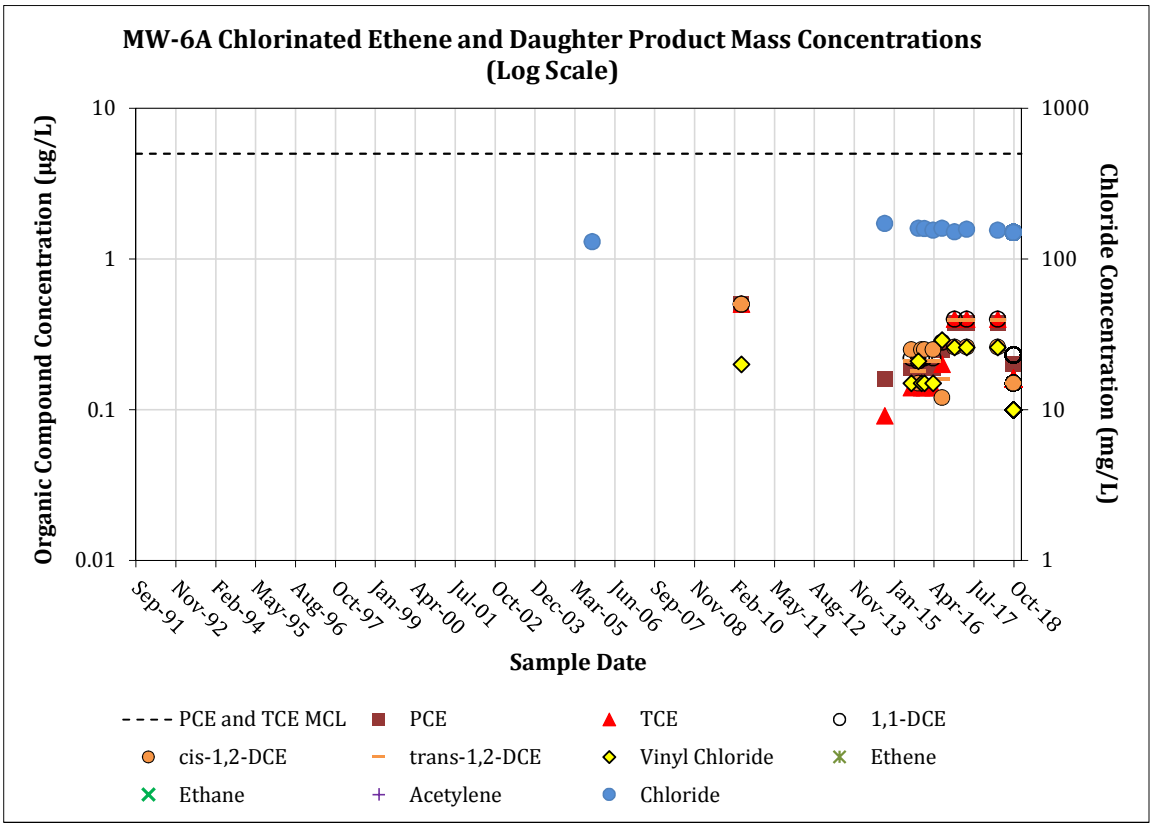

MW-5A Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
1000
100
10
1
0.1
0.01
Chloride Concentration (mg/L)
100
10
1
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

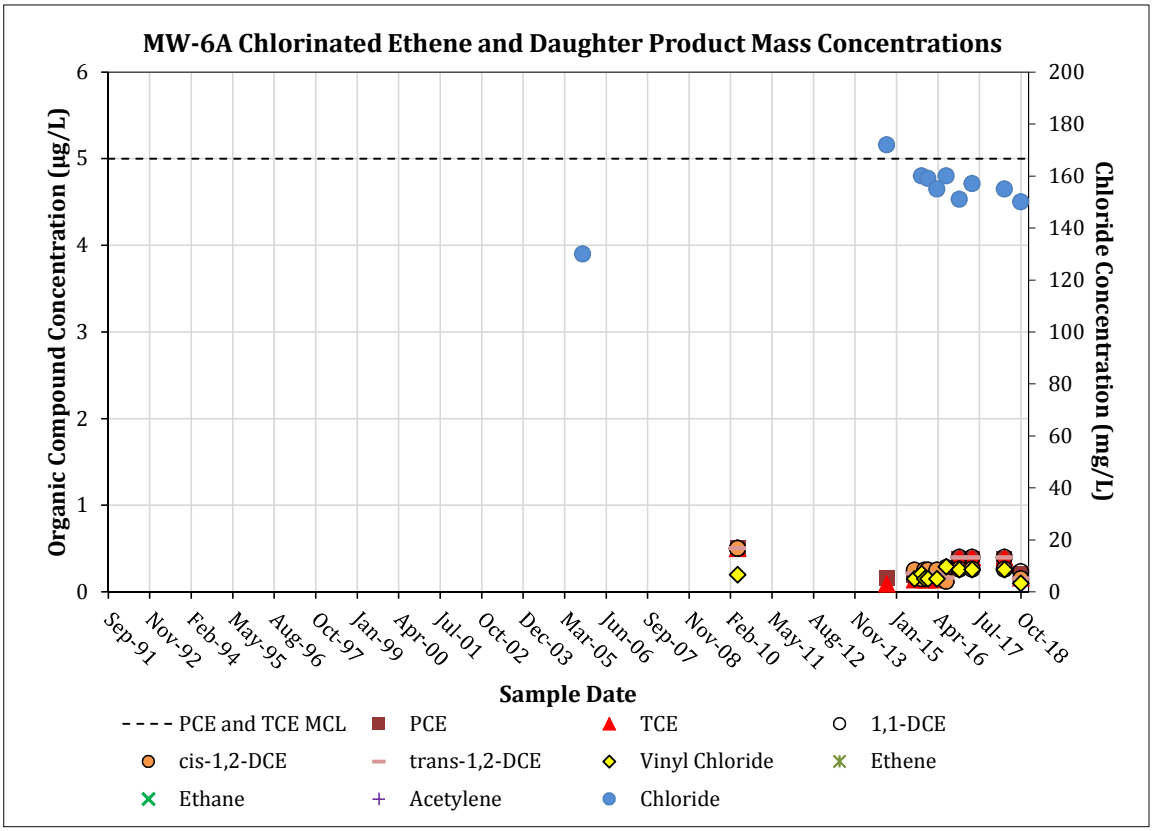

MW-5A Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
300
250
200
150
100
50
0
Chloride Concentration (mg/L)
70
60
50
40
30
20
10
0
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

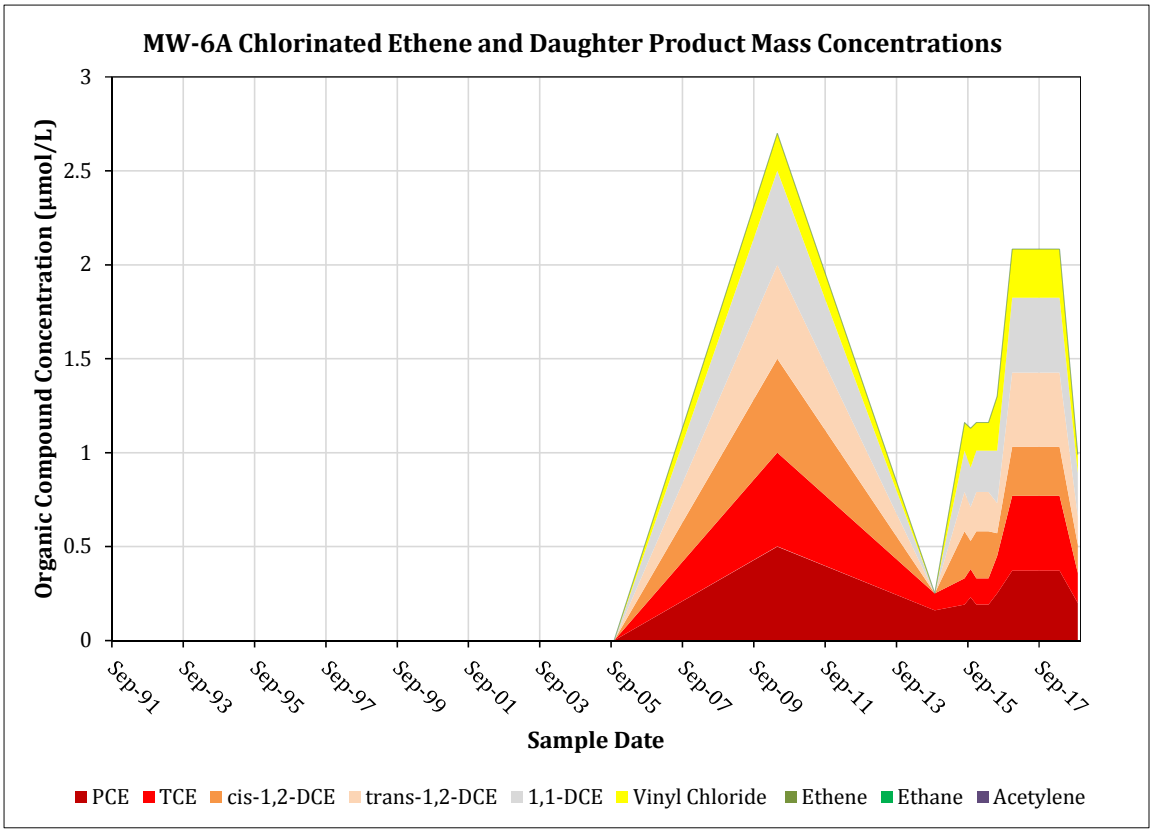

MW-5A Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µmol/L)
350
300
250
200
150
100
50
0
Sep-91
Sep-93
Sep-95
Sep-97
Sep-99
Sep-01
Sep-03
Sep-05
Sep-07
Sep-09
Sep-11
Sep-13
Sep-15
Sep-17
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
1,1-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

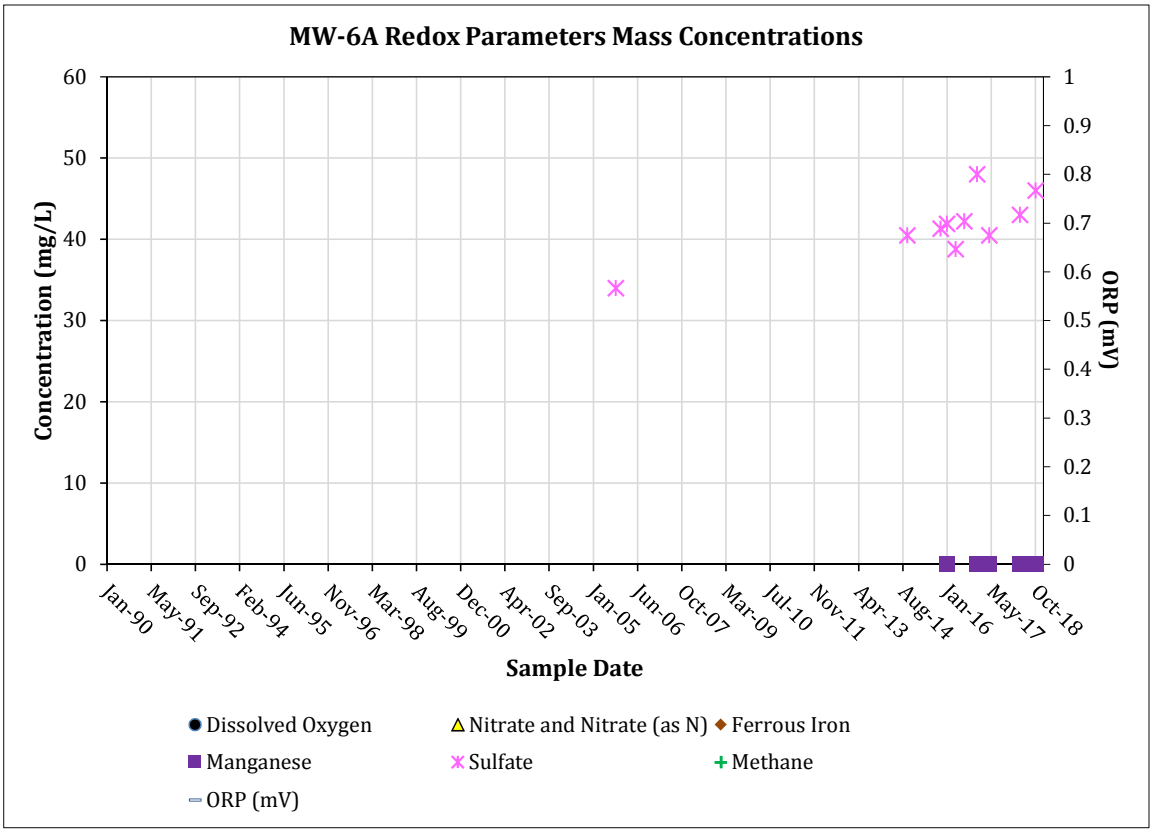

MW-5A Redox Parameters Mass Concentrations
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
ORP (mV)
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP (mV)

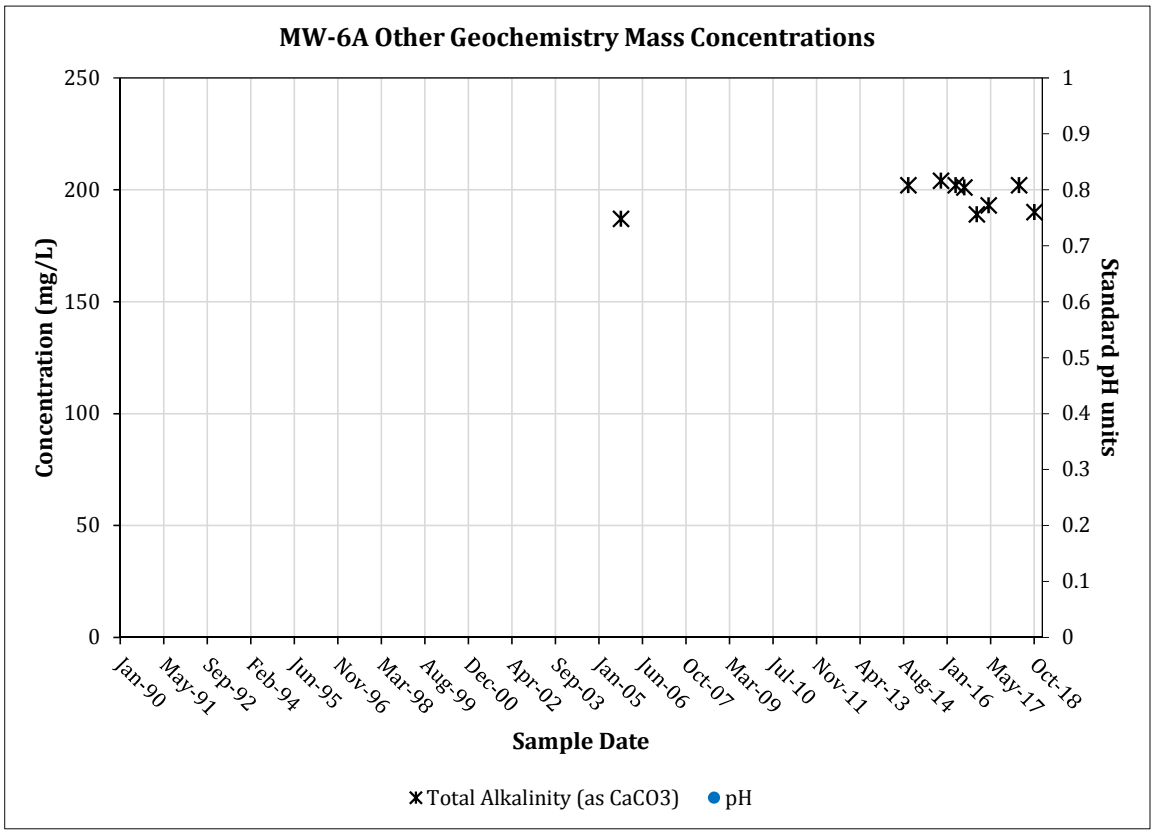

MW-5A Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
250
200
150
100
50
0
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
pH

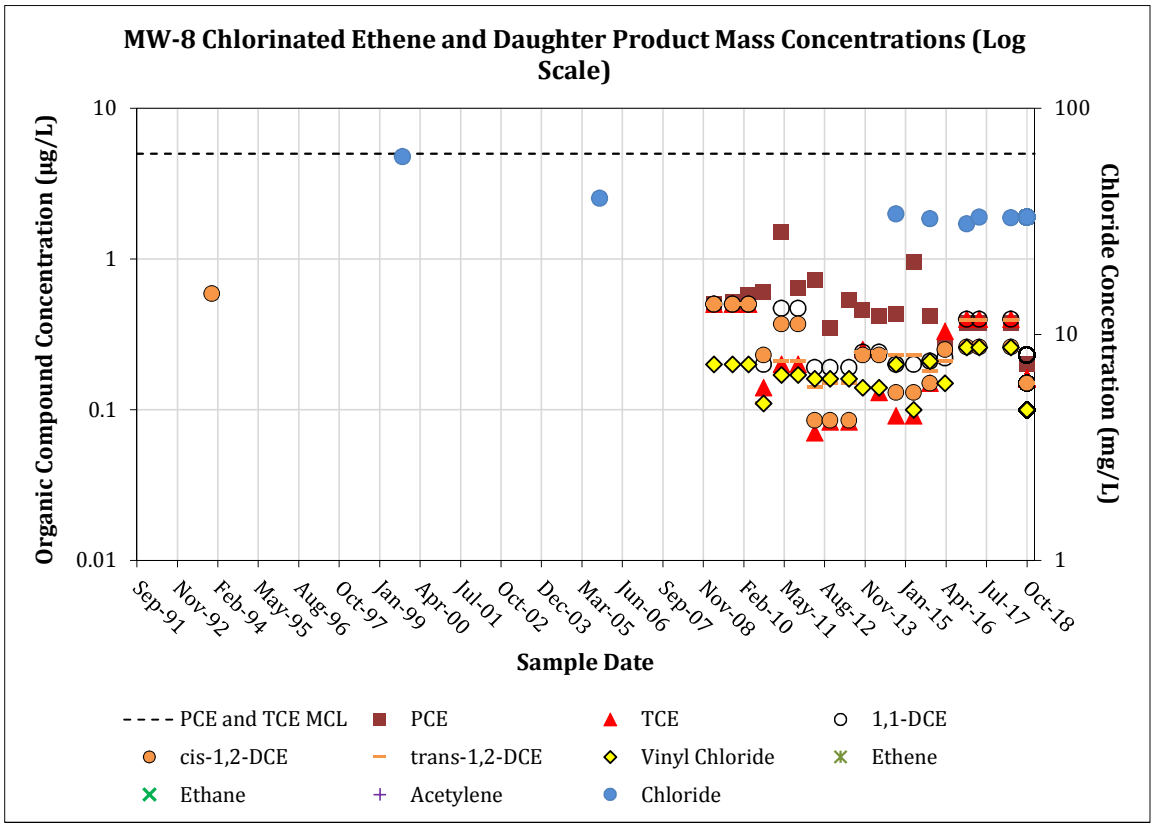

MW-6A Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
10
1
0.1
0.01
1000
100
10
1
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

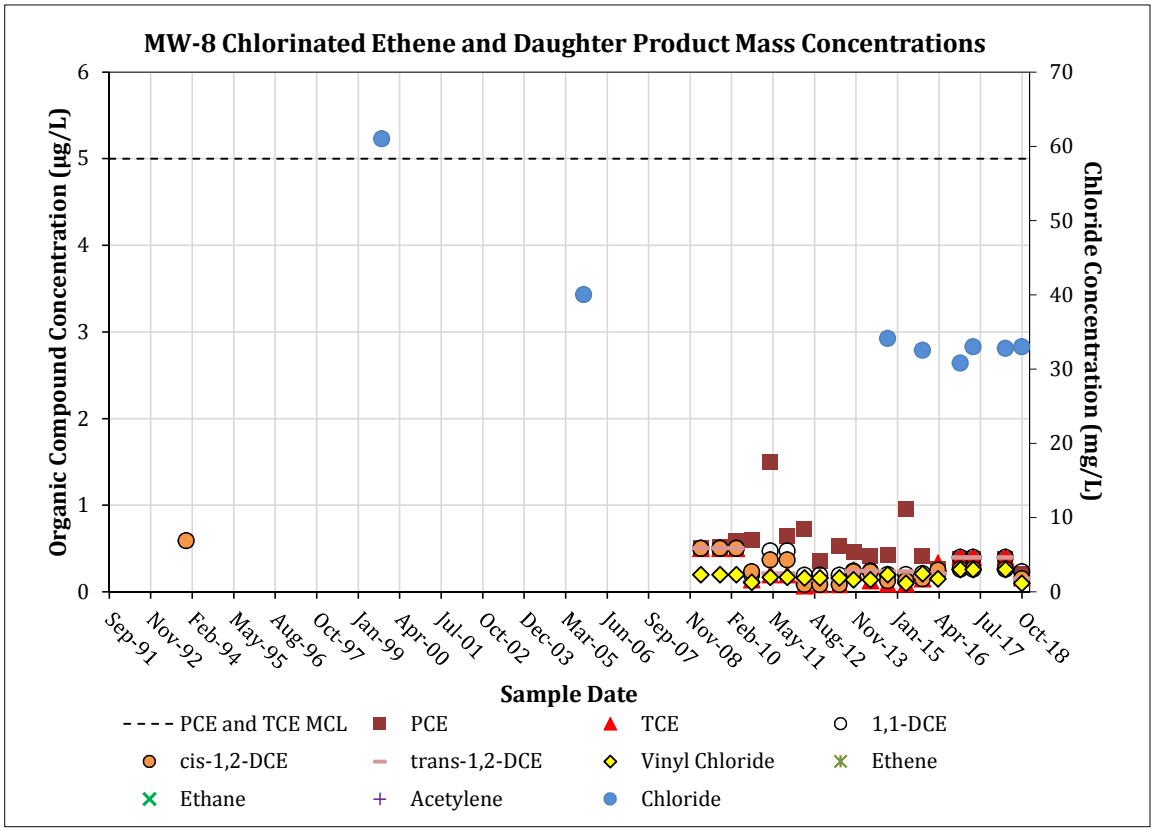

MW-6A Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
6
5
4
3
2
1
0
200
180
160
140
120
100
80
60
40
20
0
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

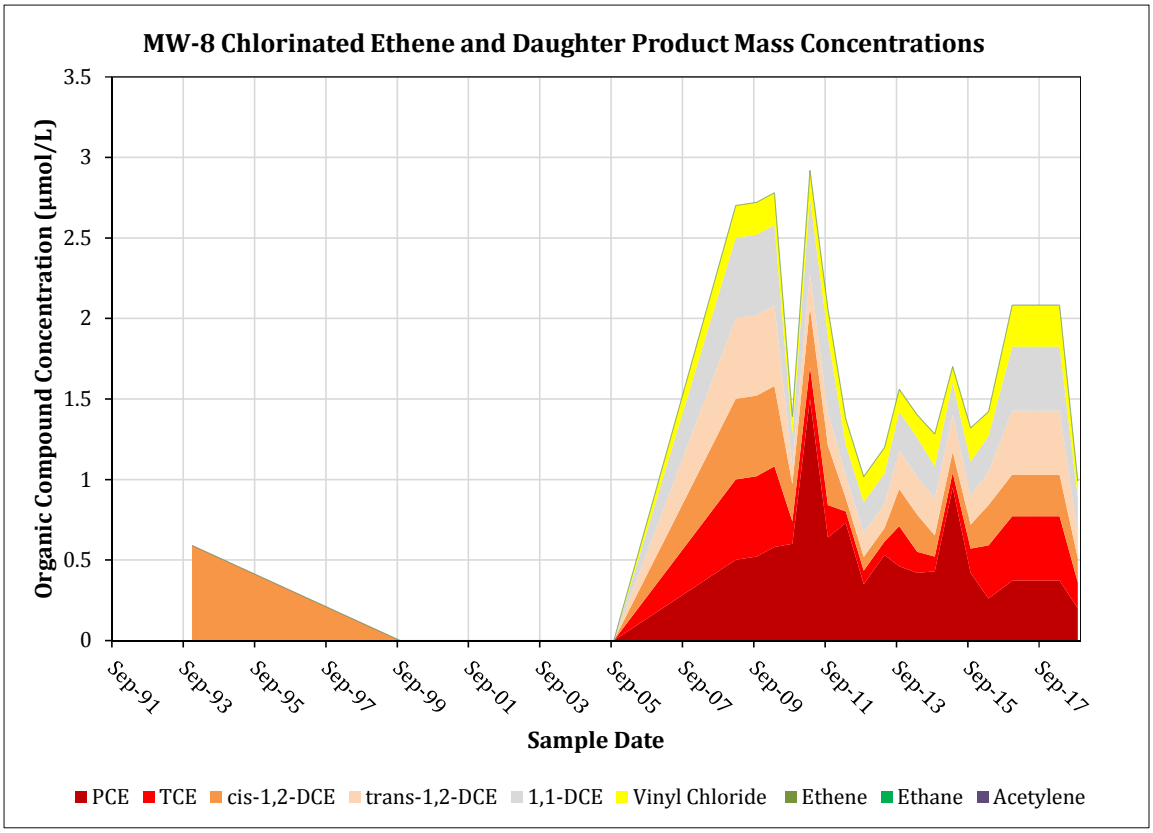

MW-6A Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µmol/L)
3
2.5
2
1.5
1
0.5
0
Sep-91
Sep-93
Sep-95
Sep-97
Sep-99
Sep-01
Sep-03
Sep-05
Sep-07
Sep-09
Sep-11
Sep-13
Sep-15
Sep-17
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
1,1-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

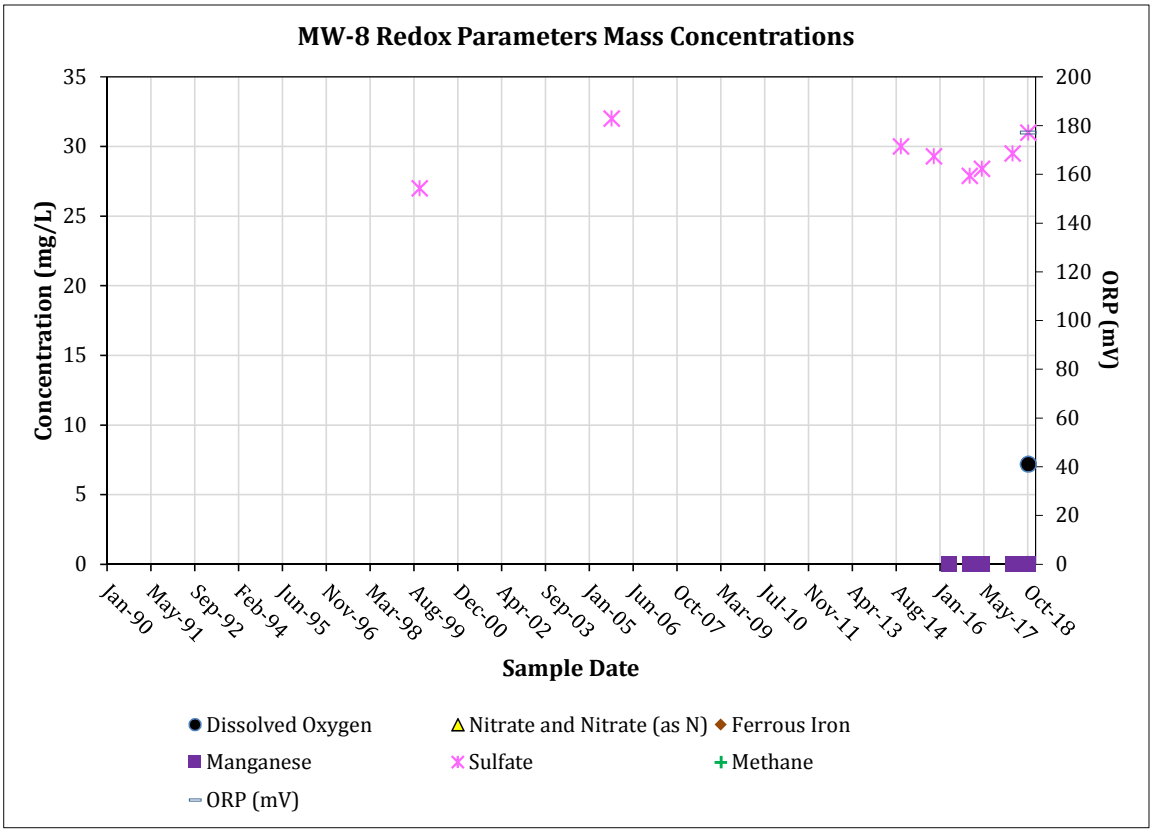

MW-6A Redox Parameters Mass Concentrations
Concentration (mg/L)
60
50
40
30
20
10
0
ORP (mV)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP (mV)

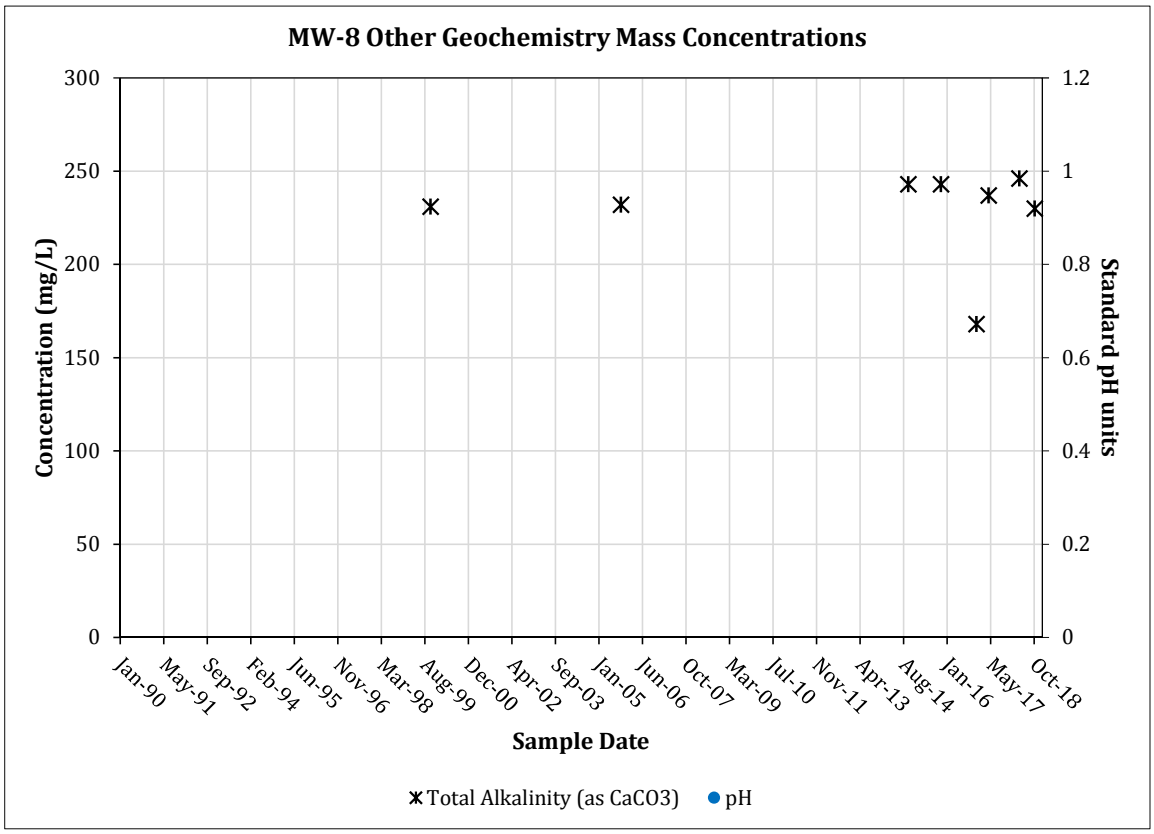

MW-6A Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
250
200
150
100
50
0
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
pH

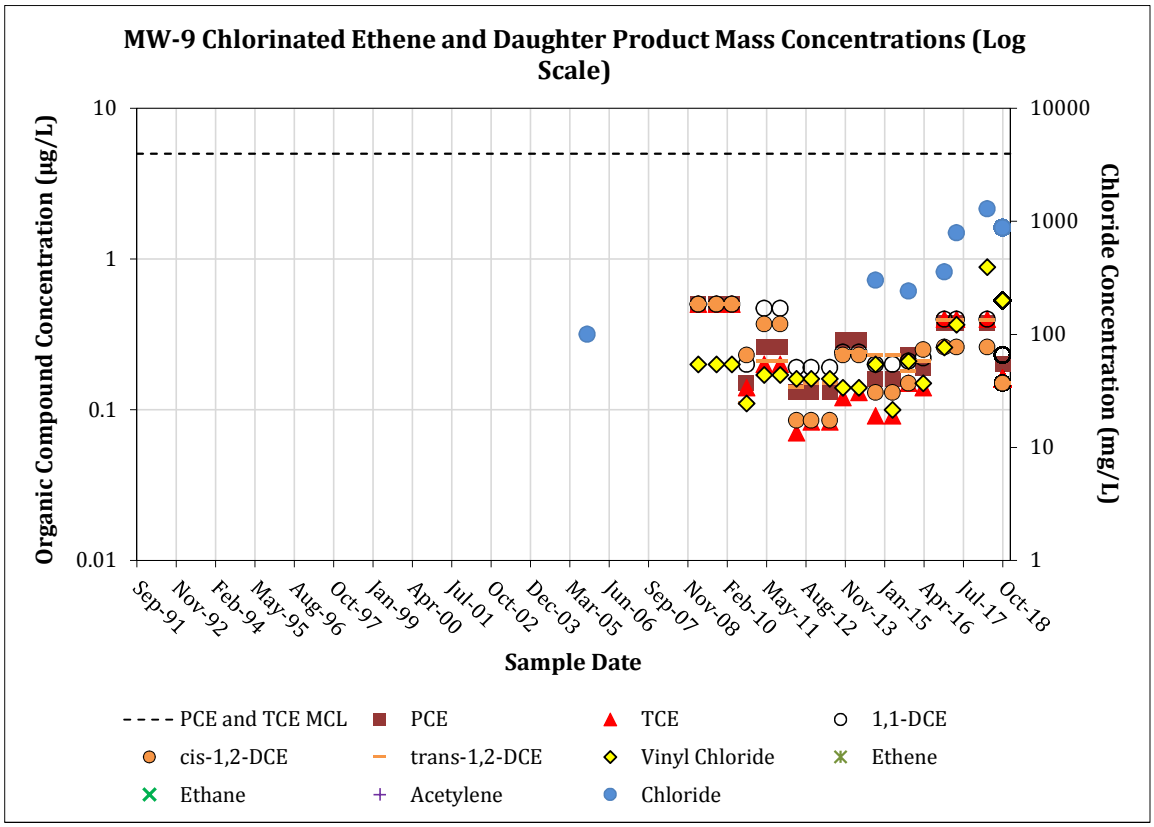

MW-8 Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
10
1
0.1
0.01
100
10
1
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

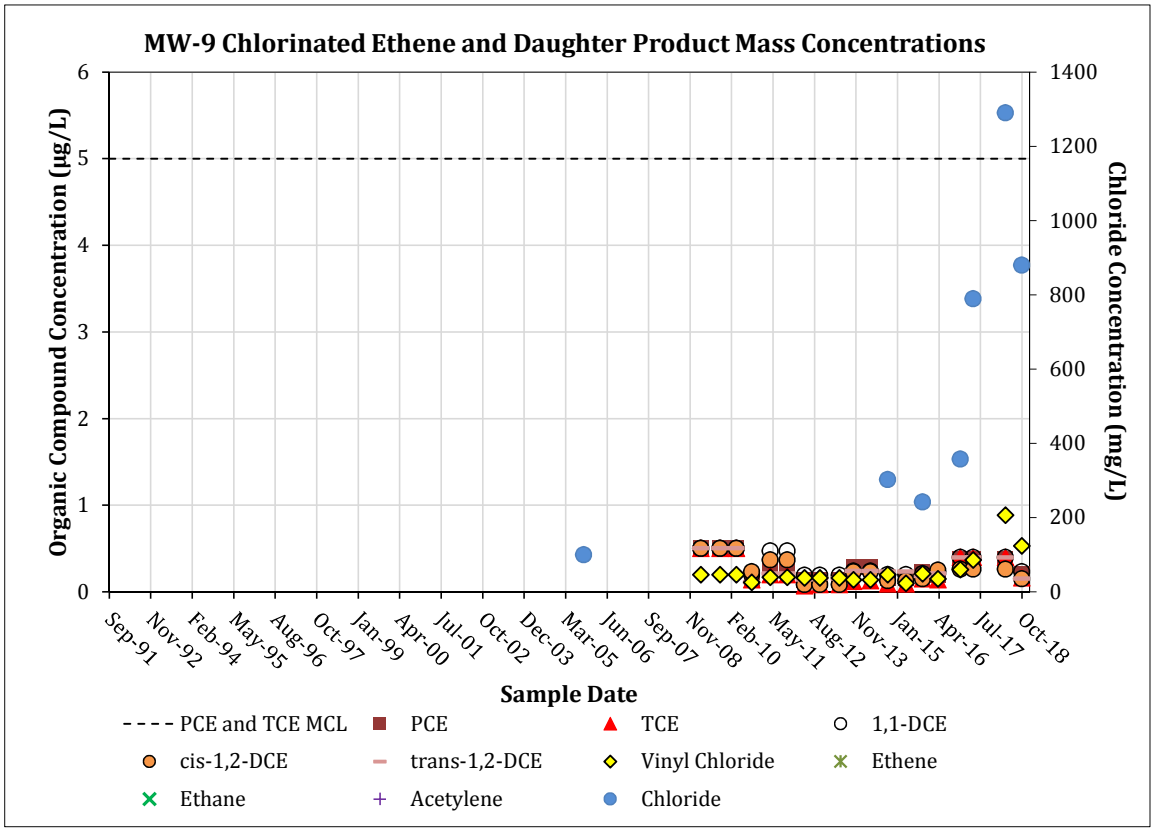

MW-8 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
6
5
4
3
2
1
0
70
60
50
40
30
20
10
0
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

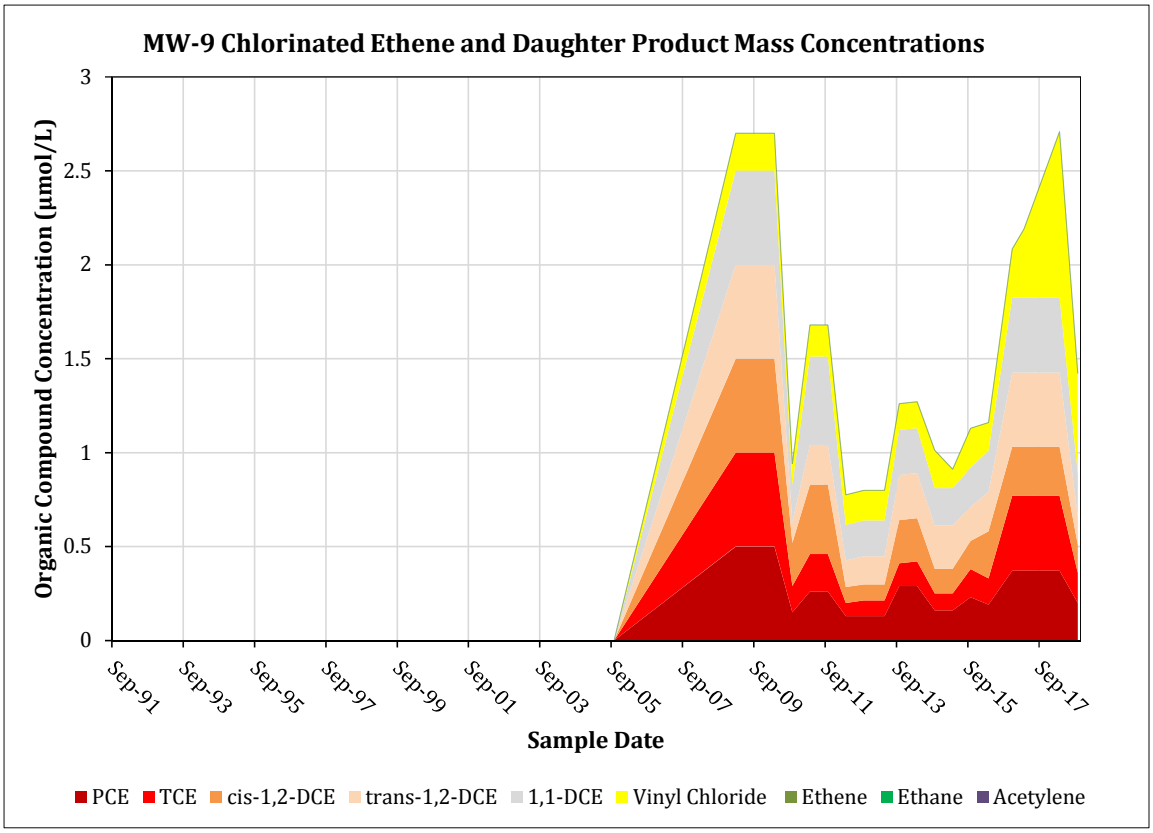

MW-8 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µmol/L)
3.5
3
2.5
2
1.5
1
0.5
0
Sep-91
Sep-93
Sep-95
Sep-97
Sep-99
Sep-01
Sep-03
Sep-05
Sep-07
Sep-09
Sep-11
Sep-13
Sep-15
Sep-17
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
1,1-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

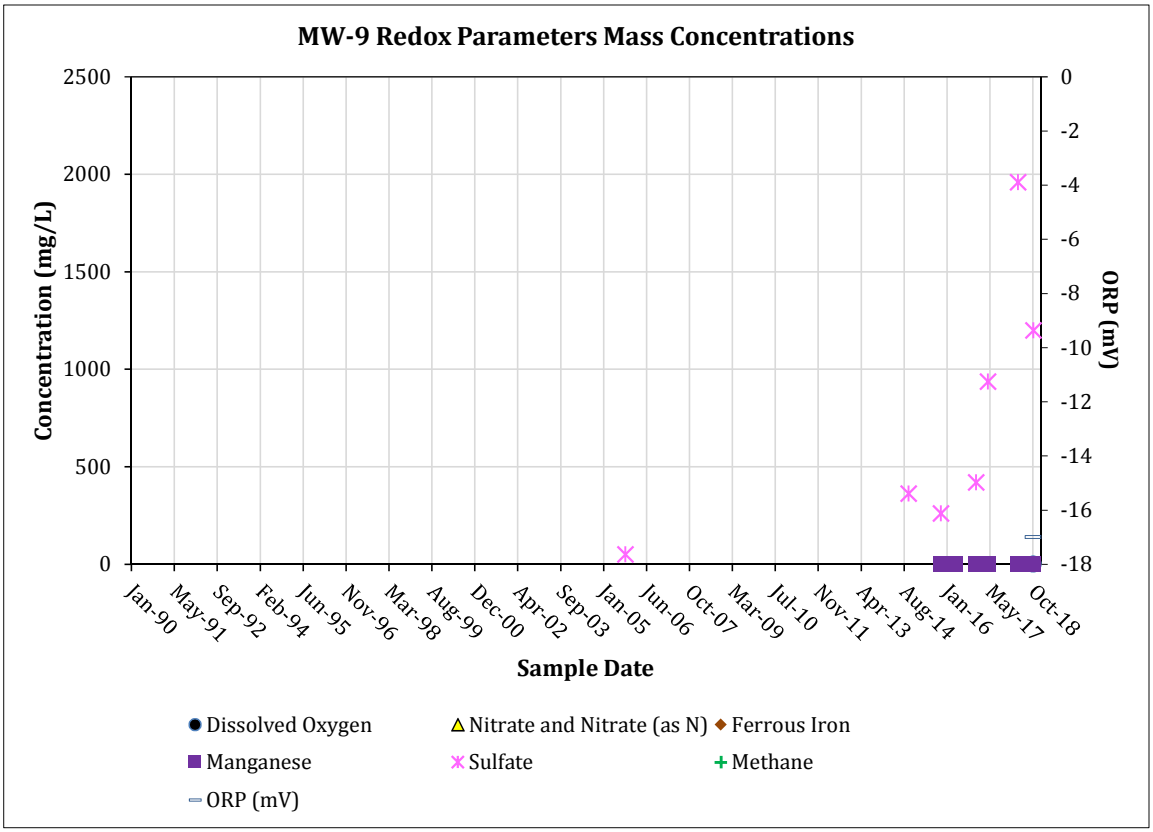

MW-8 Redox Parameters Mass Concentrations
Concentration (mg/L)
35
30
25
20
15
10
5
0
ORP (mV)
200
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP (mV)

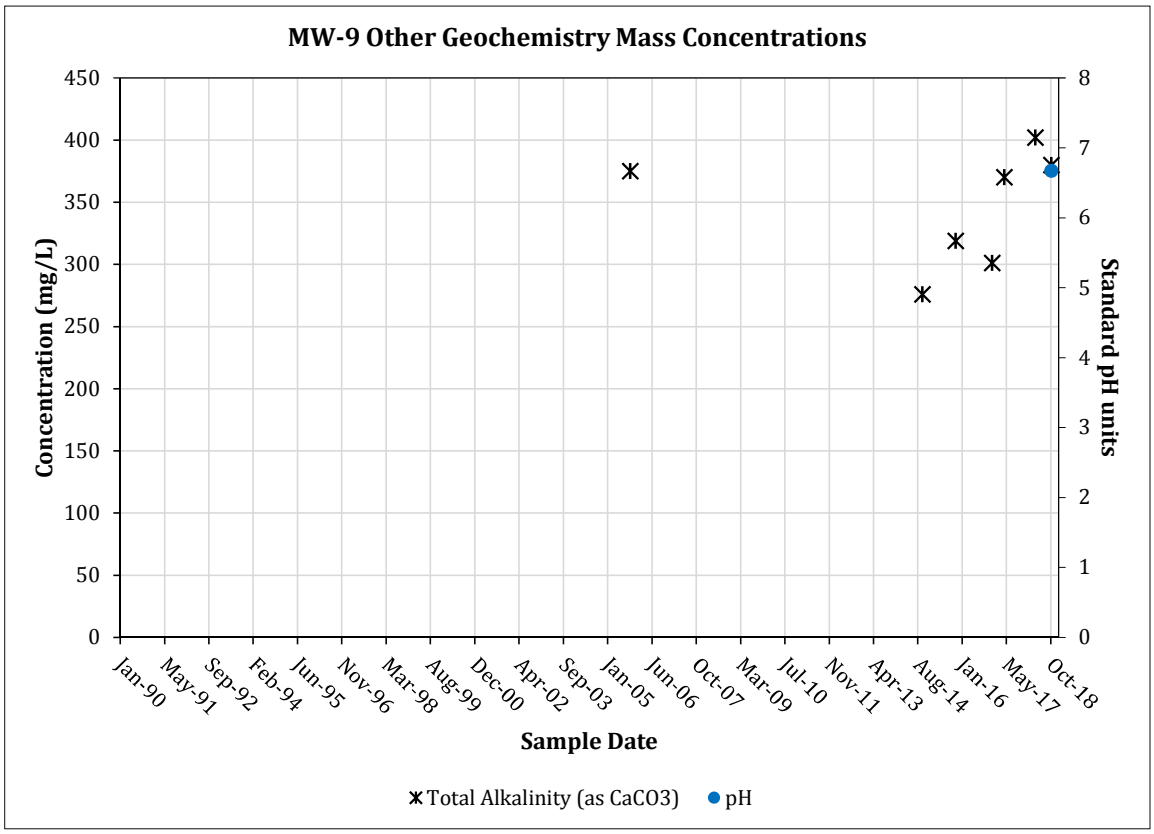

MW-8 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
300
250
200
150
100
50
0
1.2
1
0.8
0.6
0.4
0.2
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
pH

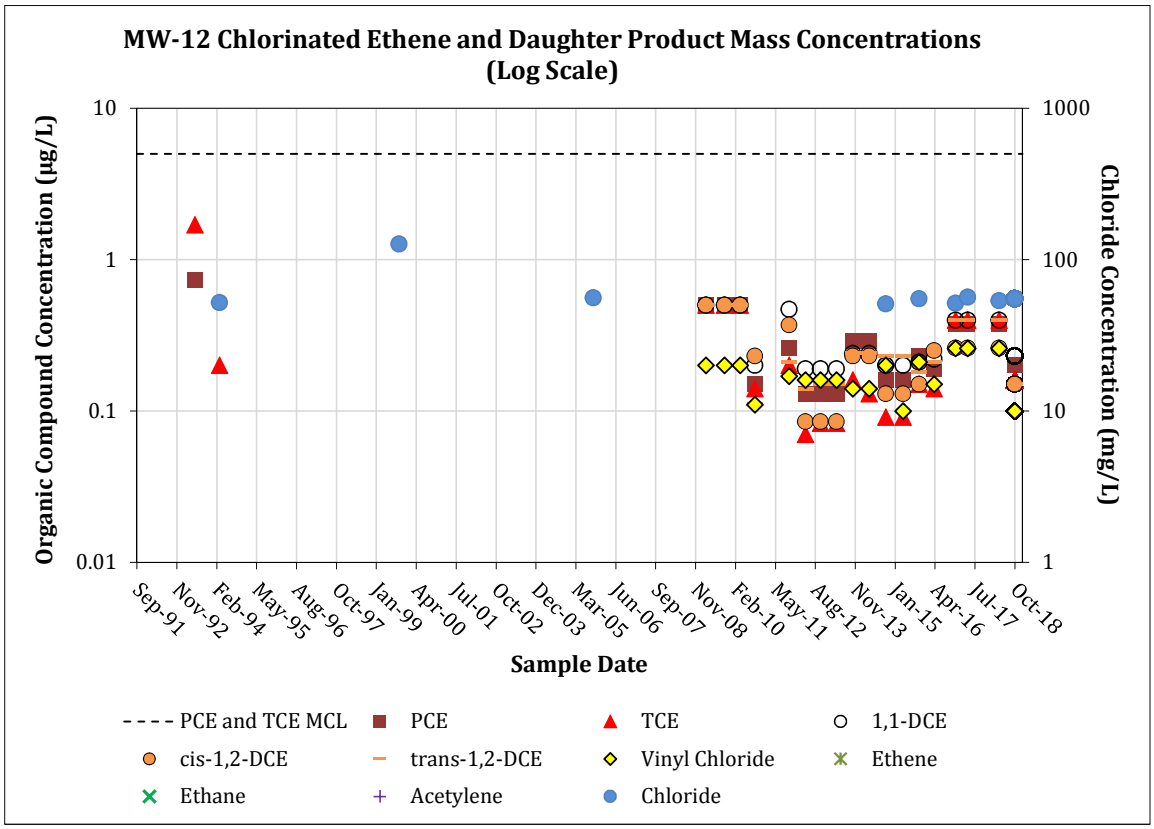

MW-9 Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
10
1
0.1
0.01
10000
1000
100
10
1
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

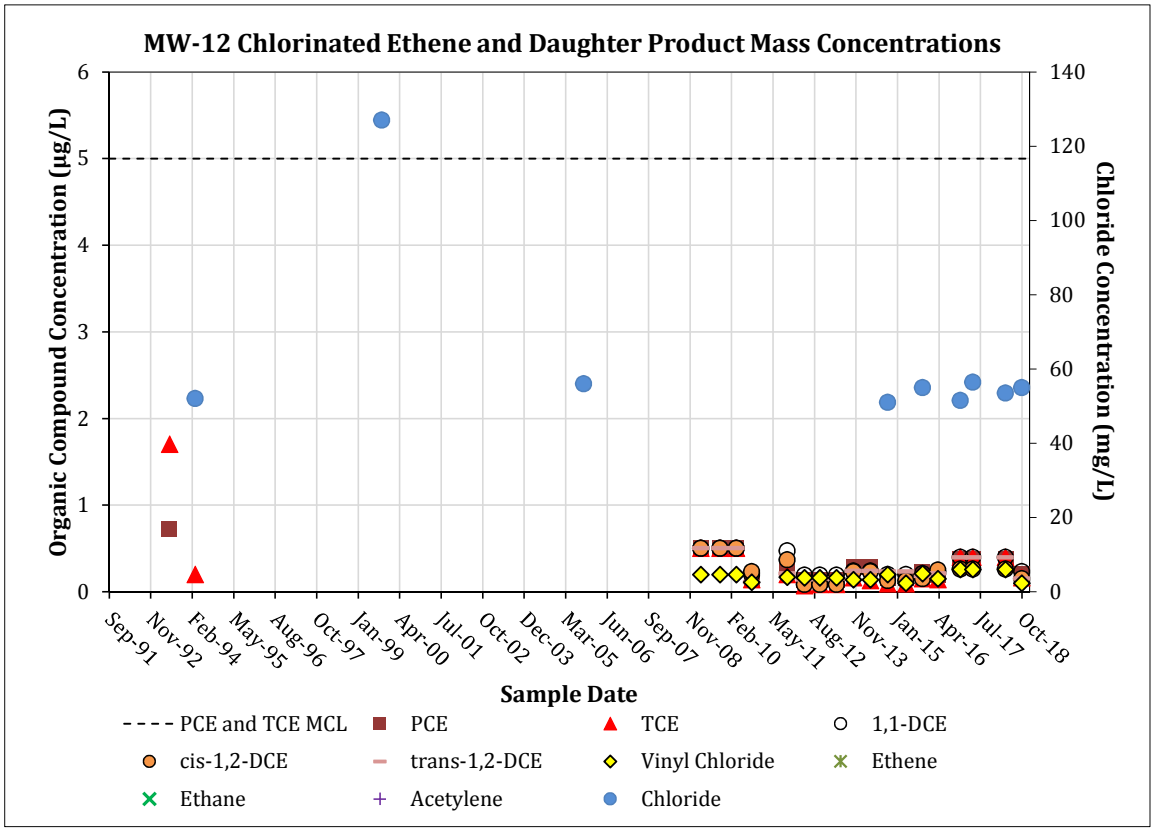

MW-9 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
6
5
4
3
2
1
0
1400
1200
1000
800
600
400
200
0
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

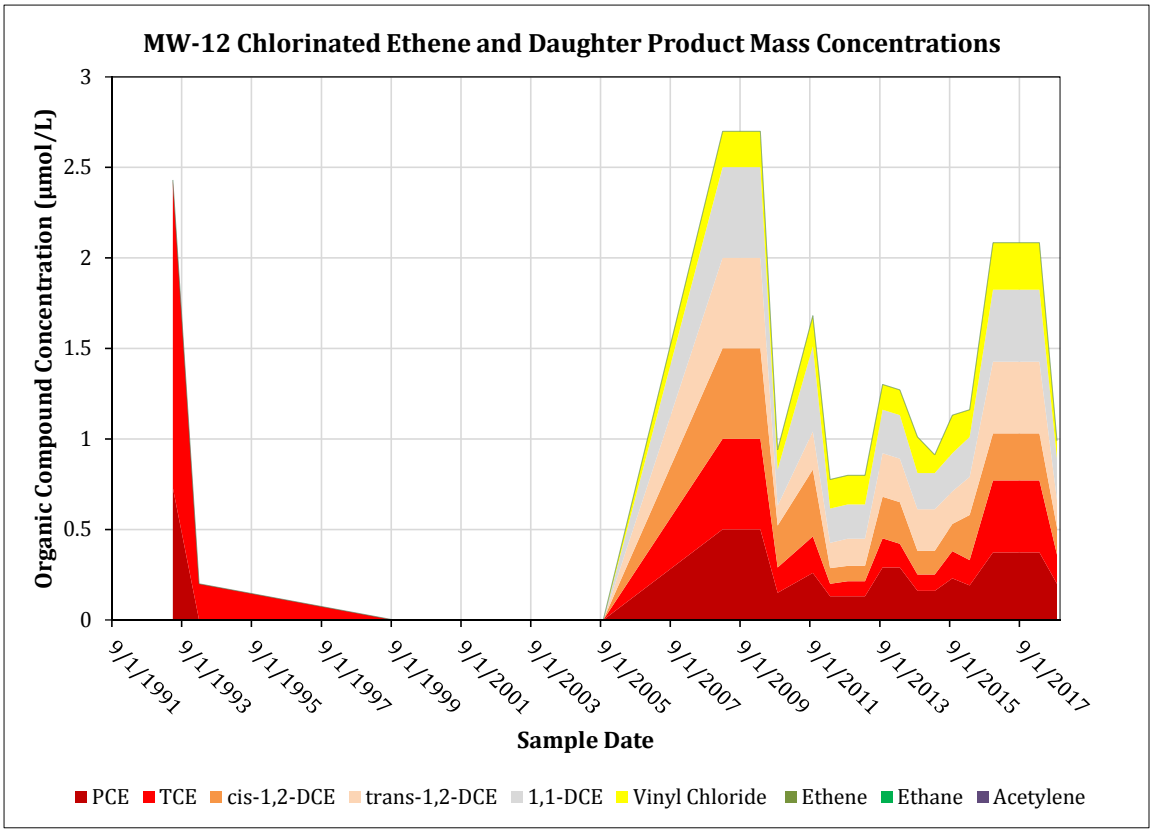

MW-9 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µmol/L)
3
2.5
2
1.5
1
0.5
0
Sep-91
Sep-93
Sep-95
Sep-97
Sep-99
Sep-01
Sep-03
Sep-05
Sep-07
Sep-09
Sep-11
Sep-13
Sep-15
Sep-17
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
1,1-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

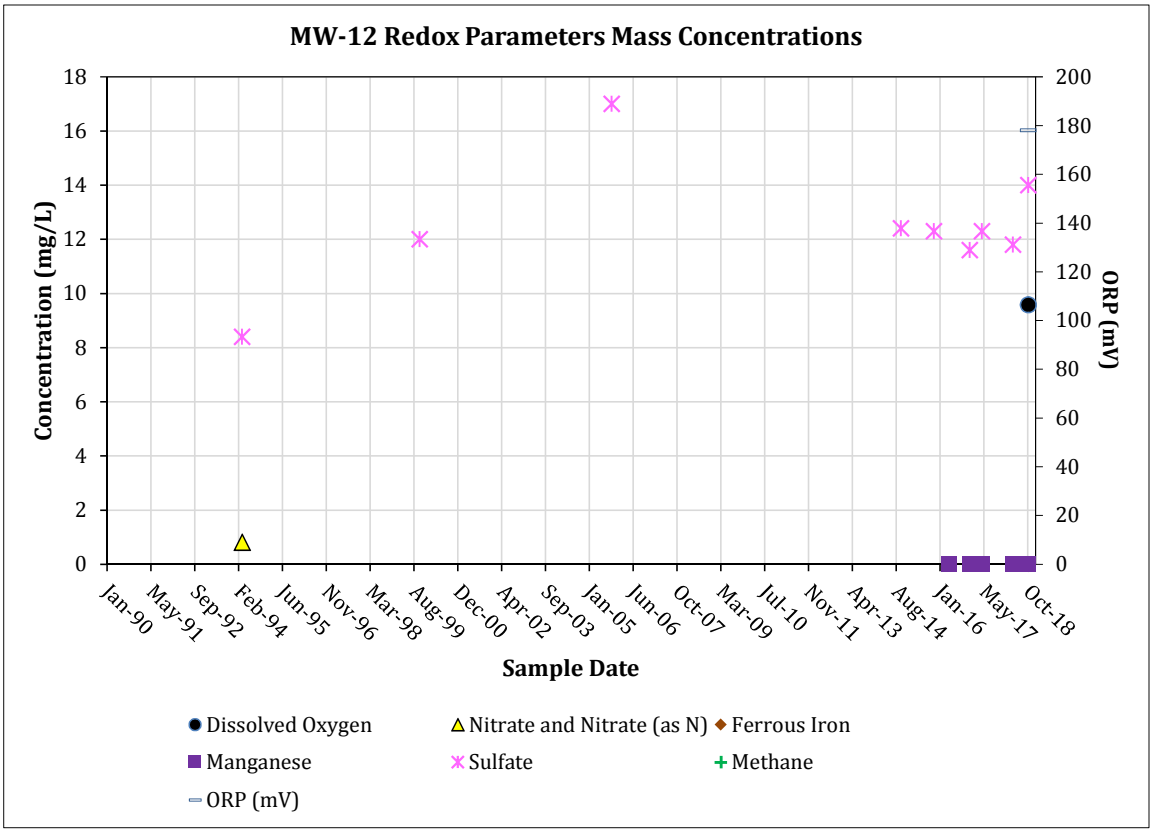

MW-9 Redox Parameters Mass Concentrations
Concentration (mg/L)
2500
2000
1500
1000
500
0
ORP (mV)
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP (mV)

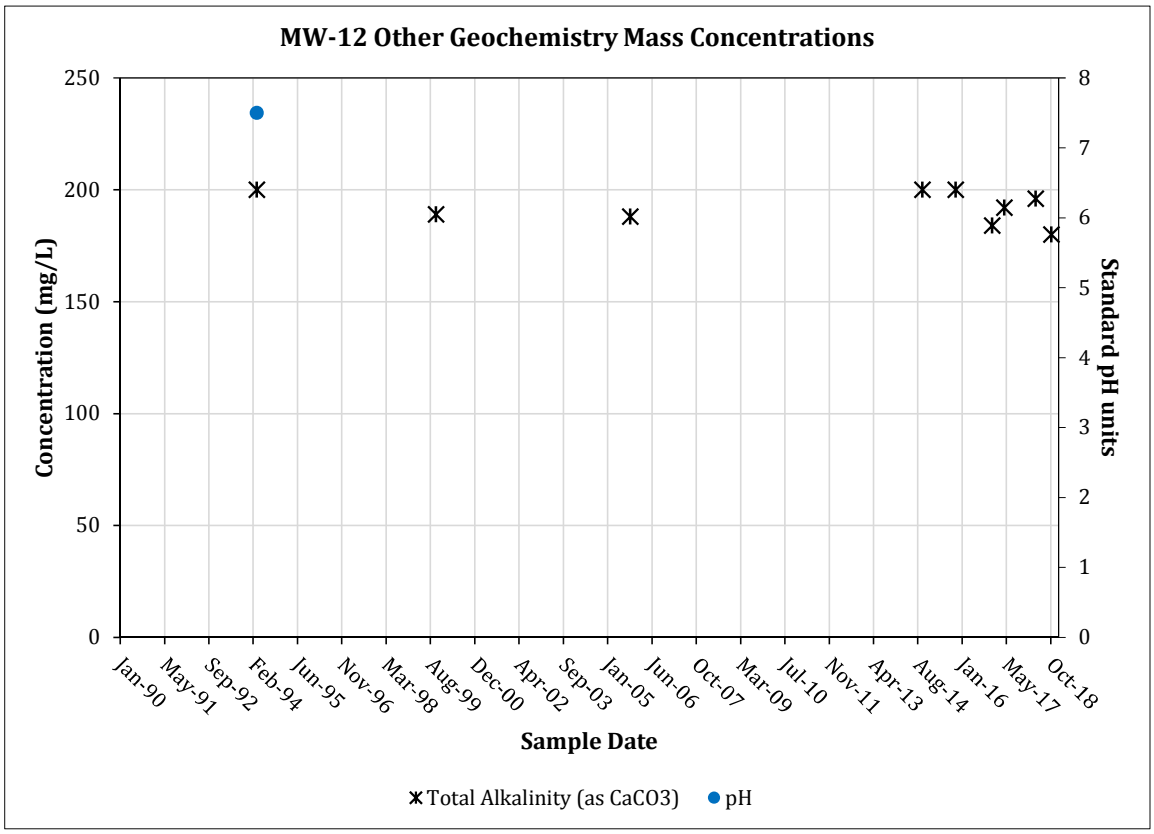

MW-9 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
Total Alkalinity (as CaCO3)
pH
0
50
100
150
200
250
300
350
400
450
0
1
2
3
4
5
6
7
8
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

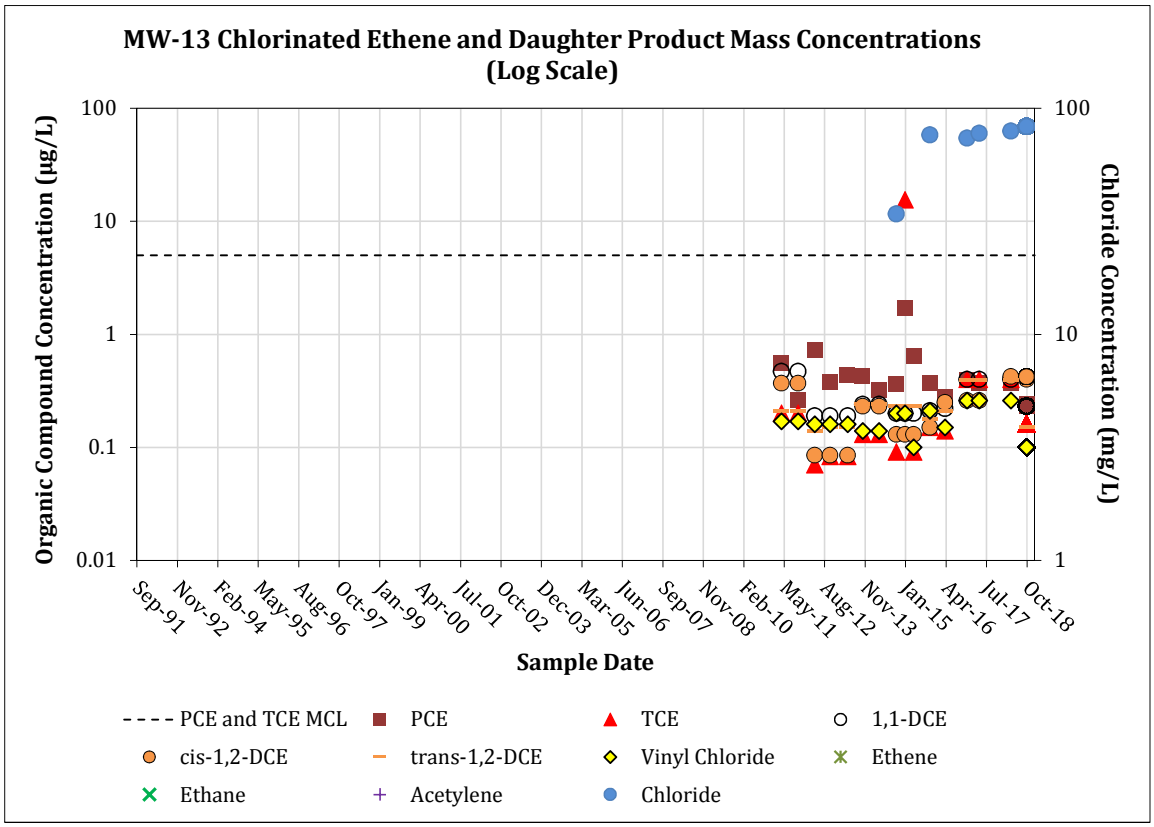

MW-12 Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
10
1
0.1
0.01
1000
100
10
1
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

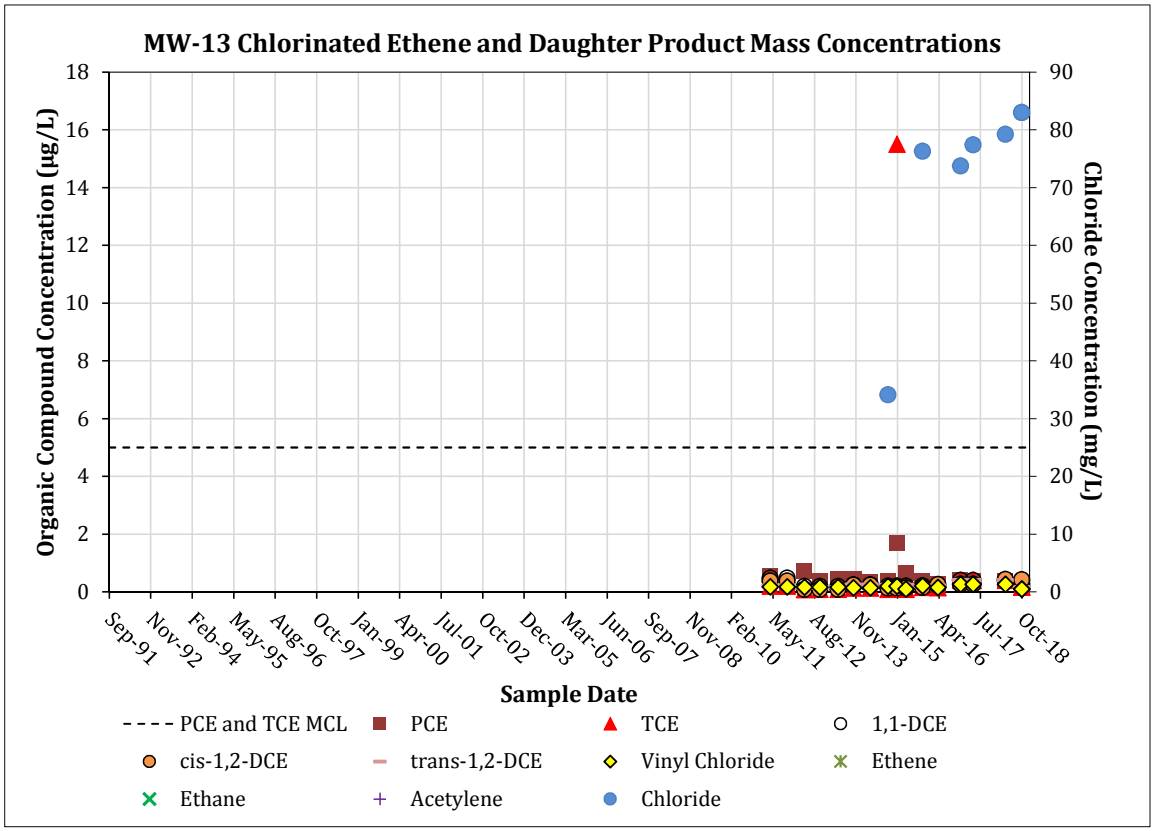

MW-12 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
6
5
4
3
2
1
0
140
120
100
80
60
40
20
0
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

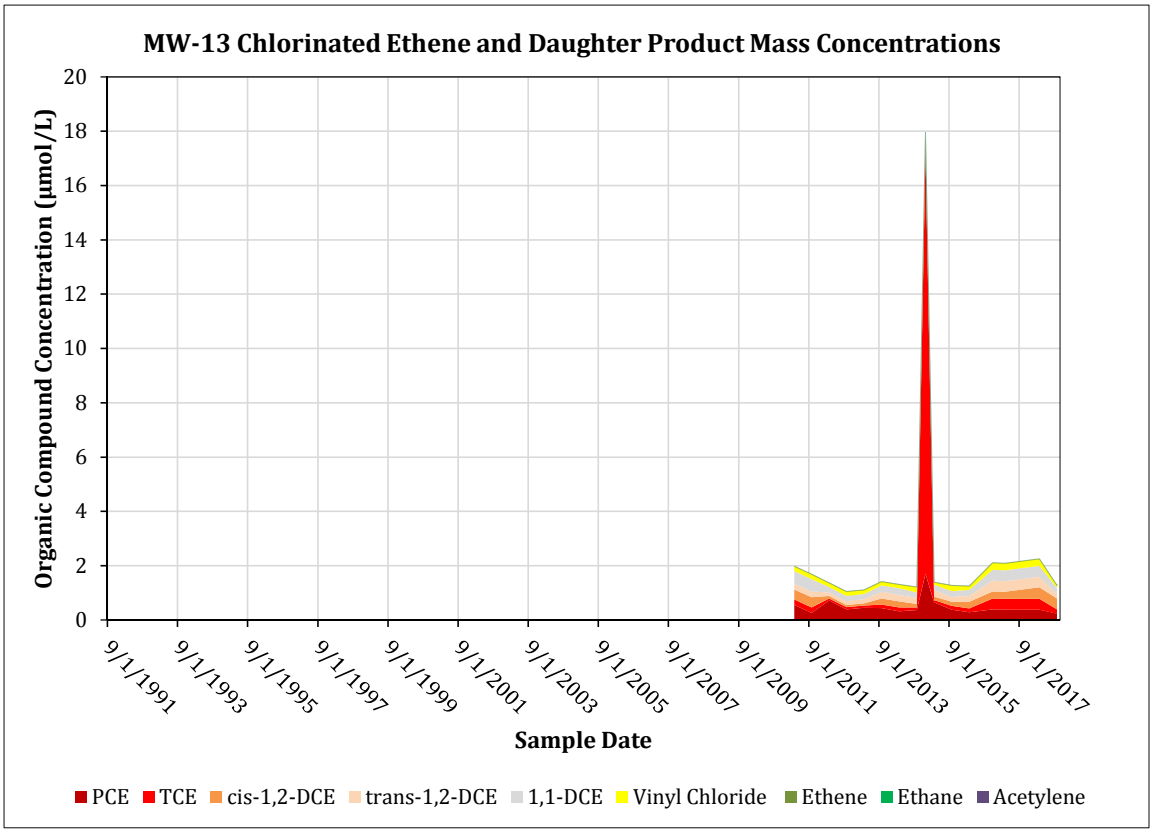

MW-12 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µmol/L)
3
2.5
2
1.5
1
0.5
0
9/1/1991
9/1/1993
9/1/1995
9/1/1997
9/1/1999
9/1/2001
9/1/2003
9/1/2005
9/1/2007
9/1/2009
9/1/2011
9/1/2013
9/1/2015
9/1/2017
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
1,1-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

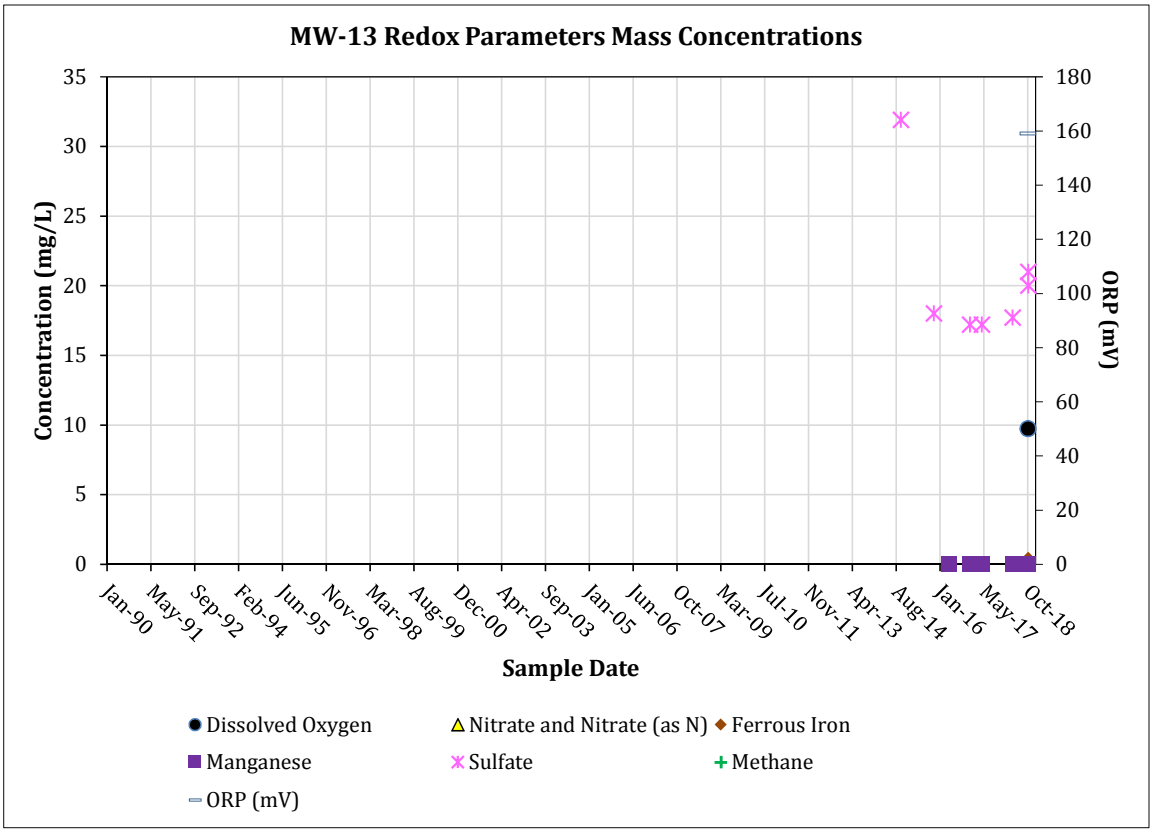

MW-12 Redox Parameters Mass Concentrations
Concentration (mg/L)
18
16
14
12
10
8
6
4
2
0
ORP (mV)
200
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP (mV)

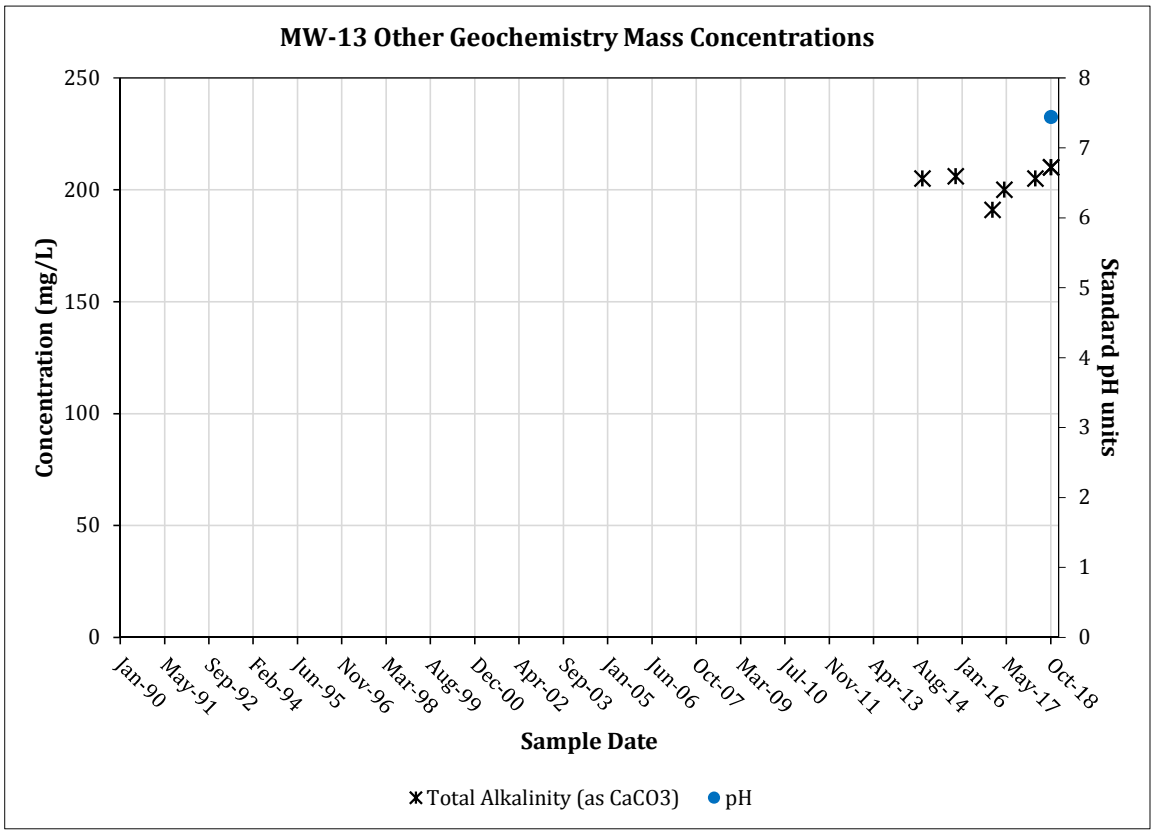

MW-12 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
250
200
150
100
50
0
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Total Alkalinity (as CaCO3)
pH


MW-13 Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
0.01
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride


MW-13 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
18
16
14
12
10
8
6
4
2
0
90
80
70
60
50
40
30
20
10
0
Sep-91
Nov-92
Feb-94
May-95
Aug-96
Oct-97
Jan-99
Apr-00
Jul-01
Oct-02
Dec-03
Mar-05
Jun-06
Sep-07
Nov-08
Feb-10
May-11
Aug-12
Nov-13
Jan-15
Apr-16
Jul-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

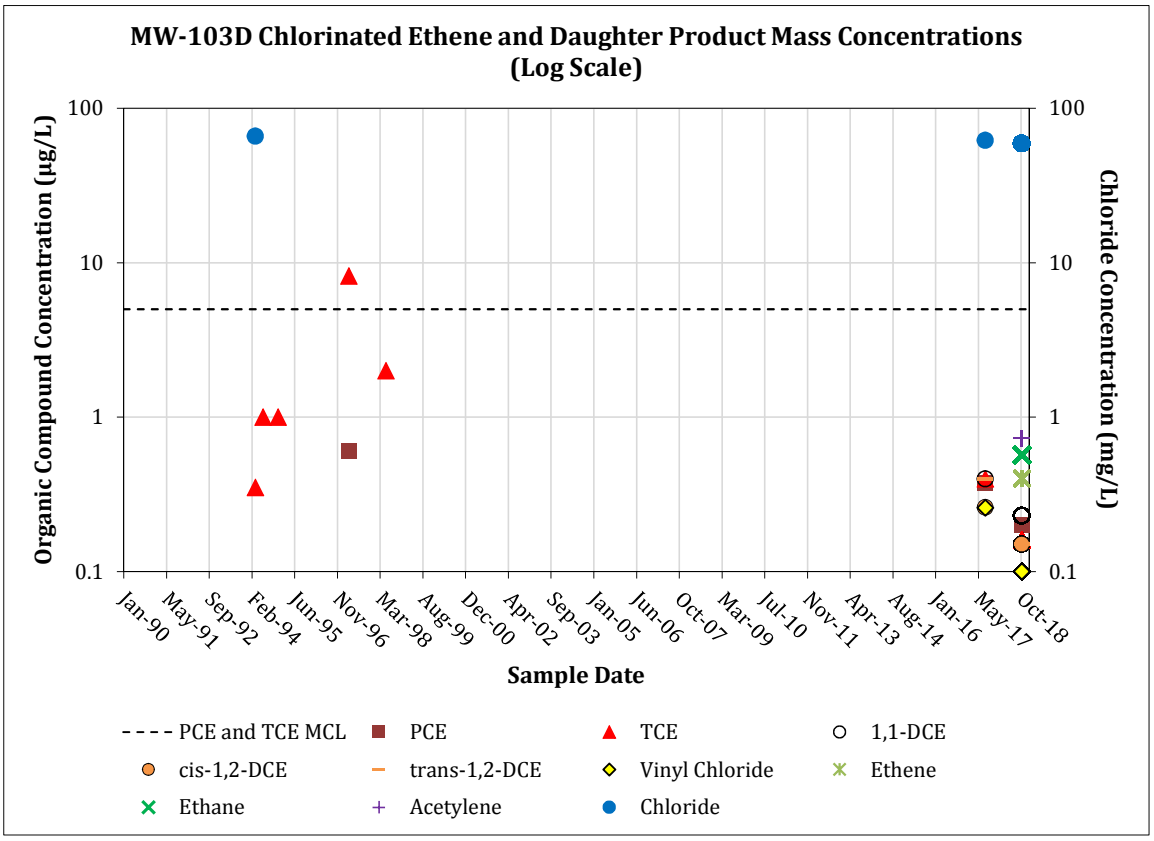

MW-13 Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µmol/L)
0
2
4
6
8
10
12
14
16
18
20
9/1/1991
9/1/1993
9/1/1995
9/1/1997
9/1/1999
9/1/2001
9/1/2003
9/1/2005
9/1/2007
9/1/2009
9/1/2011
9/1/2013
9/1/2015
9/1/2017
Sample Date
PCE
TCE
cis-1,2-DCE
trans-1,2-DCE
1,1-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

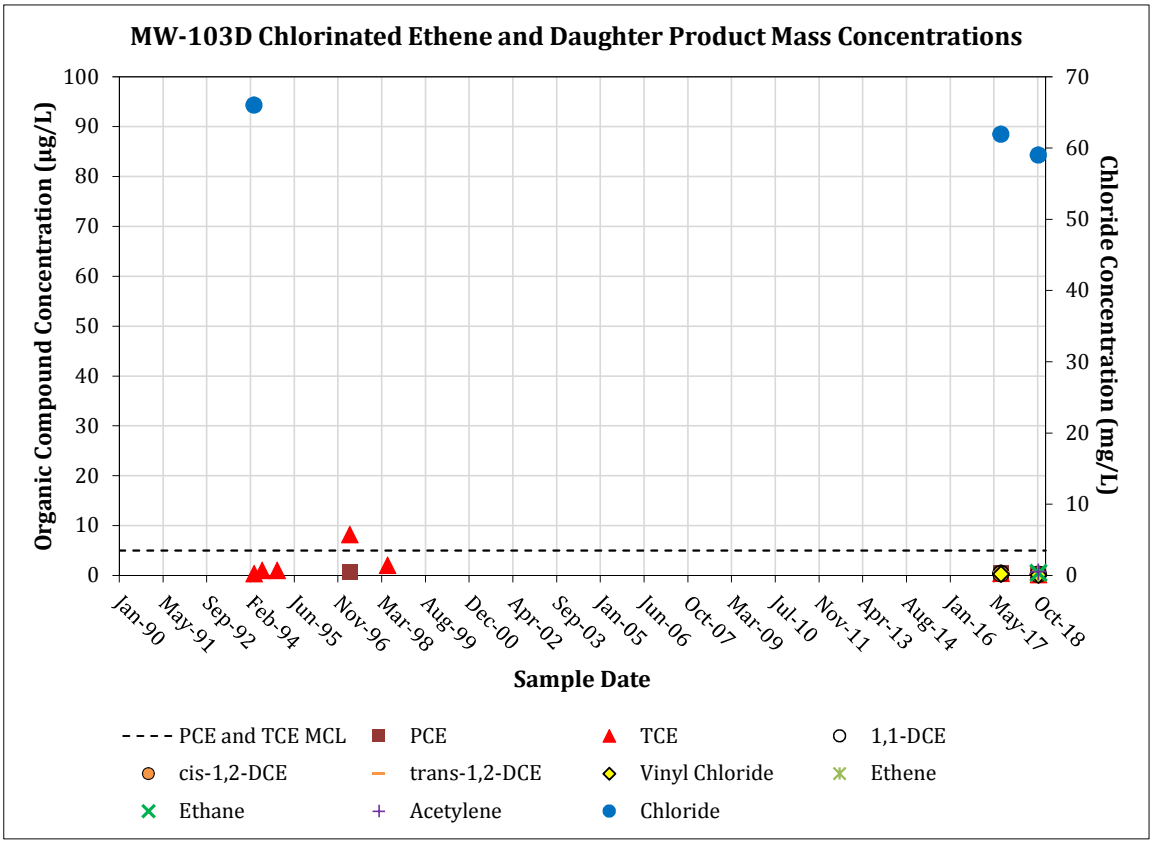

MW-13 Redox Parameters Mass Concentrations
Concentration (mg/L)
0
5
10
15
20
25
30
35
ORP (mV)
0
20
40
60
80
100
120
140
160
180
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP (mV)

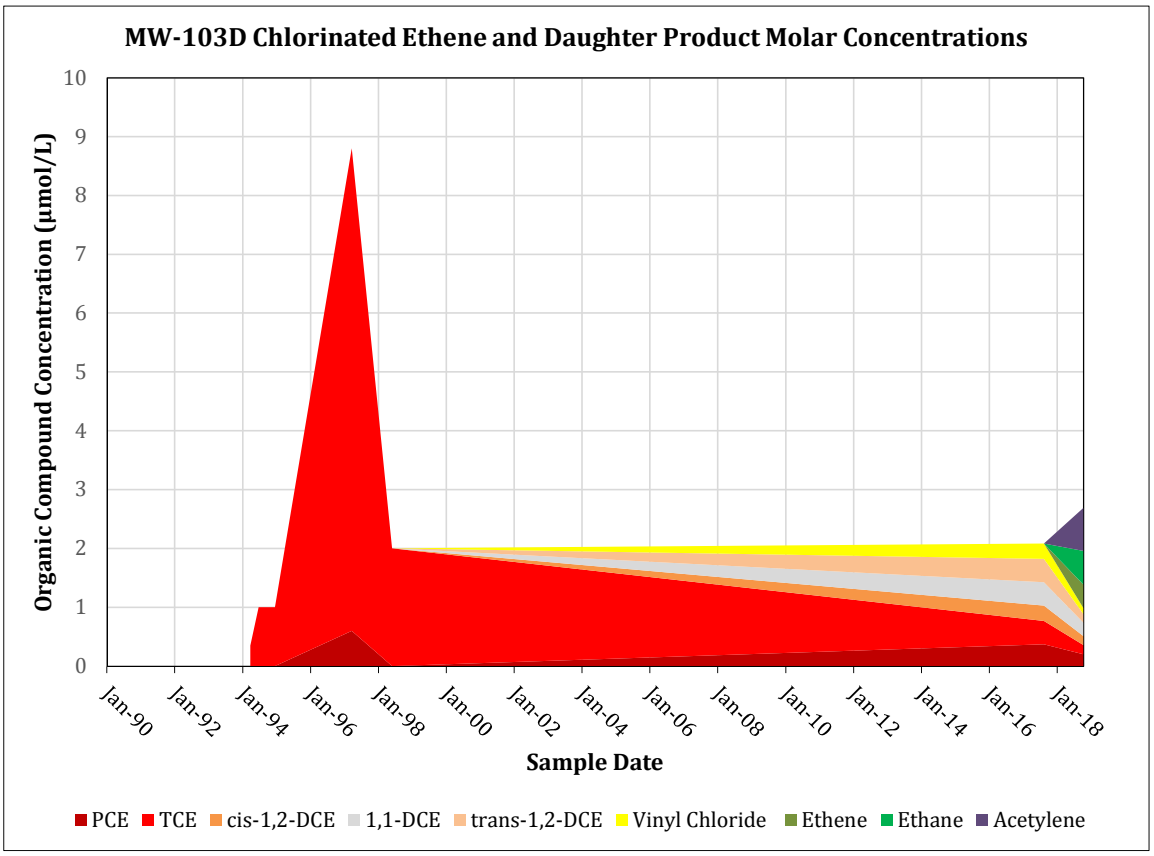

MW-13 Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH units
Sample Date
0
50
100
150
200
250
0
1
2
3
4
5
6
7
8
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Total Alkalinity (as CaCO3)
pH

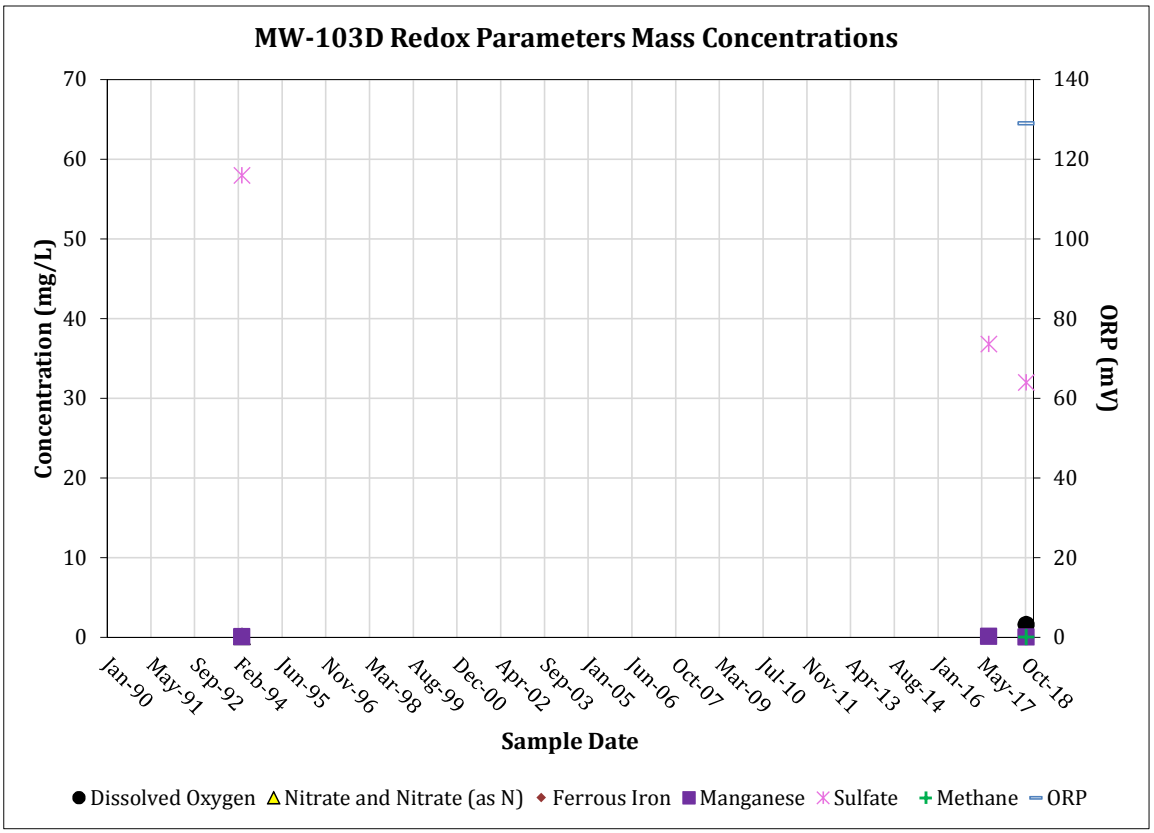
Section 4

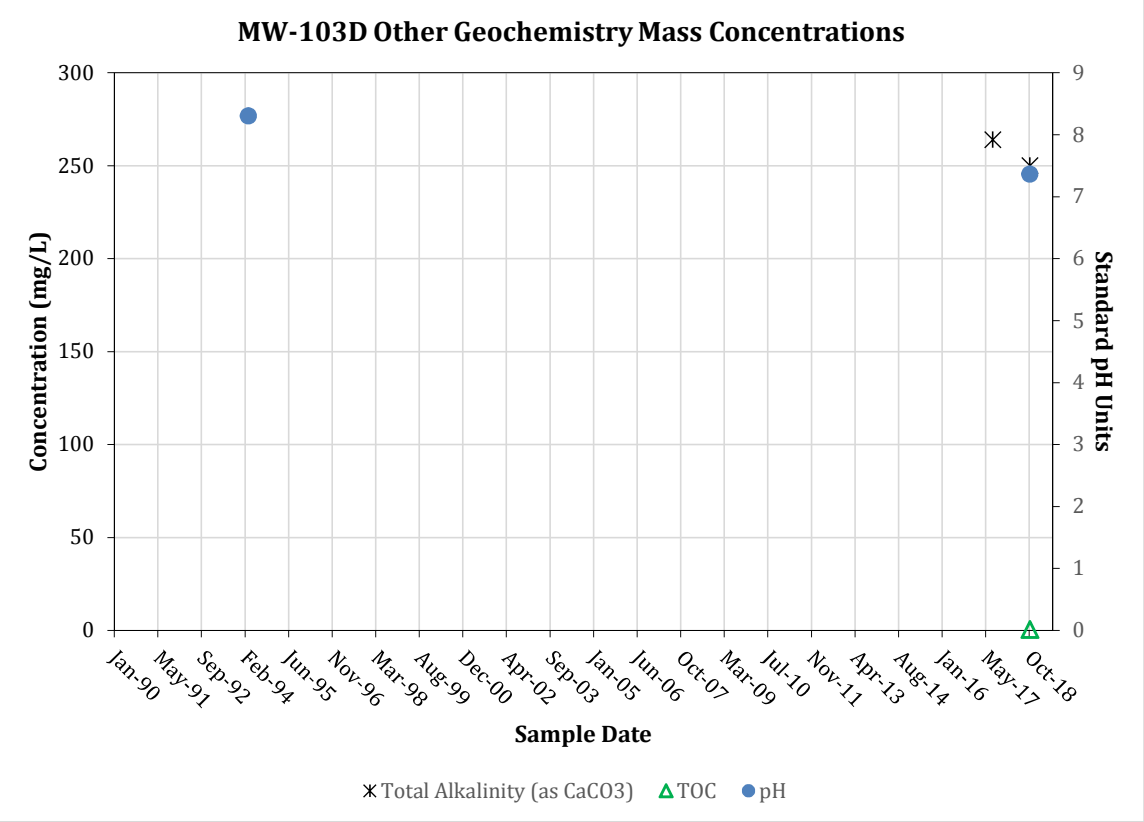
VOC and Geochemistry Trend Charts - Offsite Monitoring Wells

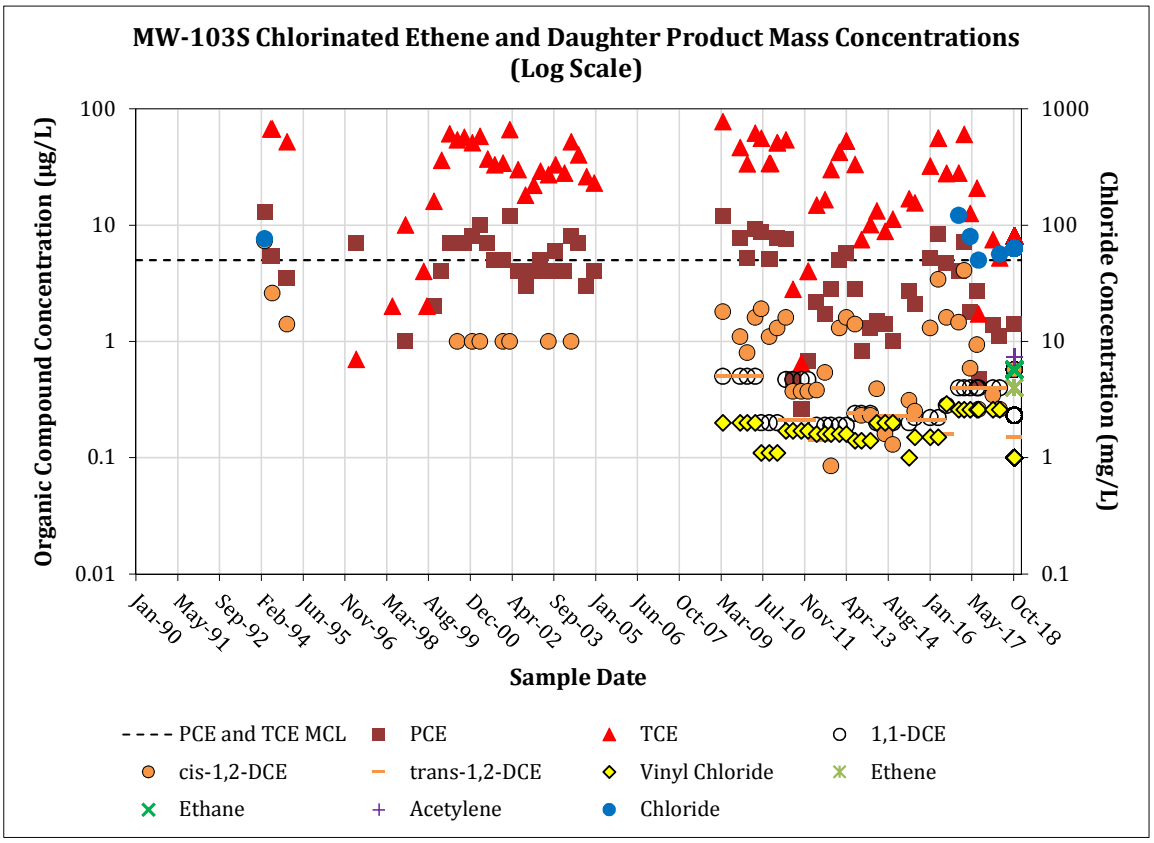

MW-103D Chlorinated Ethene and Daughter Product Mass Concentrations
(Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

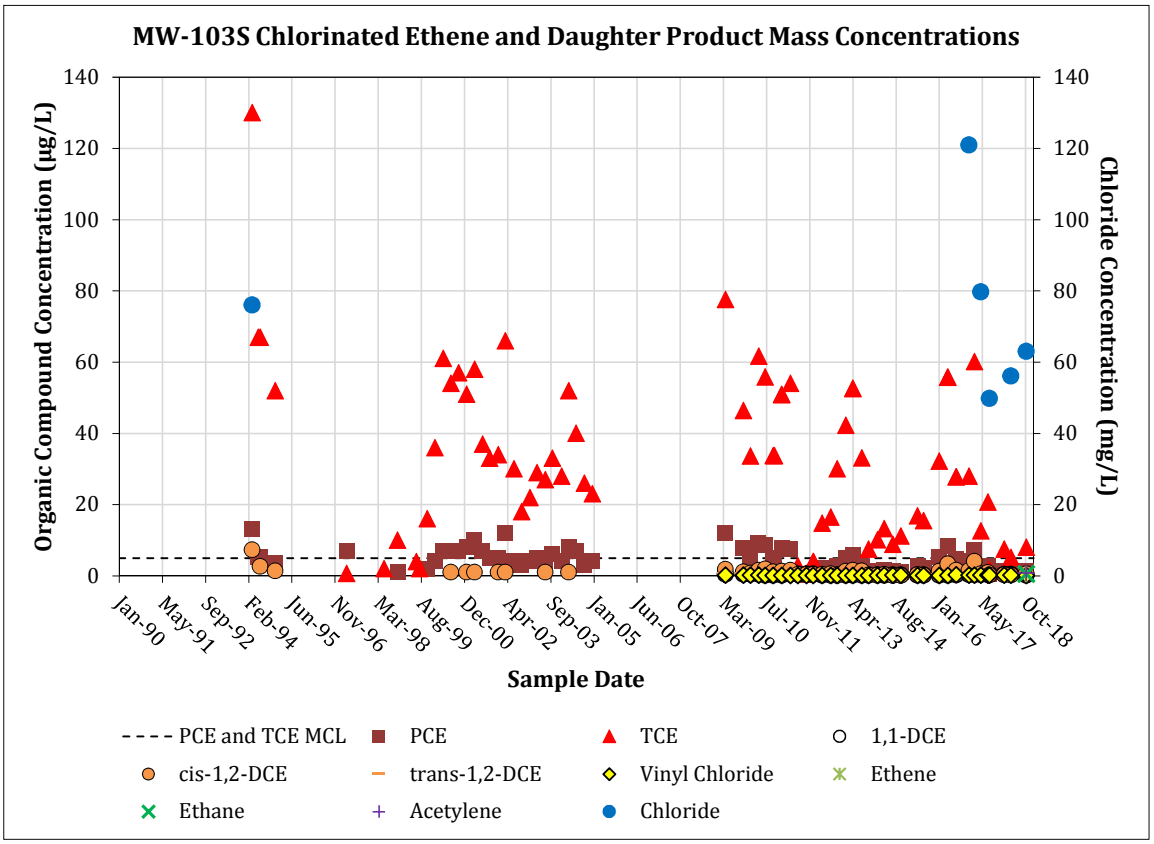

MW-103D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

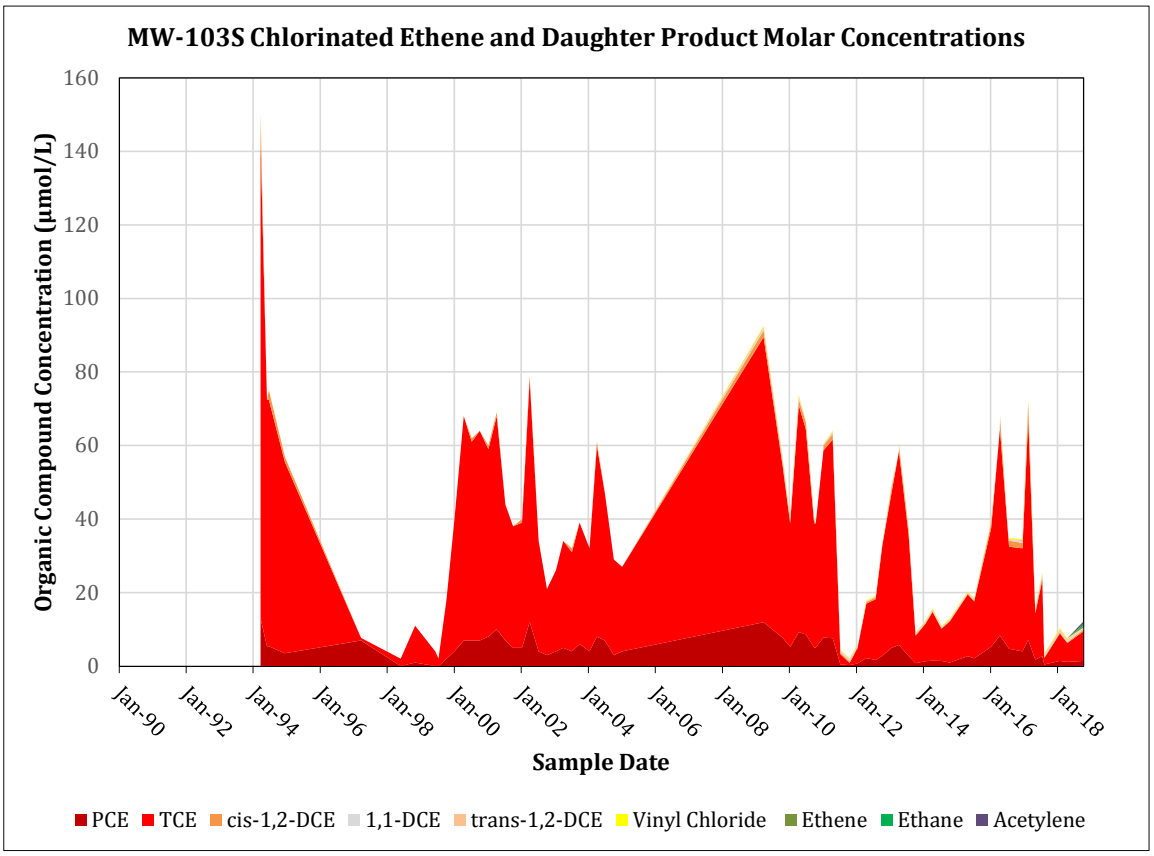

MW-103D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
0
1
2
3
4
5
6
7
8
9
10
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Sample Date
PCE
TCE
cis-1,2-DCE
1,1-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

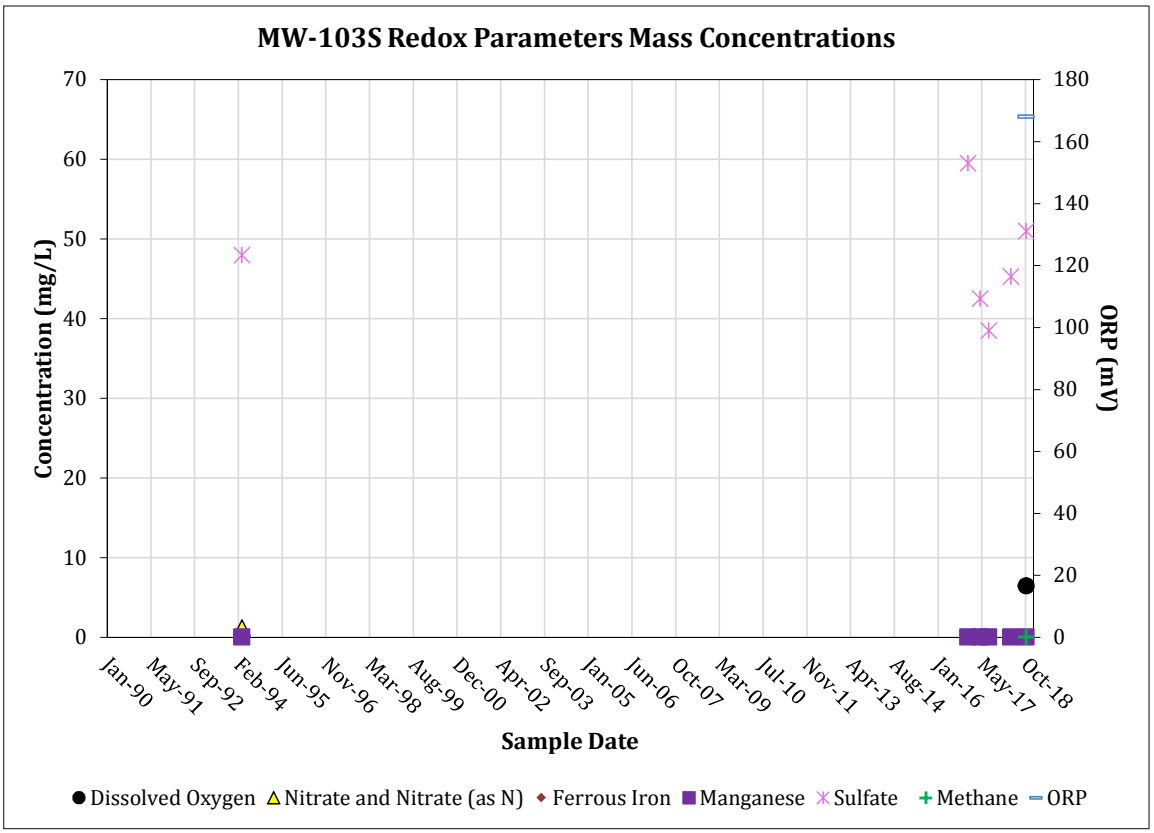

MW-103D Redox Parameters Mass Concentrations
Concentration (mg/L)
0
10
20
30
40
50
60
70
ORP (mV)
0
20
40
60
80
100
120
140
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

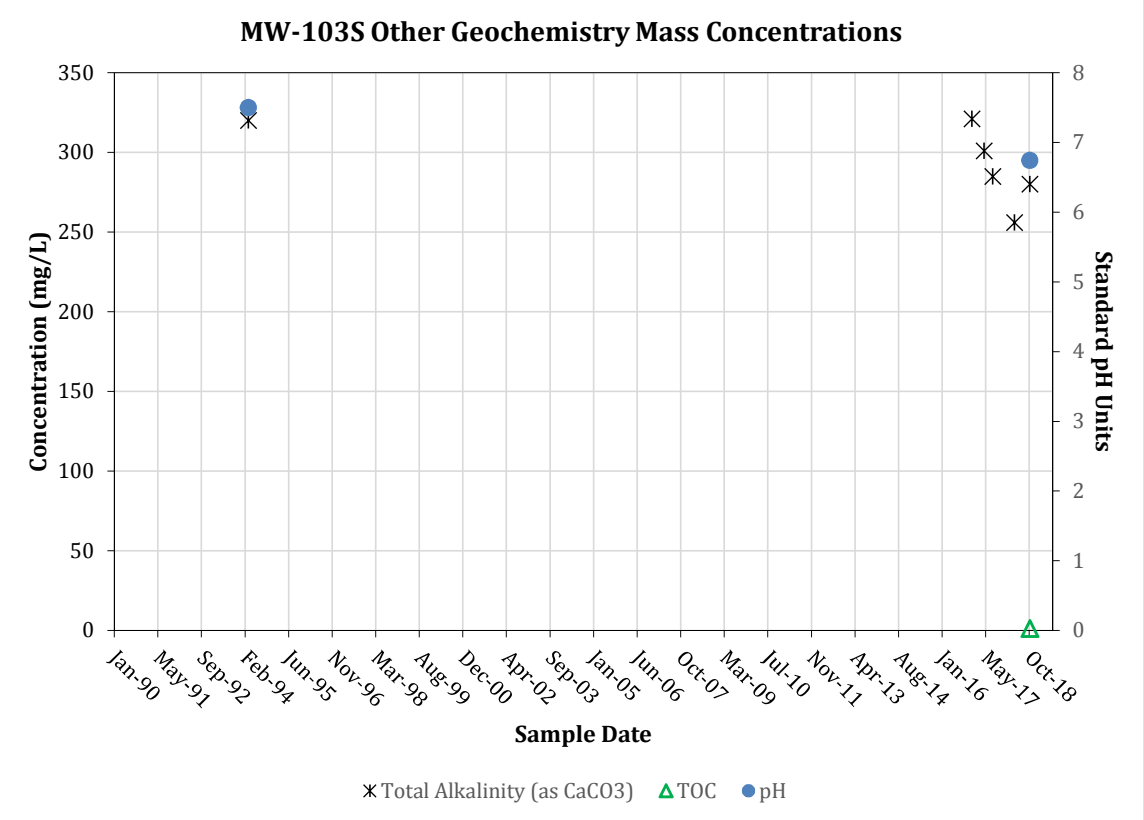

MW-103D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH Units
300
250
200
150
100
50
0
9
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

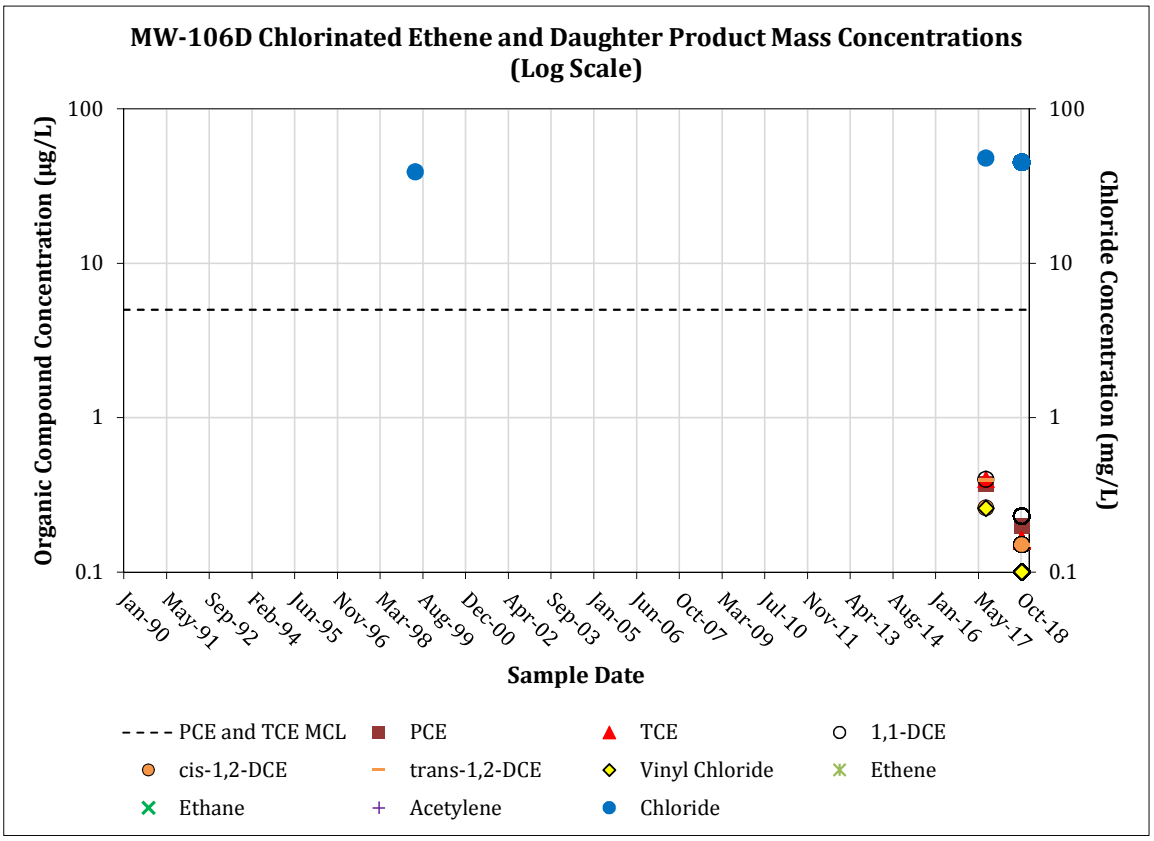

MW-103S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
0.01
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

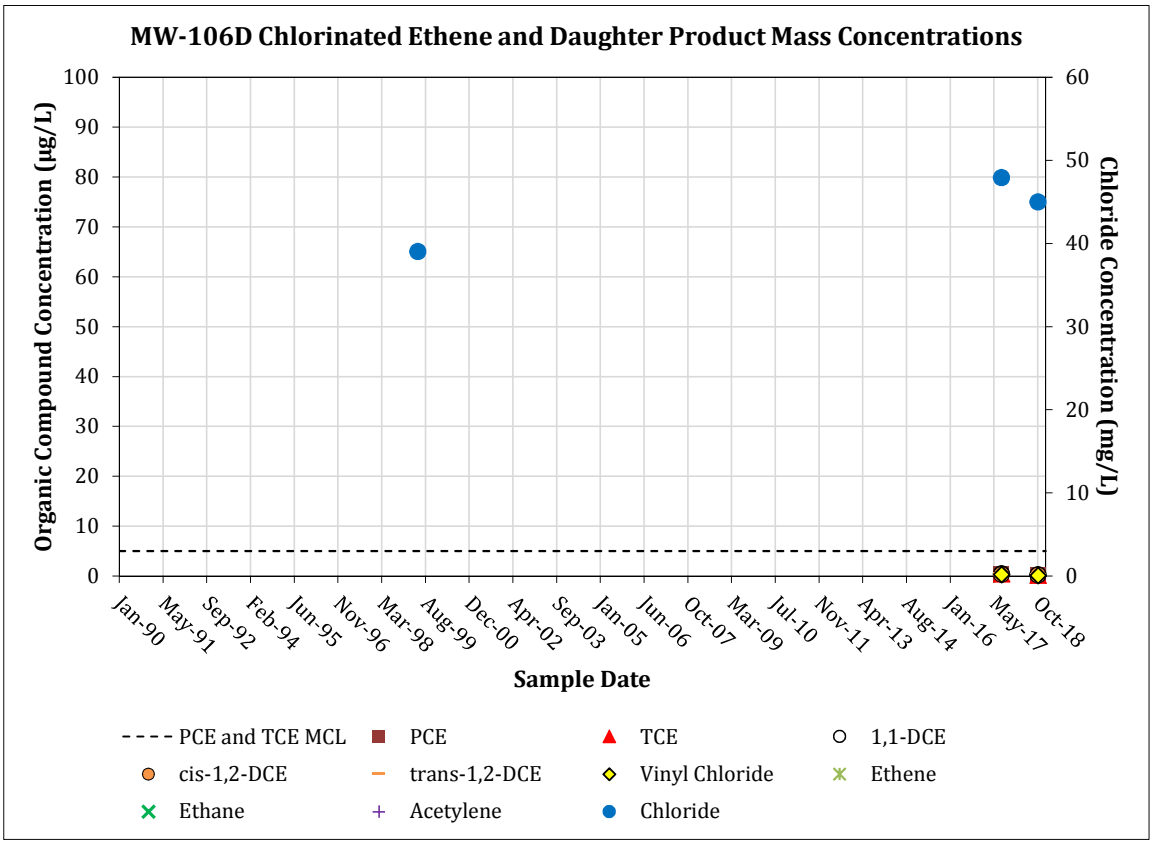

MW-103S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

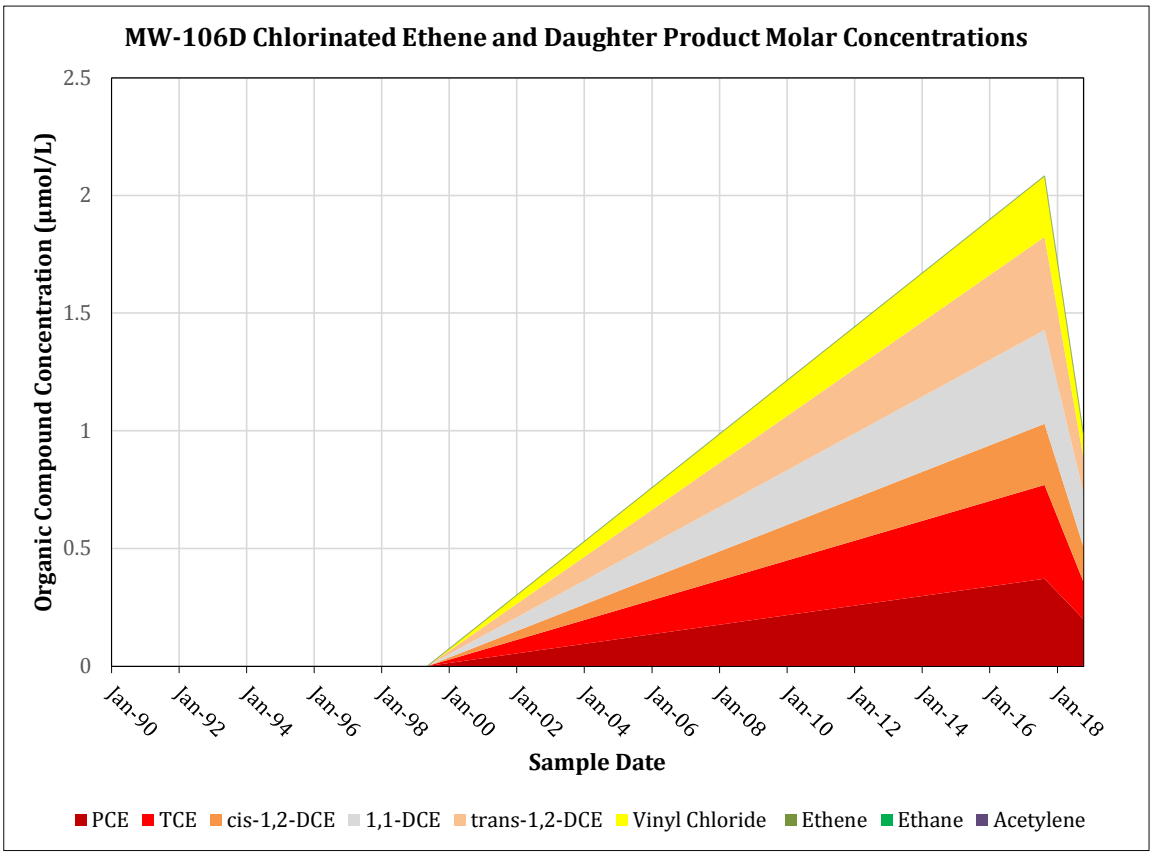

MW-103S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
160
140
120
100
80
60
40
20
0
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Sample Date
PCE
TCE
cis-1,2-DCE
1,1-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

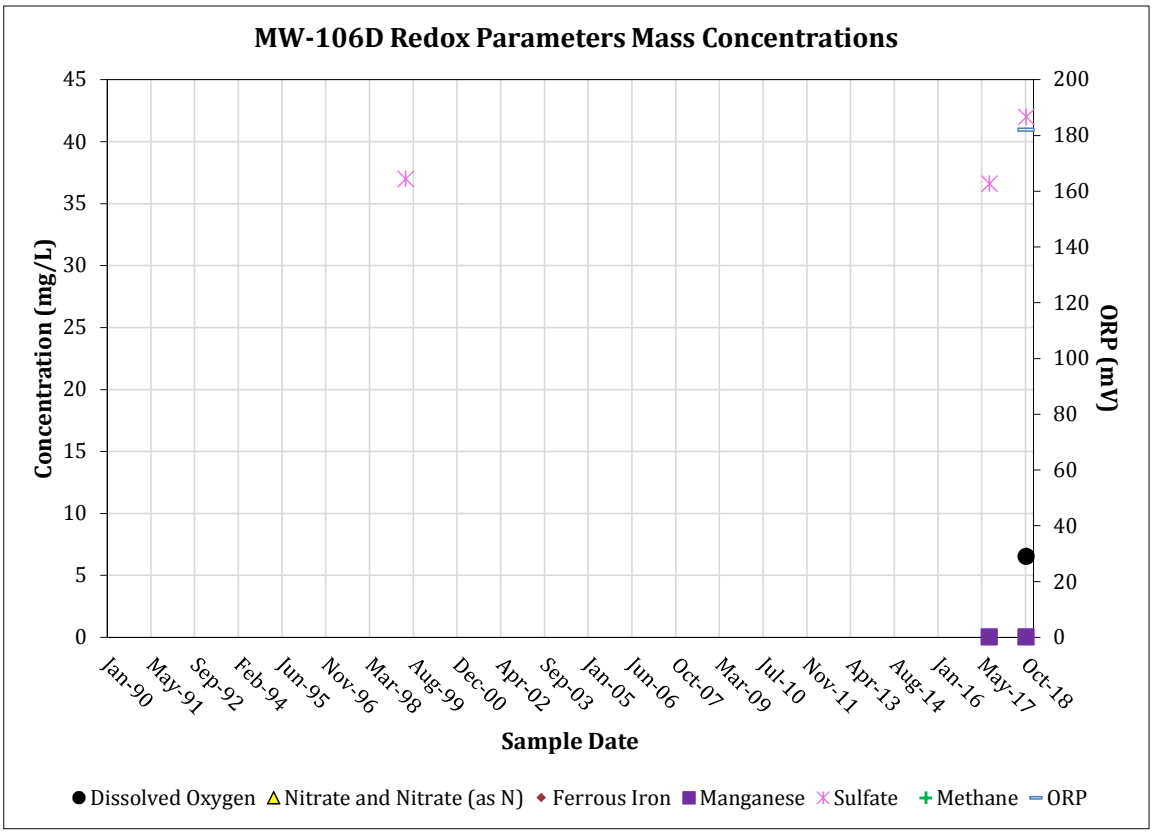

MW-103S Redox Parameters Mass Concentrations
Concentration (mg/L)
70
60
50
40
30
20
10
0
ORP (mV)
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

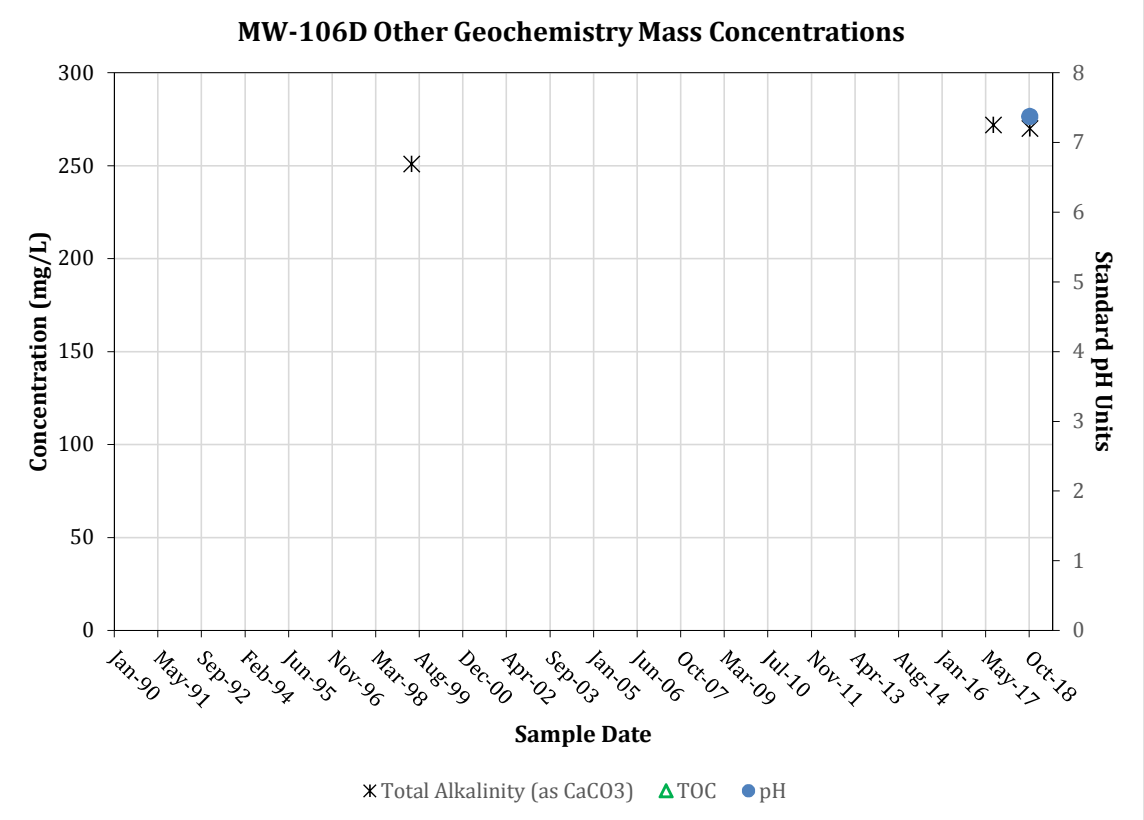

MW-103S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH Units
Sample Date
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Total Alkalinity (as CaCO3)
TOC
pH

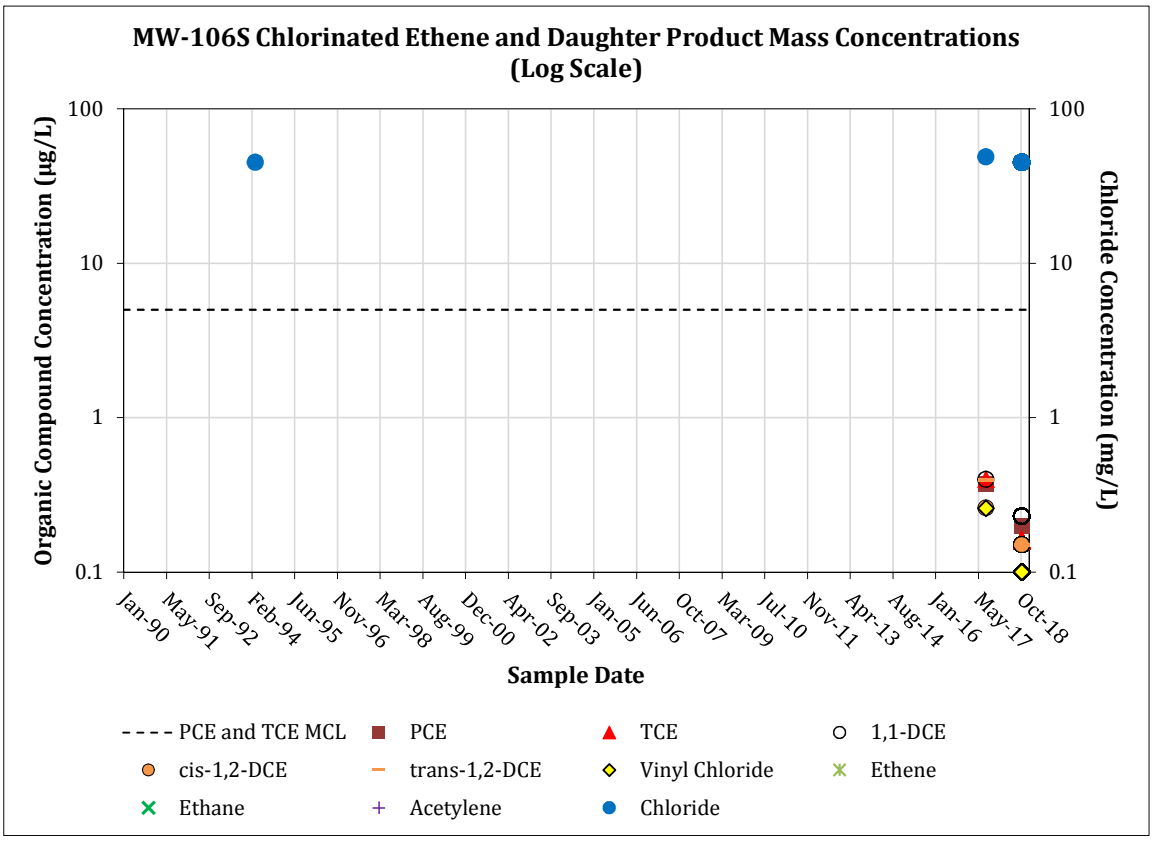

MW-106D Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

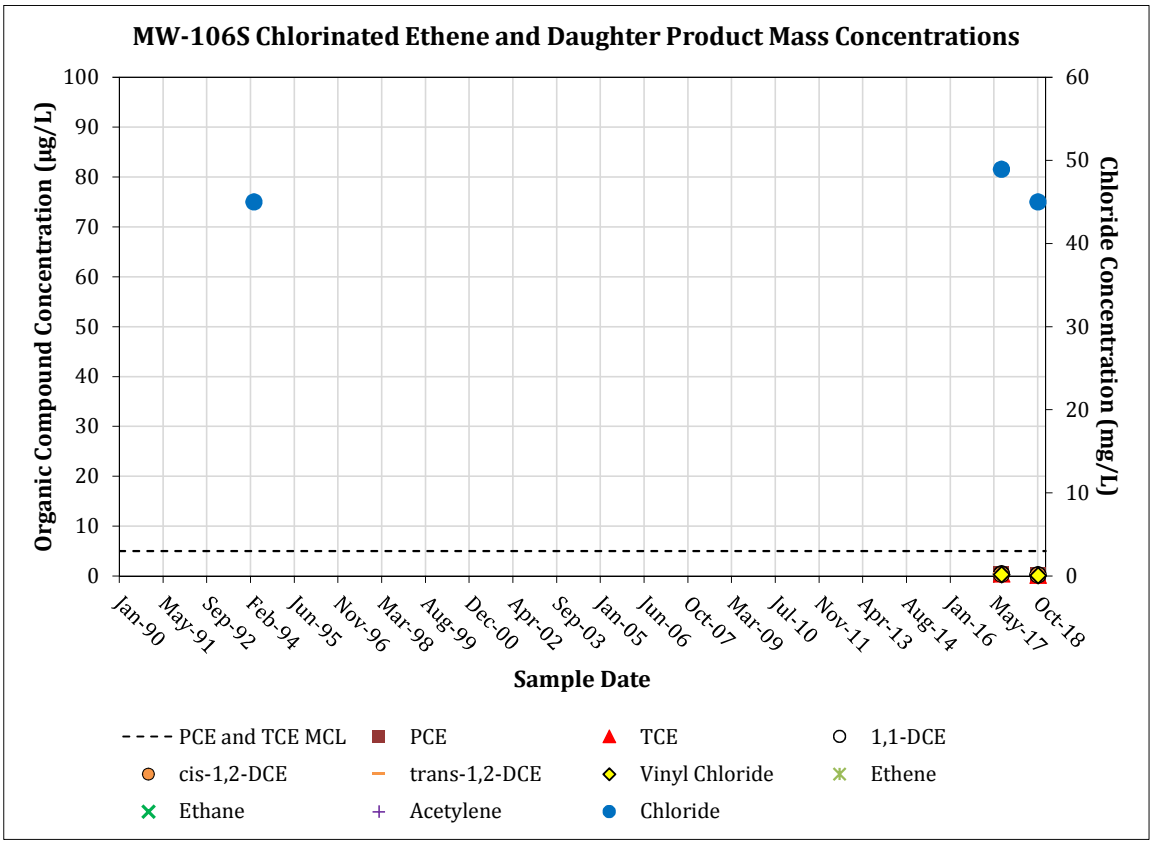

MW-106D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

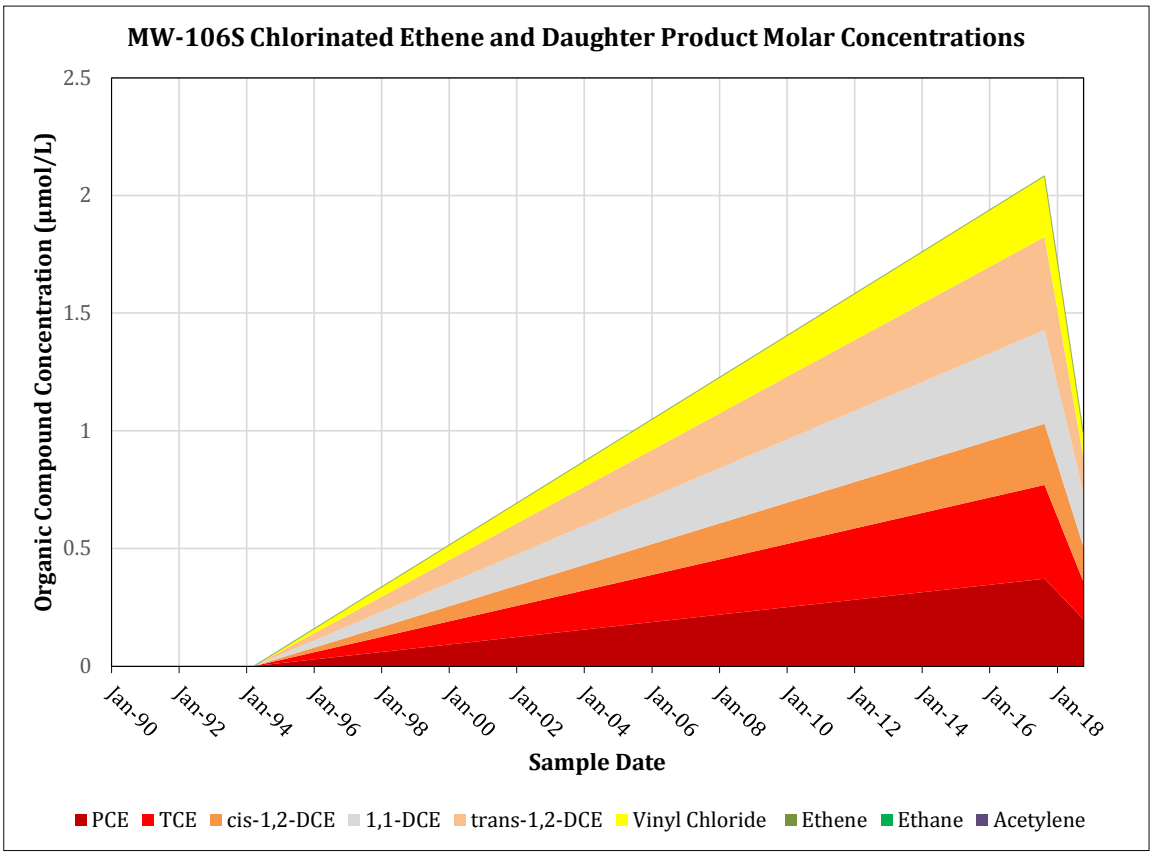

MW-106D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
2.5
2
1.5
1
0.5
0
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Sample Date
PCE
TCE
cis-1,2-DCE
1,1-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

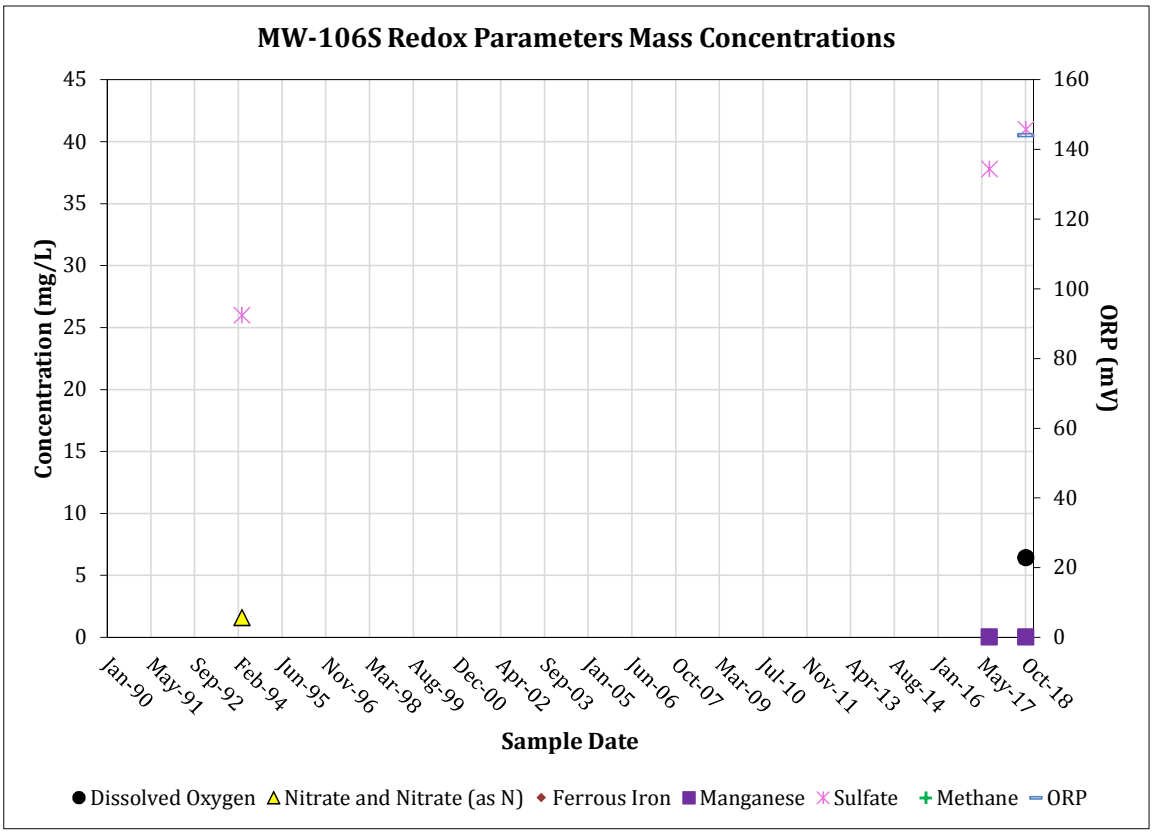

MW-106D Redox Parameters Mass Concentrations
Concentration (mg/L)
45
40
35
30
25
20
15
10
5
0
ORP (mV)
200
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

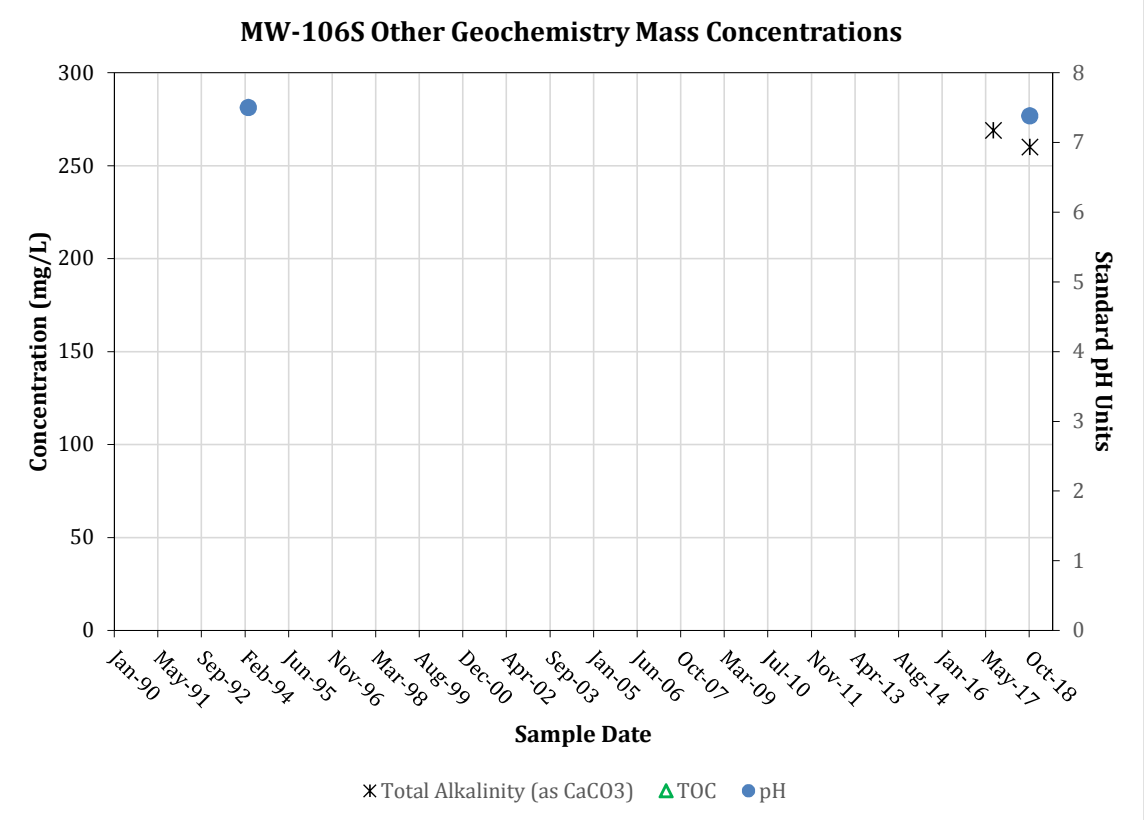

MW-106D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH Units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

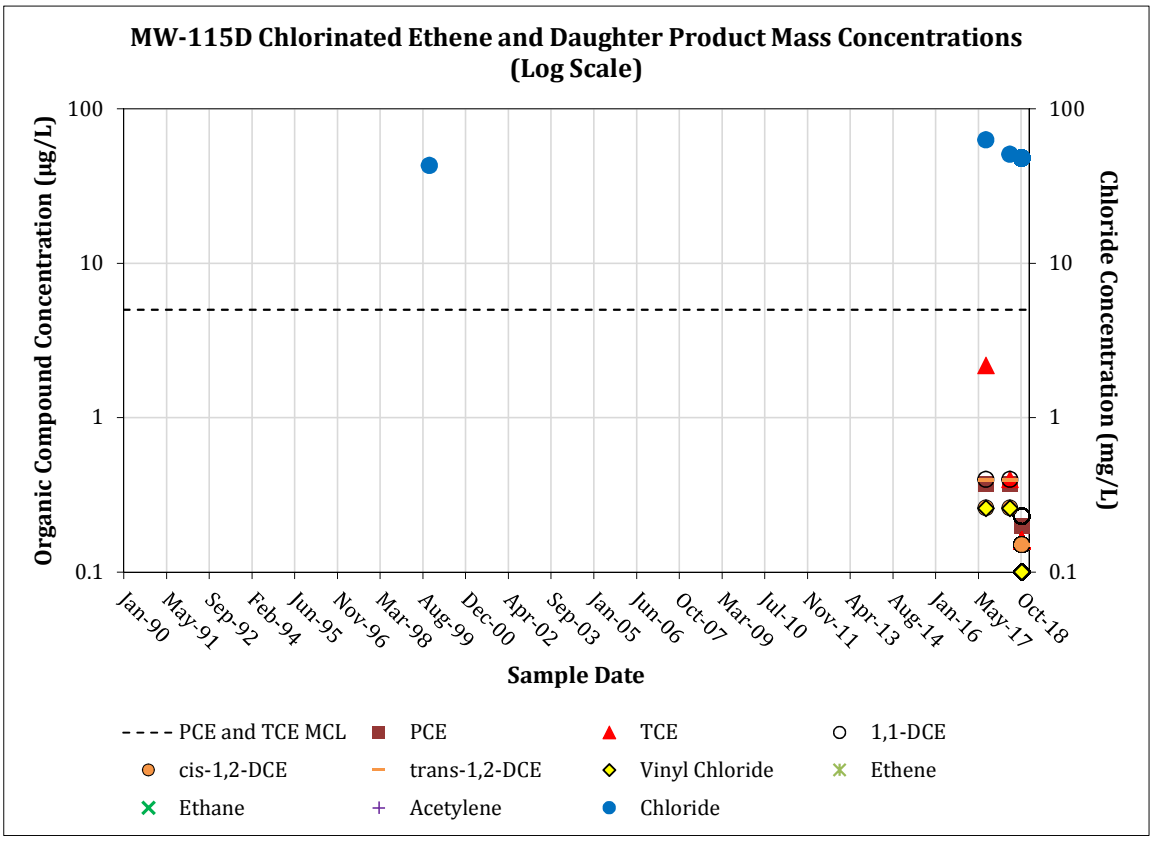

MW-106S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

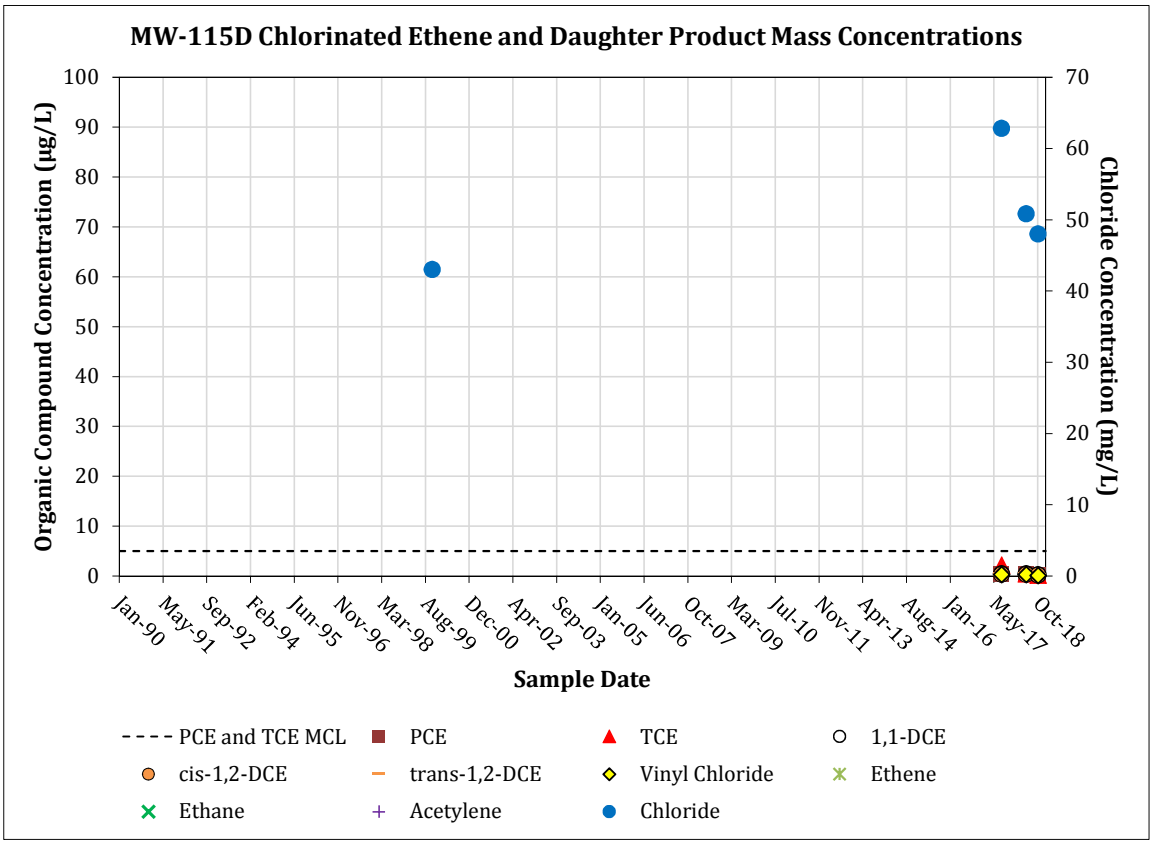

MW-106S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

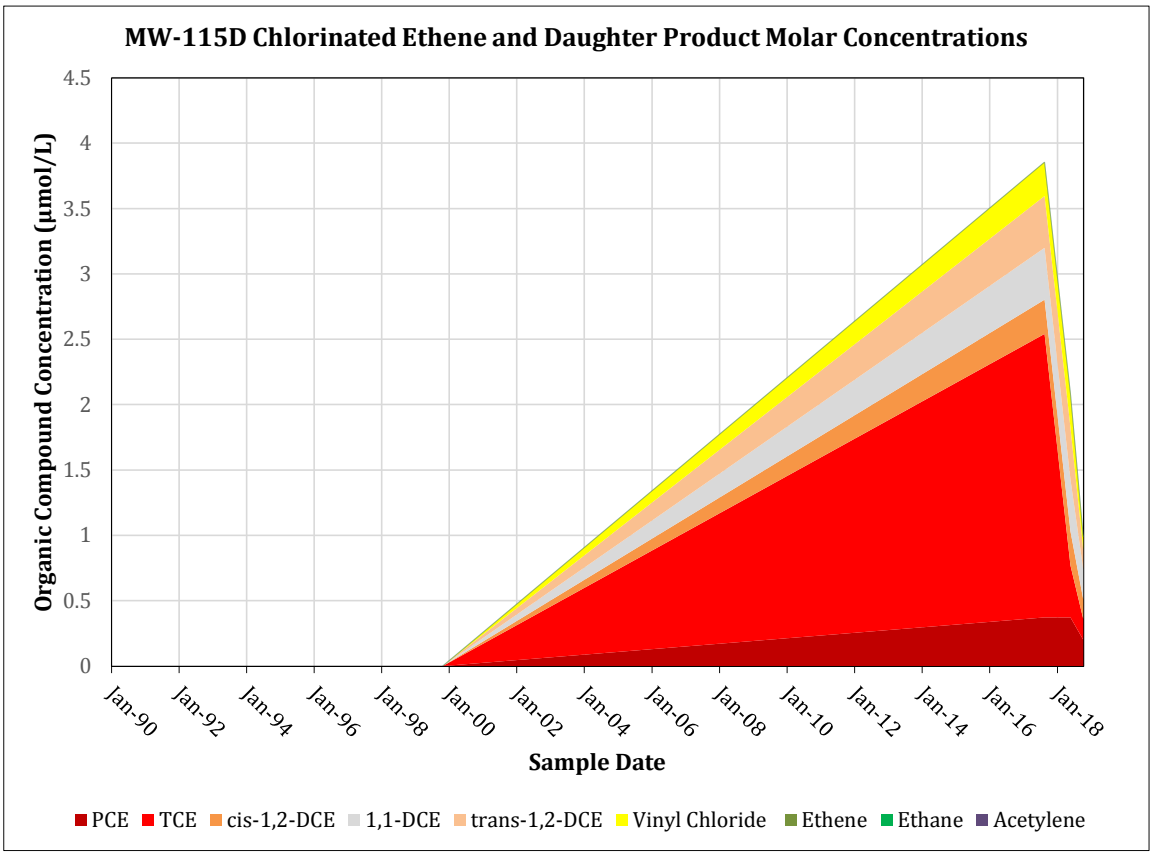

MW-106S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
2.5
2
1.5
1
0.5
0
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Sample Date
PCE
TCE
cis-1,2-DCE
1,1-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

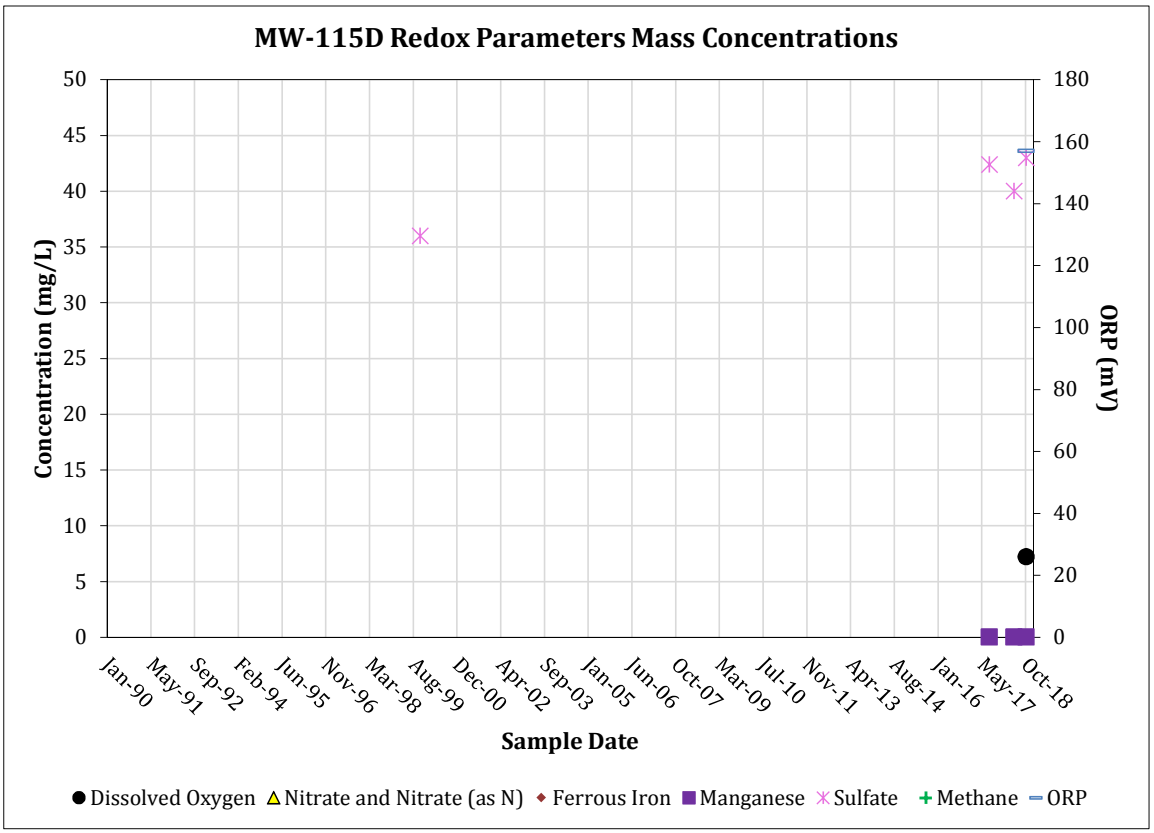

MW-106S Redox Parameters Mass Concentrations
Concentration (mg/L)
45
40
35
30
25
20
15
10
5
0
ORP (mV)
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

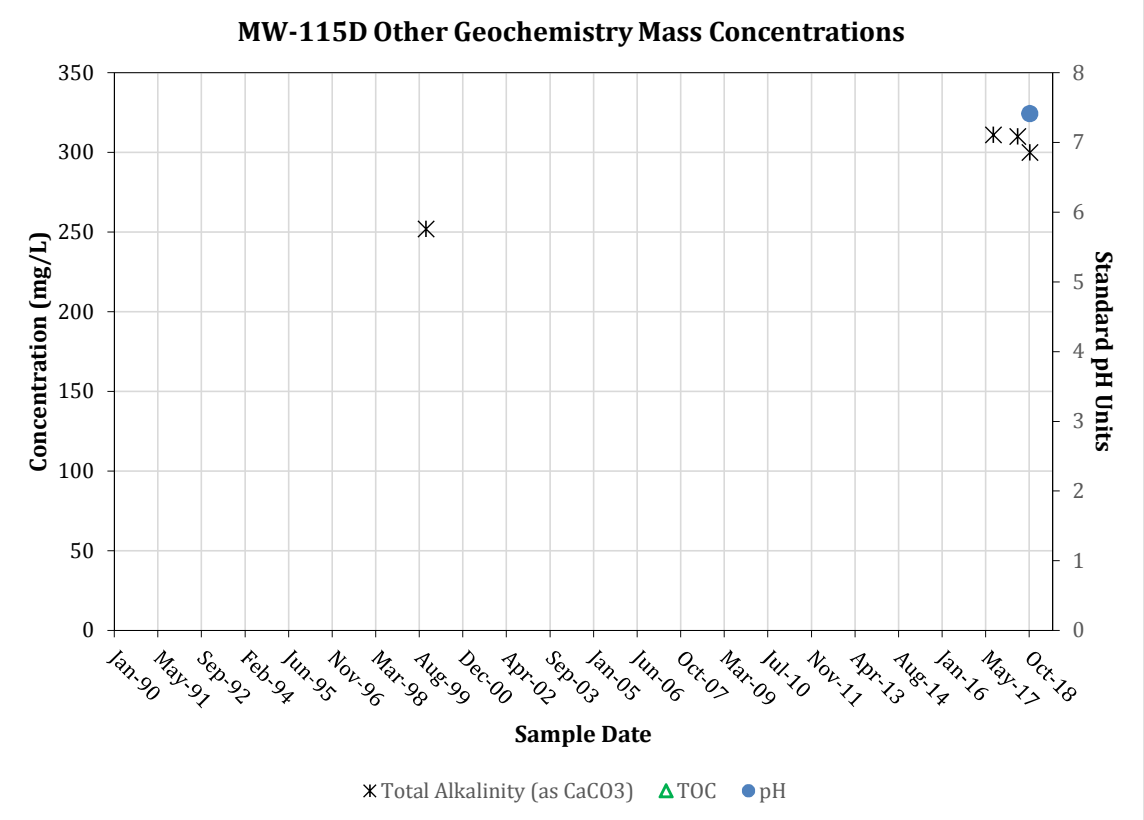

MW-106S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH Units
300
250
200
150
100
50
0
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

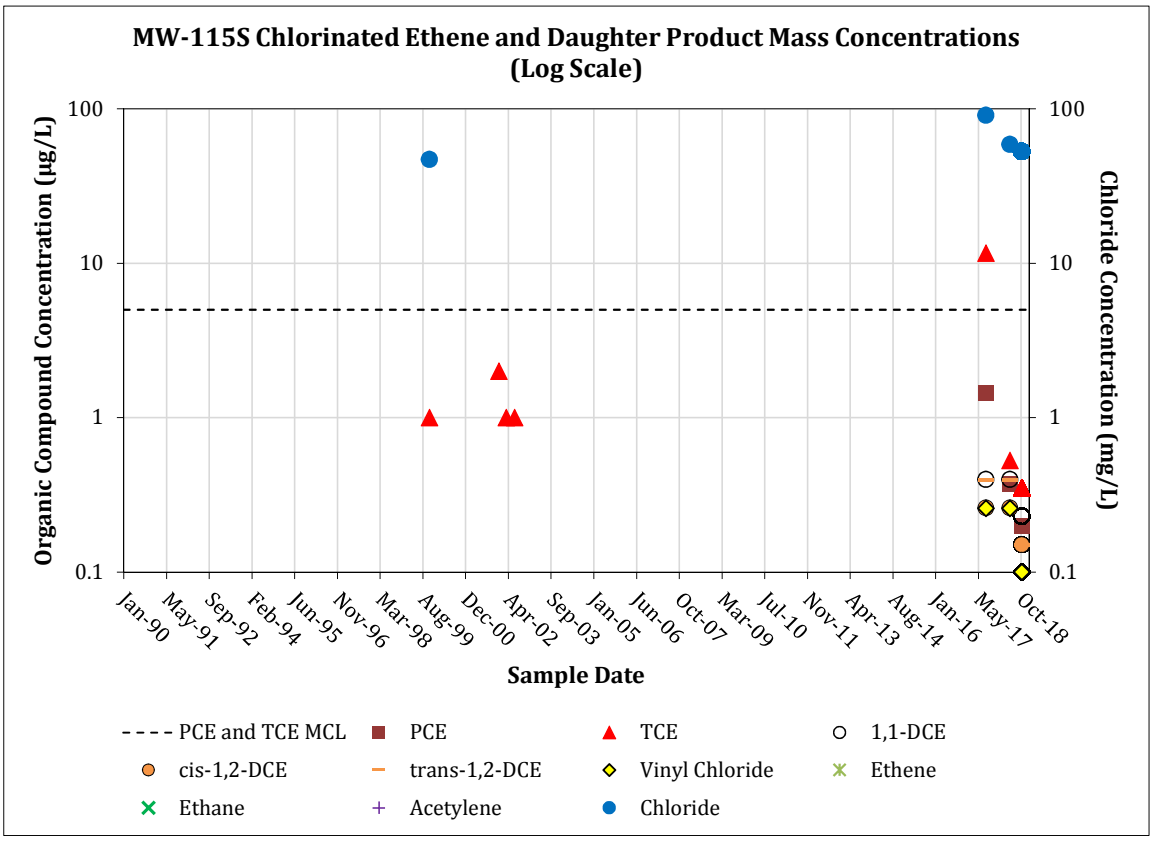

MW-115D Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

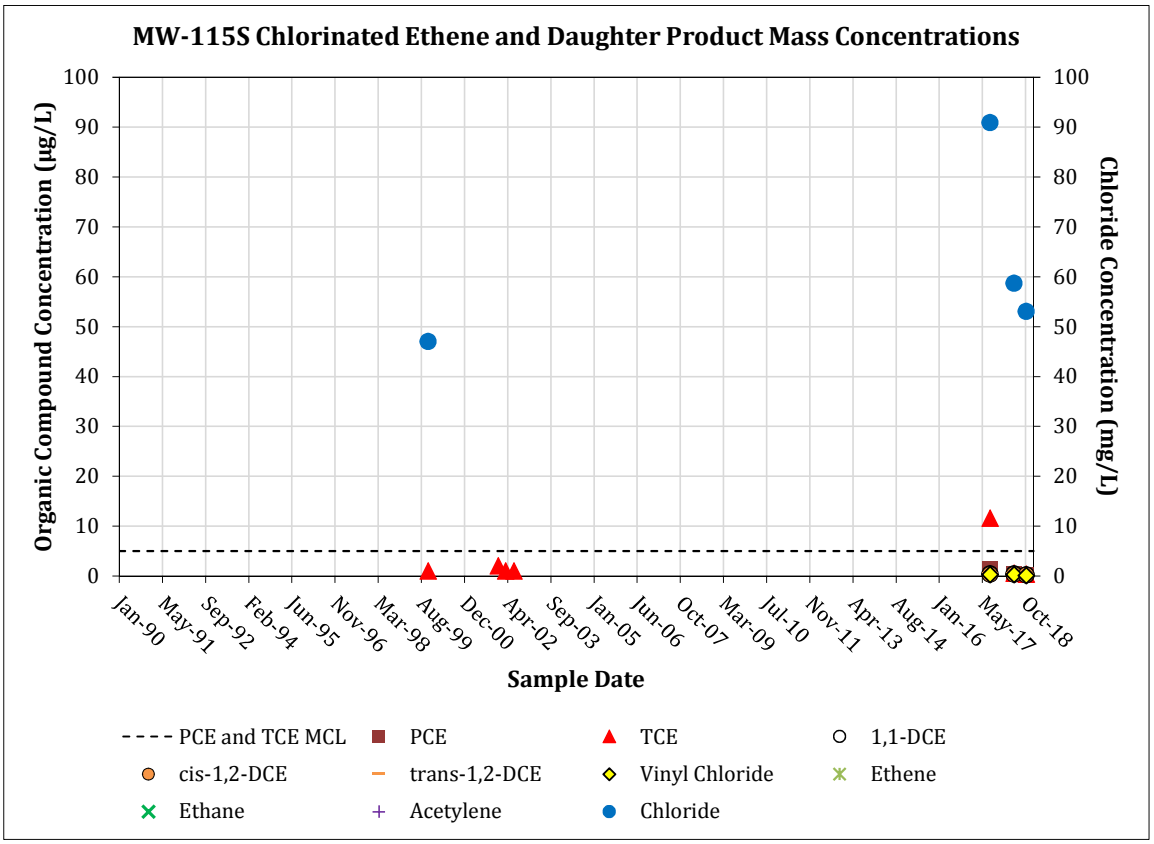

MW-115D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

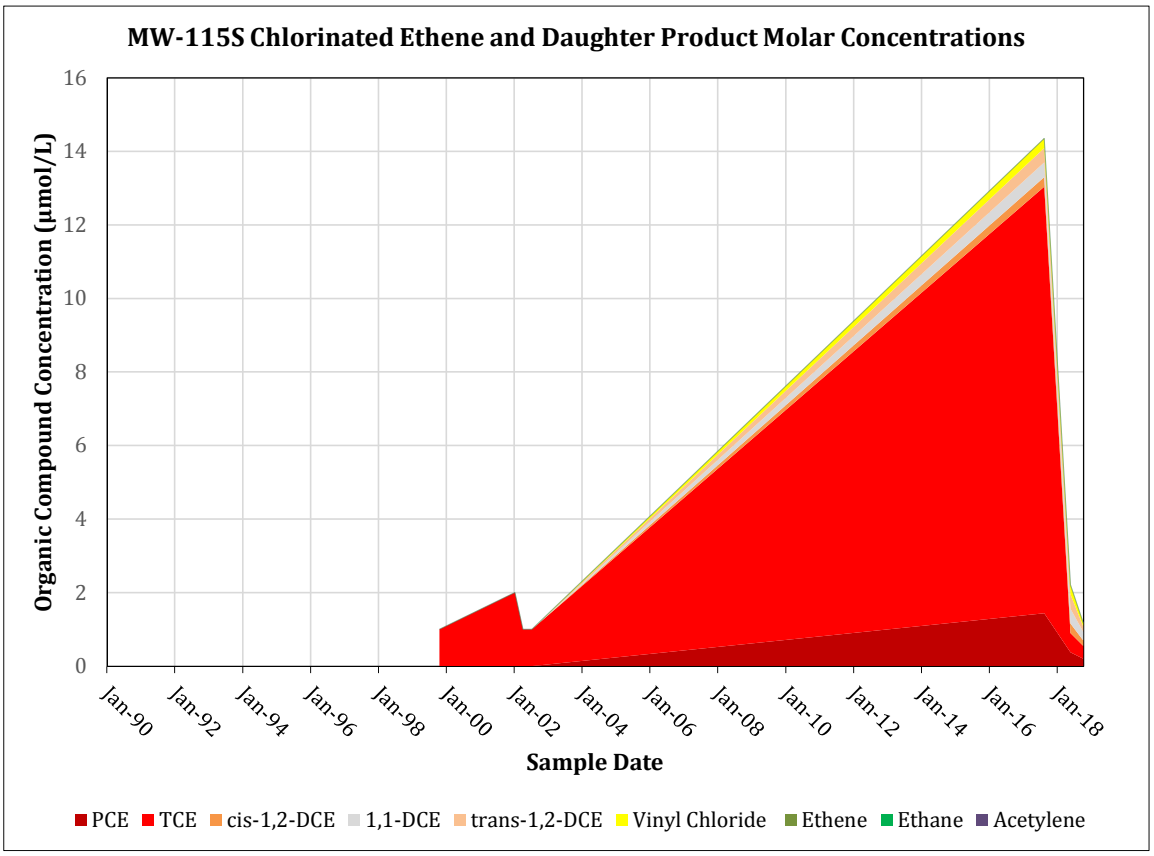

MW-115D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Sample Date
PCE
TCE
cis-1,2-DCE
1,1-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

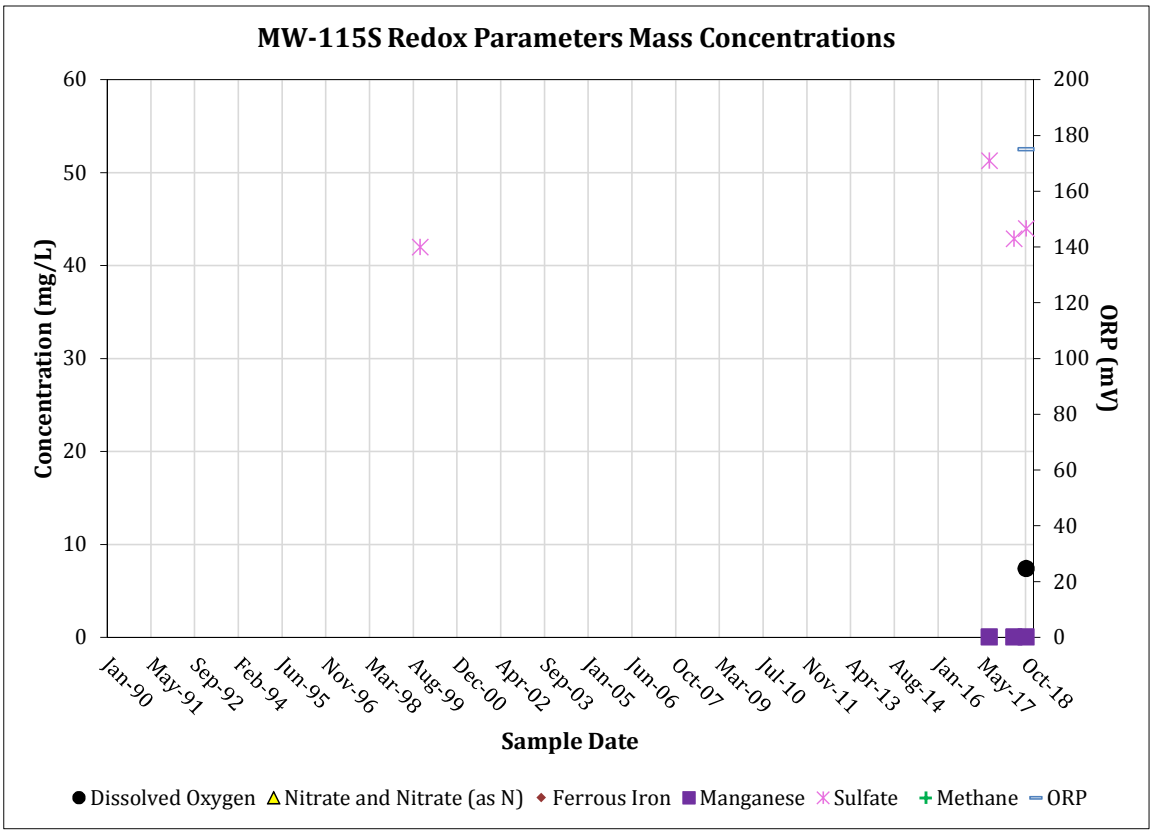

MW-115D Redox Parameters Mass Concentrations
Concentration (mg/L)
50
45
40
35
30
25
20
15
10
5
0
ORP (mV)
180
160
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

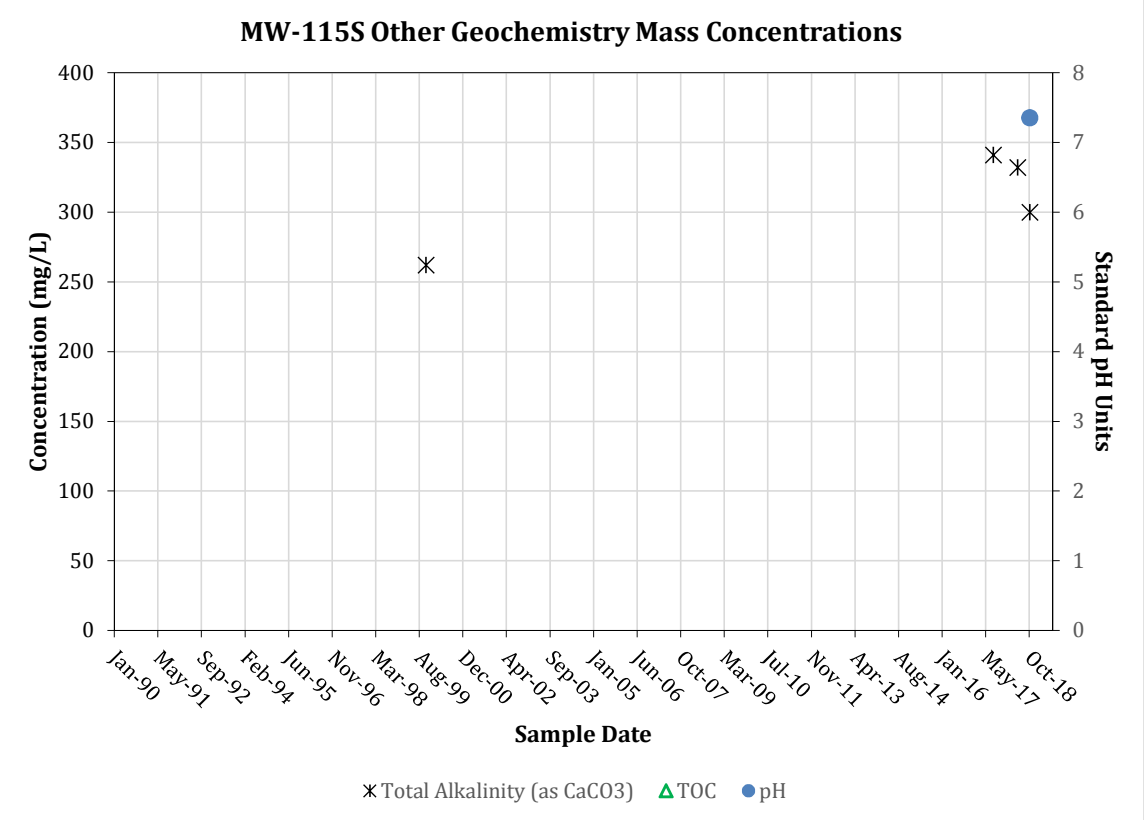

MW-115D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH Units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
50
100
150
200
250
300
350
0
1
2
3
4
5
6
7
8
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

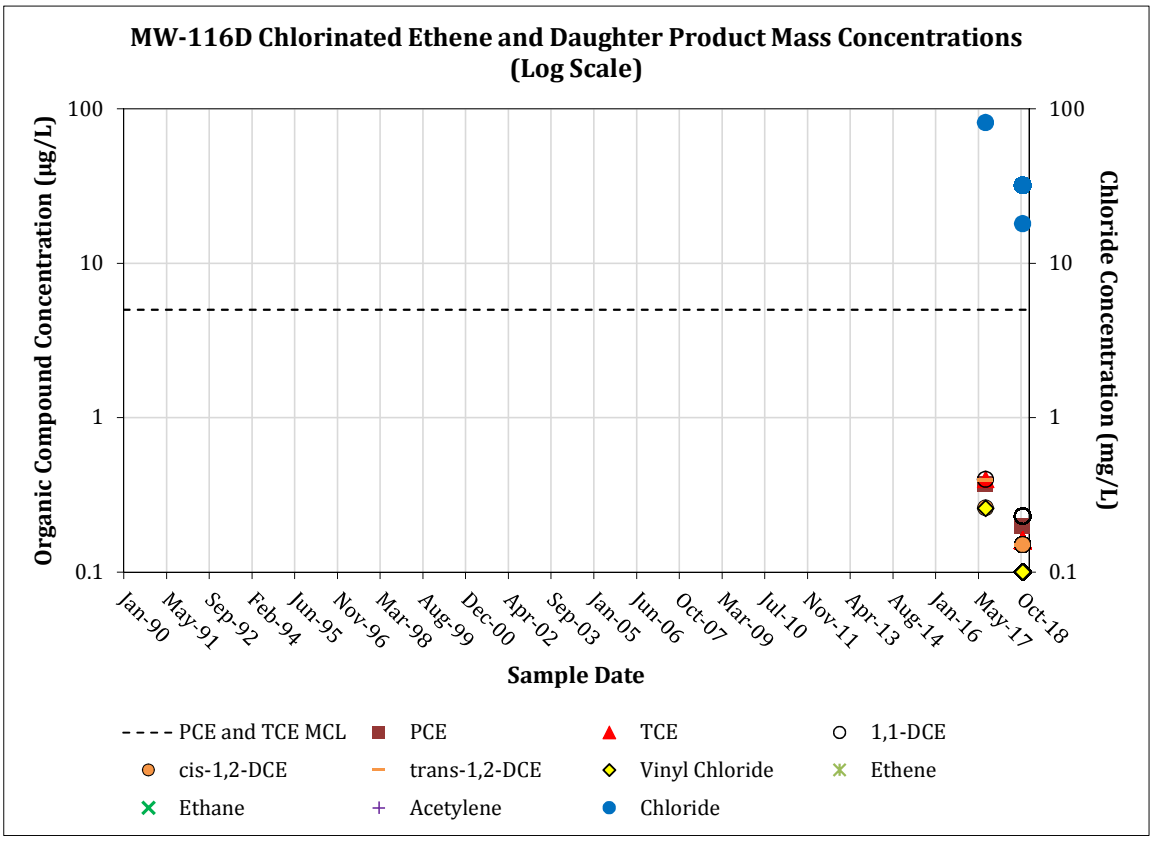

MW-115S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

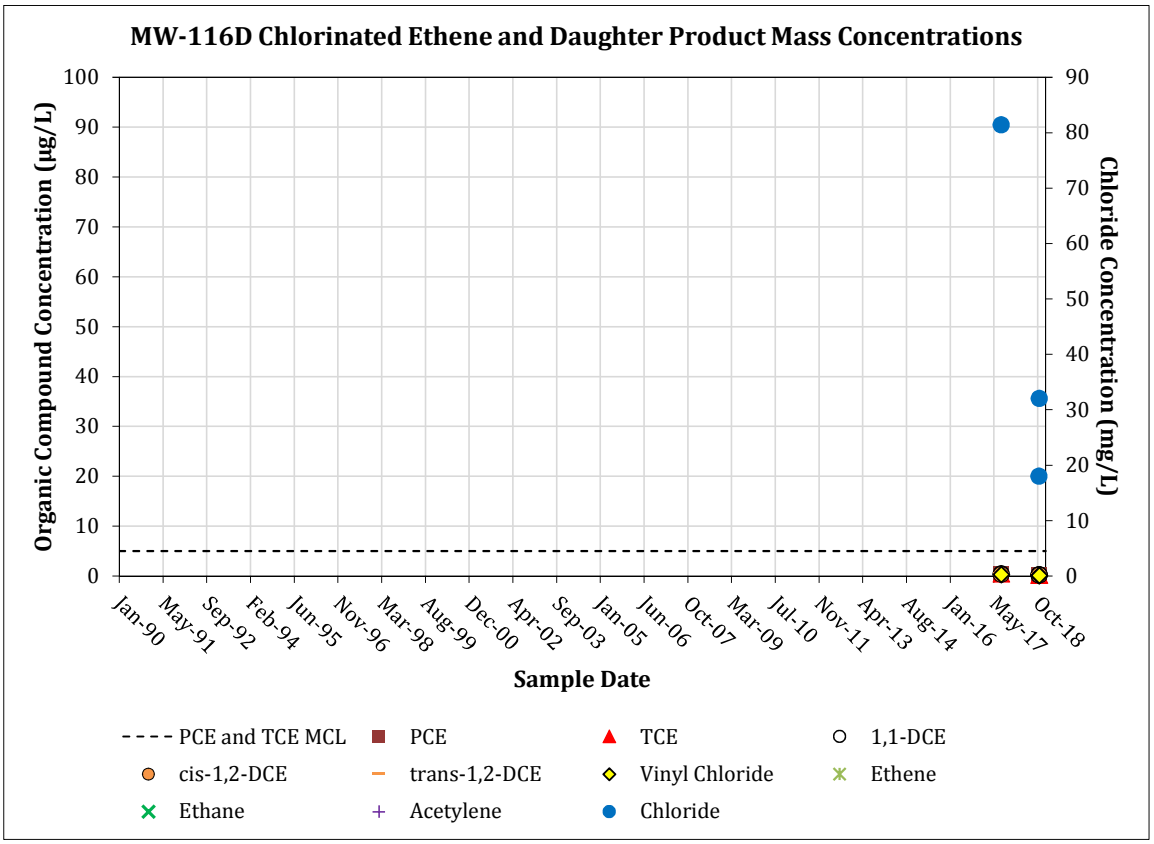

MW-115S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

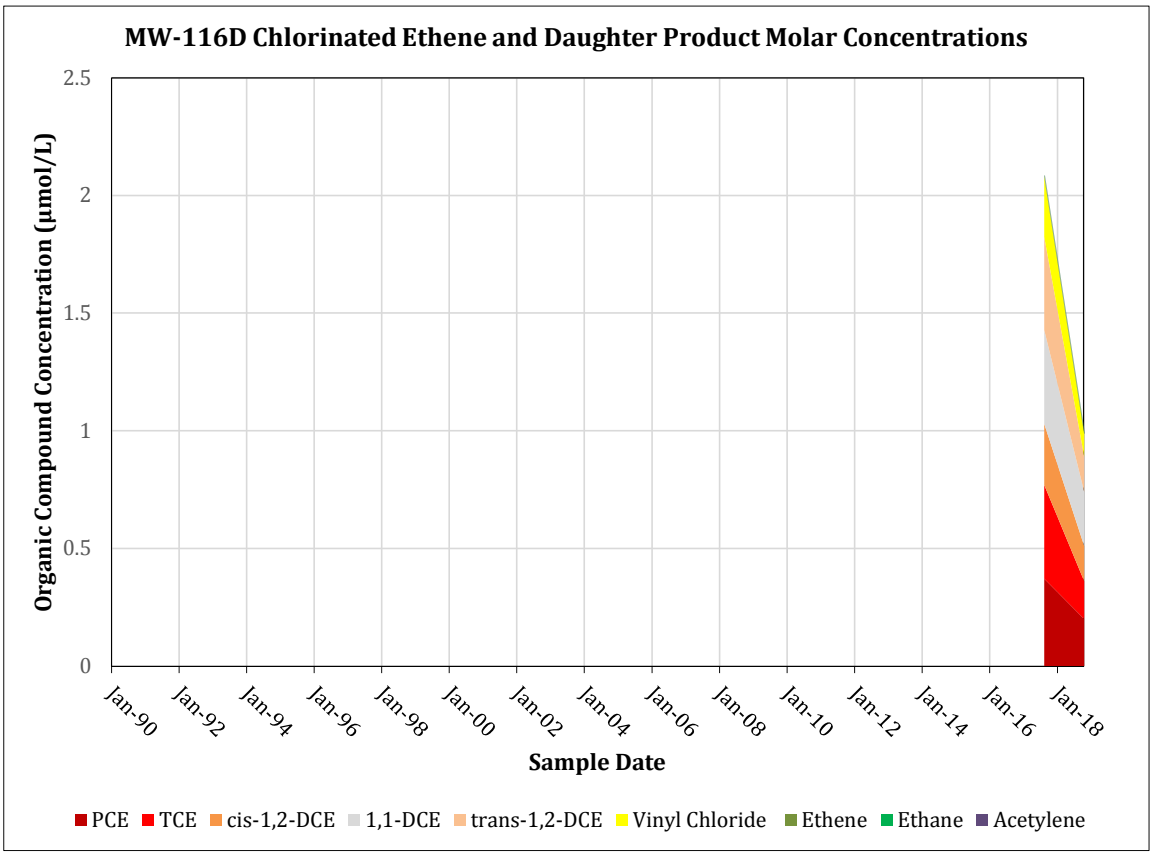

MW-115S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
0
2
4
6
8
10
12
14
16
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Sample Date
PCE
TCE
cis-1,2-DCE
1,1-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

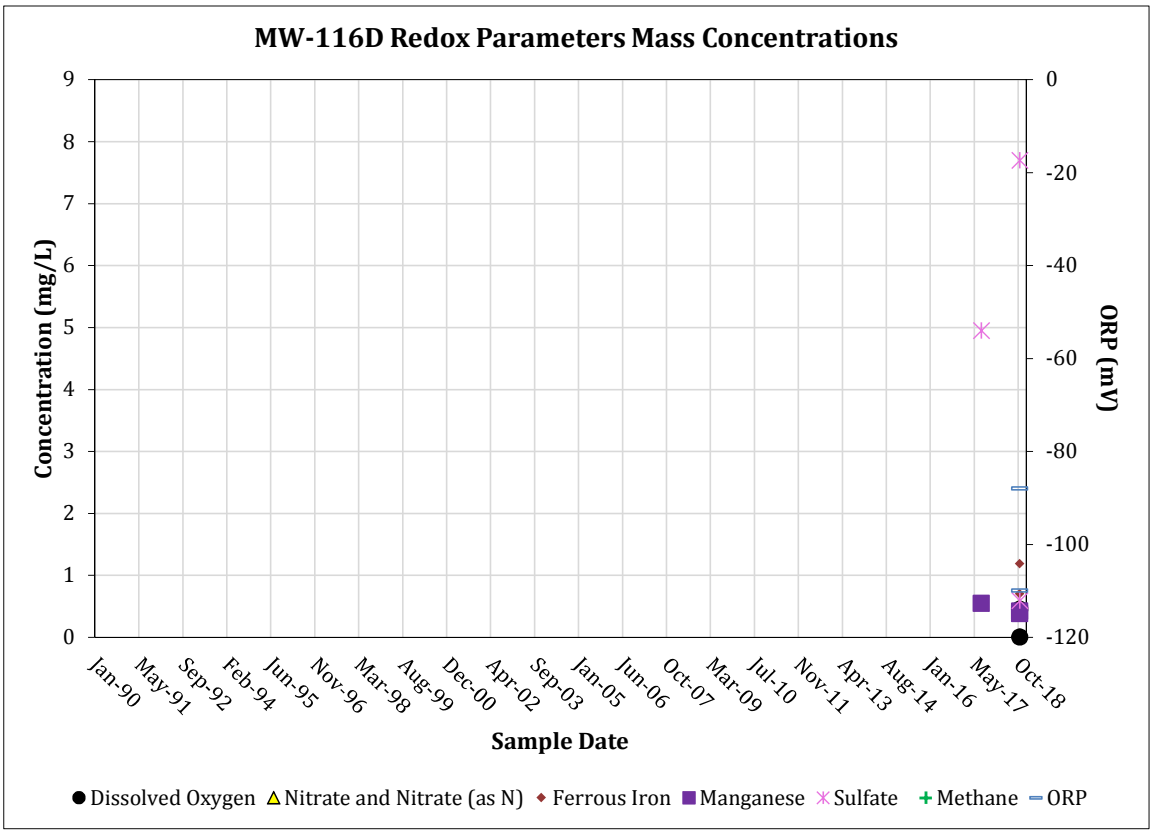

MW-115S Redox Parameters Mass Concentrations
Concentration (mg/L)
0
10
20
30
40
50
60
ORP (mV)
0
20
40
60
80
100
120
140
160
180
200
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

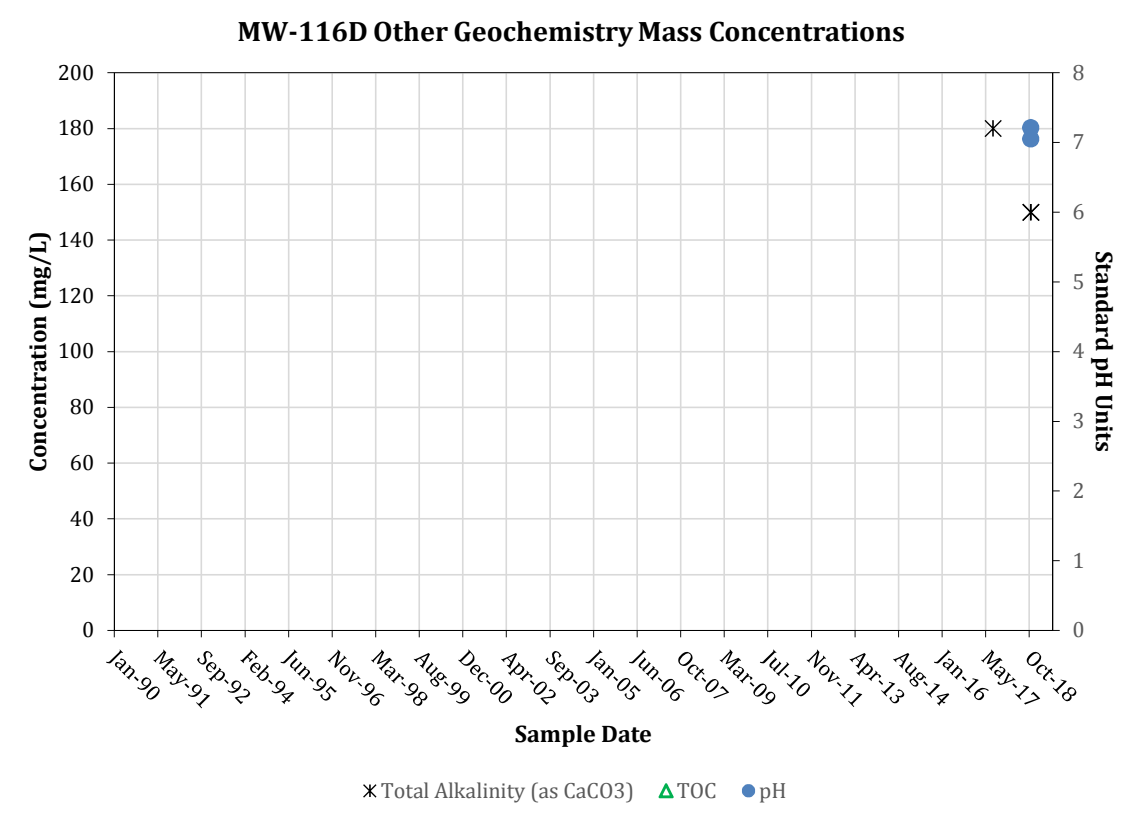

MW-115S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH Units
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH
0
50
100
150
200
250
300
350
400
0
1
2
3
4
5
6
7
8
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18

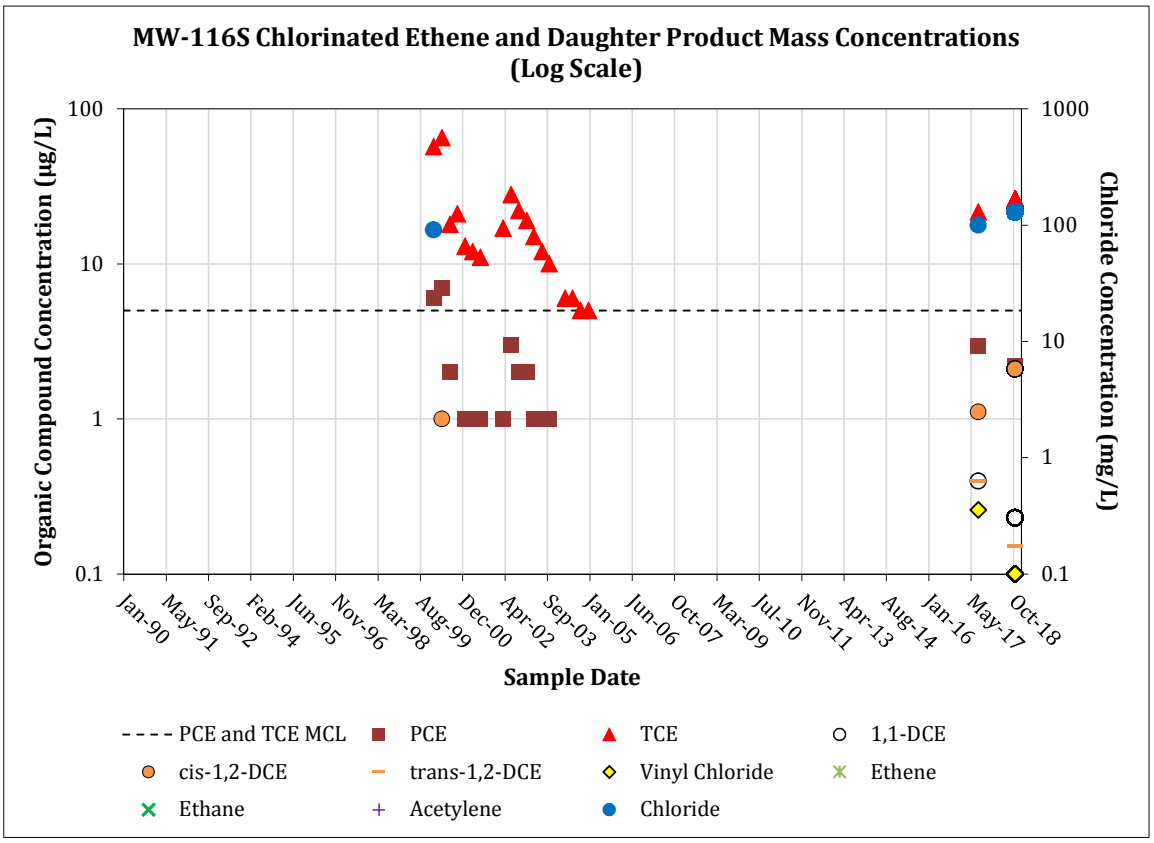

MW-116D Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

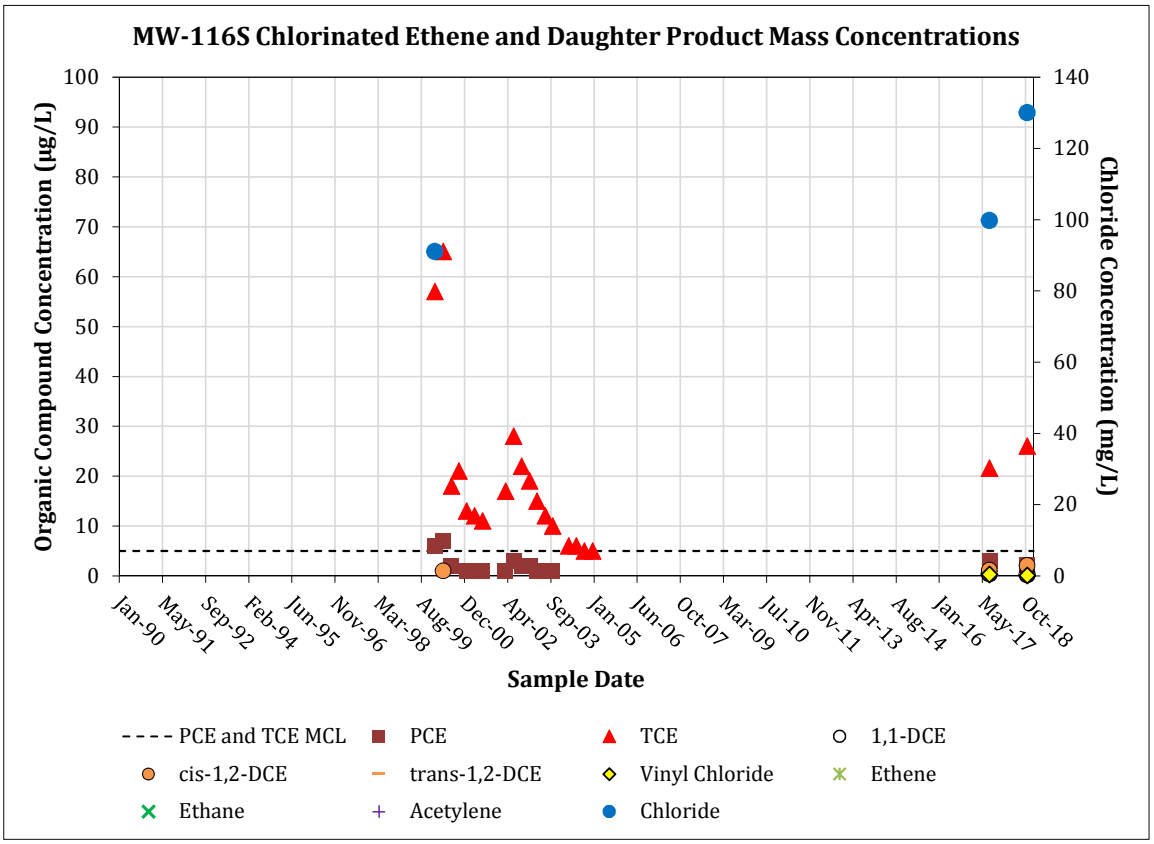

MW-116D Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

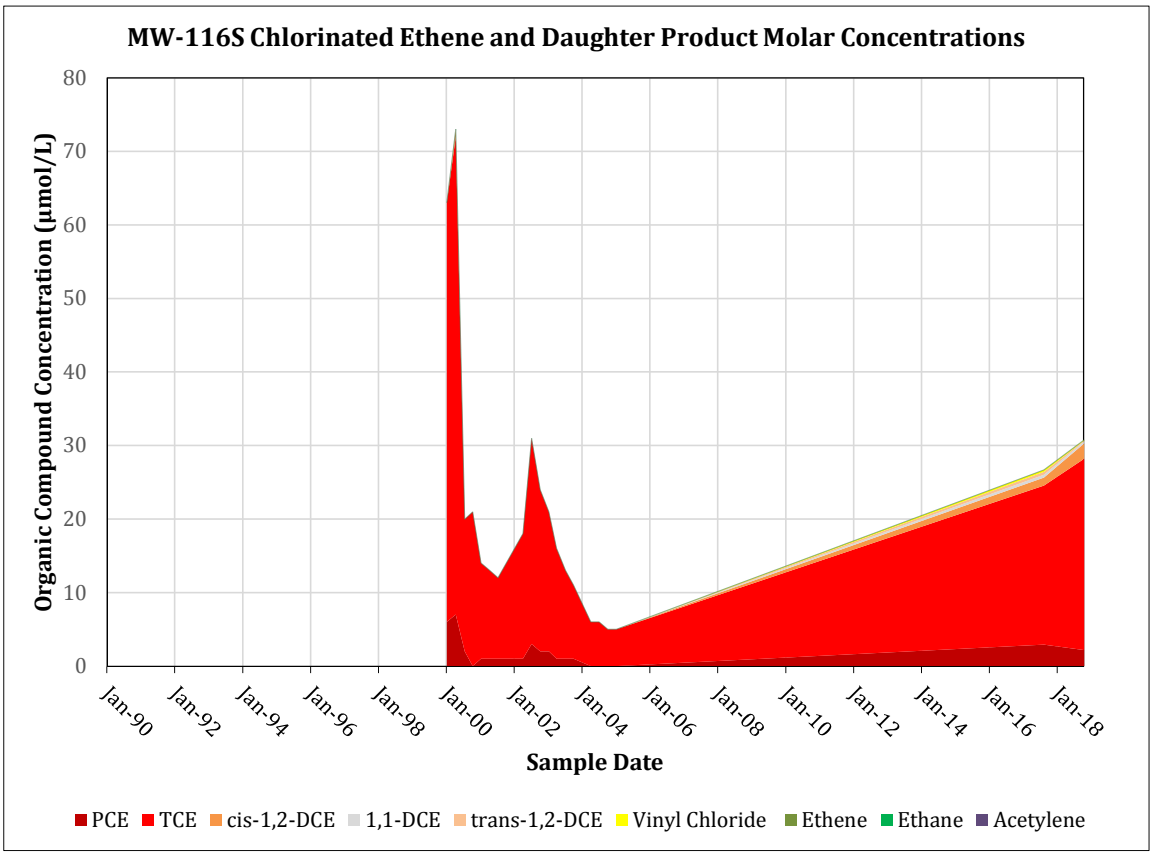

MW-116D Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
2.5
2
1.5
1
0.5
0
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Sample Date
PCE
TCE
cis-1,2-DCE
1,1-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

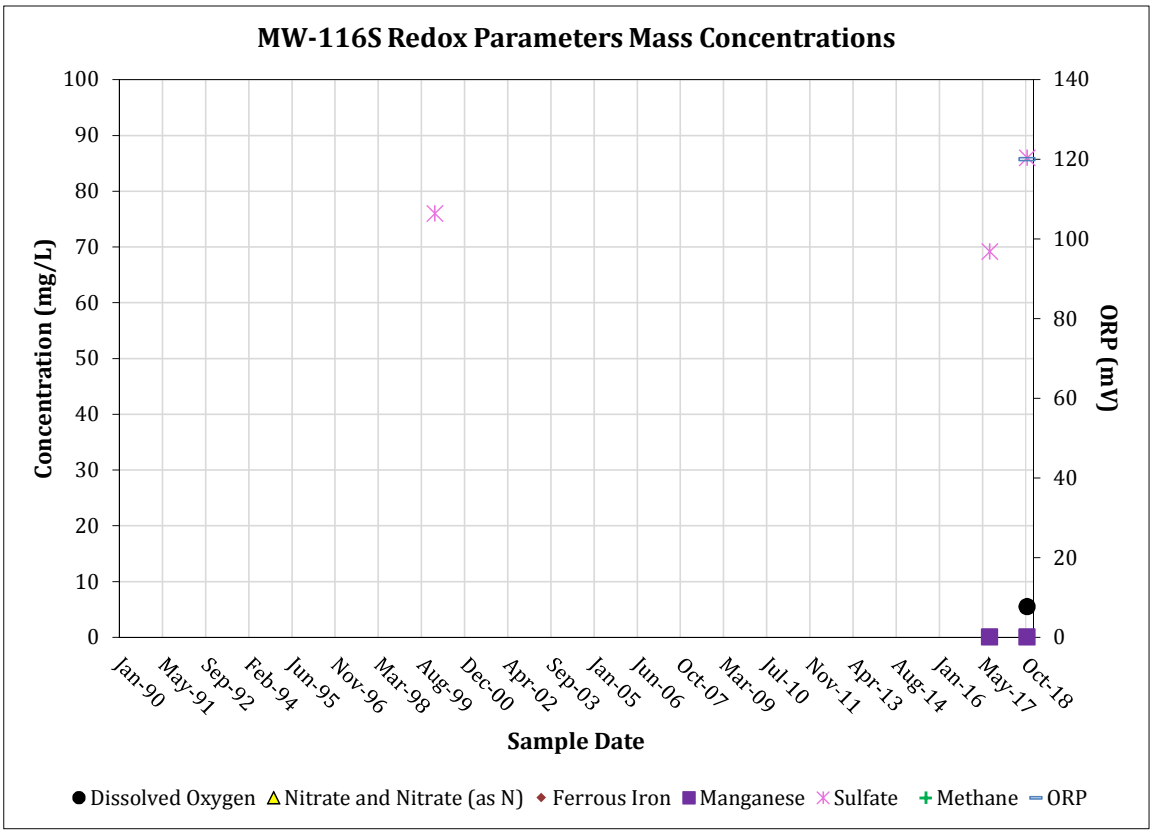

MW-116D Redox Parameters Mass Concentrations
Concentration (mg/L)
9
8
7
6
5
4
3
2
1
0
ORP (mV)
0
-20
-40
-60
-80
-100
-120
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

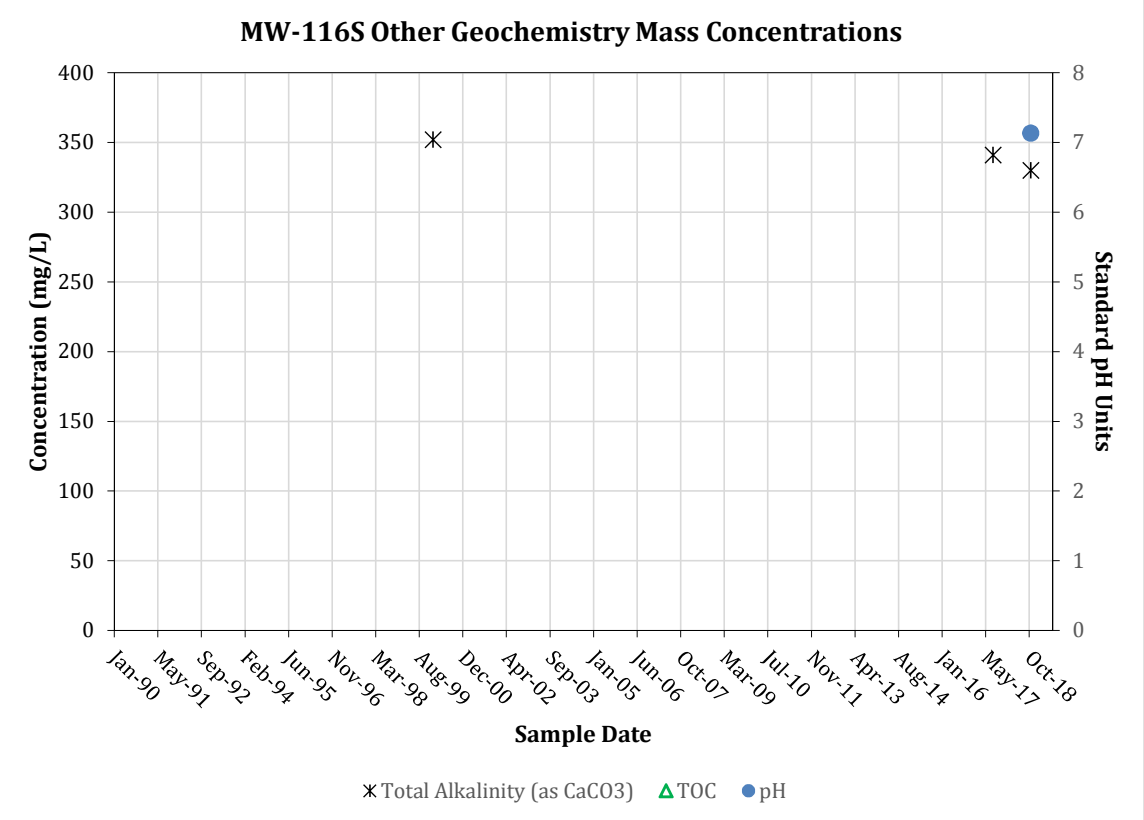

MW-116D Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH Units
Sample Date
0
20
40
60
80
100
120
140
160
180
200
0
1
2
3
4
5
6
7
8
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Total Alkalinity (as CaCO3)
TOC
pH


MW-116S Chlorinated Ethene and Daughter Product Mass Concentrations (Log Scale)
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
10
1
0.1
1000
100
10
1
0.1
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride


MW-116S Chlorinated Ethene and Daughter Product Mass Concentrations
Organic Compound Concentration (µg/L)
Chloride Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
140
120
100
80
60
40
20
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
PCE and TCE MCL
PCE
TCE
1,1-DCE
cis-1,2-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene
Chloride

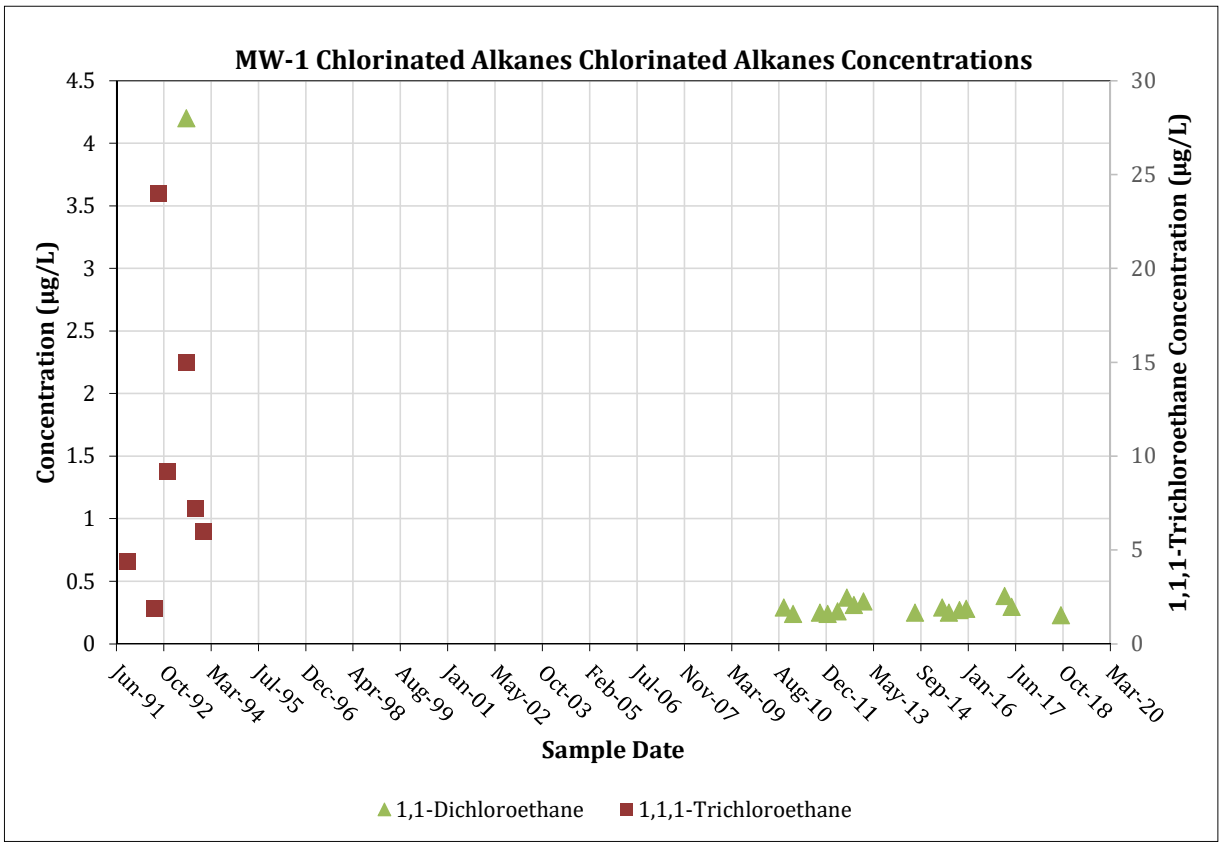

MW-116S Chlorinated Ethene and Daughter Product Molar Concentrations
Organic Compound Concentration (µmol/L)
0
10
20
30
40
50
60
70
80
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Jan-18
Sample Date
PCE
TCE
cis-1,2-DCE
1,1-DCE
trans-1,2-DCE
Vinyl Chloride
Ethene
Ethane
Acetylene

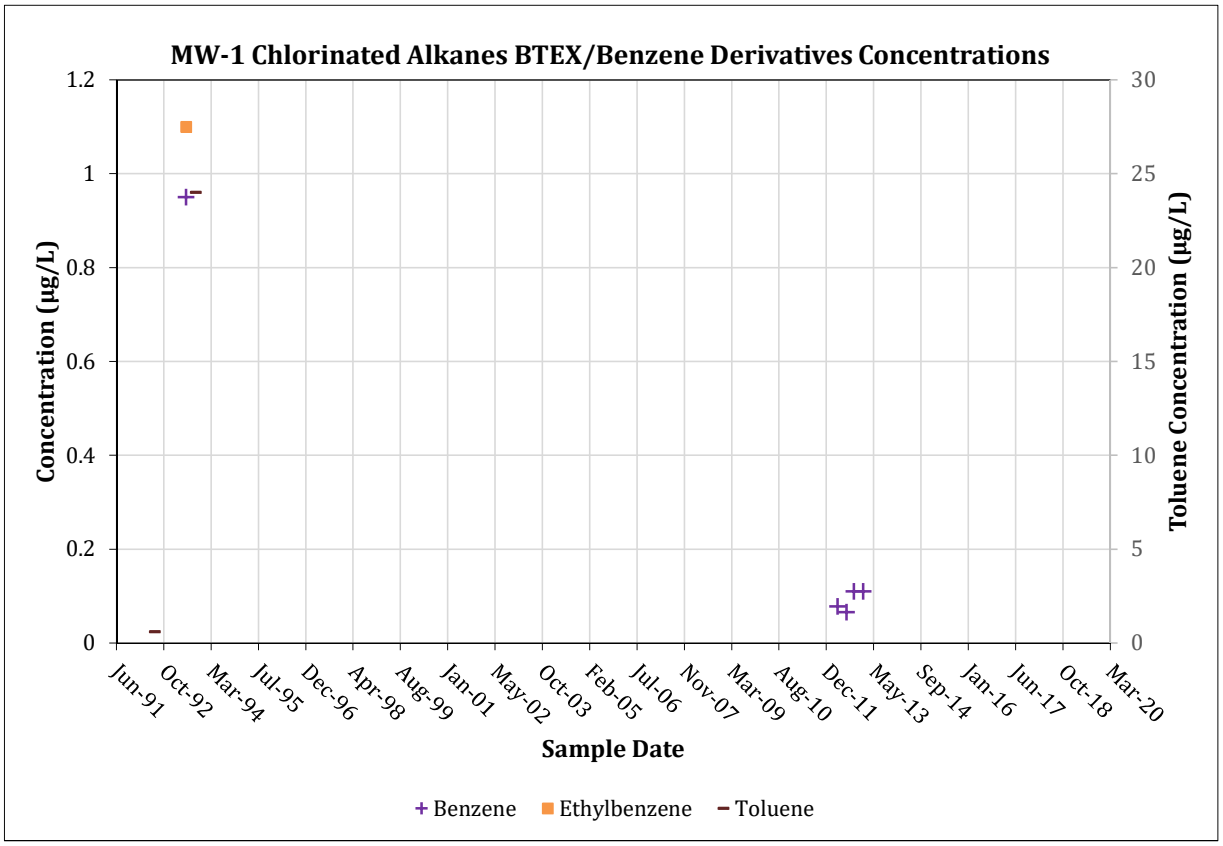

MW-116S Redox Parameters Mass Concentrations
Concentration (mg/L)
0
10
20
30
40
50
60
70
80
90
100
ORP (mV)
0
20
40
60
80
100
120
140
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Dissolved Oxygen
Nitrate and Nitrate (as N)
Ferrous Iron
Manganese
Sulfate
Methane
ORP

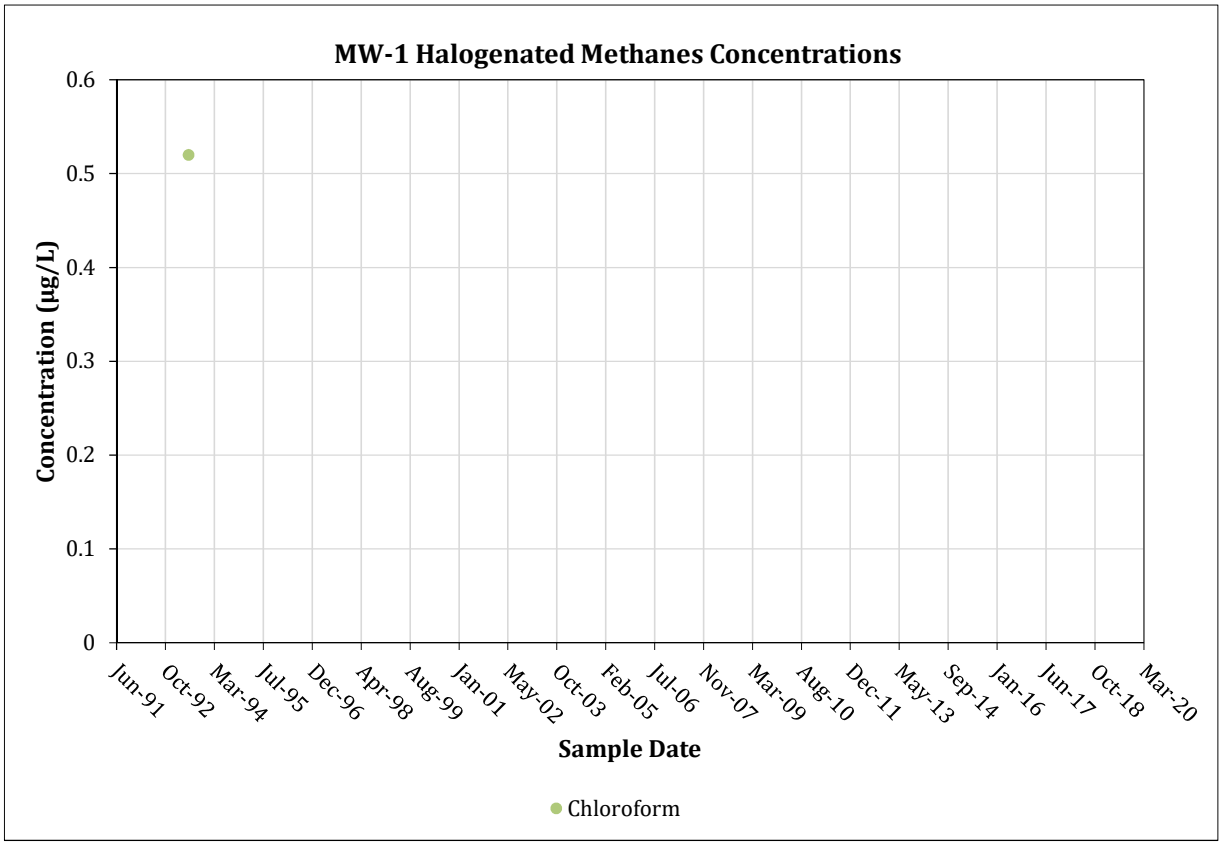

MW-116S Other Geochemistry Mass Concentrations
Concentration (mg/L)
Standard pH Units
400
350
300
250
200
150
100
50
0
8
7
6
5
4
3
2
1
0
Jan-90
May-91
Sep-92
Feb-94
Jun-95
Nov-96
Mar-98
Aug-99
Dec-00
Apr-02
Sep-03
Jan-05
Jun-06
Oct-07
Mar-09
Jul-10
Nov-11
Apr-13
Aug-14
Jan-16
May-17
Oct-18
Sample Date
Total Alkalinity (as CaCO3)
TOC
pH

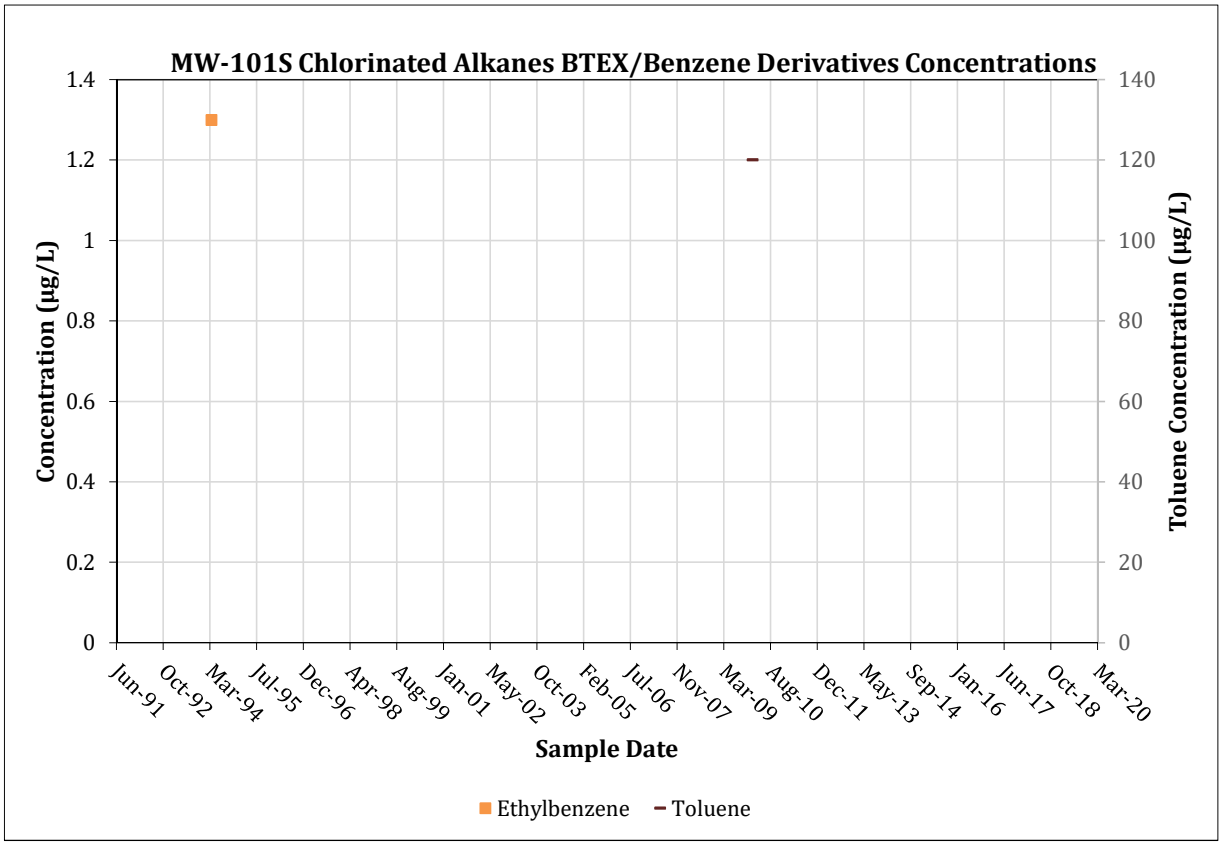
Section 5

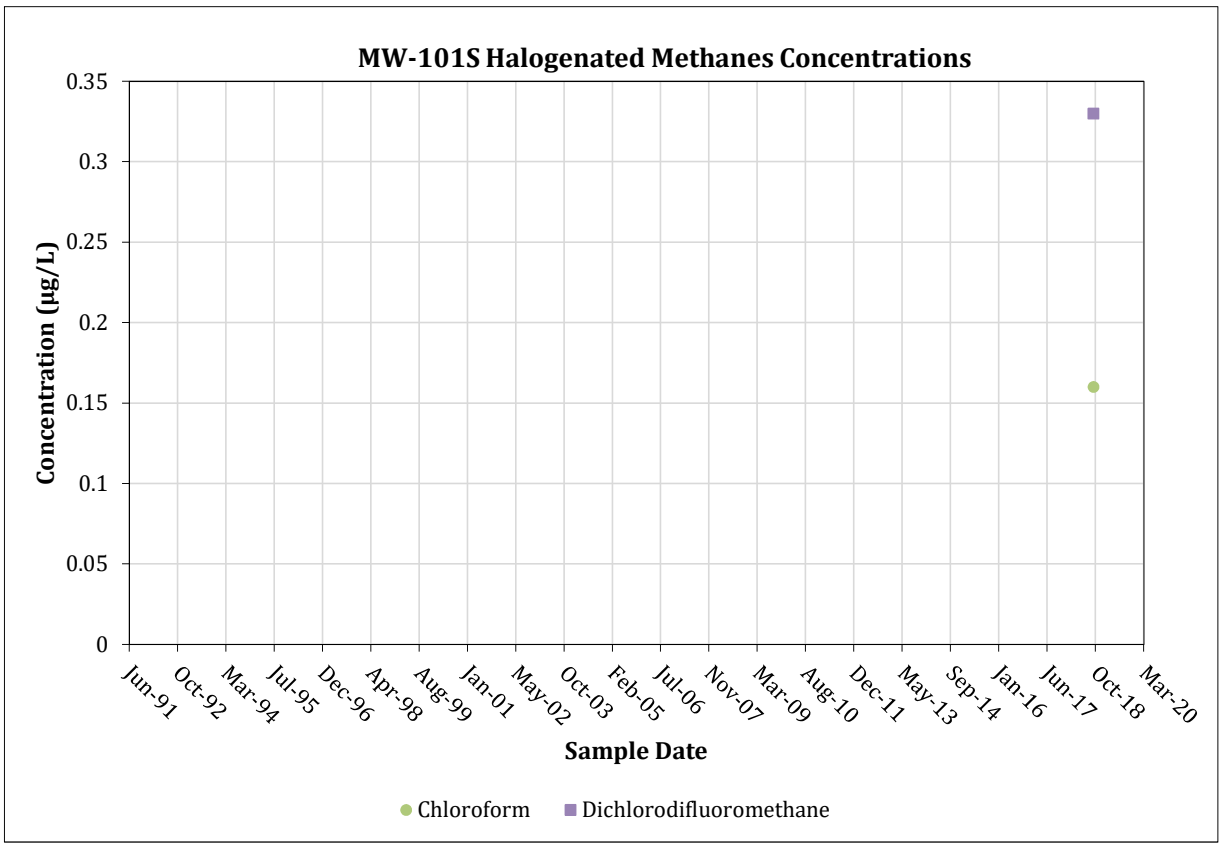
Other Detected Organics Trend Charts - Cell 1 Monitoring Wells

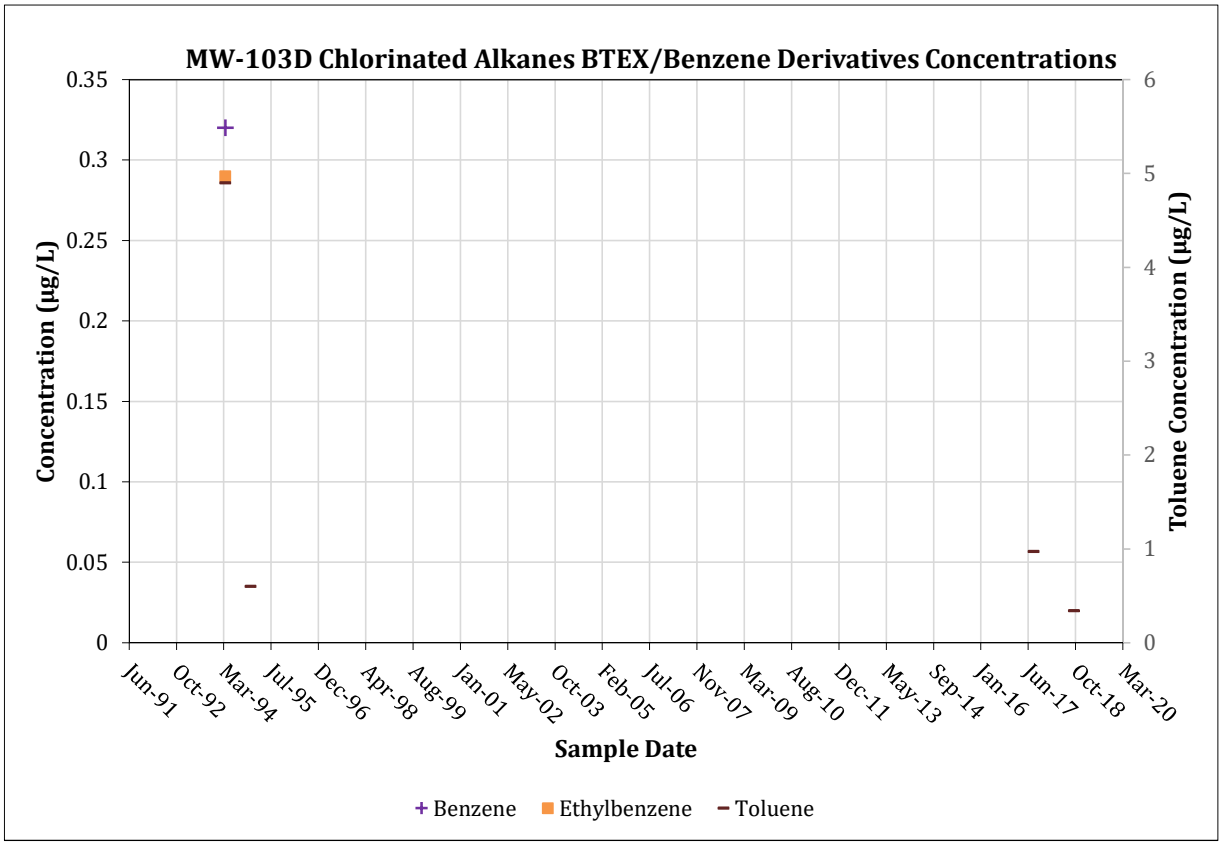

MW-1 Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
1,1,1-Trichloroethane Concentration (µg/L)
Sample Date
1,1-Dichloroethane
1,1,1-Trichloroethane

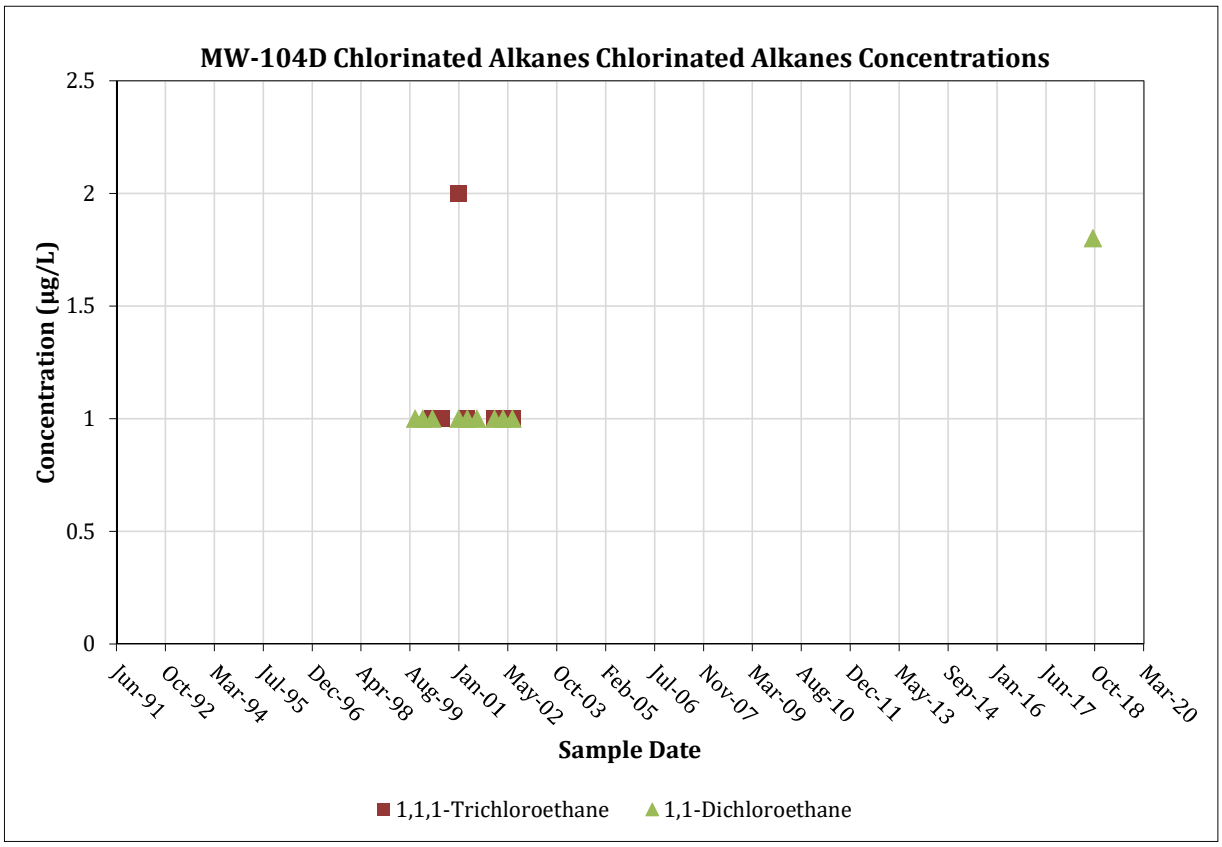

MW-1 Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
Toluene Concentration (µg/L)
Sample Date
Benzene
Ethylbenzene
Toluene

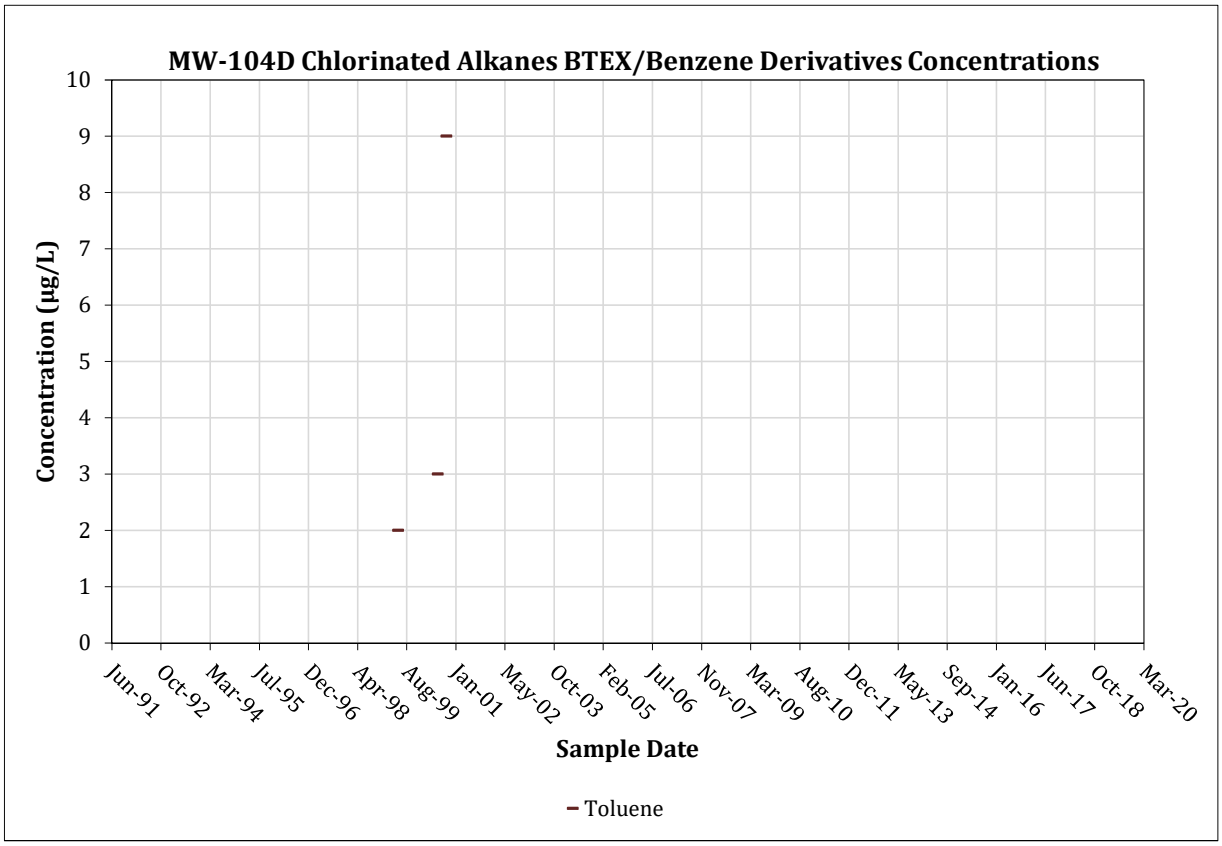

MW-1 Halogenated Methanes Concentrations
Concentration (µg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform

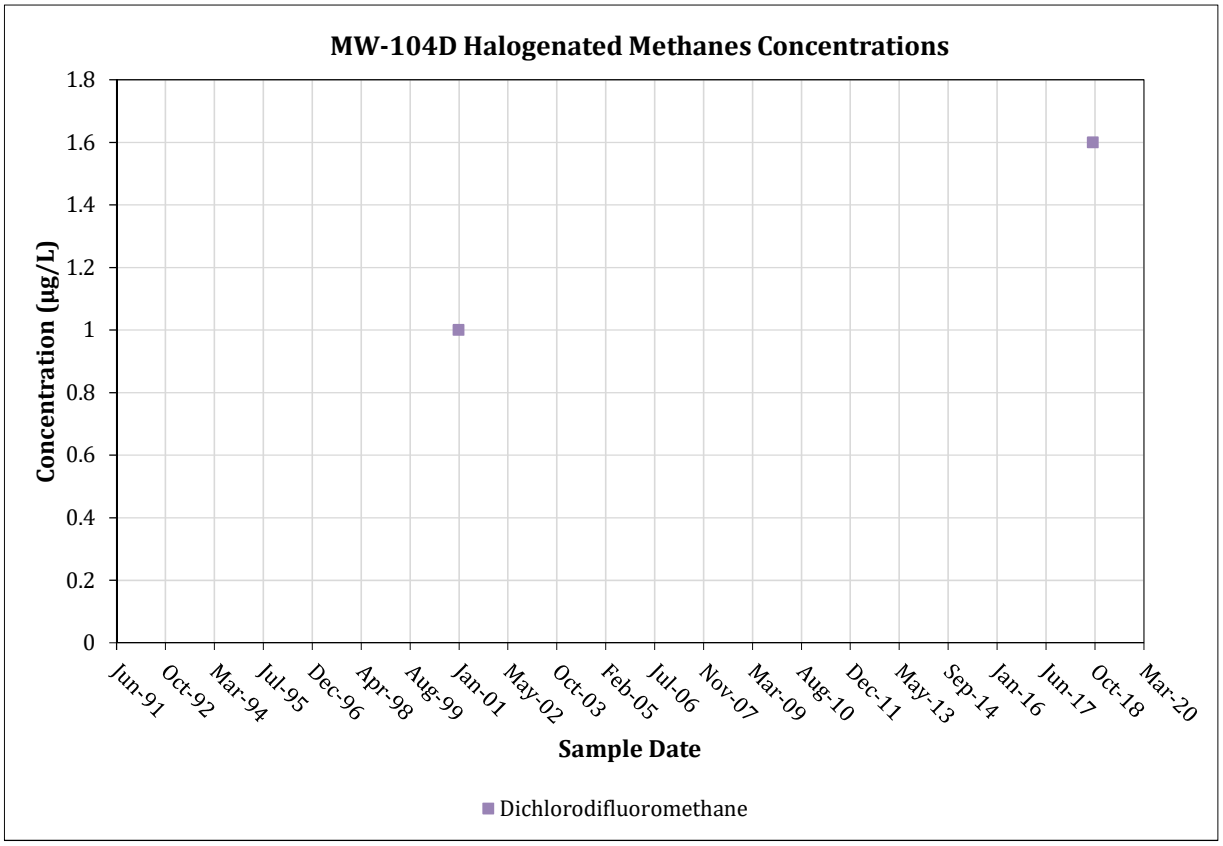

MW-101S Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
Toluene Concentration (µg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
140
120
100
80
60
40
20
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Ethylbenzene
Toluene

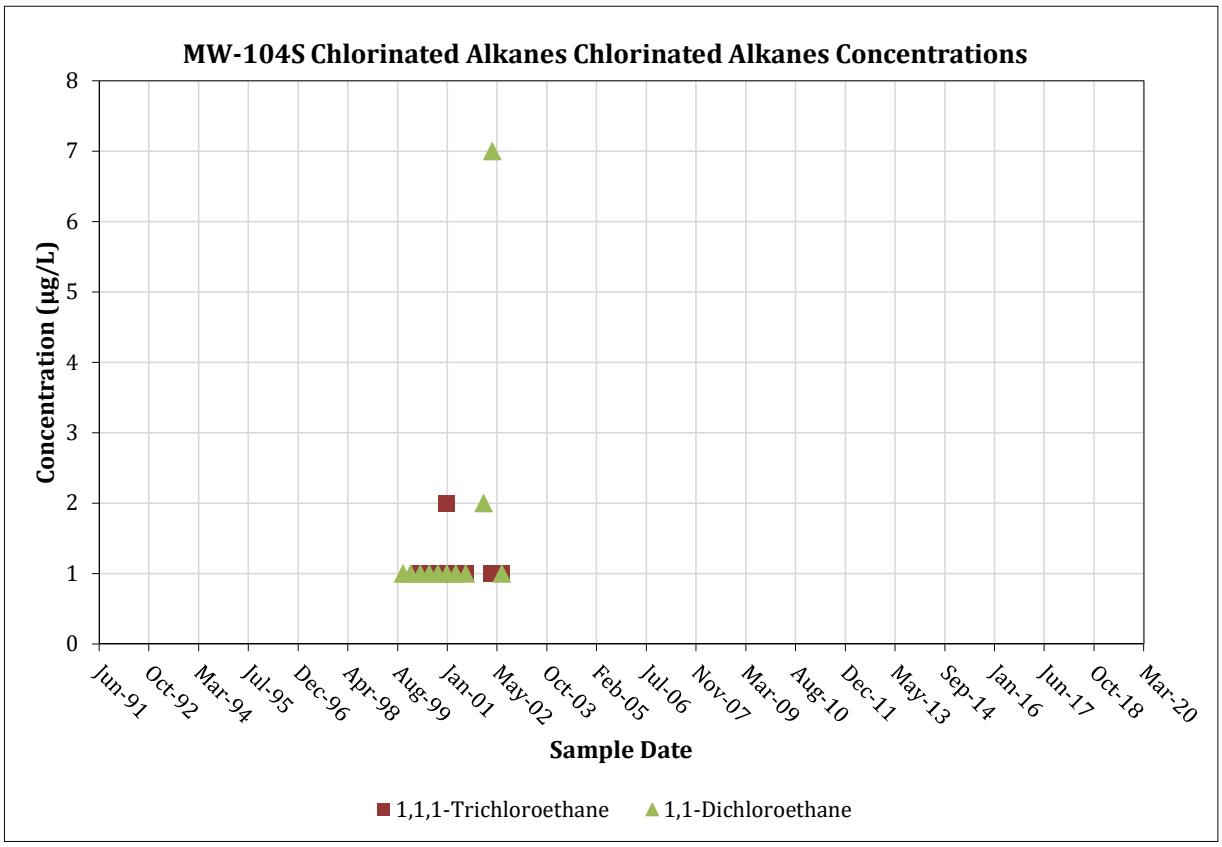

MW-101S Halogenated Methanes Concentrations
Concentration (µg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform
Dichlorodifluoromethane

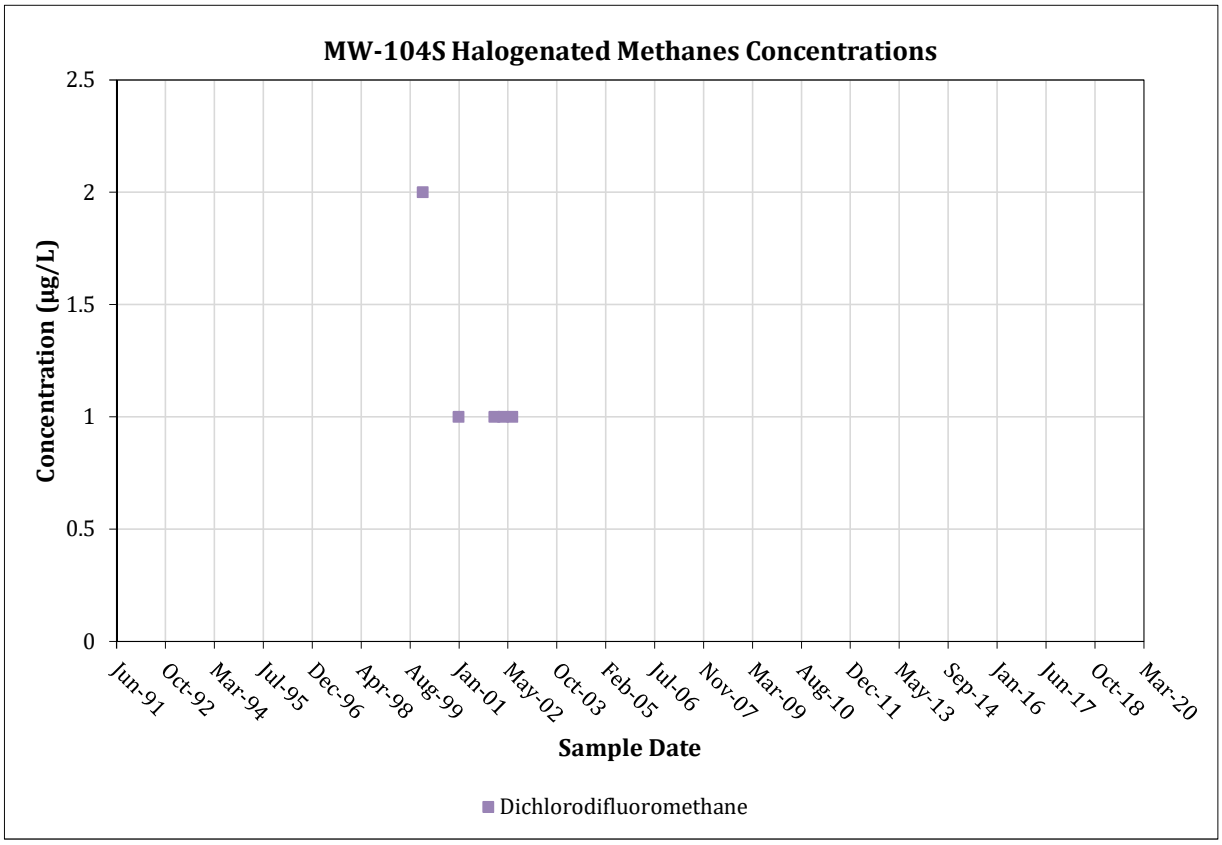

MW-103D Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
Toluene Concentration (µg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
6
5
4
3
2
1
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Benzene
Ethylbenzene
Toluene

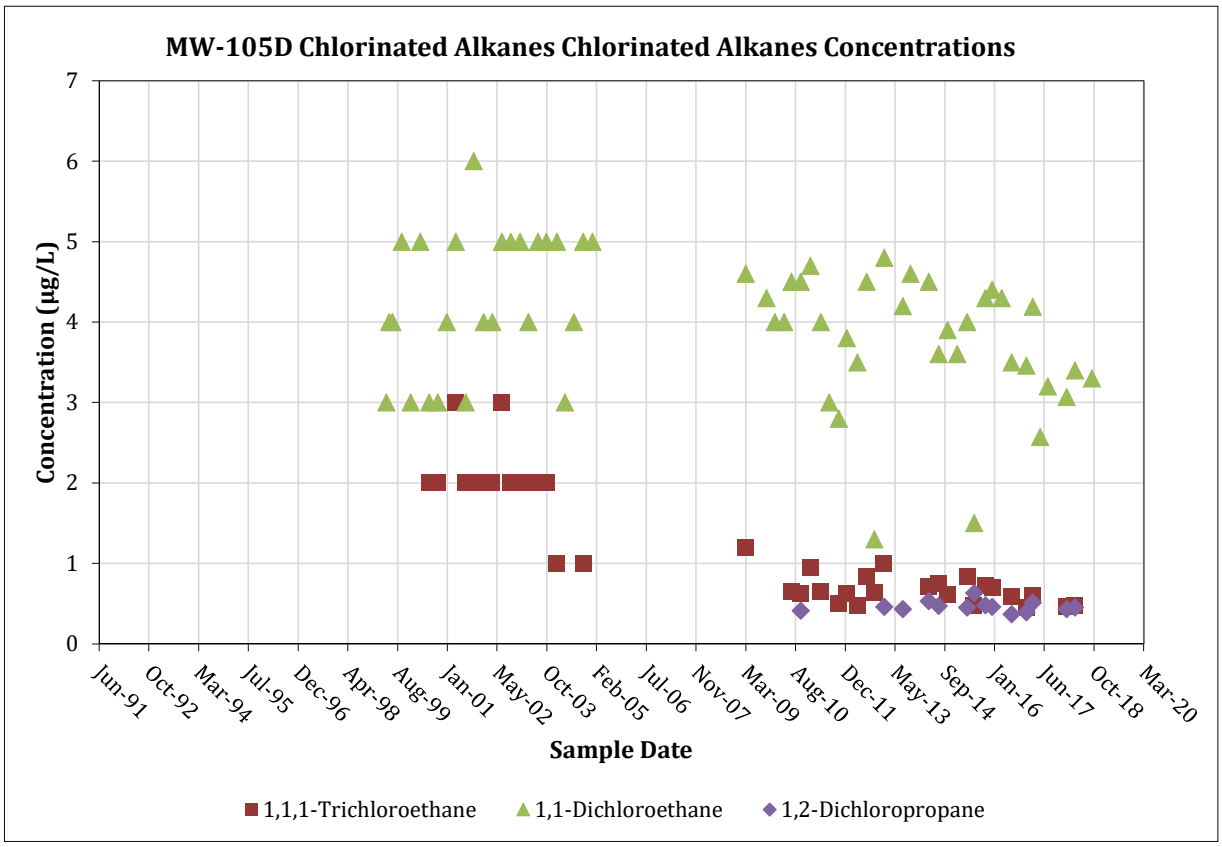

MW-104D Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1,1-Trichloroethane
1,1-Dichloroethane

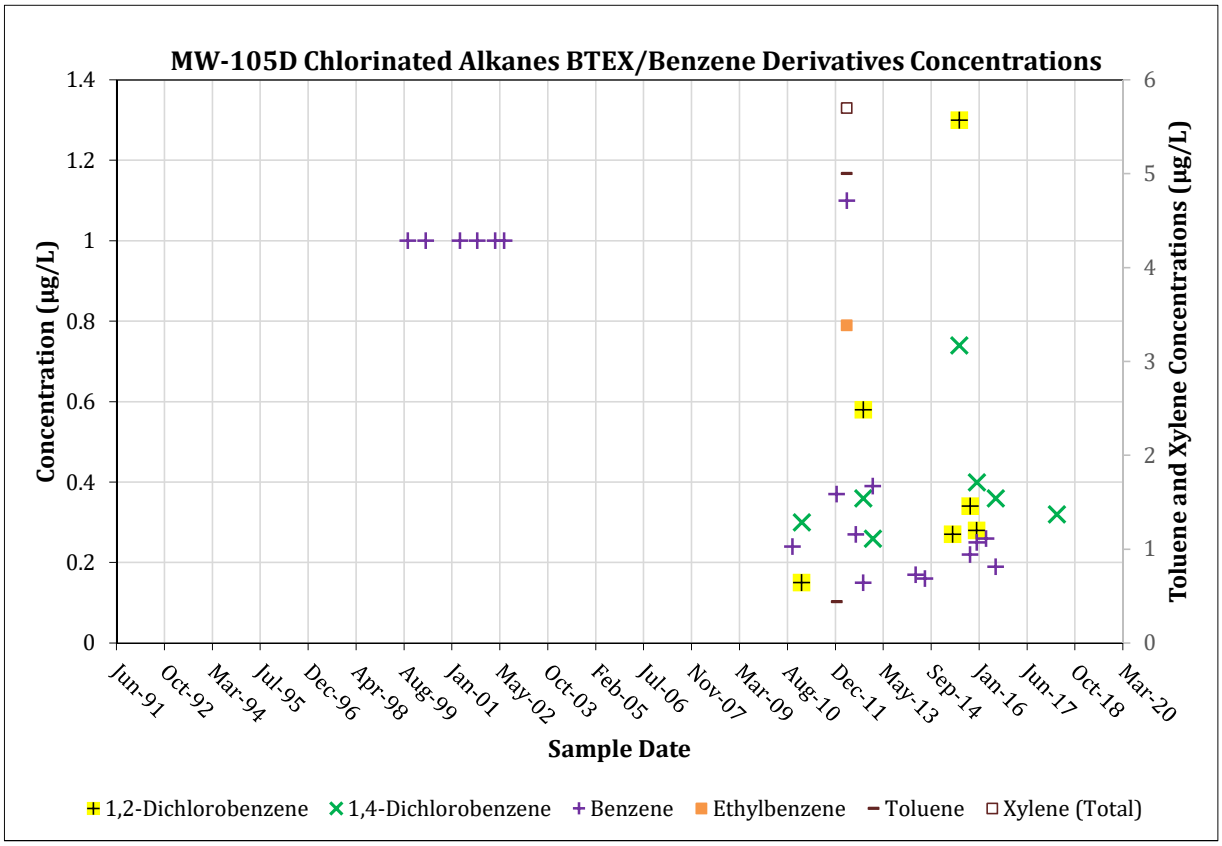

MW-104D Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
10
9
8
7
6
5
4
3
2
1
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Toluene

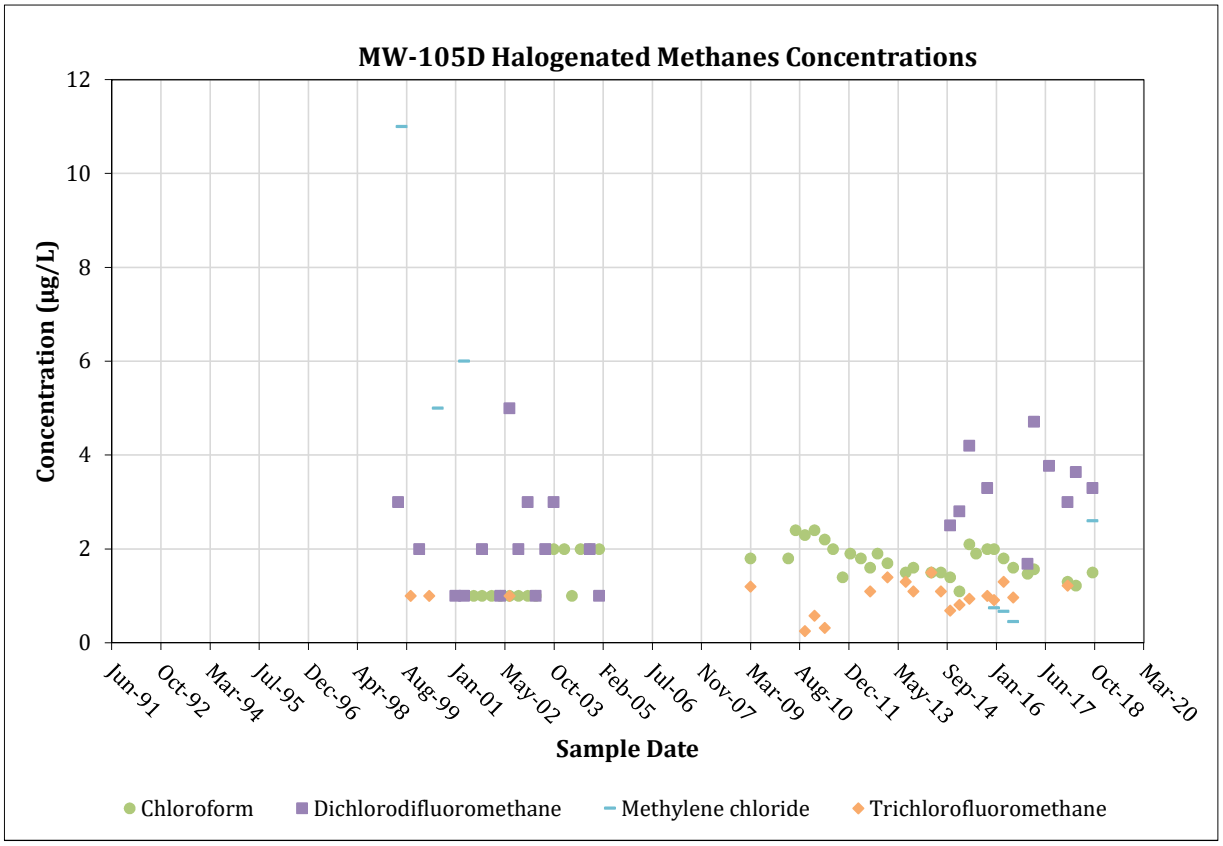

MW-104D Halogenated Methanes Concentrations
Concentration (µg/L)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Dichlorodifluoromethane

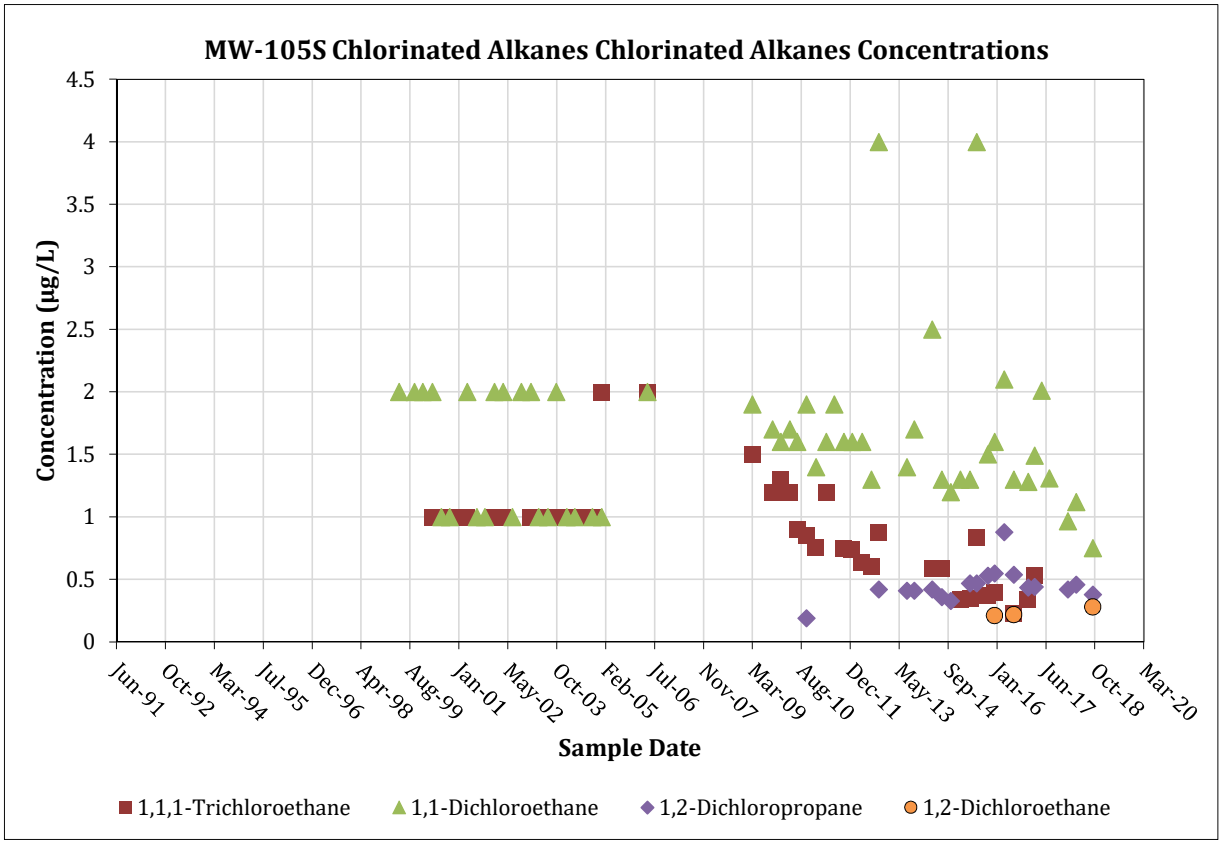

MW-104S Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
0
1
2
3
4
5
6
7
8
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1,1-Trichloroethane
1,1-Dichloroethane

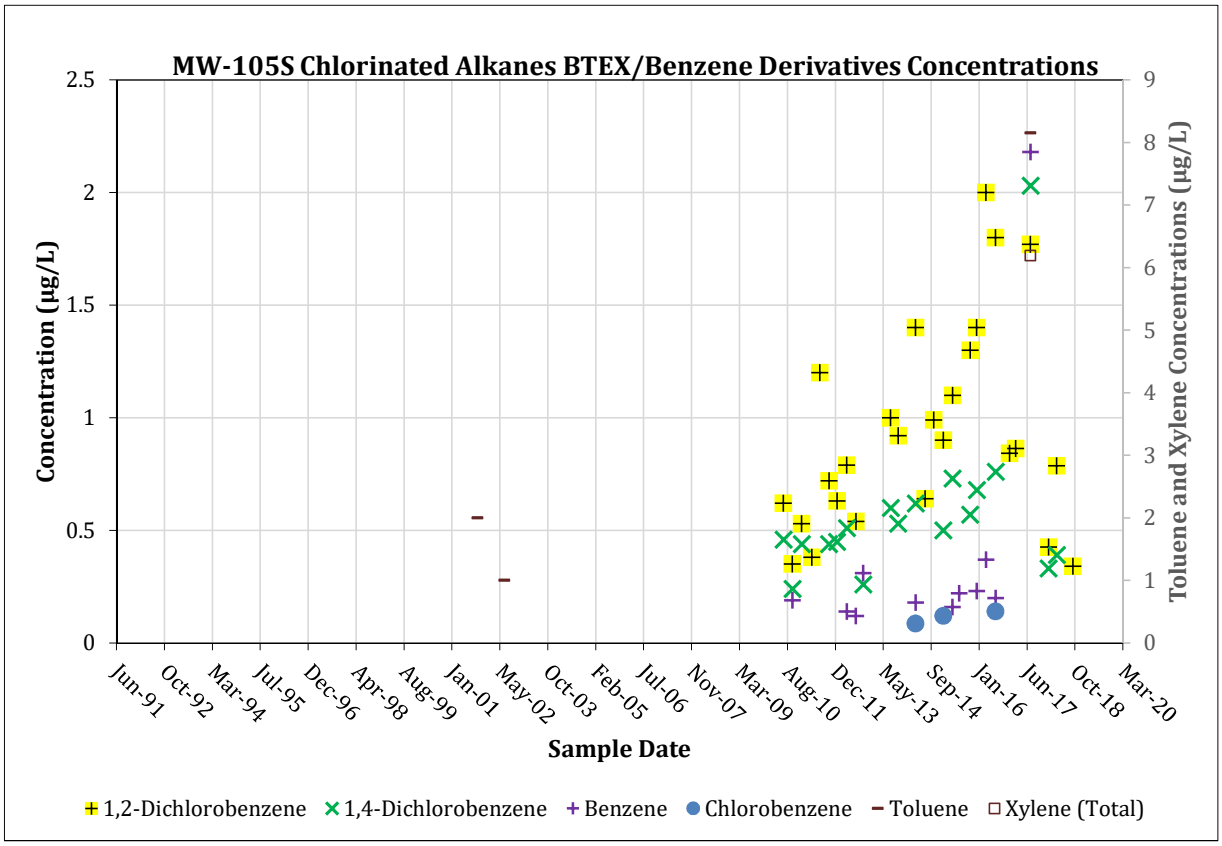

MW-104S Halogenated Methanes Concentrations
Concentration (µg/L)
0
0.5
1
1.5
2
2.5
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Dichlorodifluoromethane

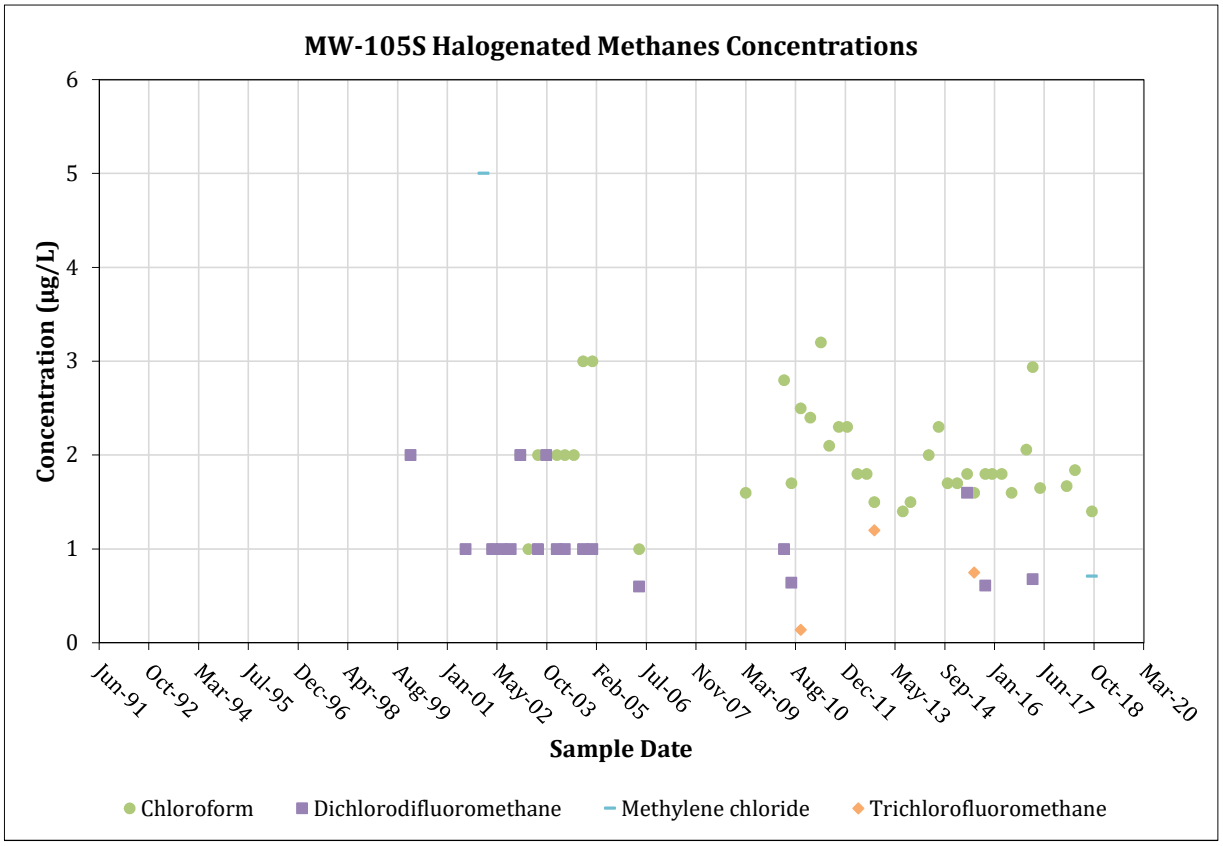

MW-105D Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
0
1
2
3
4
5
6
7
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1,1-Trichloroethane
1,1-Dichloroethane
1,2-Dichloropropane

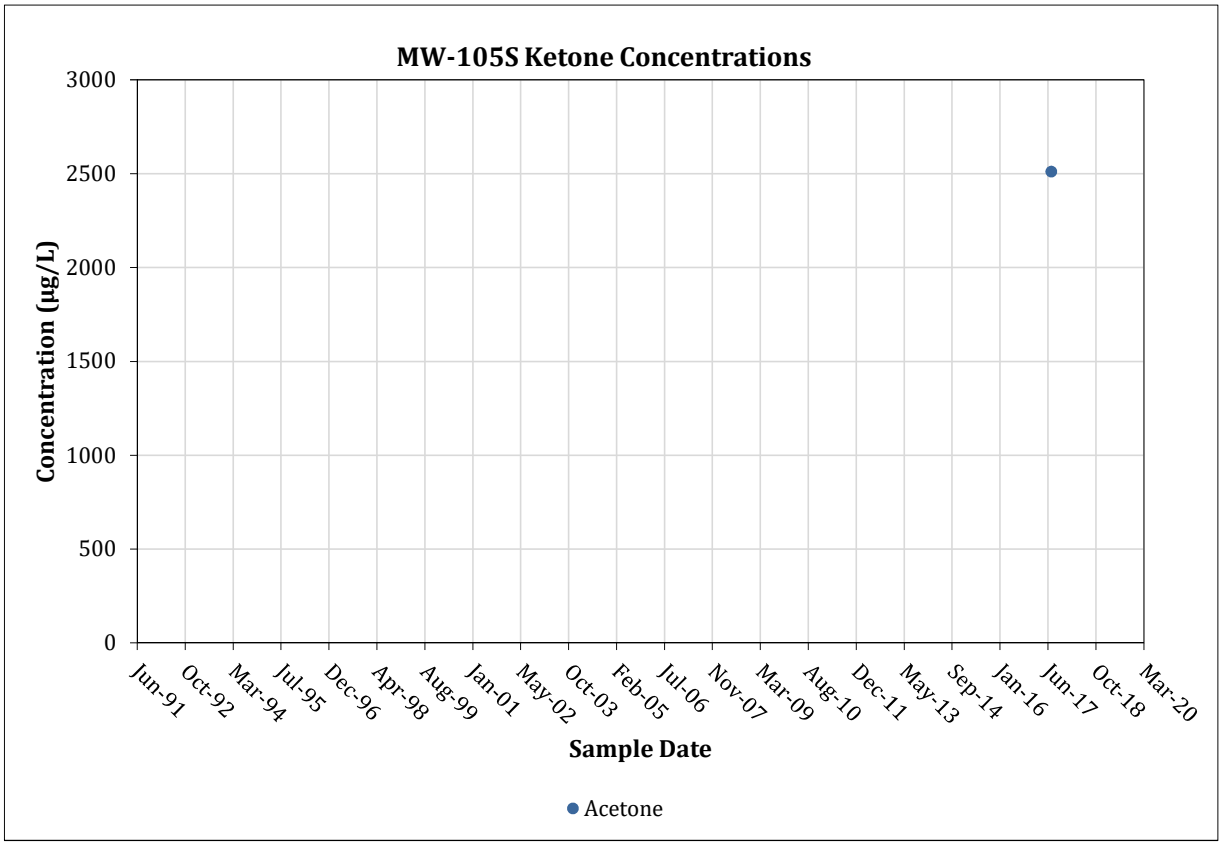

MW-105D Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
Toluene and Xylene Concentrations (µg/L)
0
1
2
3
4
5
6
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,2-Dichlorobenzene
1,4-Dichlorobenzene
Benzene
Ethylbenzene
Toluene
Xylene (Total)

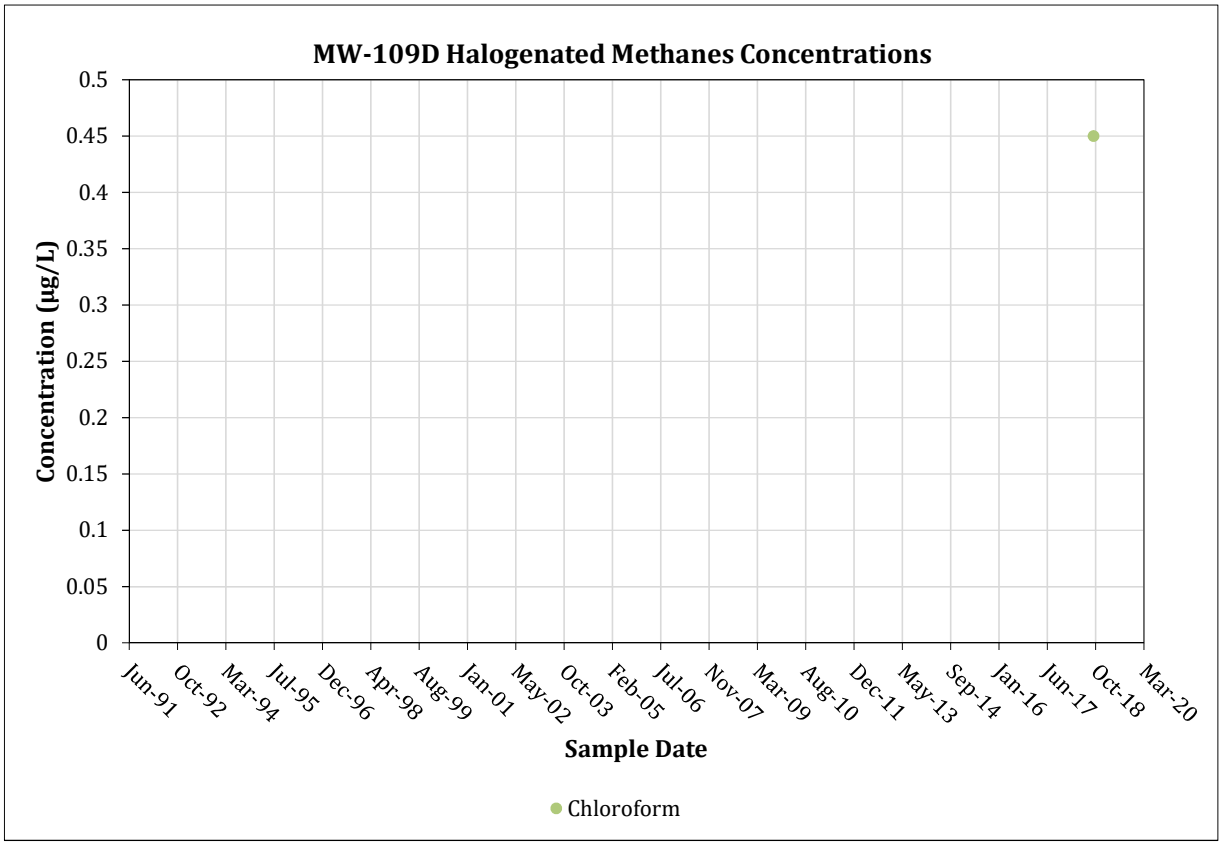

MW-105D Halogenated Methanes Concentrations
Concentration (µg/L)
12
10
8
6
4
2
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform
Dichlorodifluoromethane
Methylene chloride
Trichlorofluoromethane

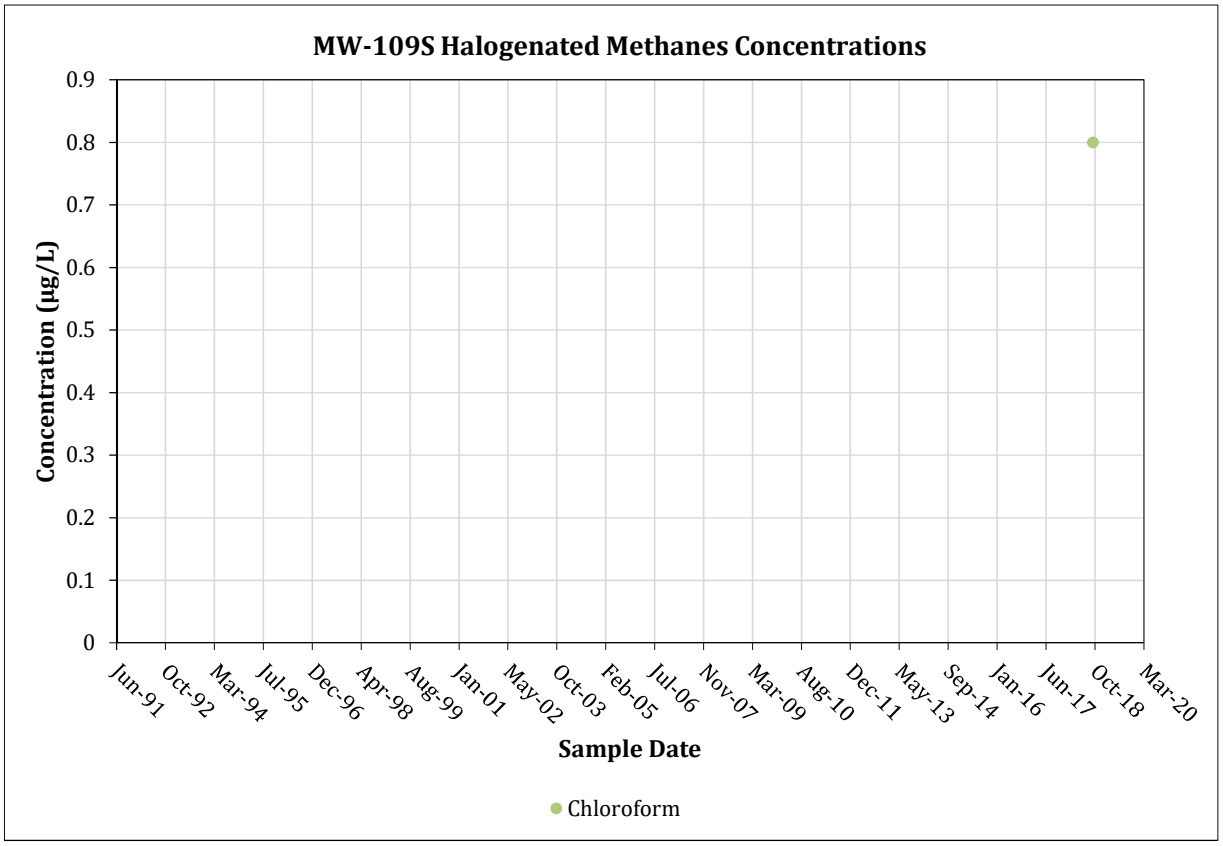

MW-105S Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1,1-Trichloroethane
1,1-Dichloroethane
1,2-Dichloropropane
1,2-Dichloroethane

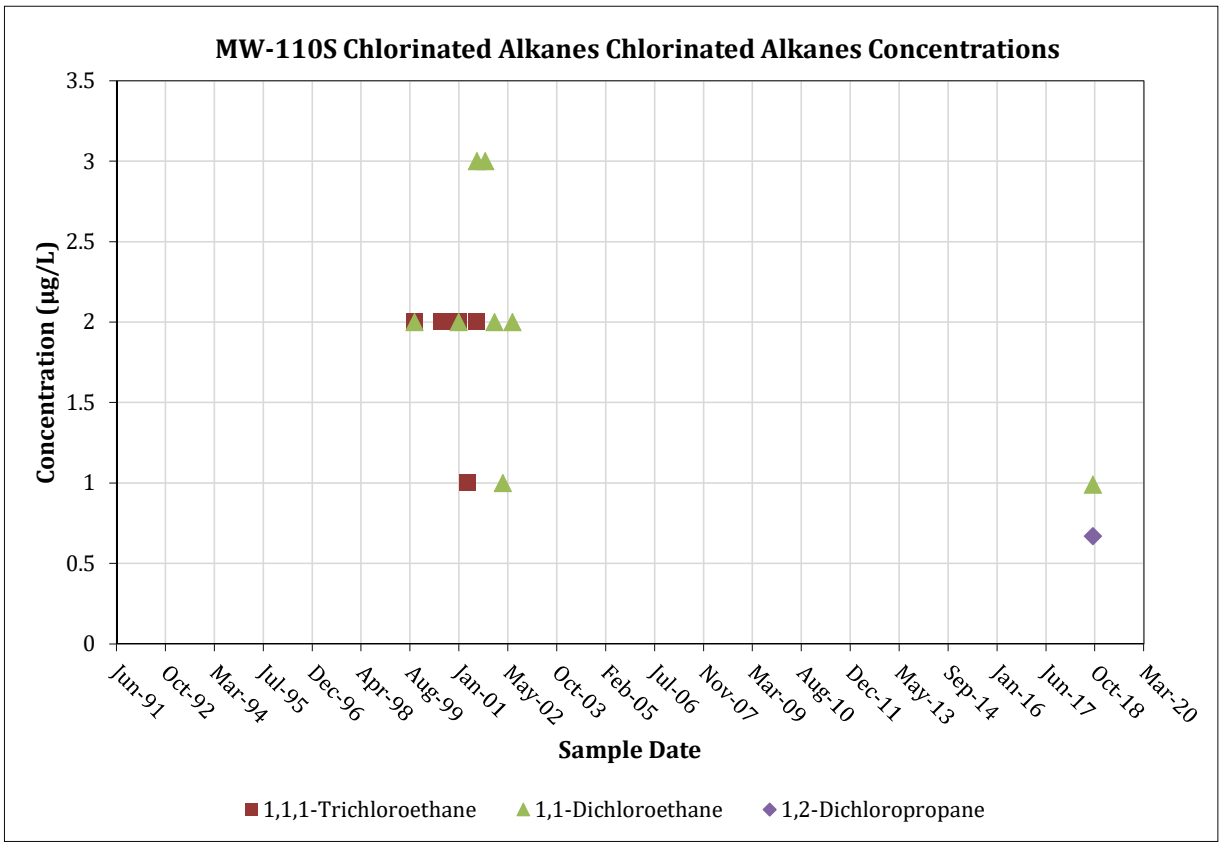

MW-105S Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
Toluene and Xylene Concentrations (µg/L)
2.5
2
1.5
1
0.5
0
9
8
7
6
5
4
3
2
1
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,2-Dichlorobenzene
1,4-Dichlorobenzene
Benzene
Chlorobenzene
Toluene
Xylene (Total)

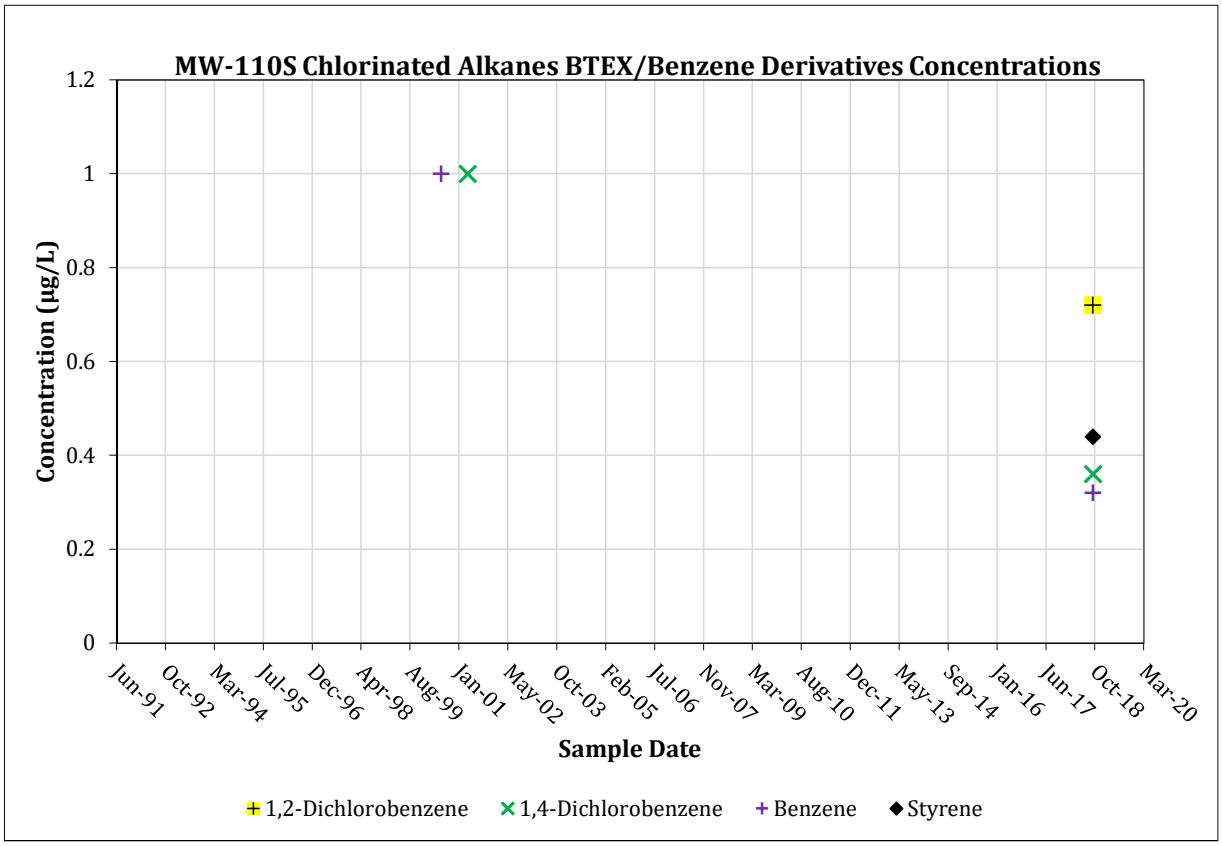

MW-105S Halogenated Methanes Concentrations
Concentration (µg/L)
0
1
2
3
4
5
6
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform
Dichlorodifluoromethane
Methylene chloride
Trichlorofluoromethane

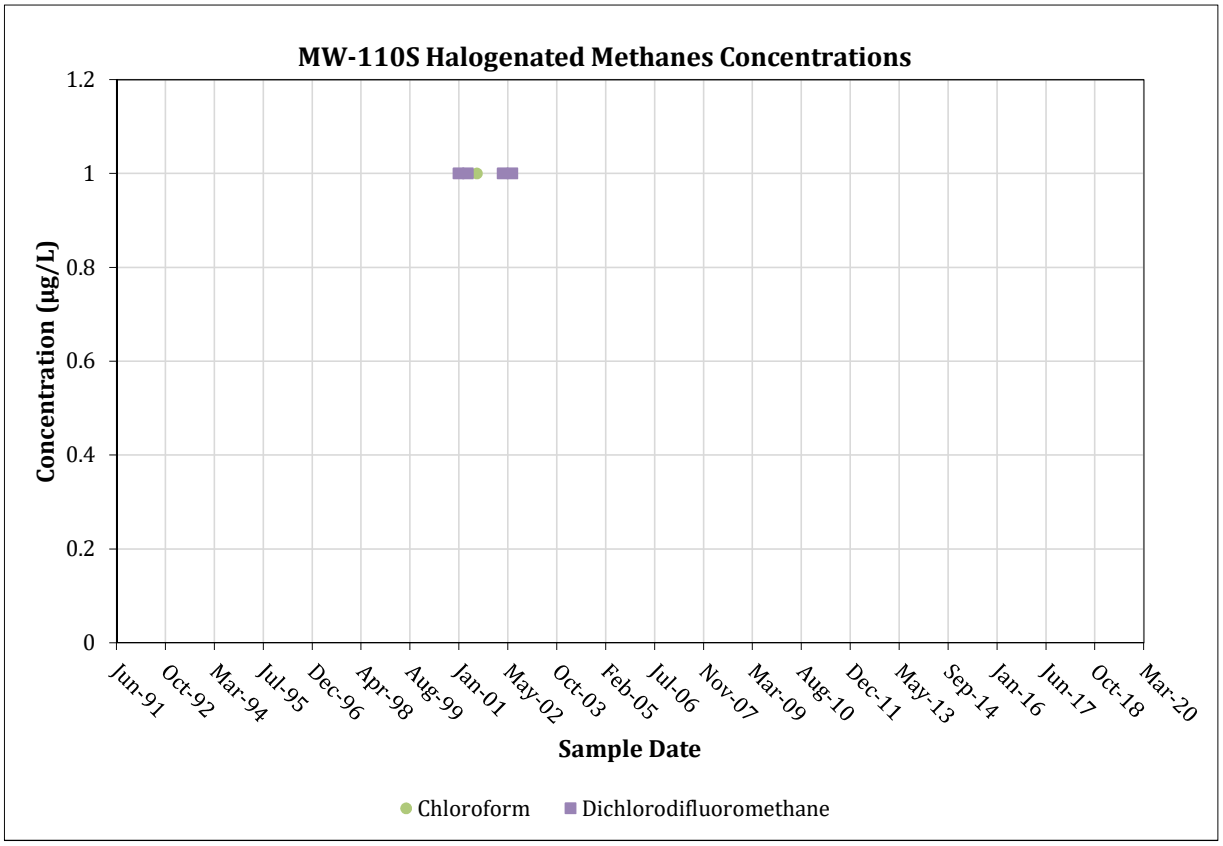

MW-105S Ketone Concentrations
Concentration (µg/L)
0
500
1000
1500
2000
2500
3000
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Acetone

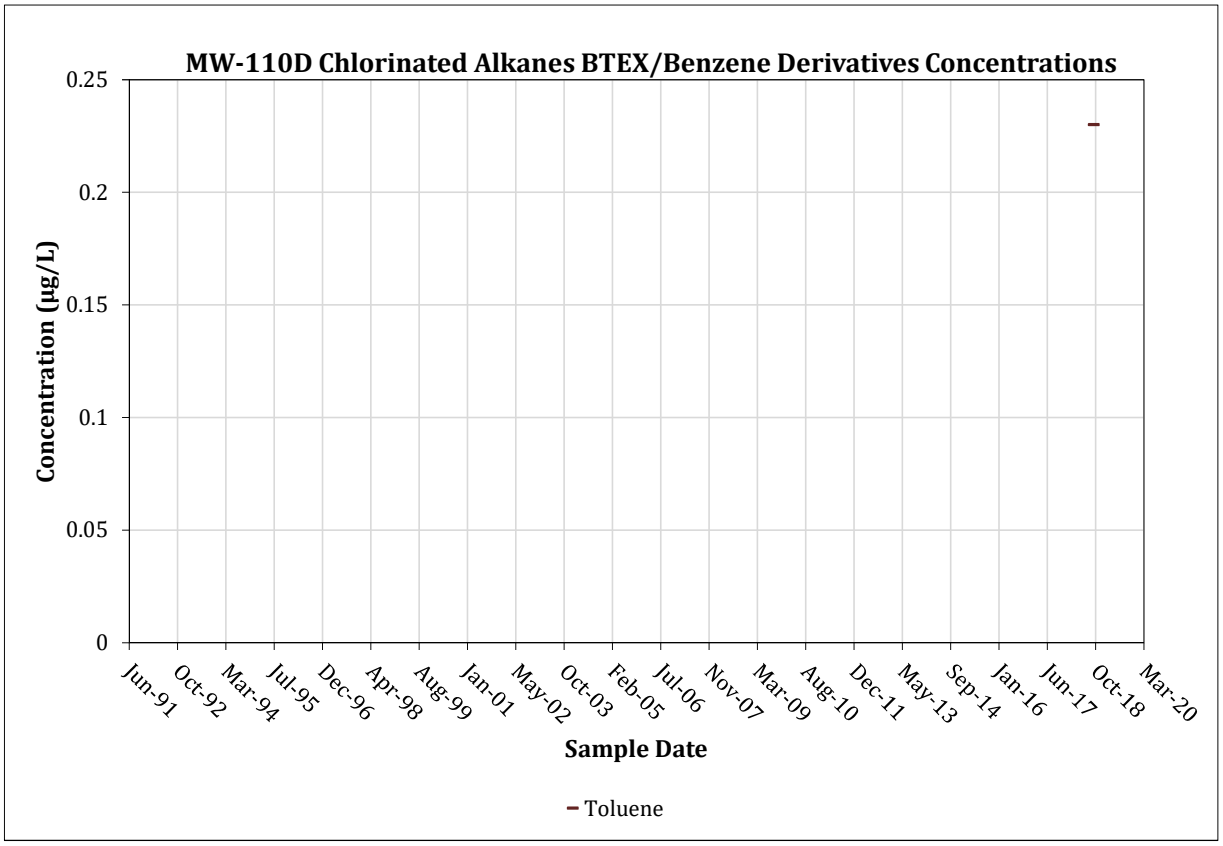

MW-109D Halogenated Methanes Concentrations
Concentration (µg/L)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform

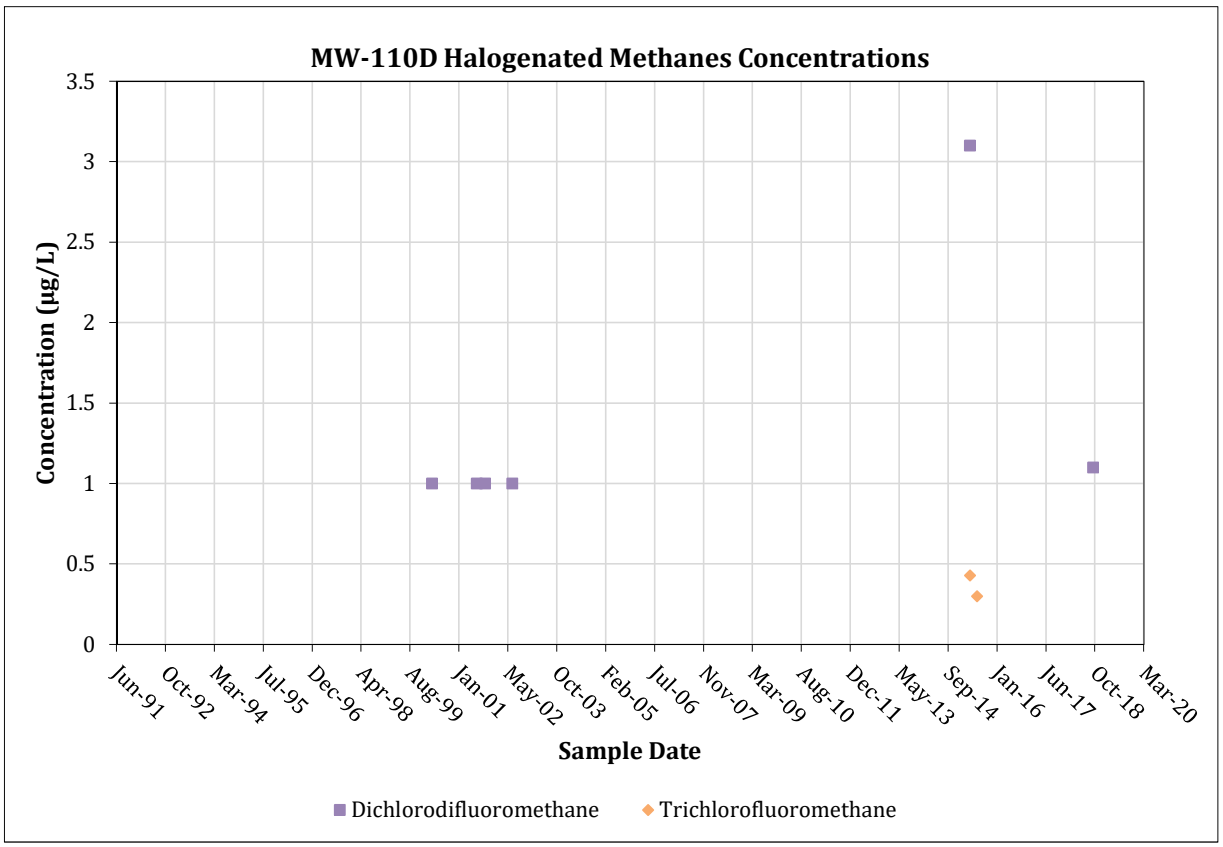

MW-109S Halogenated Methanes Concentrations
Concentration (µg/L)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform

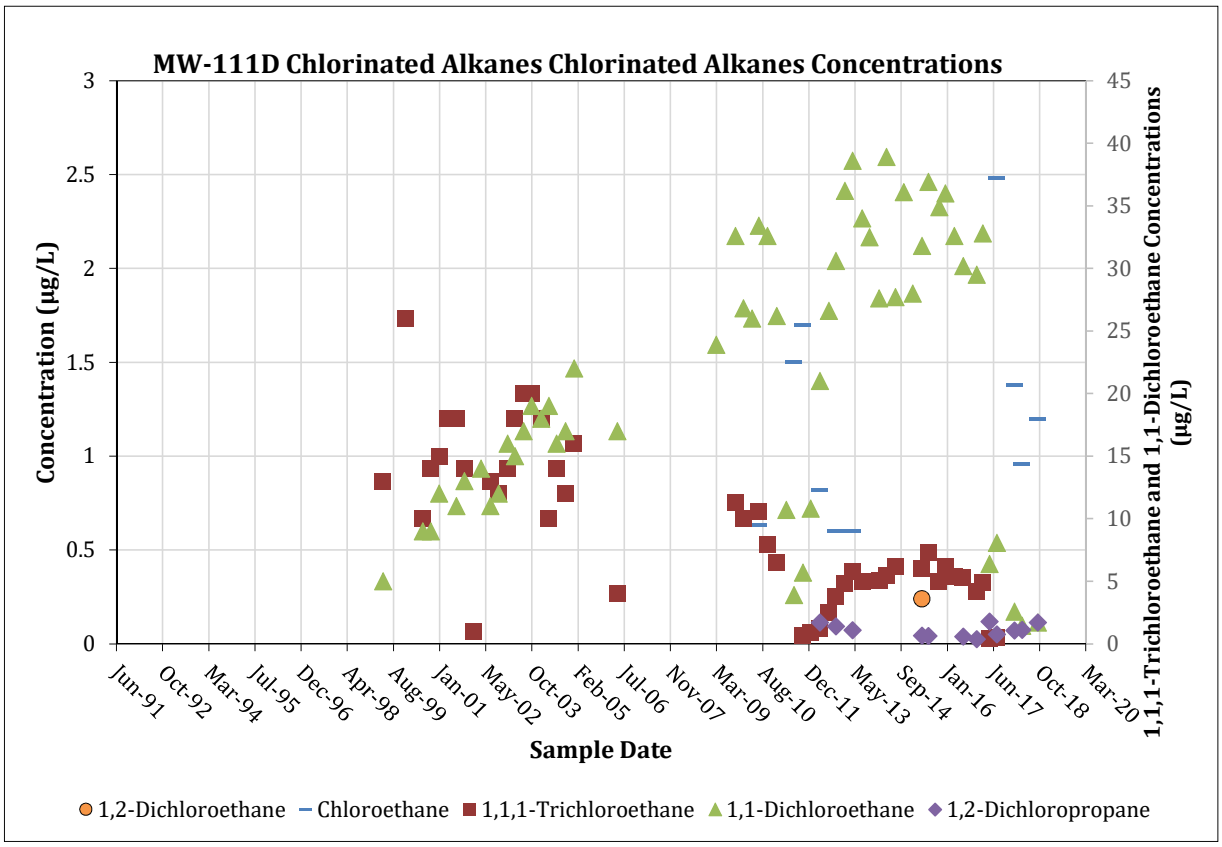

MW-110S Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
3.5
3
2.5
2
1.5
1
0.5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1,1-Trichloroethane
1,1-Dichloroethane
1,2-Dichloropropane

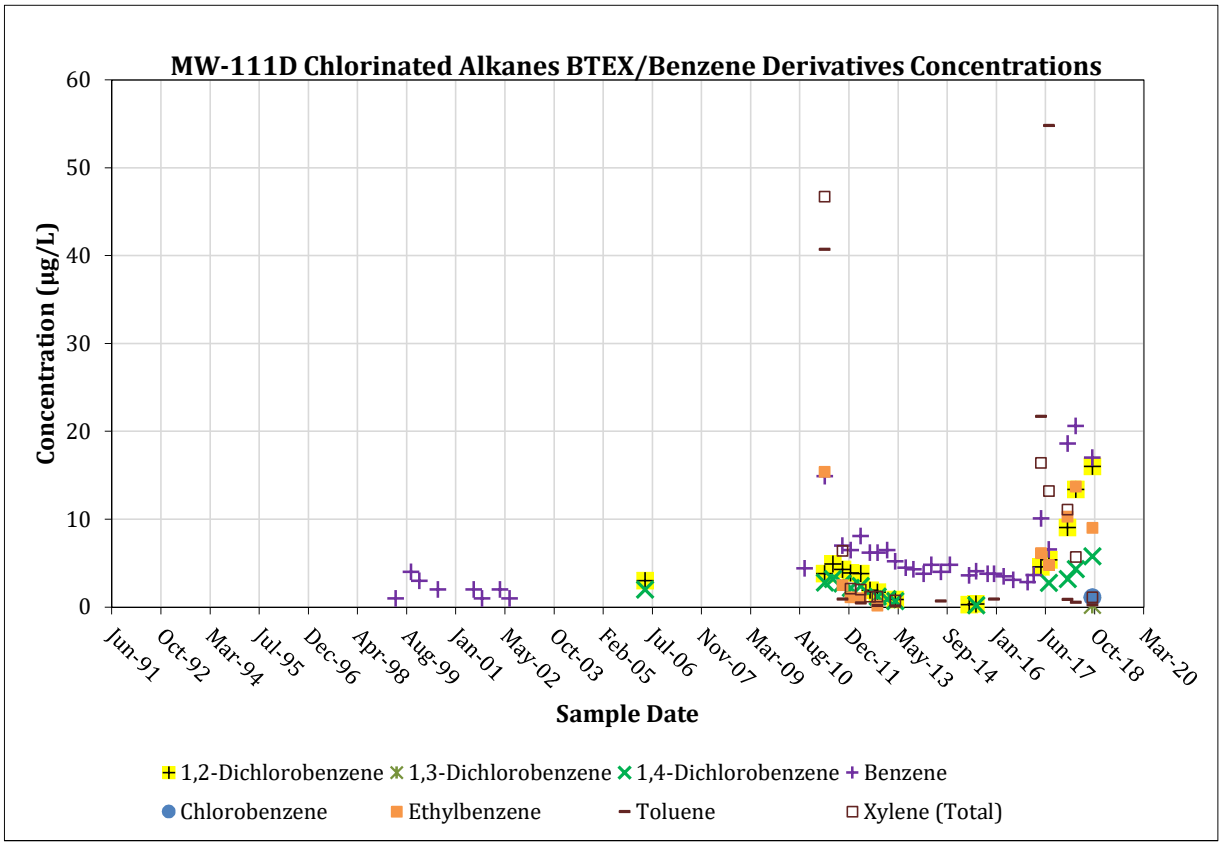

MW-110S Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
1.2
1
0.8
0.6
0.4
0.2
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,2-Dichlorobenzene
1,4-Dichlorobenzene
Benzene
Styrene

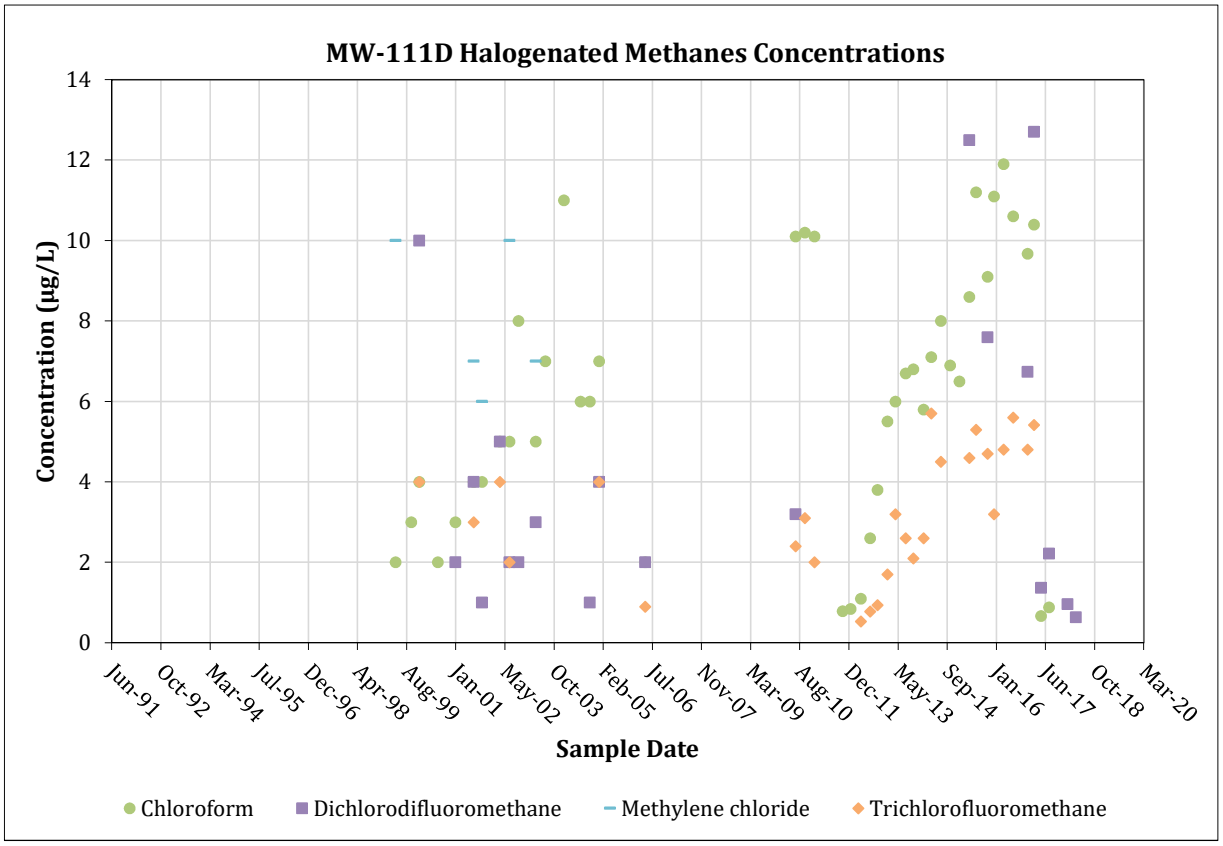

MW-110S Halogenated Methanes Concentrations
Concentration (µg/L)
1.2
1
0.8
0.6
0.4
0.2
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform
Dichlorodifluoromethane

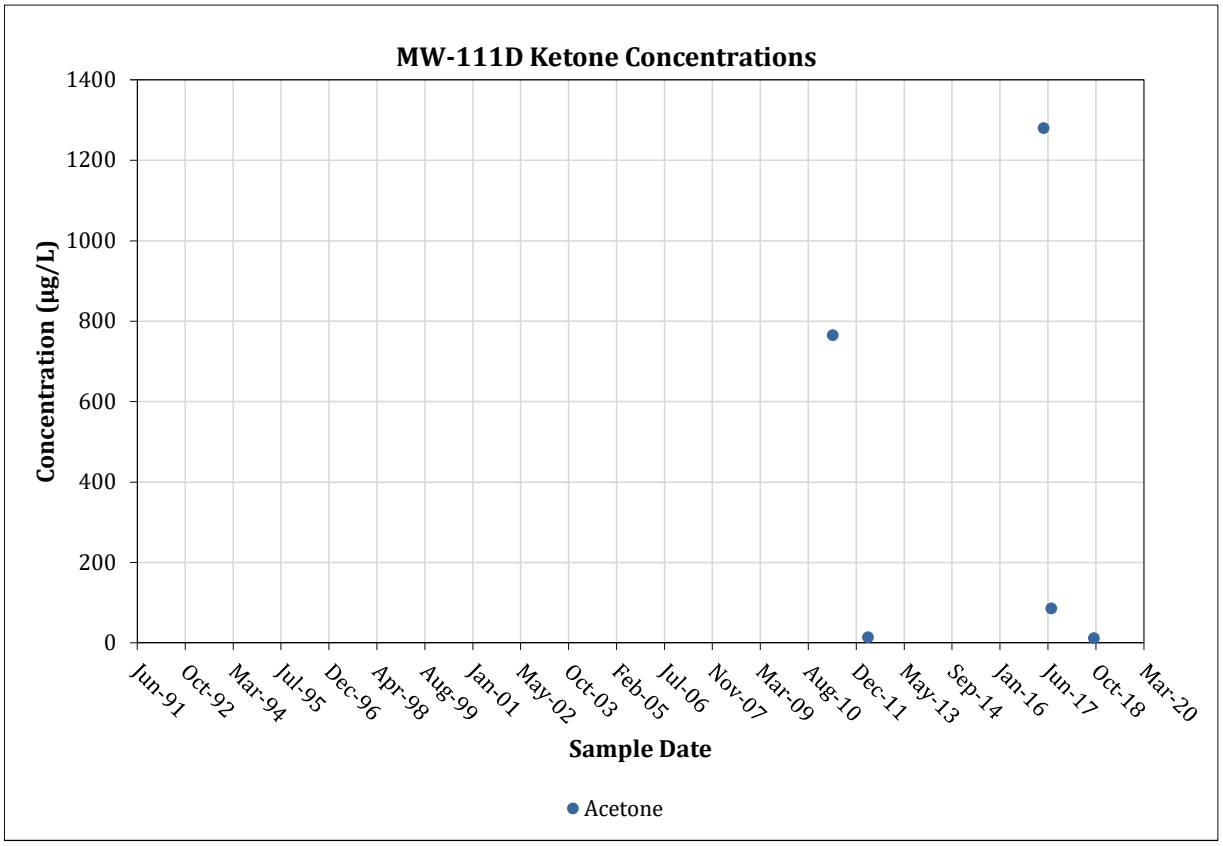

MW-110D Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
0.25
0.2
0.15
0.1
0.05
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Toluene

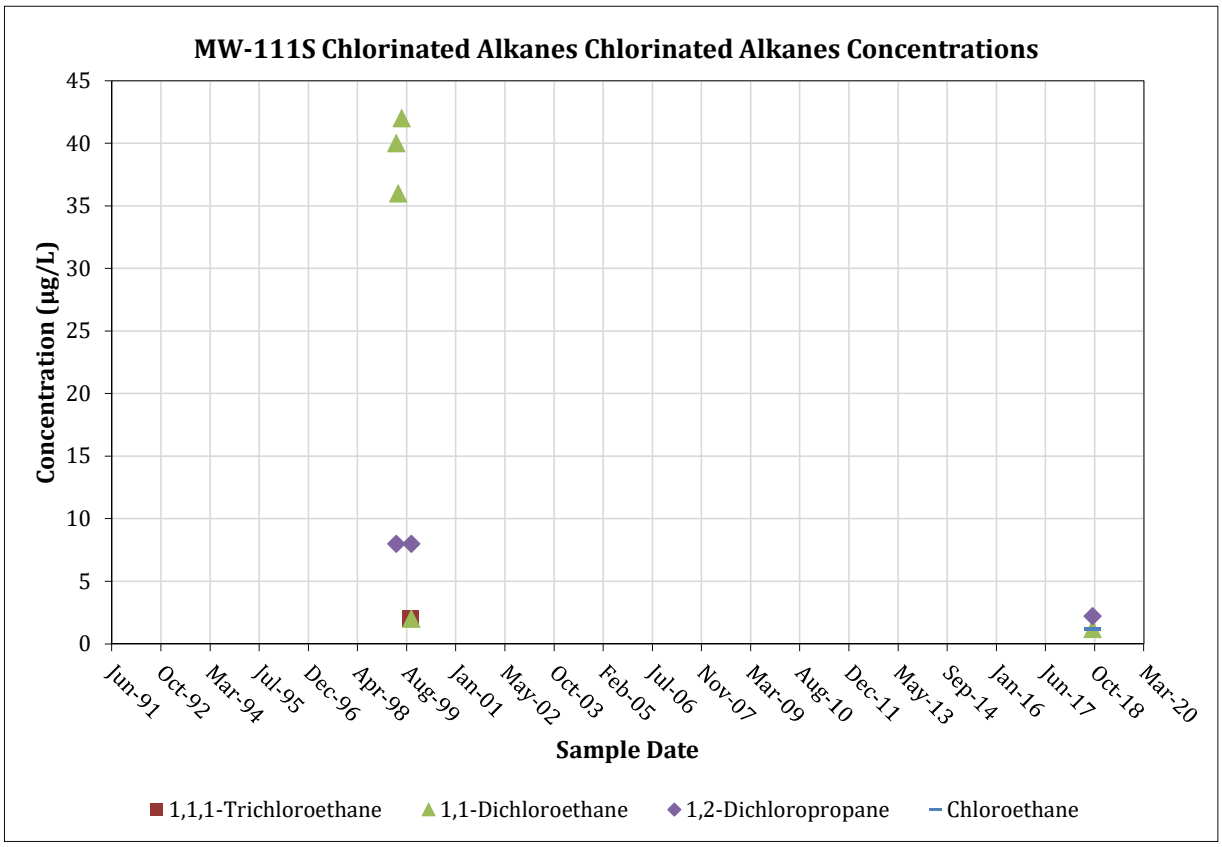

MW-110D Halogenated Methanes Concentrations
Concentration (µg/L)
3.5
3
2.5
2
1.5
1
0.5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Dichlorodifluoromethane
Trichlorofluoromethane

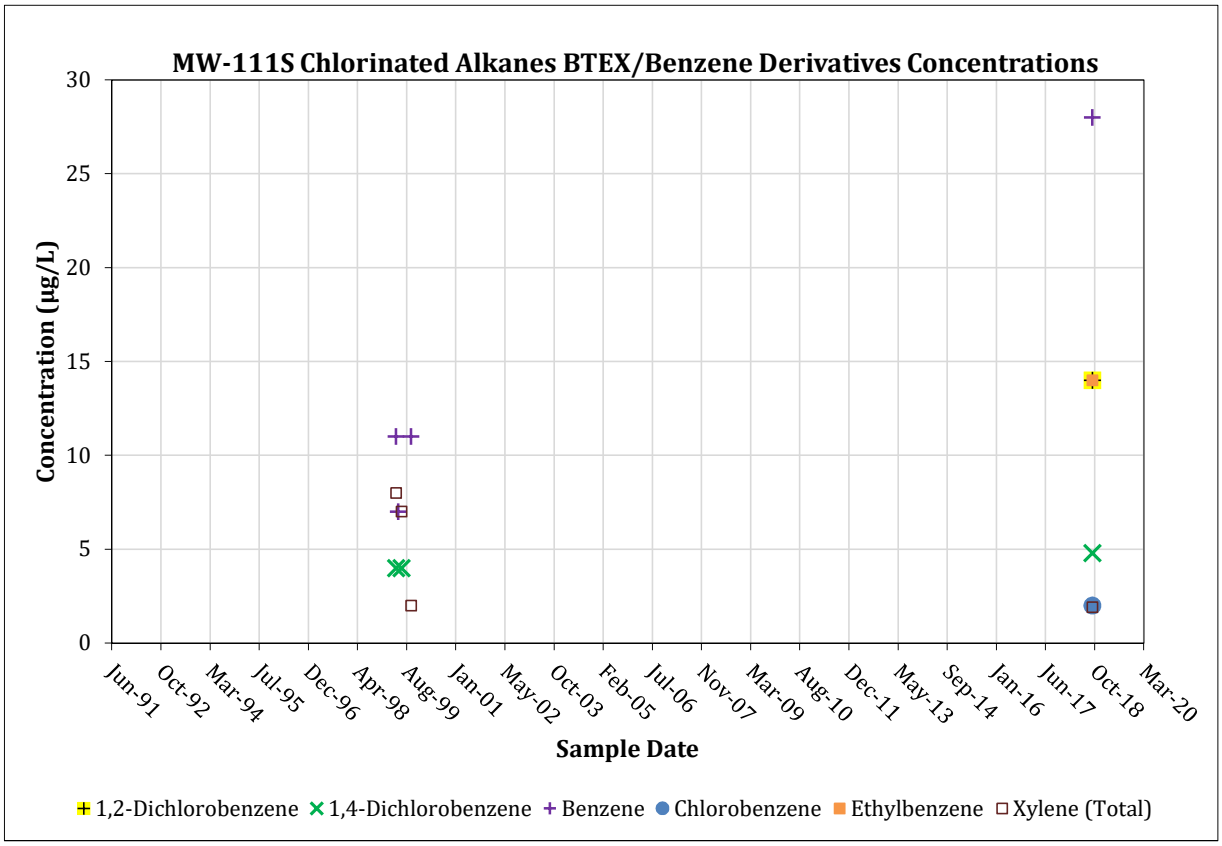

MW-111D Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
1,1,1-Trichloroethane and 1,1-Dichloroethane Concentrations (µg/L)
Sample Date
1,2-Dichloroethane
Chloroethane
1,1,1-Trichloroethane
1,1-Dichloroethane
1,2-Dichloropropane

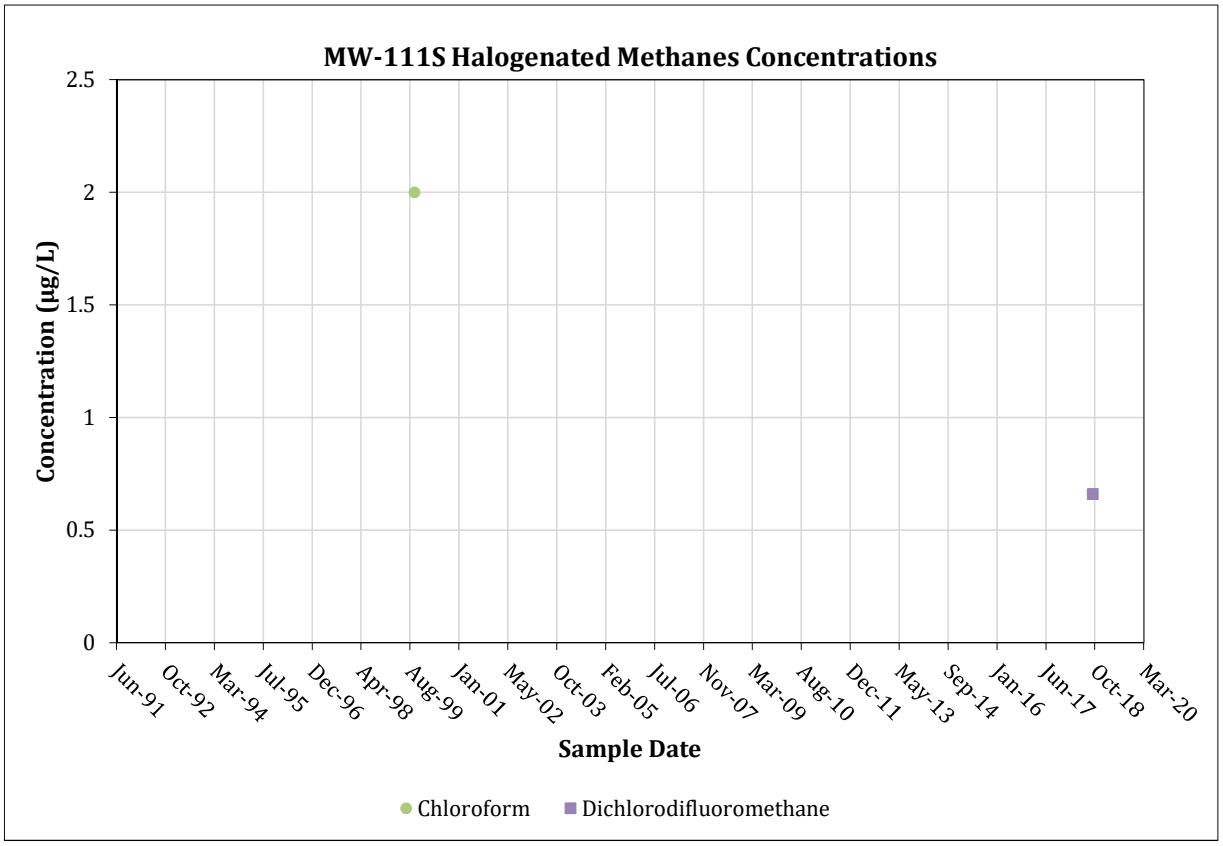

MW-111D Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
Sample Date
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Benzene
Chlorobenzene
Ethylbenzene
Toluene
Xylene (Total)

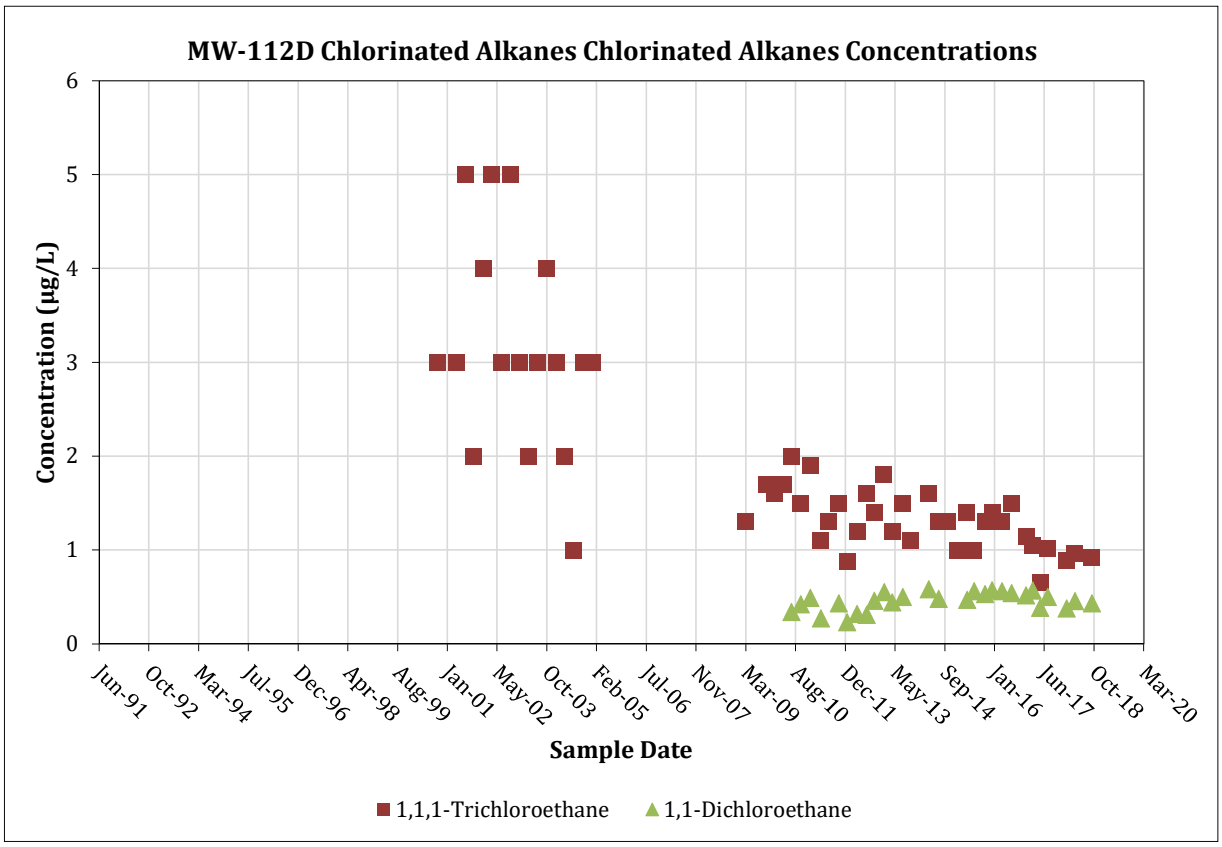

MW-111D Halogenated Methanes Concentrations
Concentration (µg/L)
0
2
4
6
8
10
12
14
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform
Dichlorodifluoromethane
Methylene chloride
Trichlorofluoromethane

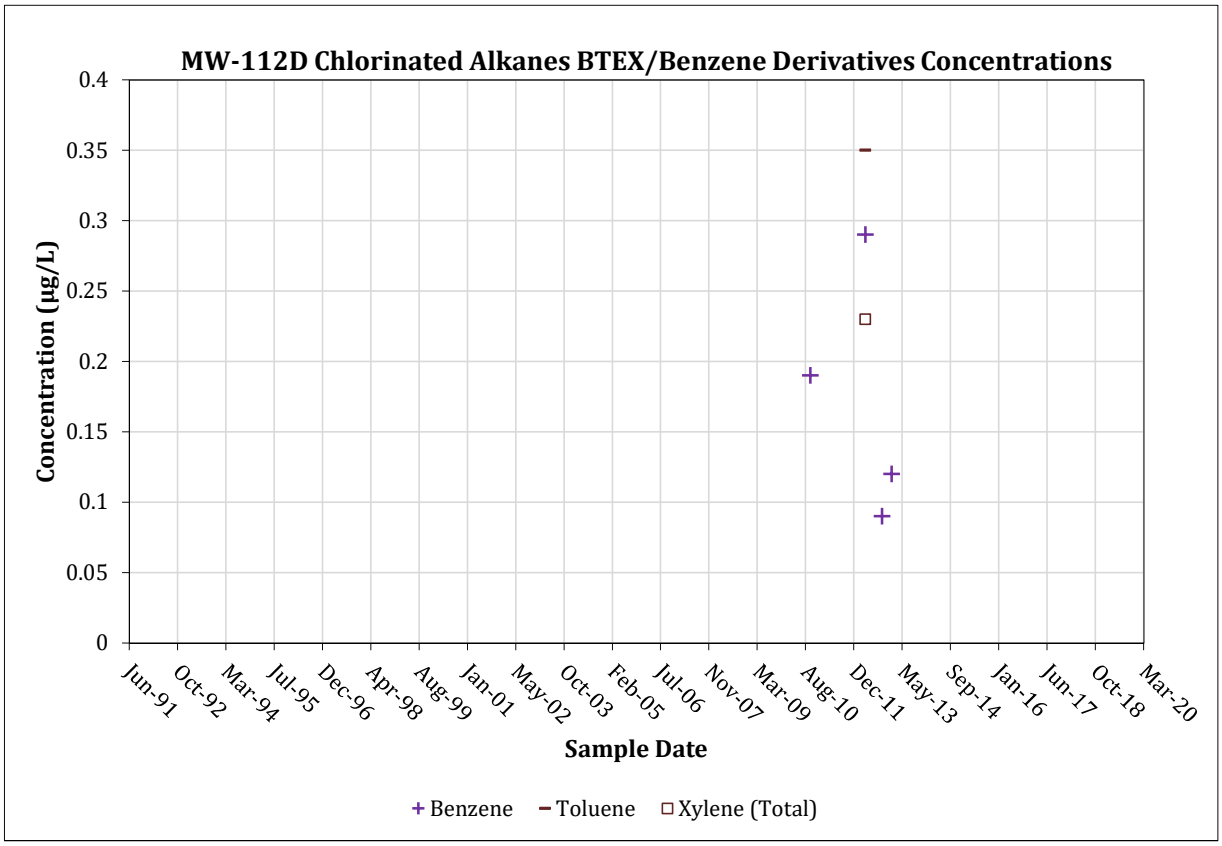

MW-111D Ketone Concentrations
Concentration (µg/L)
0
200
400
600
800
1000
1200
1400
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Acetone

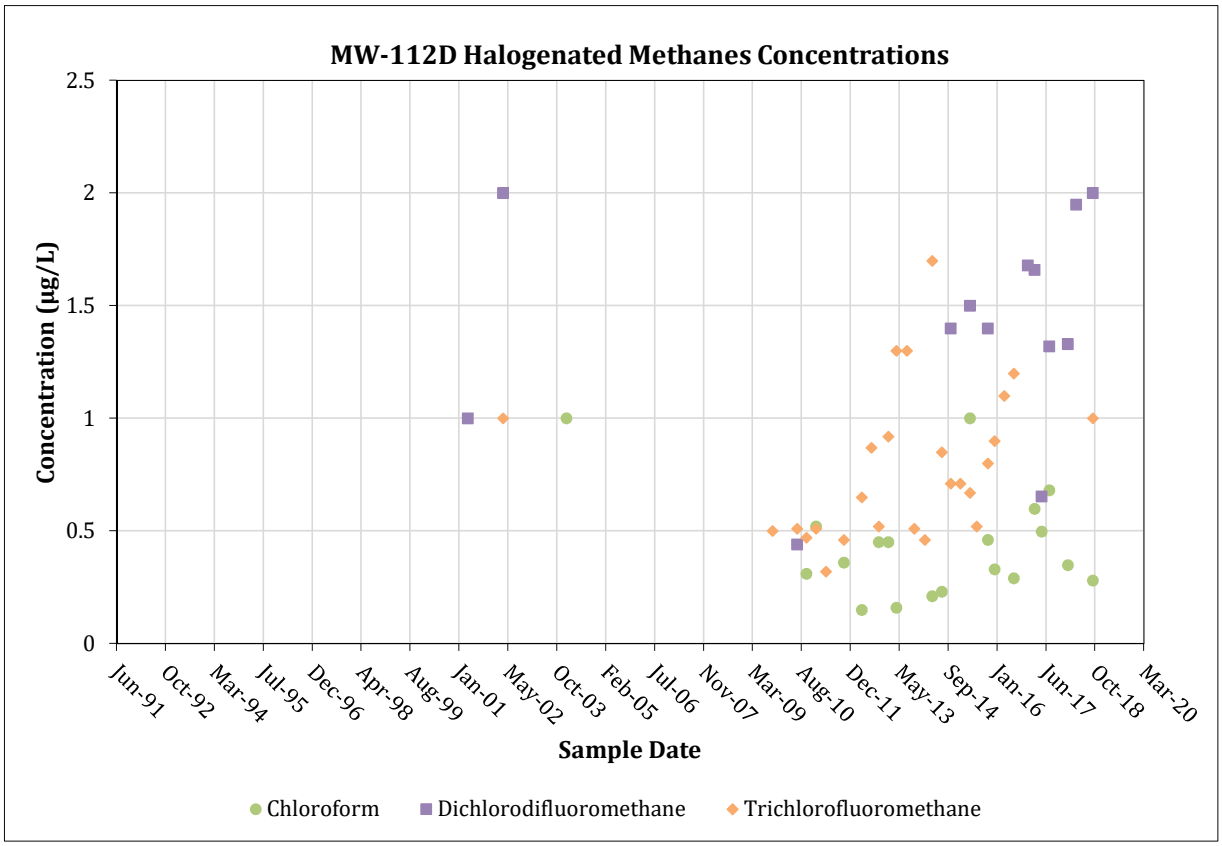

MW-111S Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
45
40
35
30
25
20
15
10
5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1,1-Trichloroethane
1,1-Dichloroethane
1,2-Dichloropropane
Chloroethane

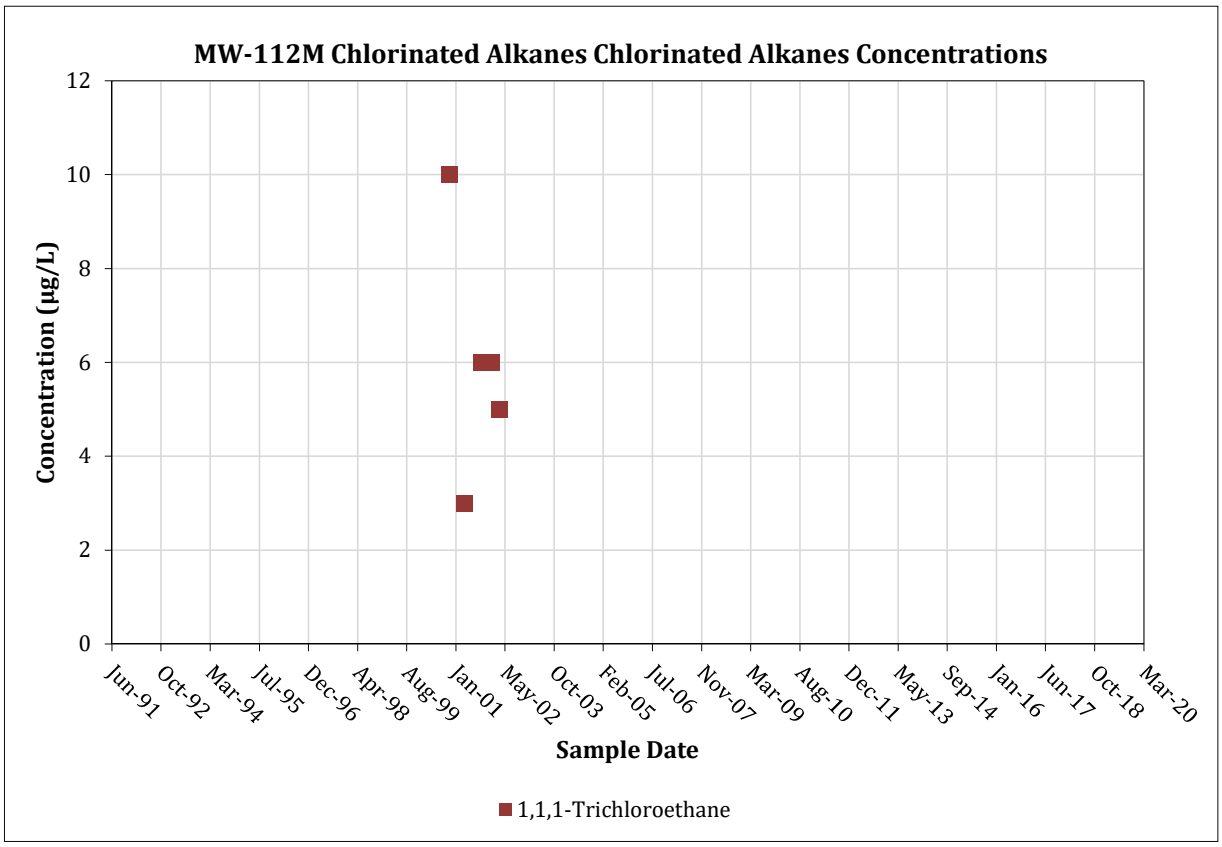

MW-111S Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
30
25
20
15
10
5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,2-Dichlorobenzene
1,4-Dichlorobenzene
Benzene
Chlorobenzene
Ethylbenzene
Xylene (Total)

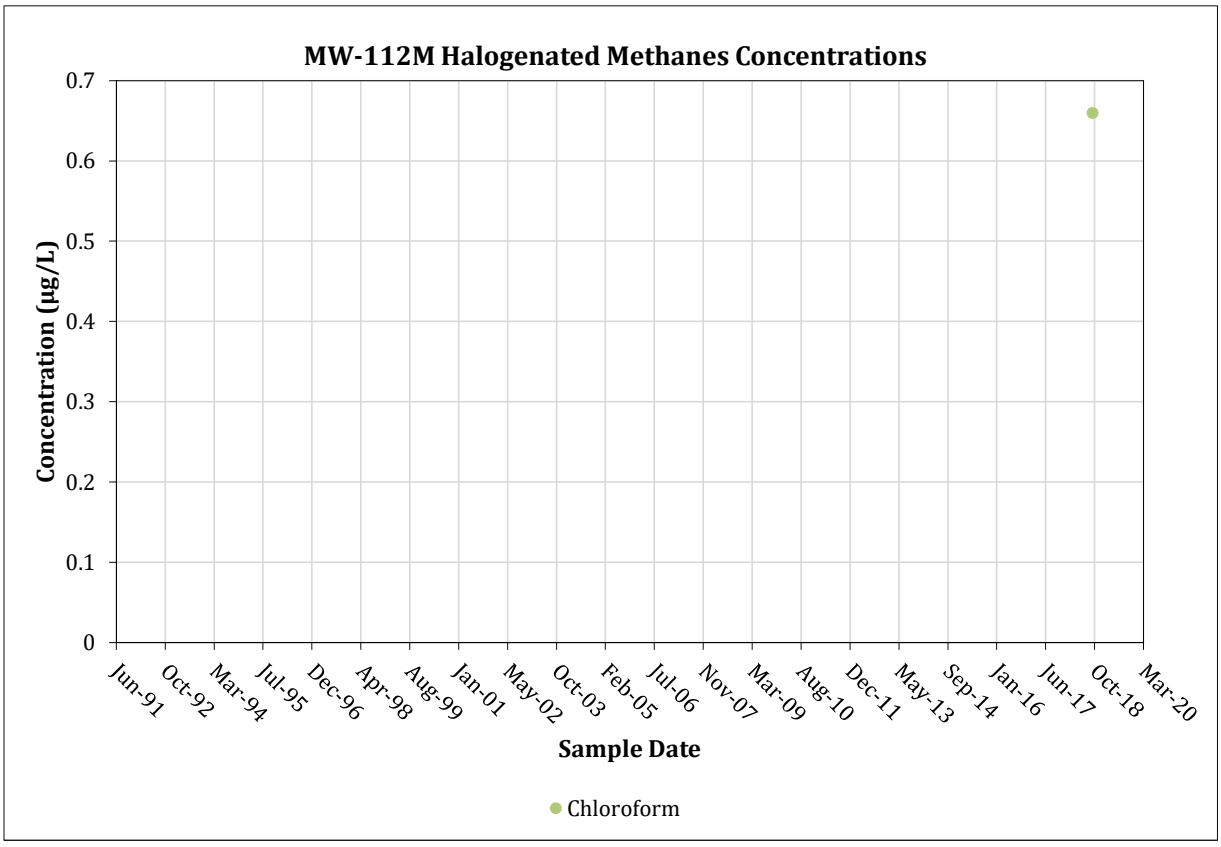

MW-111S Halogenated Methanes Concentrations
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform
Dichlorodifluoromethane

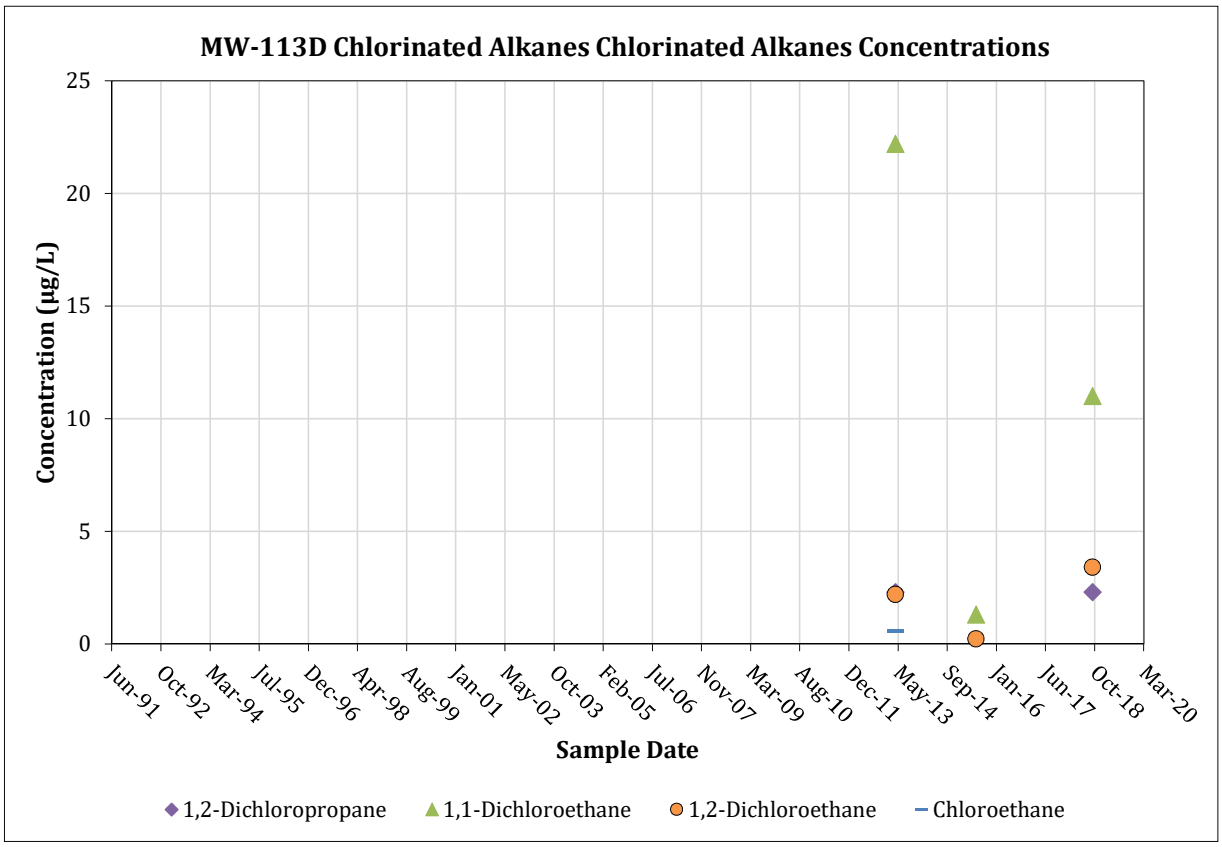

MW-112D Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
0
1
2
3
4
5
6
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1,1-Trichloroethane
1,1-Dichloroethane

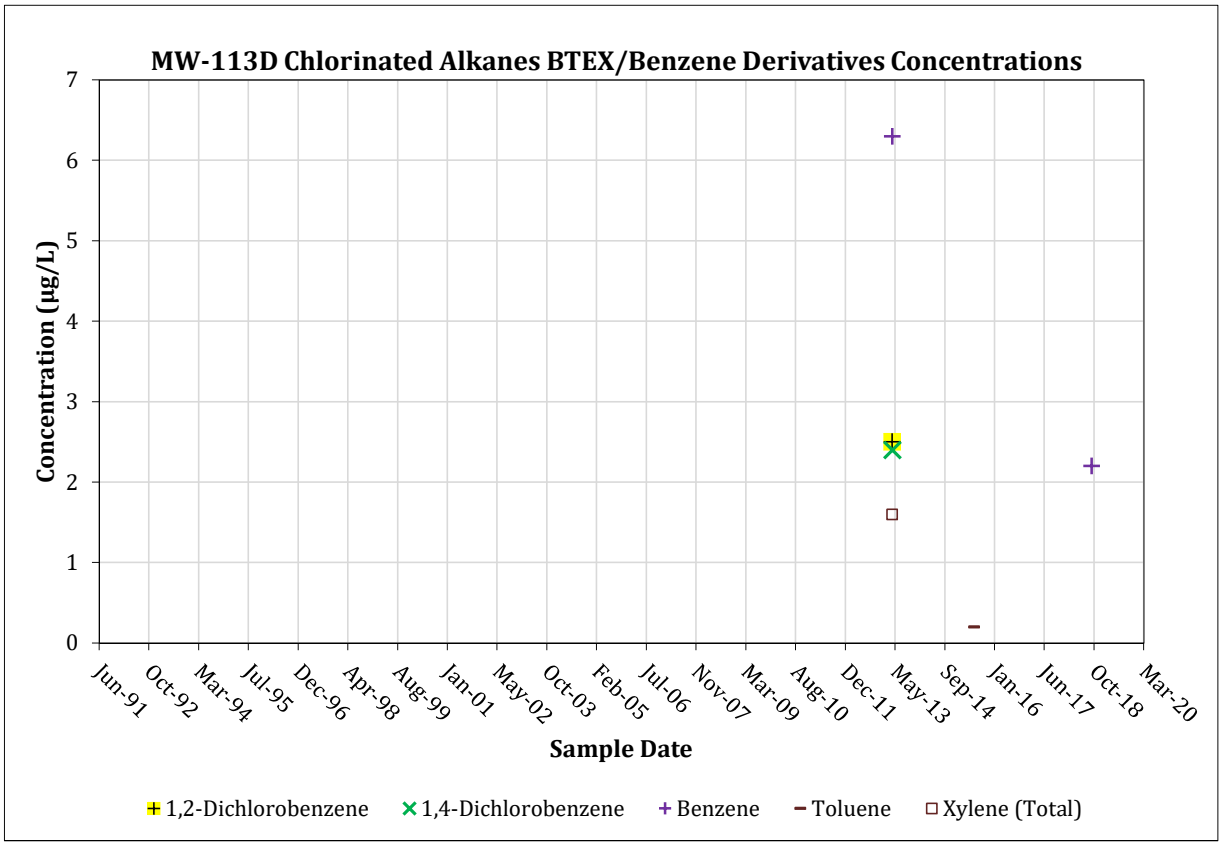

MW-112D Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Benzene
Toluene
Xylene (Total)

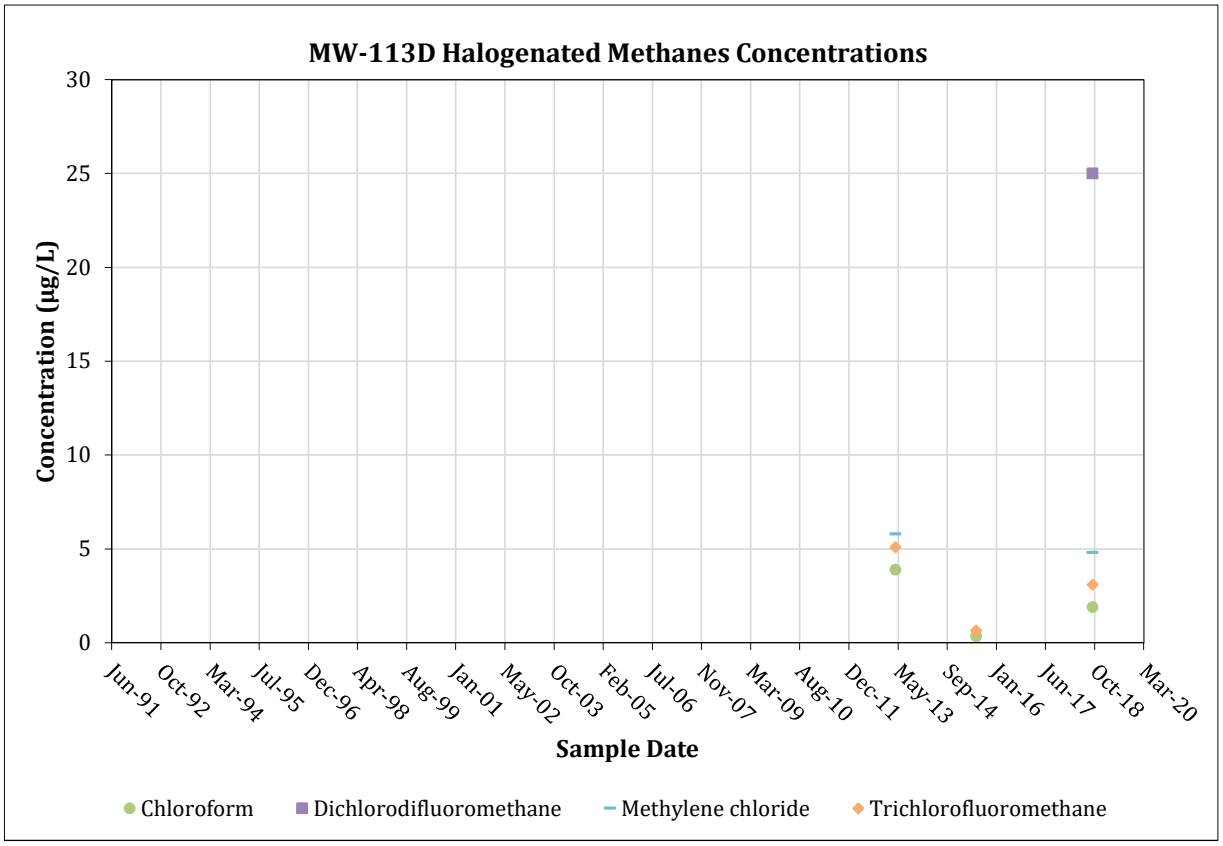

MW-112D Halogenated Methanes Concentrations
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform
Dichlorodifluoromethane
Trichlorofluoromethane

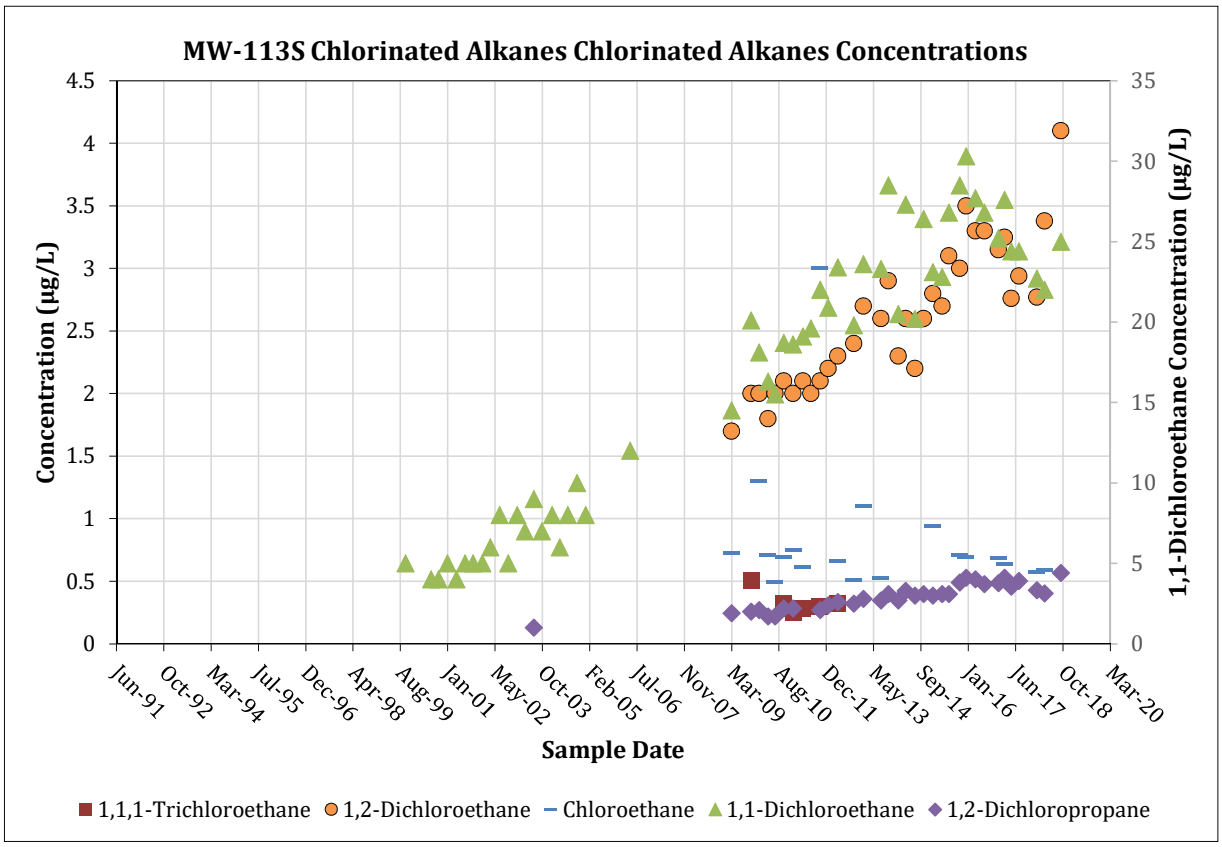

MW-112M Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
12
10
8
6
4
2
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1,1-Trichloroethane

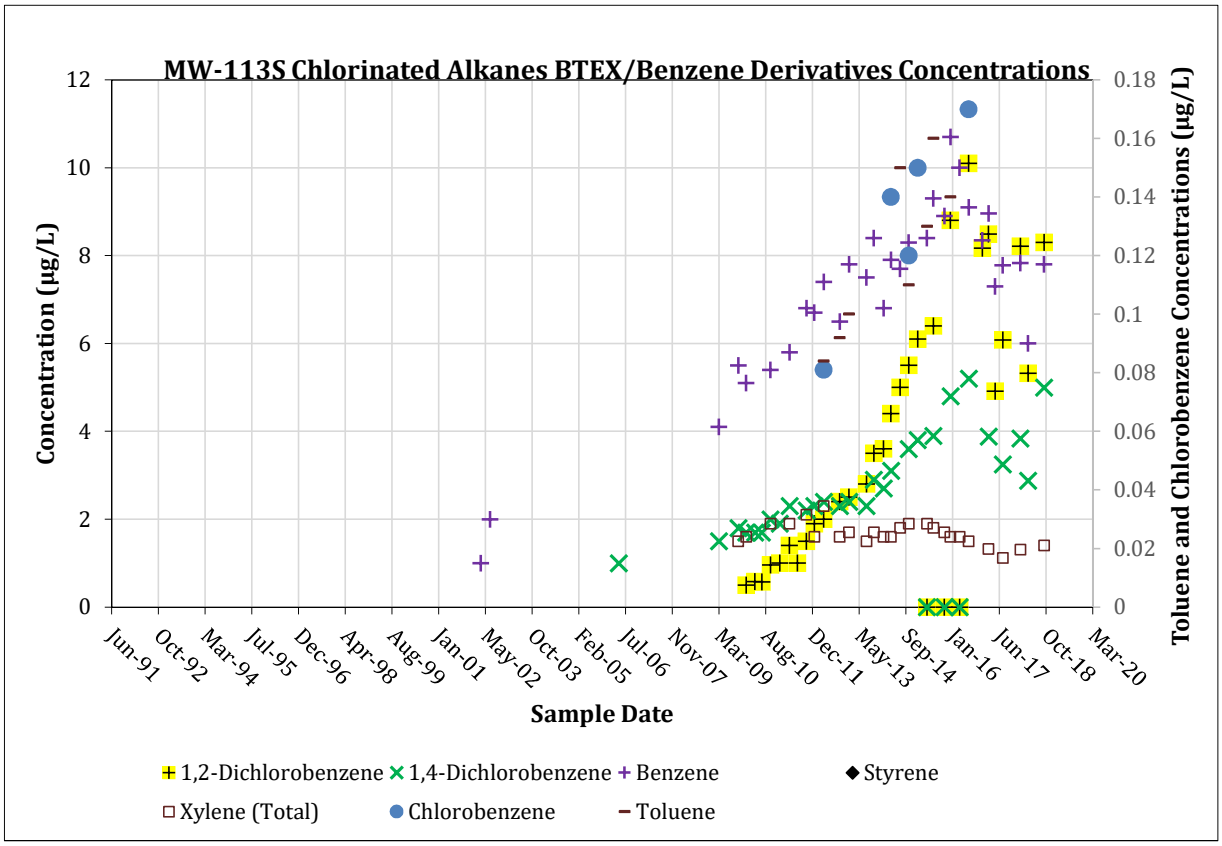

MW-112M Halogenated Methanes Concentrations
Concentration (µg/L)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform

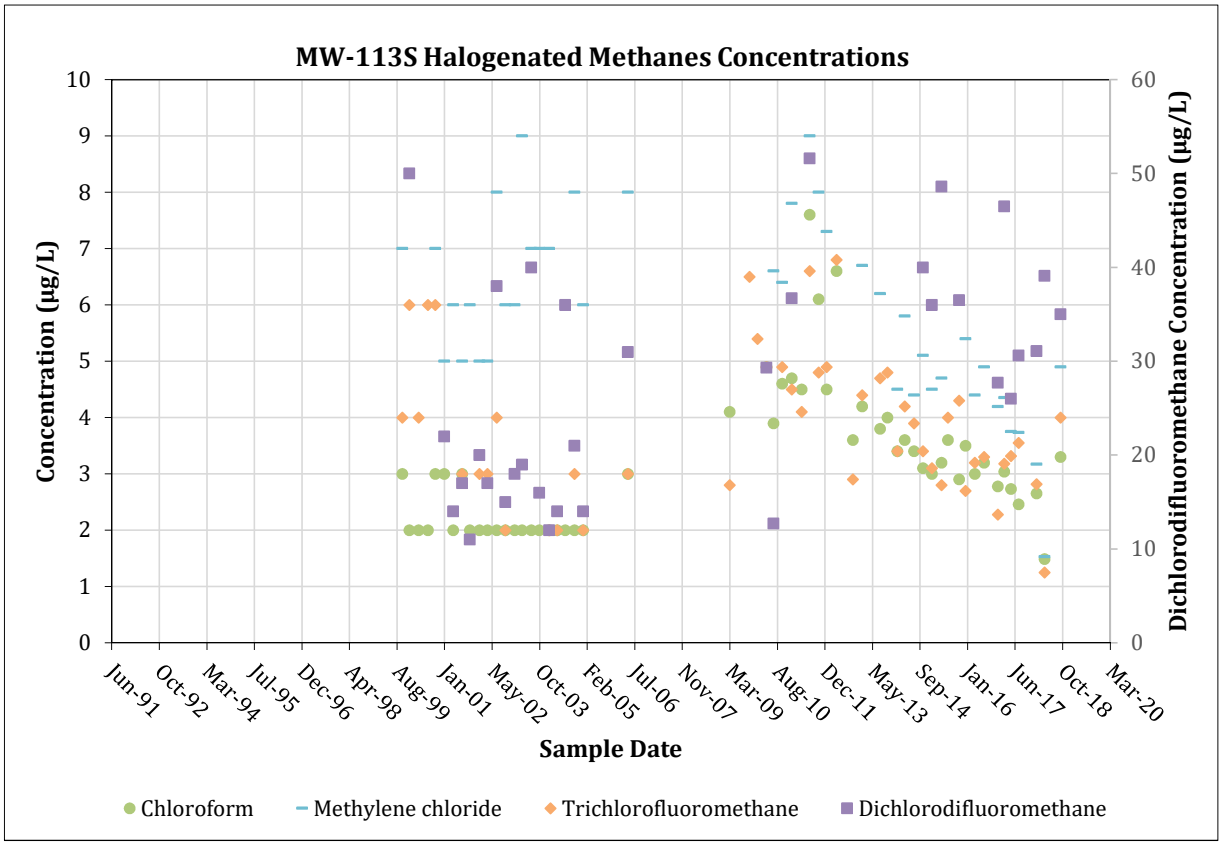

MW-113D Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
25
20
15
10
5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,2-Dichloropropane
1,1-Dichloroethane
1,2-Dichloroethane
Chloroethane

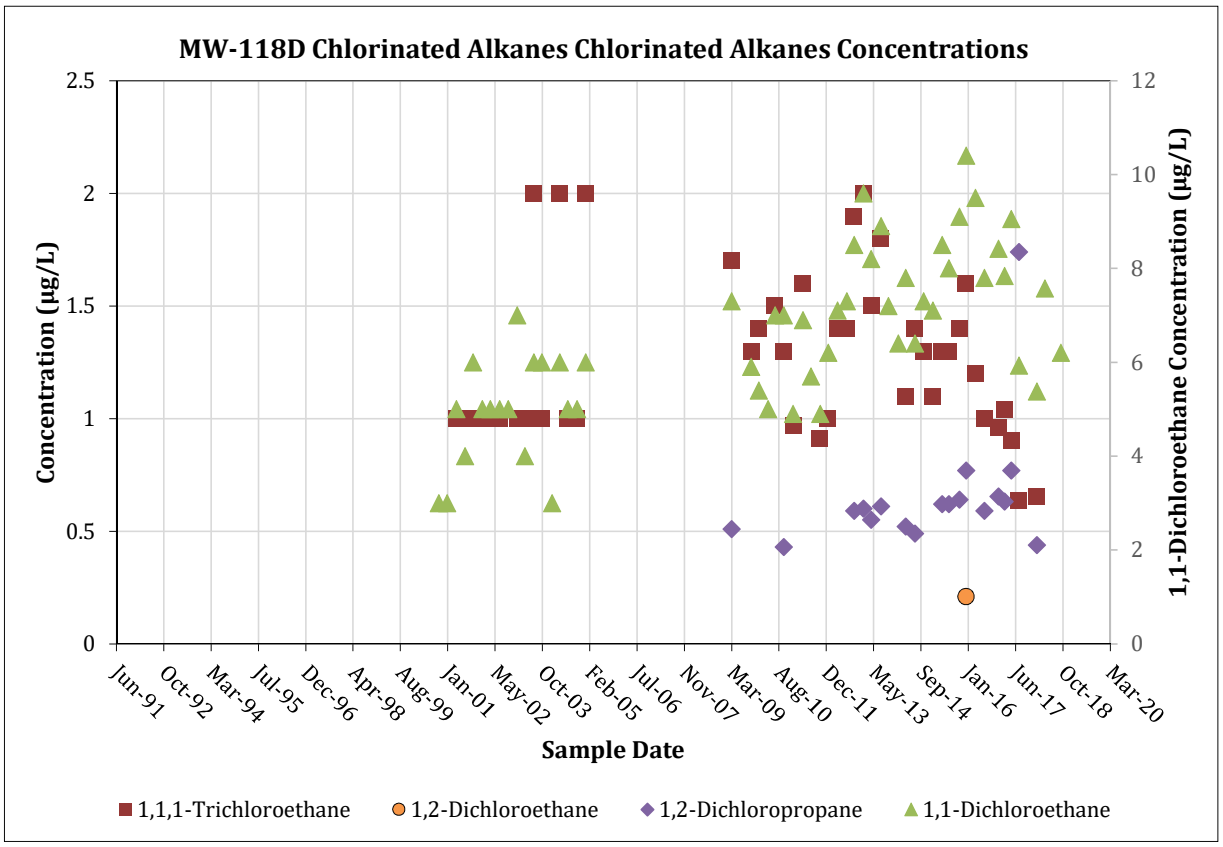

MW-113D Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
7
6
5
4
3
2
1
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,2-Dichlorobenzene
1,4-Dichlorobenzene
Benzene
Toluene
Xylene (Total)

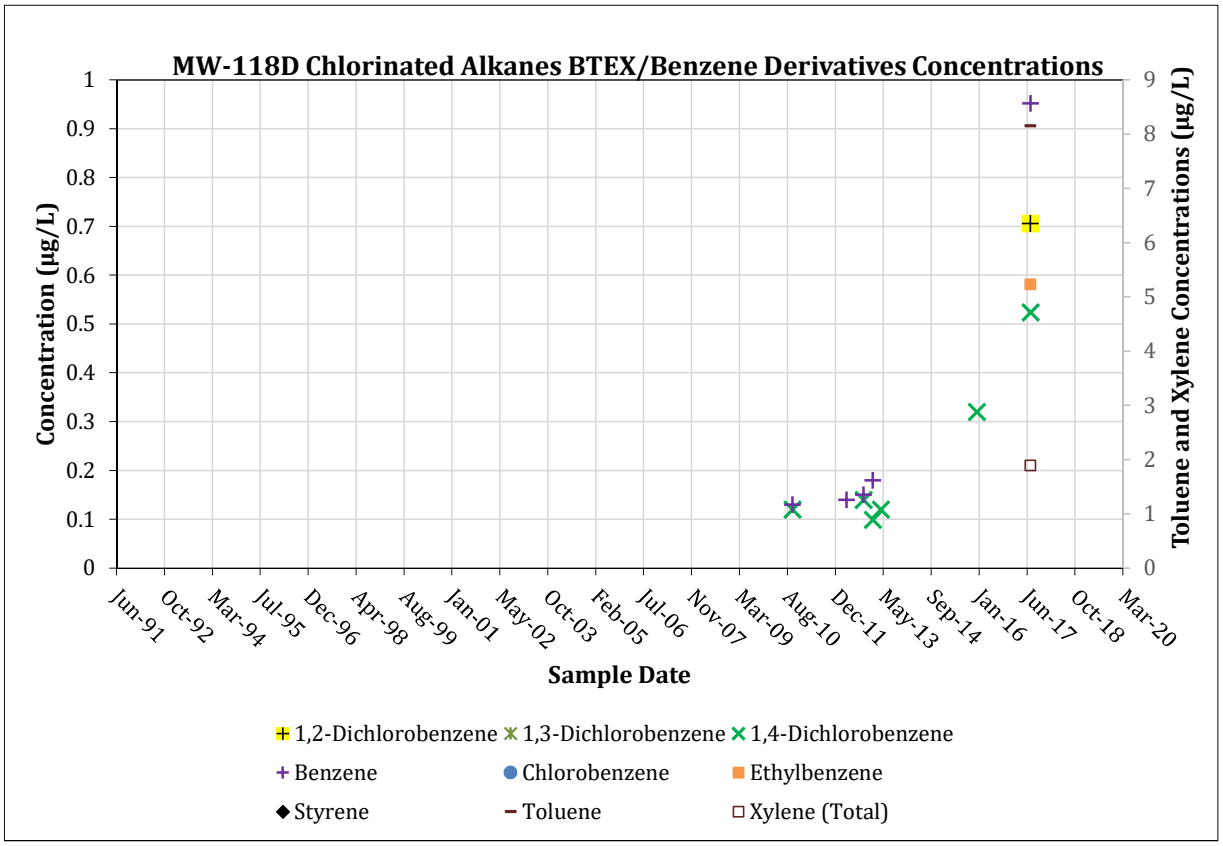

MW-113D Halogenated Methanes Concentrations
Concentration (µg/L)
30
25
20
15
10
5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform
Dichlorodifluoromethane
Methylene chloride
Trichlorofluoromethane

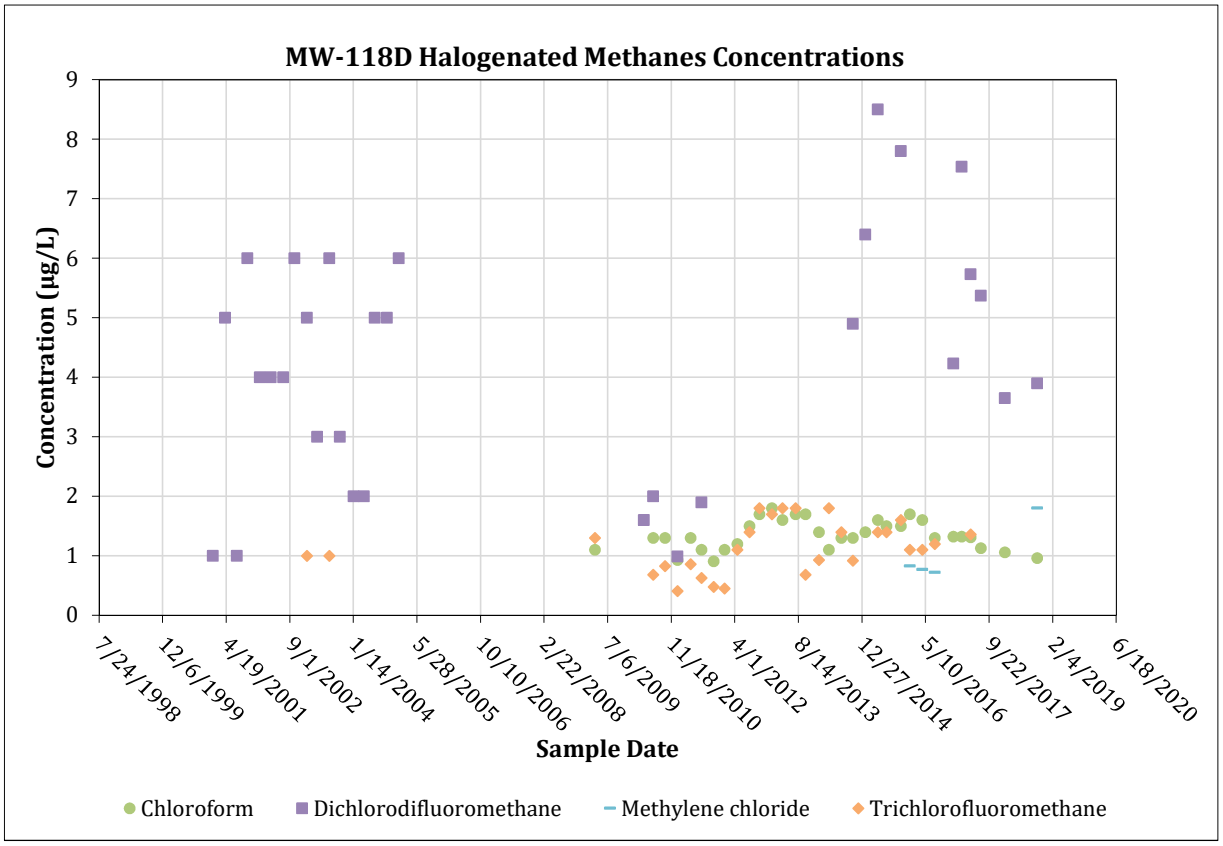

MW-113S Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
1,1-Dichloroethane Concentration (µg/L)
Sample Date
1,1,1-Trichloroethane
1,2-Dichloroethane
Chloroethane
1,1-Dichloroethane
1,2-Dichloropropane

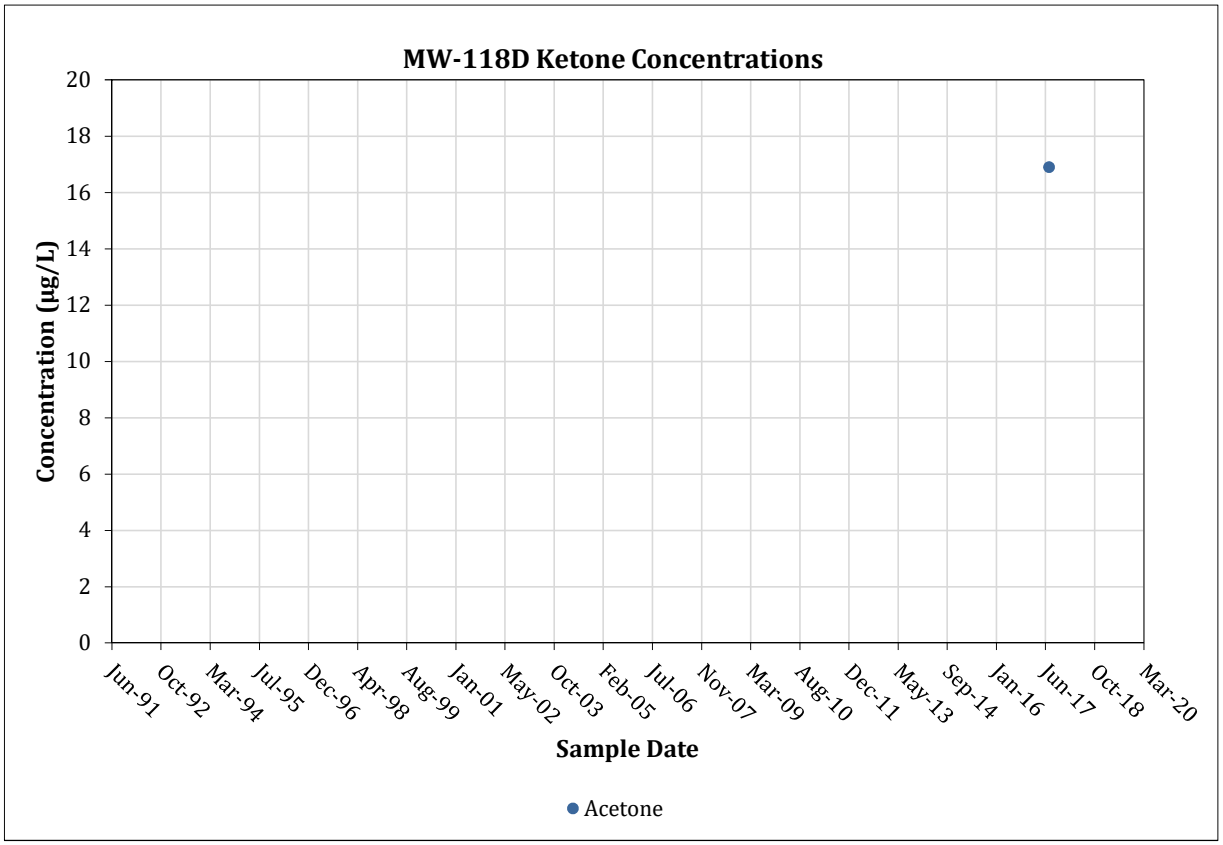

MW-113S Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
Toluene and Chlorobenzene Concentrations (µg/L)
Sample Date
1,2-Dichlorobenzene
1,4-Dichlorobenzene
Benzene
Styrene
Xylene (Total)
Chlorobenzene
Toluene

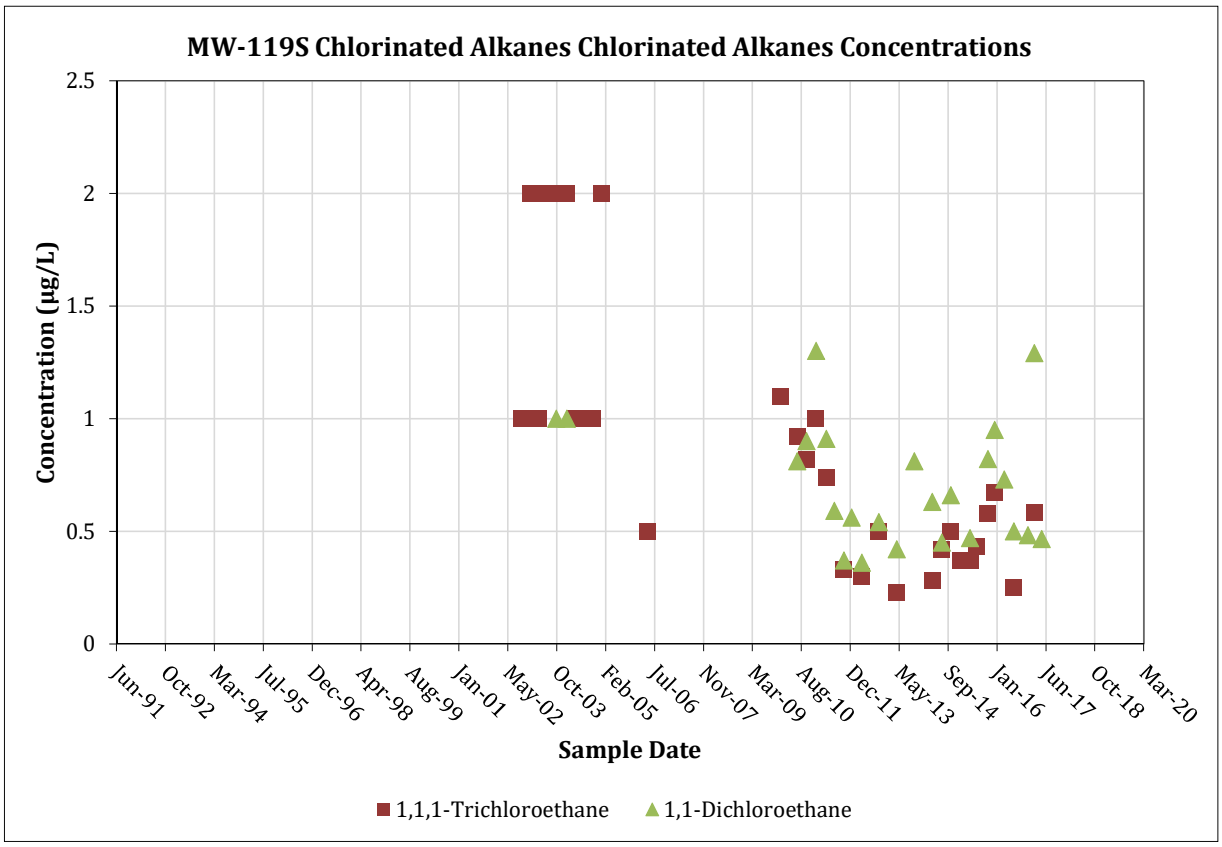

MW-113S Halogenated Methanes Concentrations
Concentration (µg/L)
Dichlorodifluoromethane Concentration (µg/L)
0
1
2
3
4
5
6
7
8
9
10
0
10
20
30
40
50
60
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform
Methylene chloride
Trichlorofluoromethane
Dichlorodifluoromethane

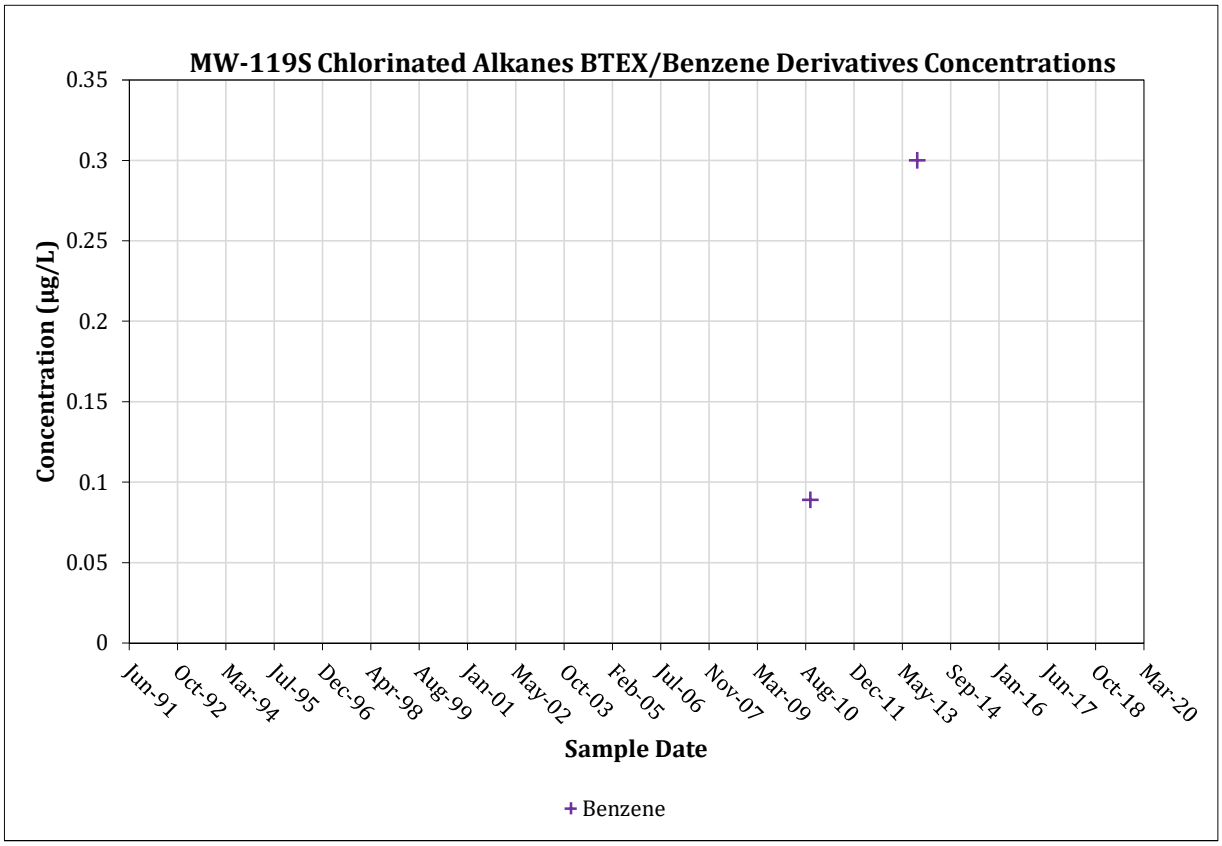

MW-118D Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
1,1-Dichloroethane Concentration (µg/L)
Sample Date
1,1,1-Trichloroethane
1,2-Dichloroethane
1,2-Dichloropropane
1,1-Dichloroethane

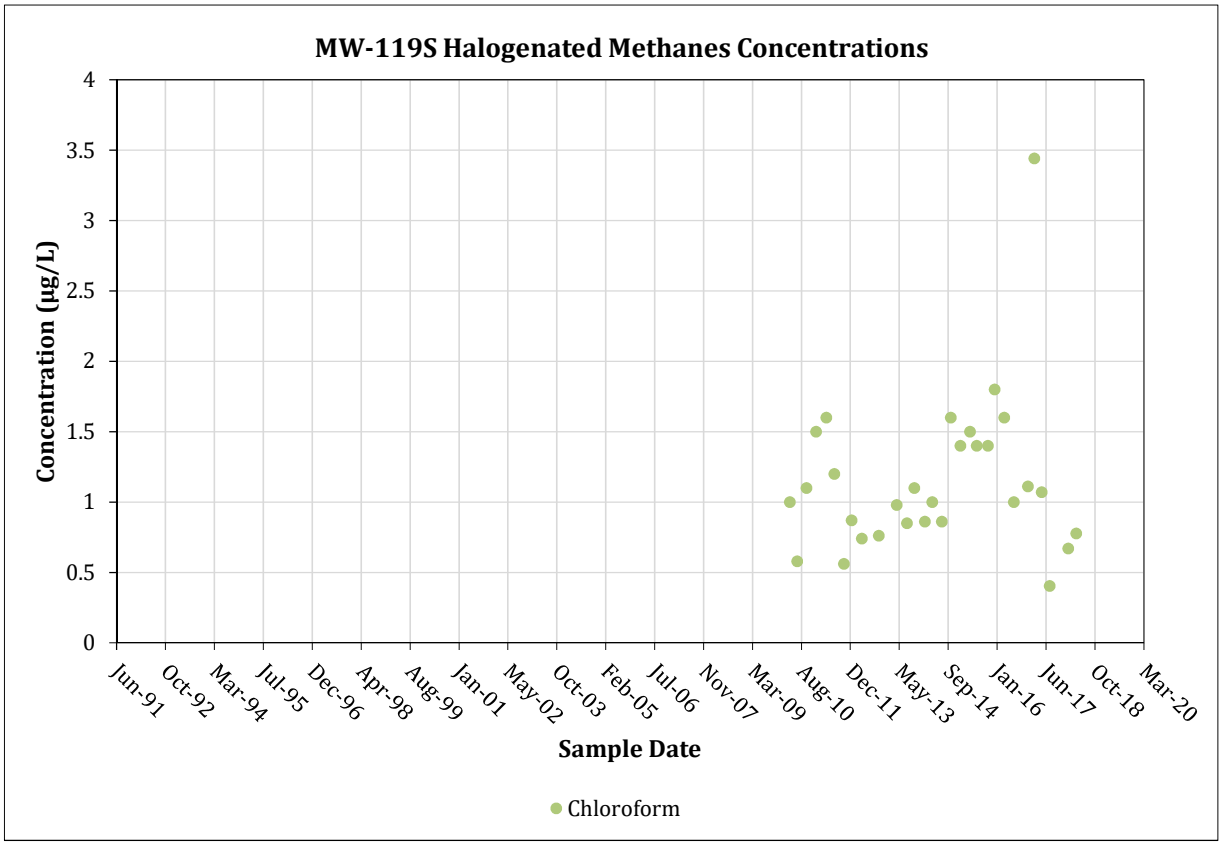

MW-118D Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
Toluene and Xylene Concentrations (µg/L)
Sample Date
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Benzene
Chlorobenzene
Ethylbenzene
Styrene
Toluene
Xylene (Total)

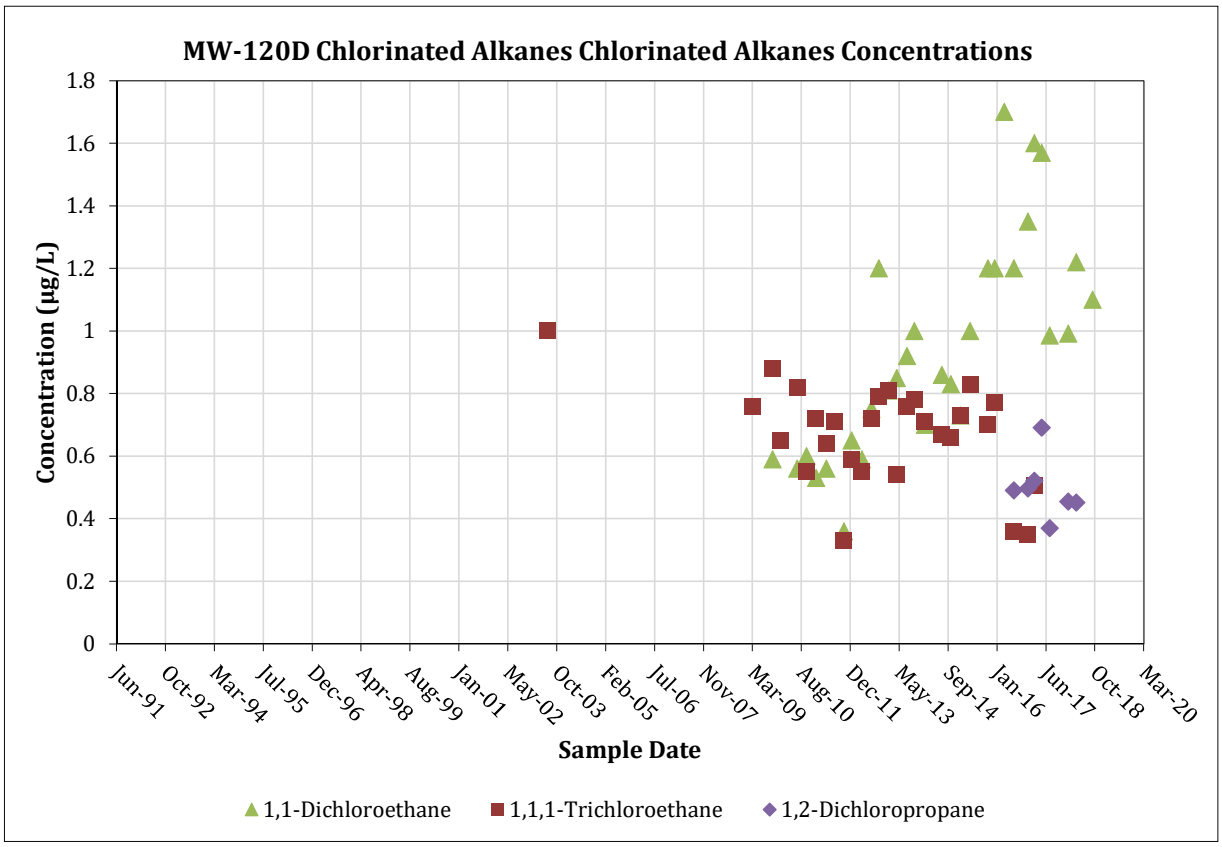

MW-118D Halogenated Methanes Concentrations
Concentration (µg/L)
0
1
2
3
4
5
6
7
8
9
7/24/1998
12/6/1999
4/19/2001
9/1/2002
1/14/2004
5/28/2005
10/10/2006
2/22/2008
7/6/2009
11/18/2010
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017
2/4/2019
6/18/2020
Sample Date
Chloroform
Dichlorodifluoromethane
Methylene chloride
Trichlorofluoromethane

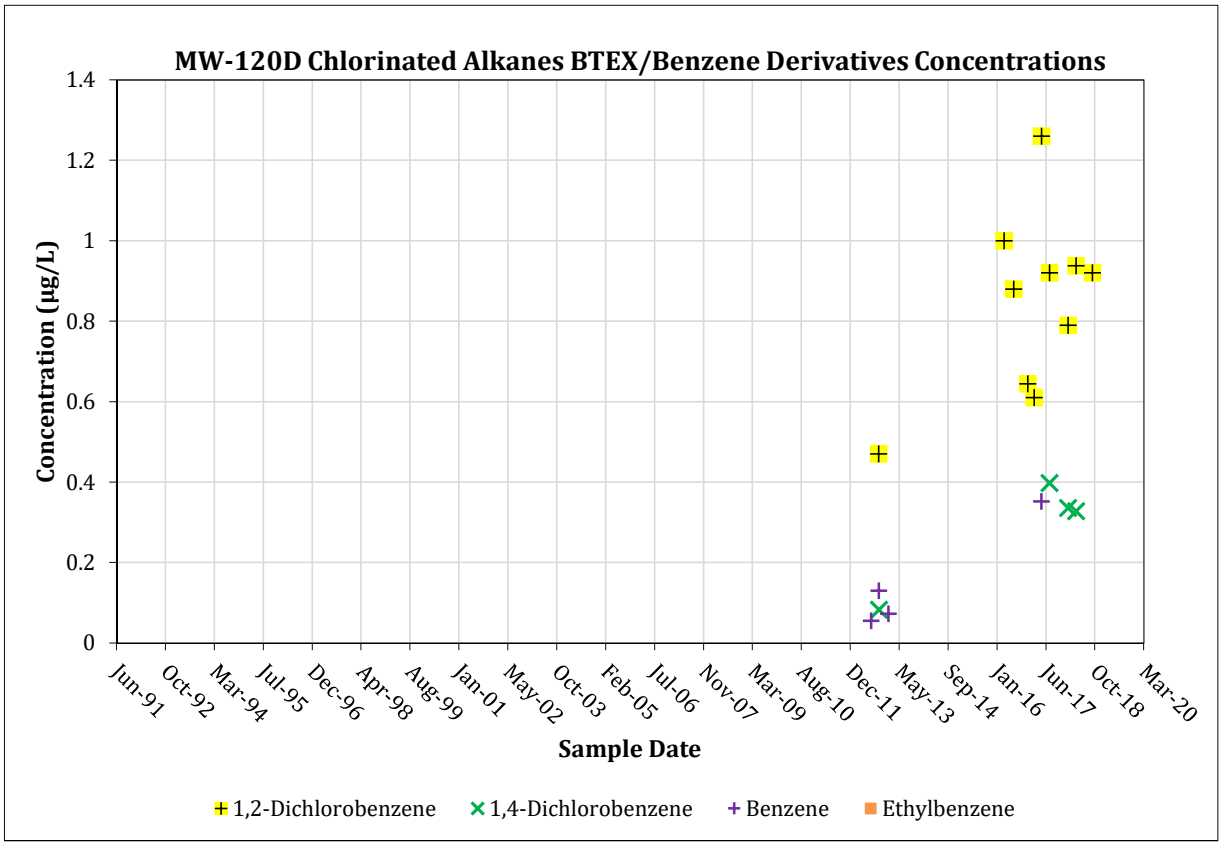

MW-118D Ketone Concentrations
Concentration (µg/L)
0
2
4
6
8
10
12
14
16
18
20
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Acetone

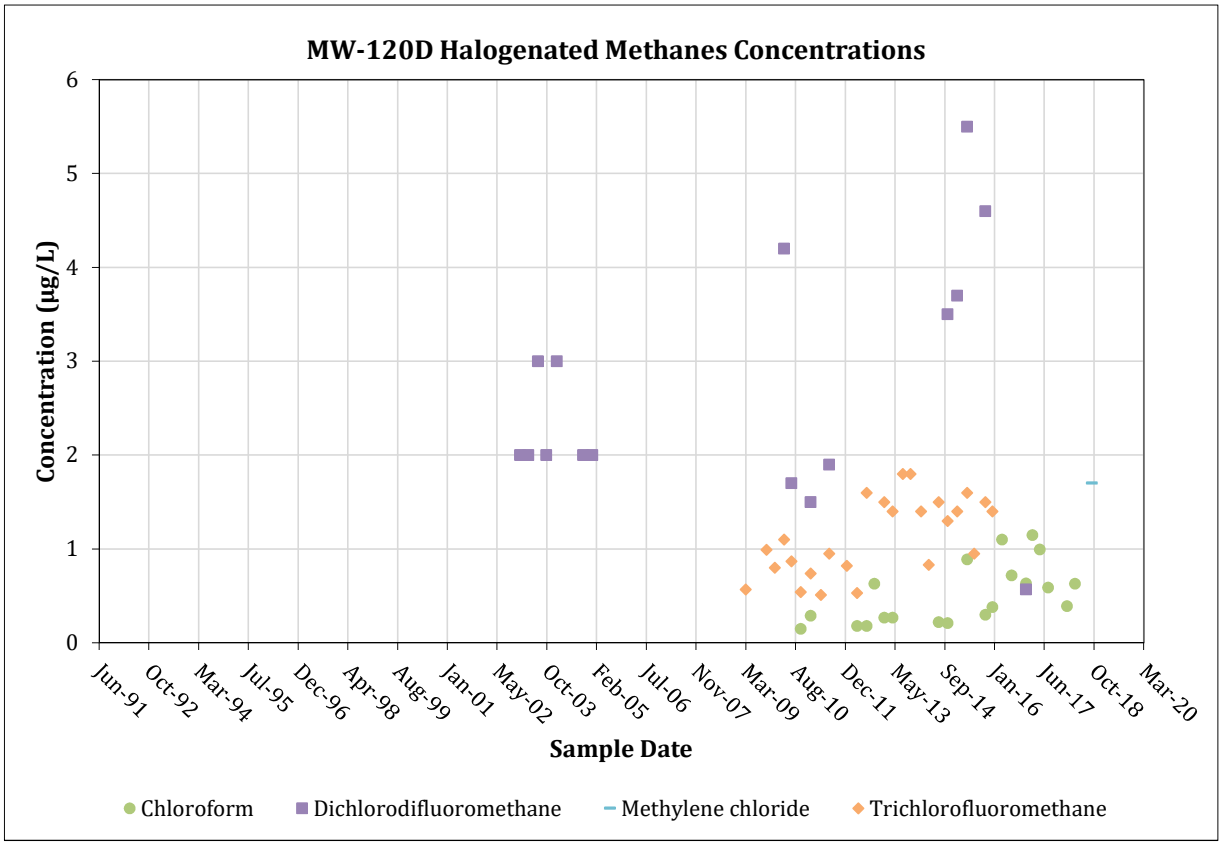

MW-119S Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1,1-Trichloroethane
1,1-Dichloroethane

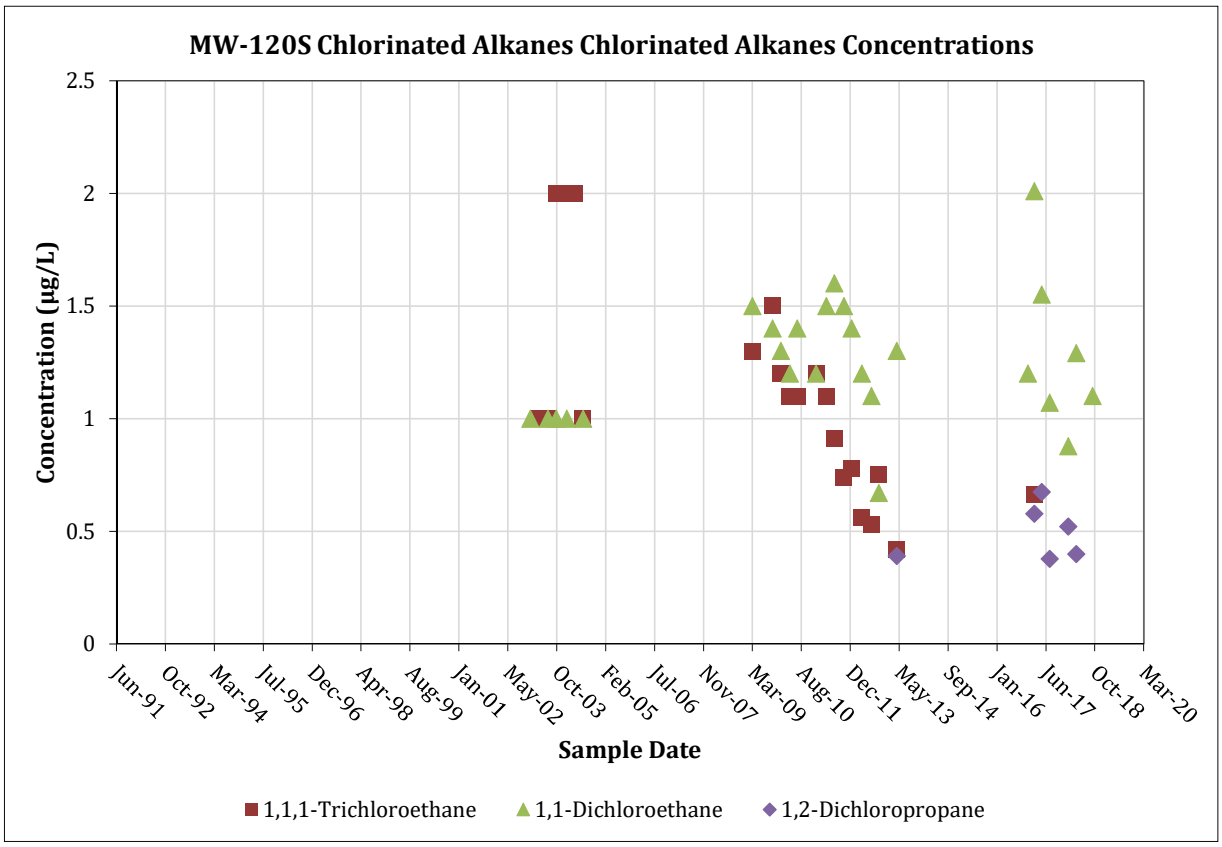

MW-119S Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Benzene

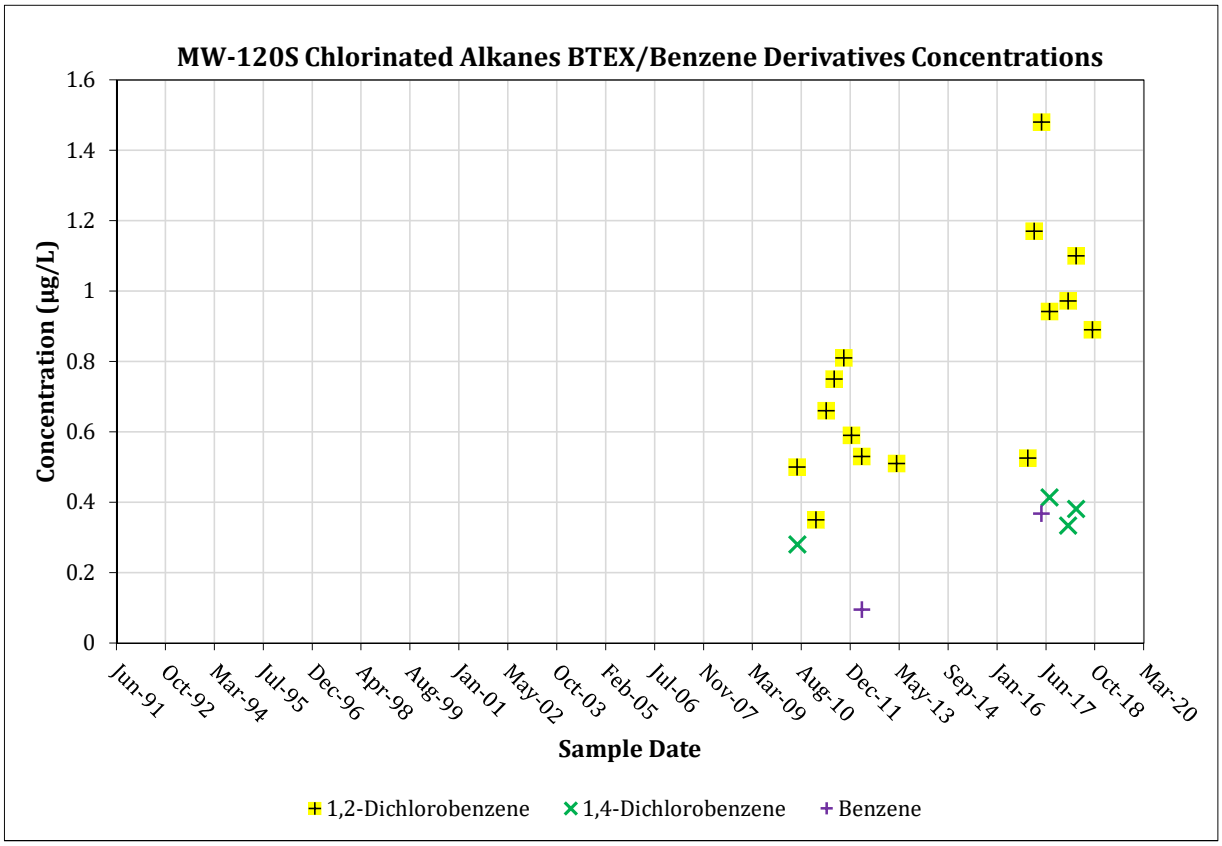

MW-119S Halogenated Methanes Concentrations
Concentration (µg/L)
4
3.5
3
2.5
2
1.5
1
0.5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform

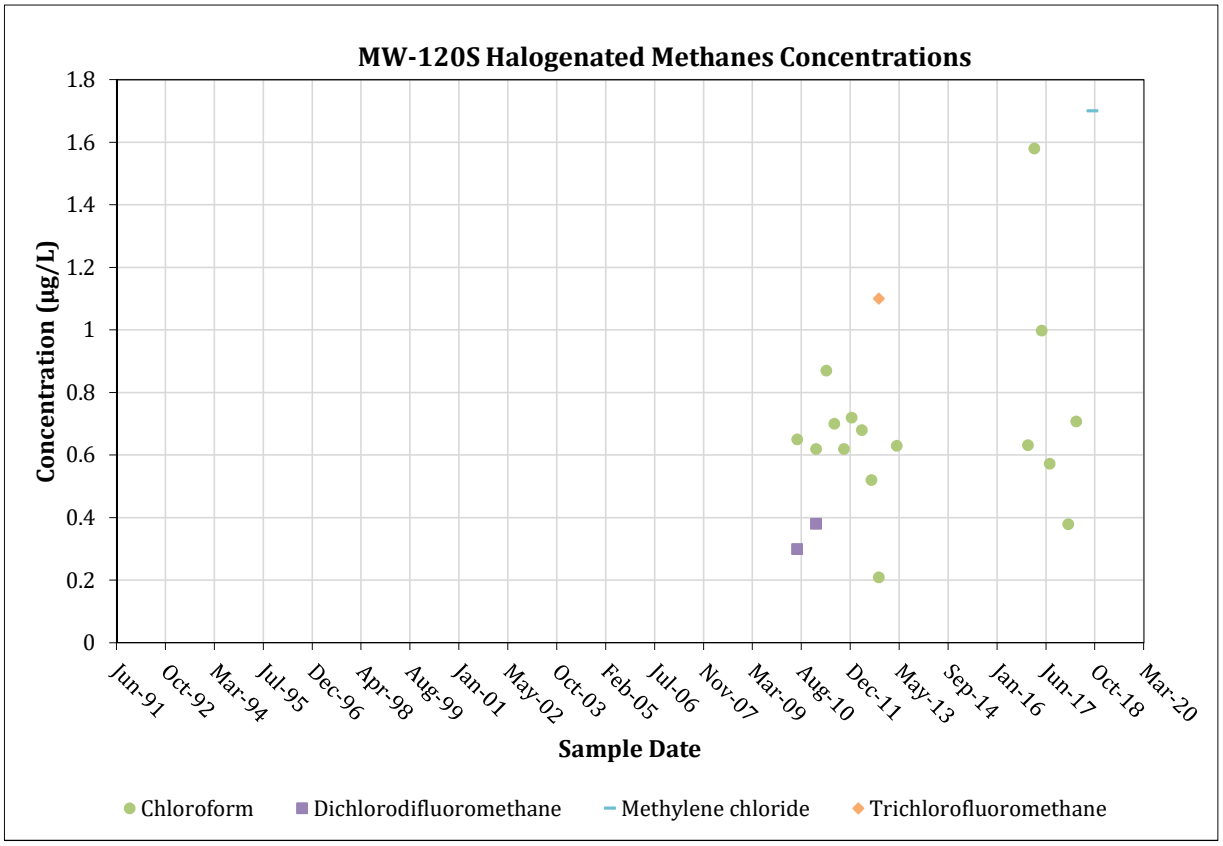

MW-120D Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1-Dichloroethane
1,1,1-Trichloroethane
1,2-Dichloropropane

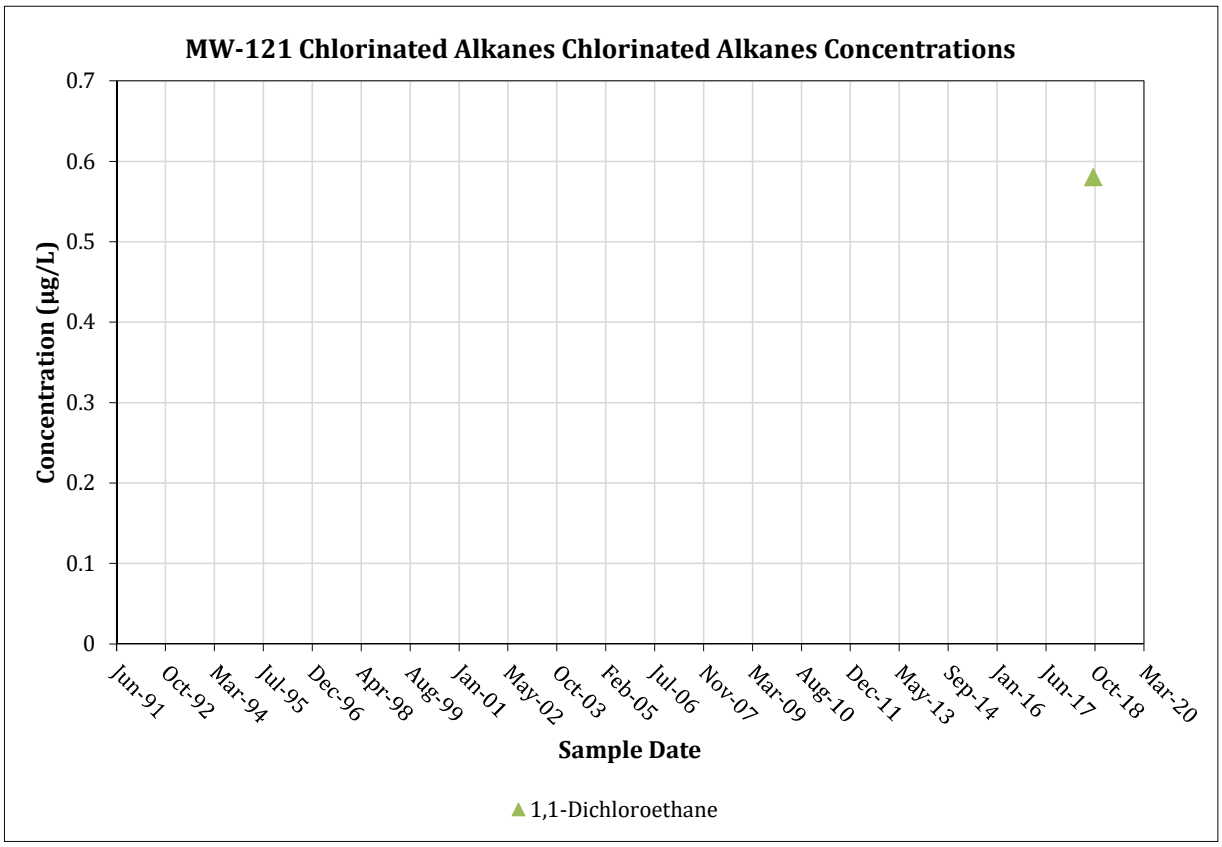

MW-120D Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,2-Dichlorobenzene
1,4-Dichlorobenzene
Benzene
Ethylbenzene

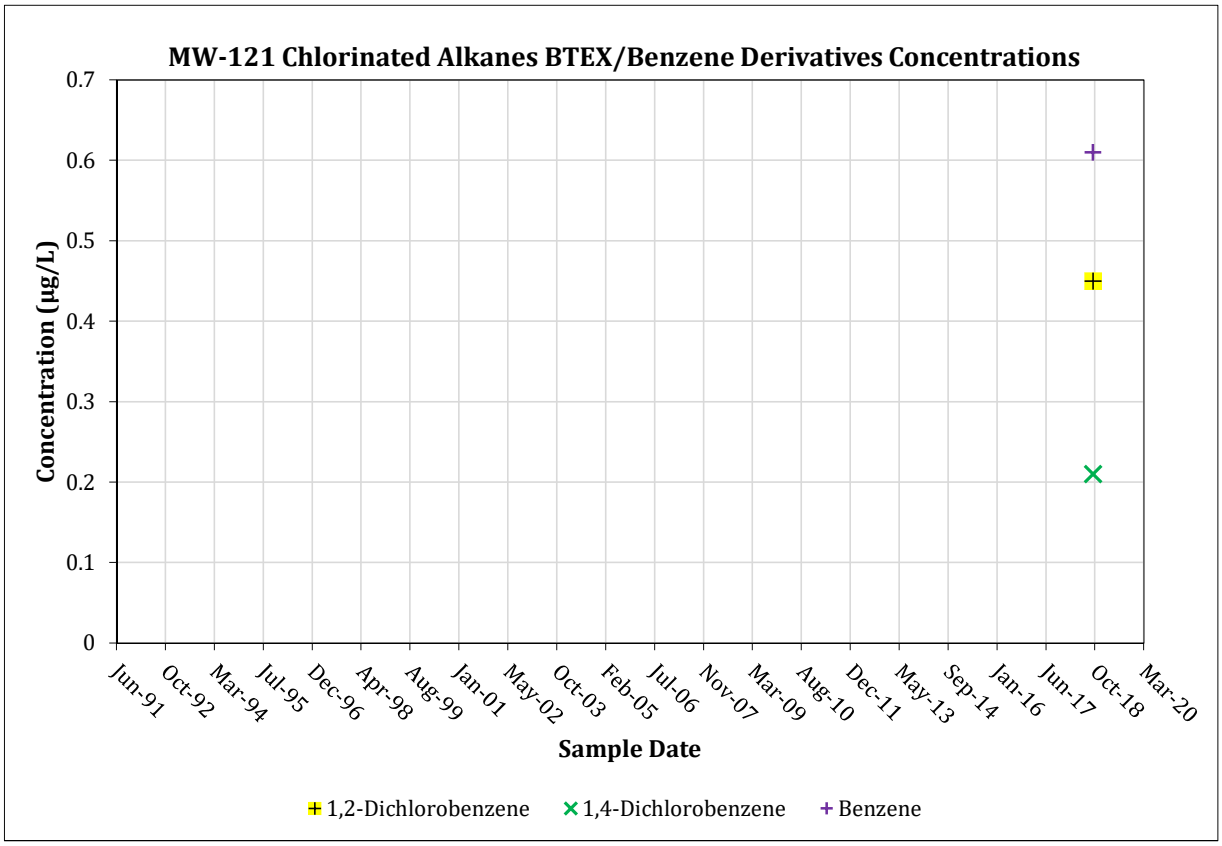

MW-120D Halogenated Methanes Concentrations
Concentration (µg/L)
0
1
2
3
4
5
6
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform
Dichlorodifluoromethane
Methylene chloride
Trichlorofluoromethane

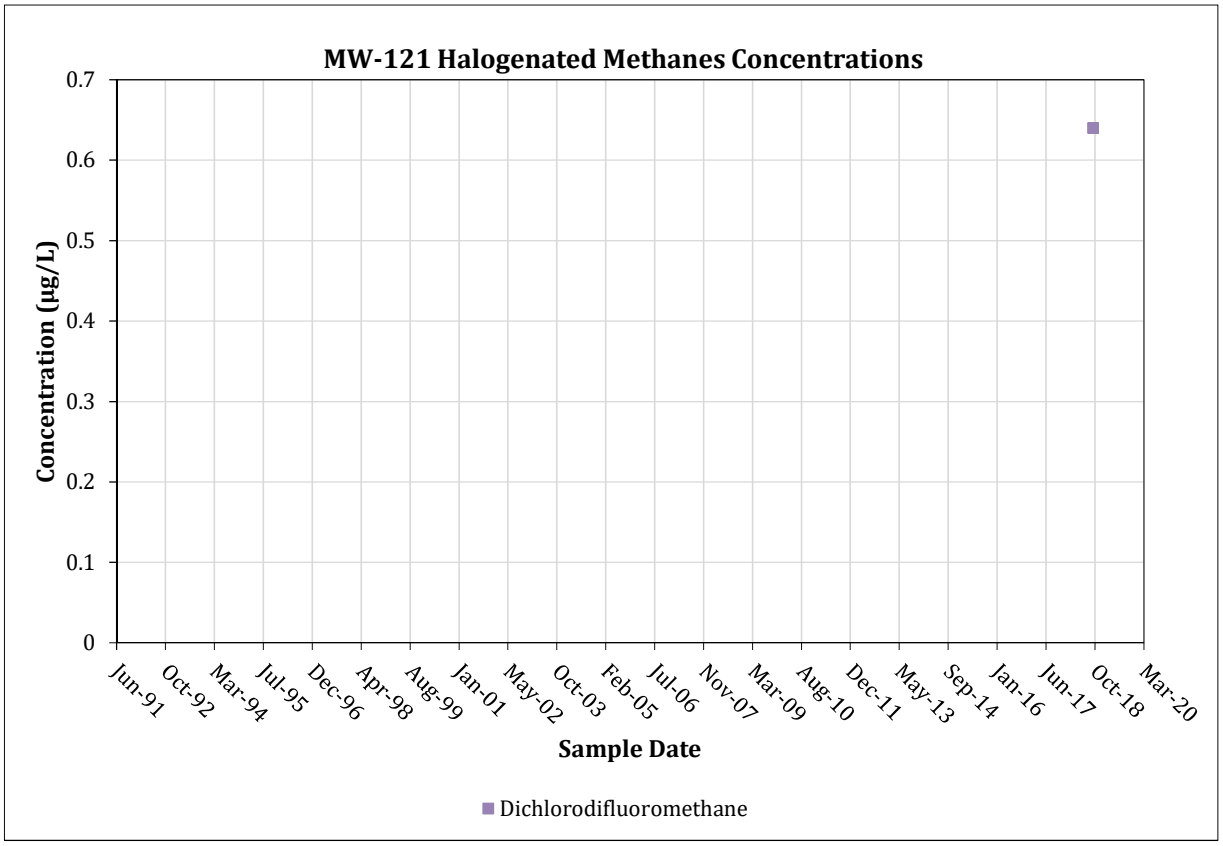

MW-120S Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1,1-Trichloroethane
1,1-Dichloroethane
1,2-Dichloropropane


MW-120S Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,2-Dichlorobenzene
1,4-Dichlorobenzene
Benzene


MW-120S Halogenated Methanes Concentrations
Concentration (µg/L)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Chloroform
Dichlorodifluoromethane
Methylene chloride
Trichlorofluoromethane


MW-121 Chlorinated Alkanes Chlorinated Alkanes Concentrations
Concentration (µg/L)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,1-Dichloroethane


MW-121 Chlorinated Alkanes BTEX/Benzene Derivatives Concentrations
Concentration (µg/L)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
1,2-Dichlorobenzene
1,4-Dichlorobenzene
Benzene

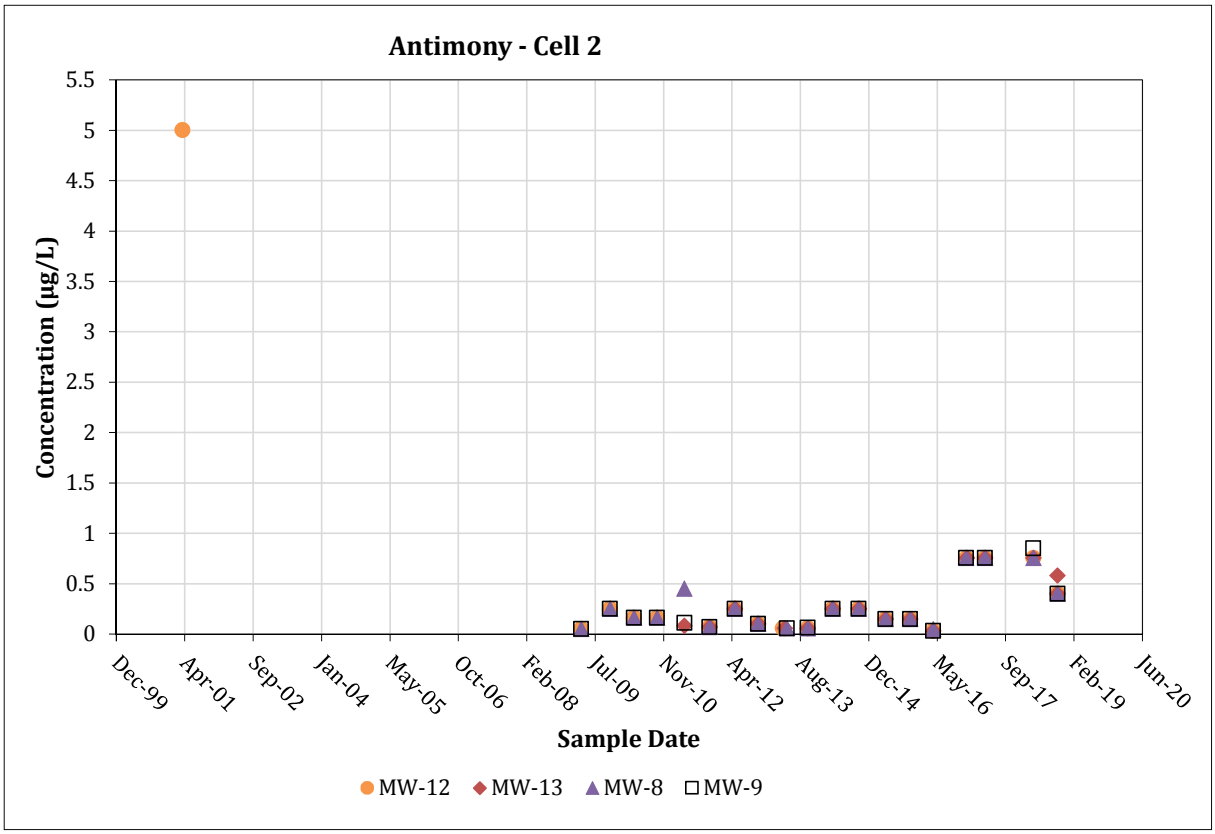

MW-121 Halogenated Methanes Concentrations
Concentration (µg/L)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jun-91
Oct-92
Mar-94
Jul-95
Dec-96
Apr-98
Aug-99
Jan-01
May-02
Oct-03
Feb-05
Jul-06
Nov-07
Mar-09
Aug-10
Dec-11
May-13
Sep-14
Jan-16
Jun-17
Oct-18
Mar-20
Sample Date
Dichlorodifluoromethane

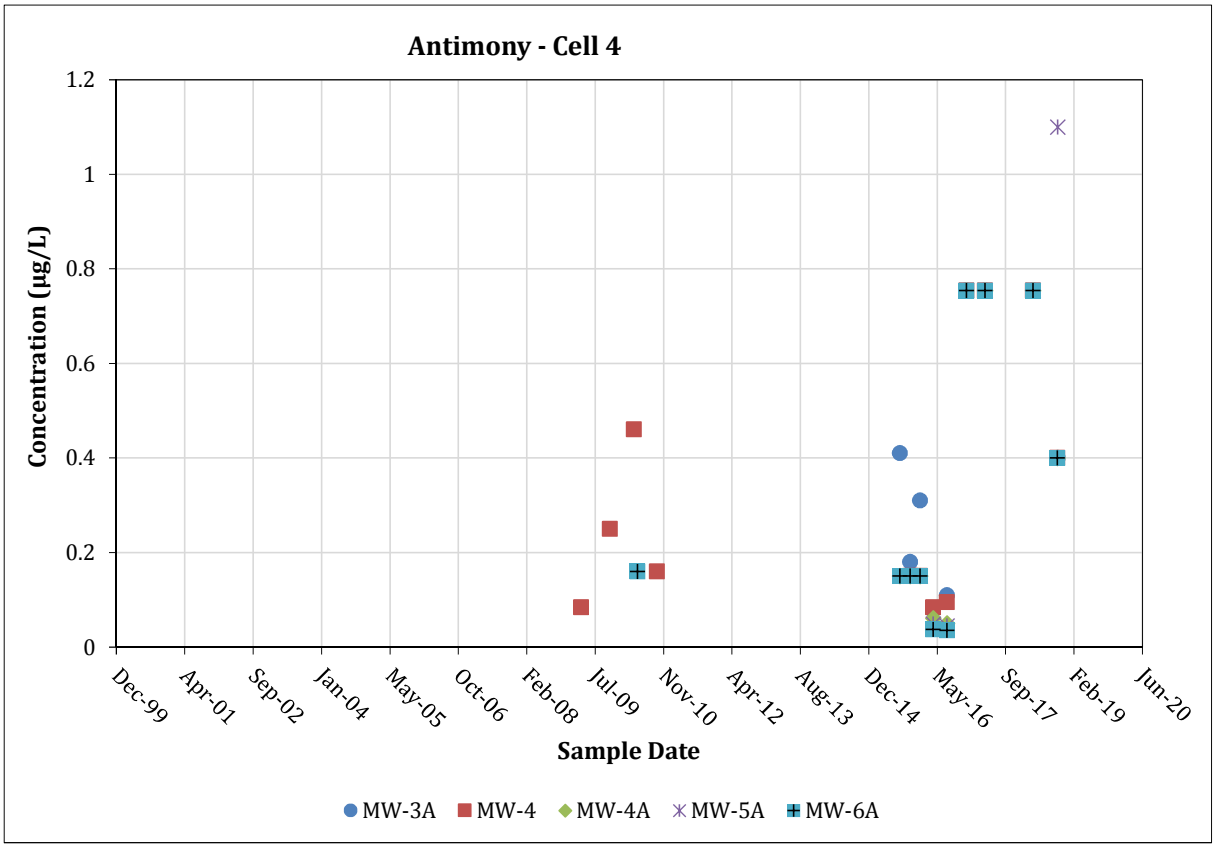
Appendix H

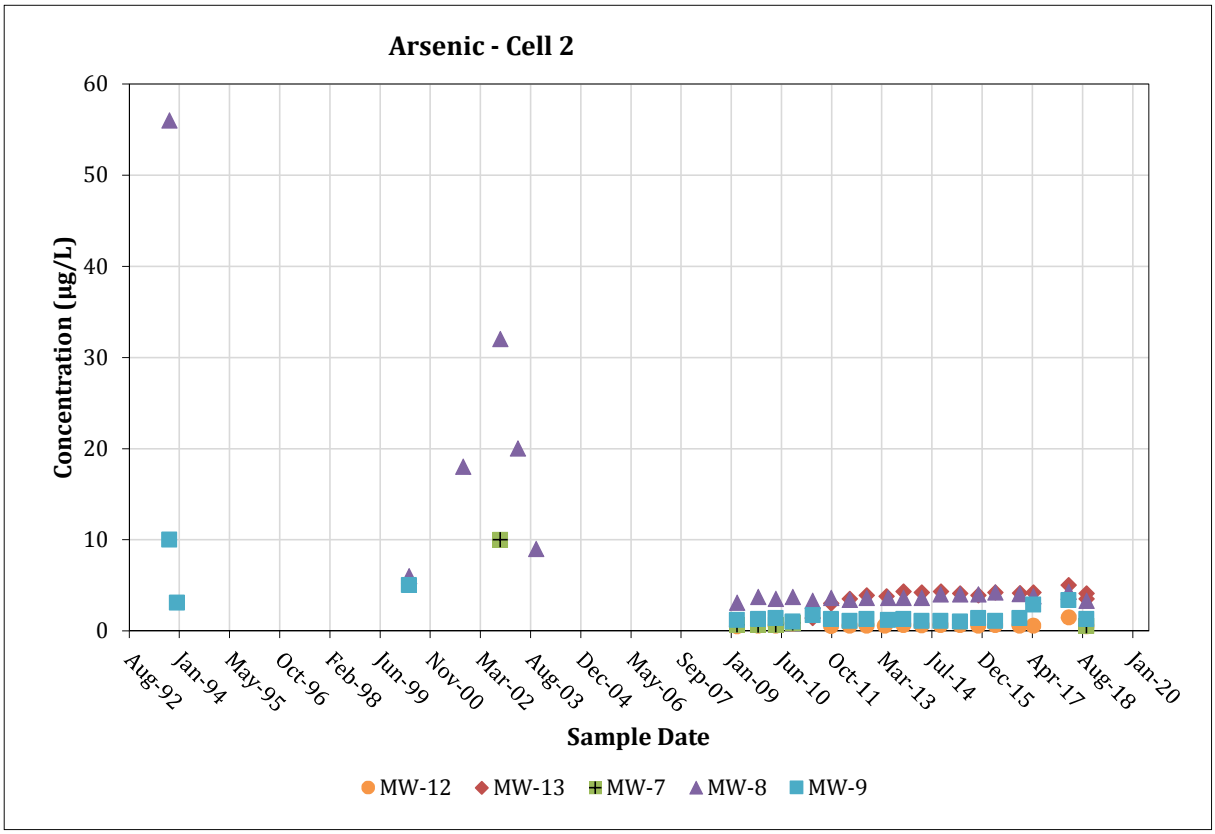
Cell 2 & 4 ANOVA & Mann-Kendall Analysis – Select Analytes

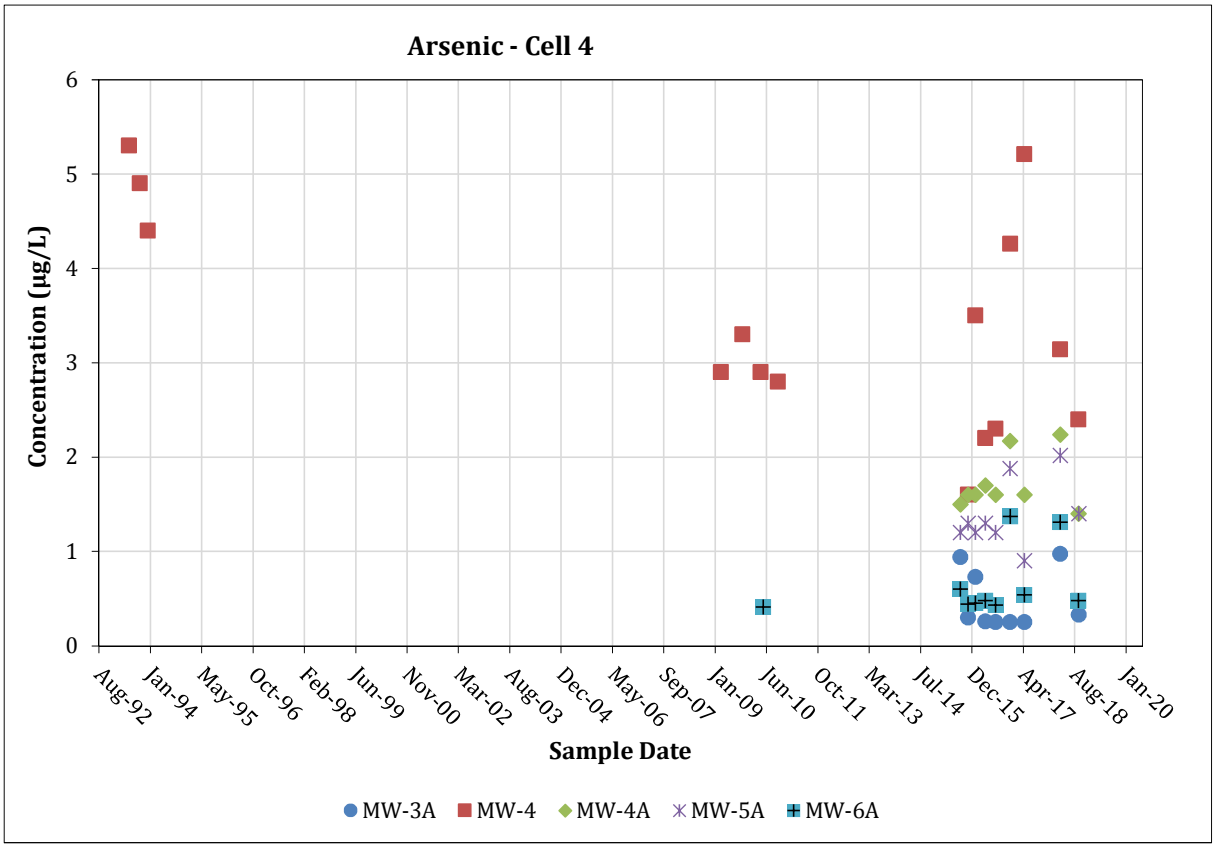
Section 1

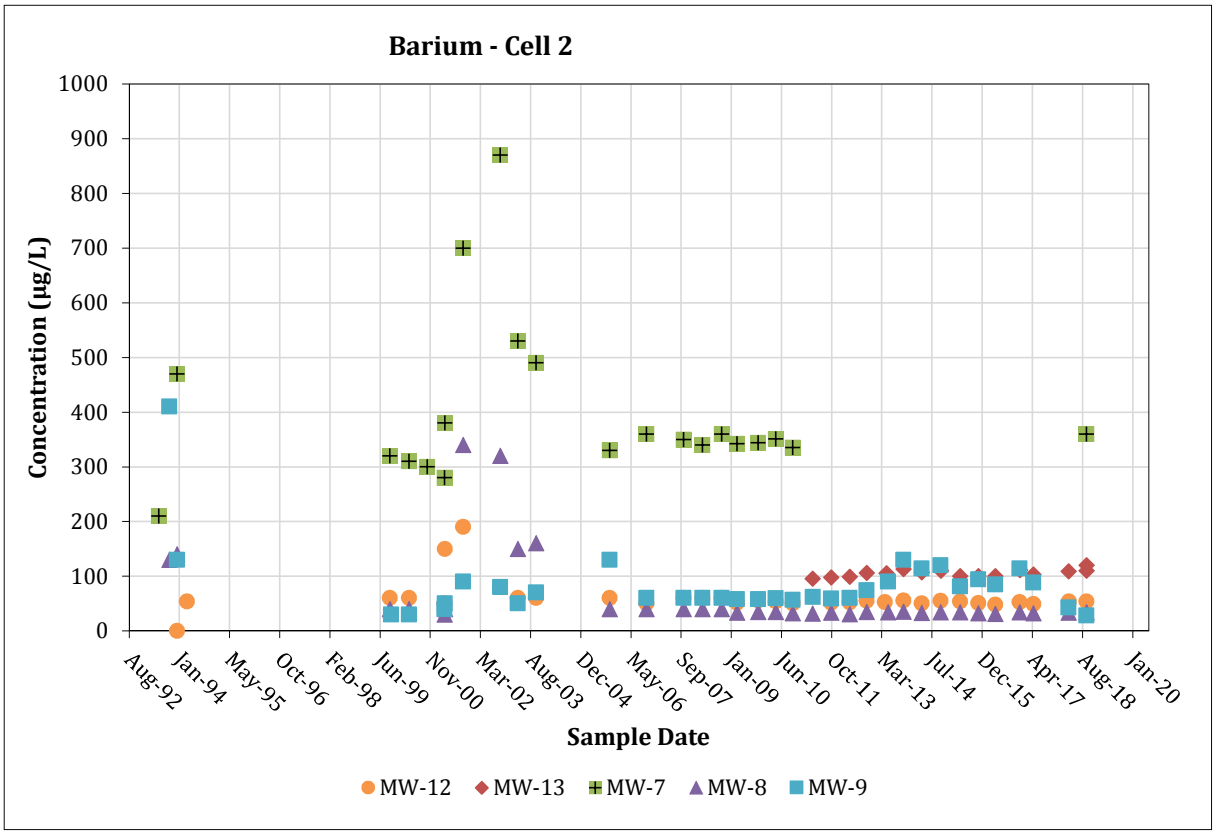
Inorganic Trend Charts - Select Analytes

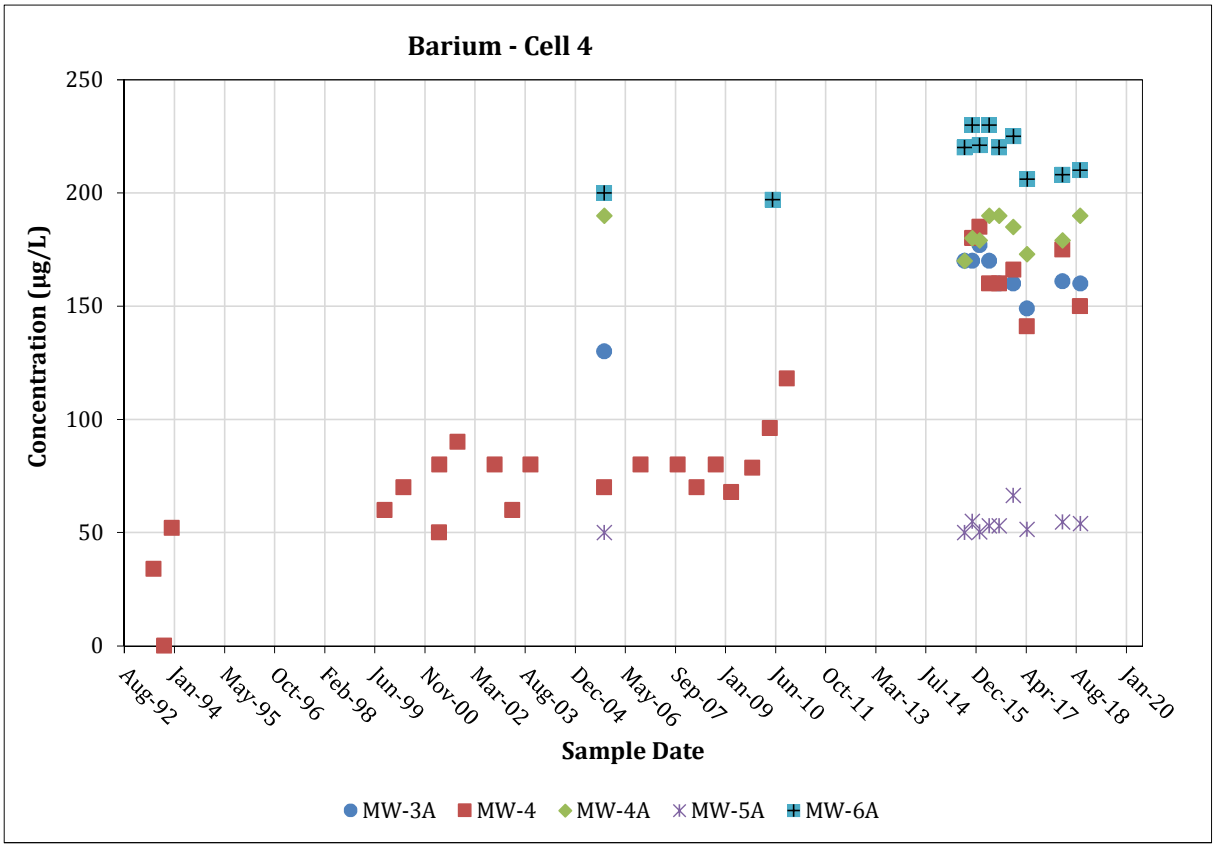

Antimony - Cell 2
Concentration (µg/L)
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Dec-99
Apr-01
Sep-02
Jan-04
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-12
MW-13
MW-8
MW-9

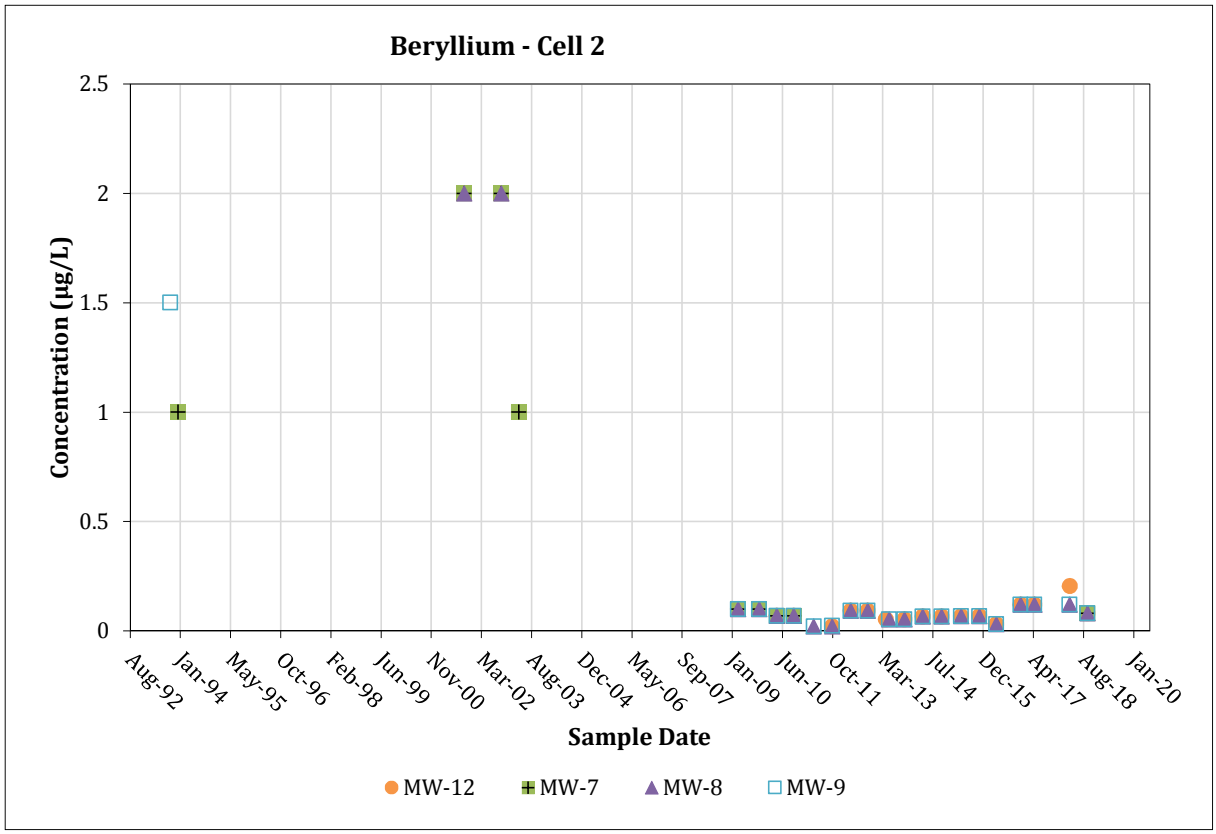

Antimony - Cell 4
Concentration (µg/L)
1.2
1
0.8
0.6
0.4
0.2
0
Dec-99
Apr-01
Sep-02
Jan-04
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A

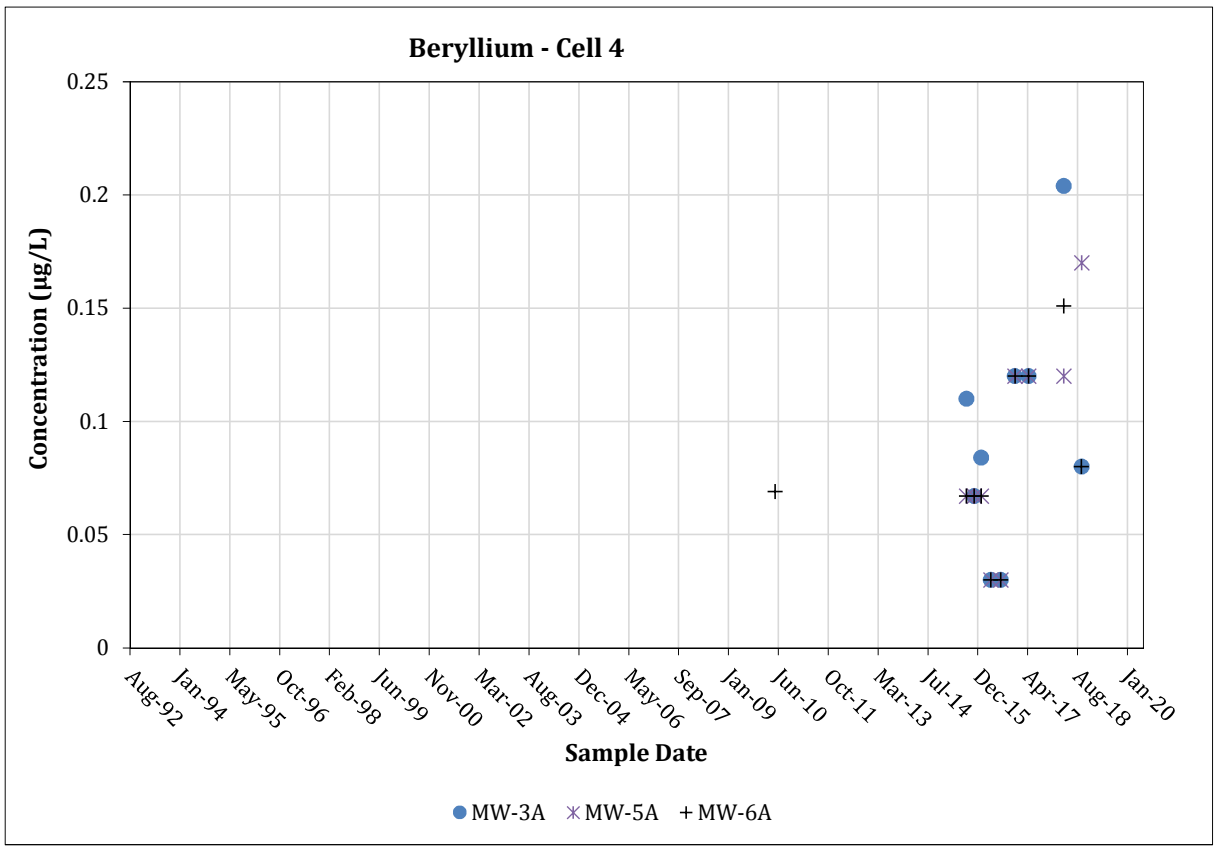

Arsenic - Cell 2
Concentration (µg/L)
60
50
40
30
20
10
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9

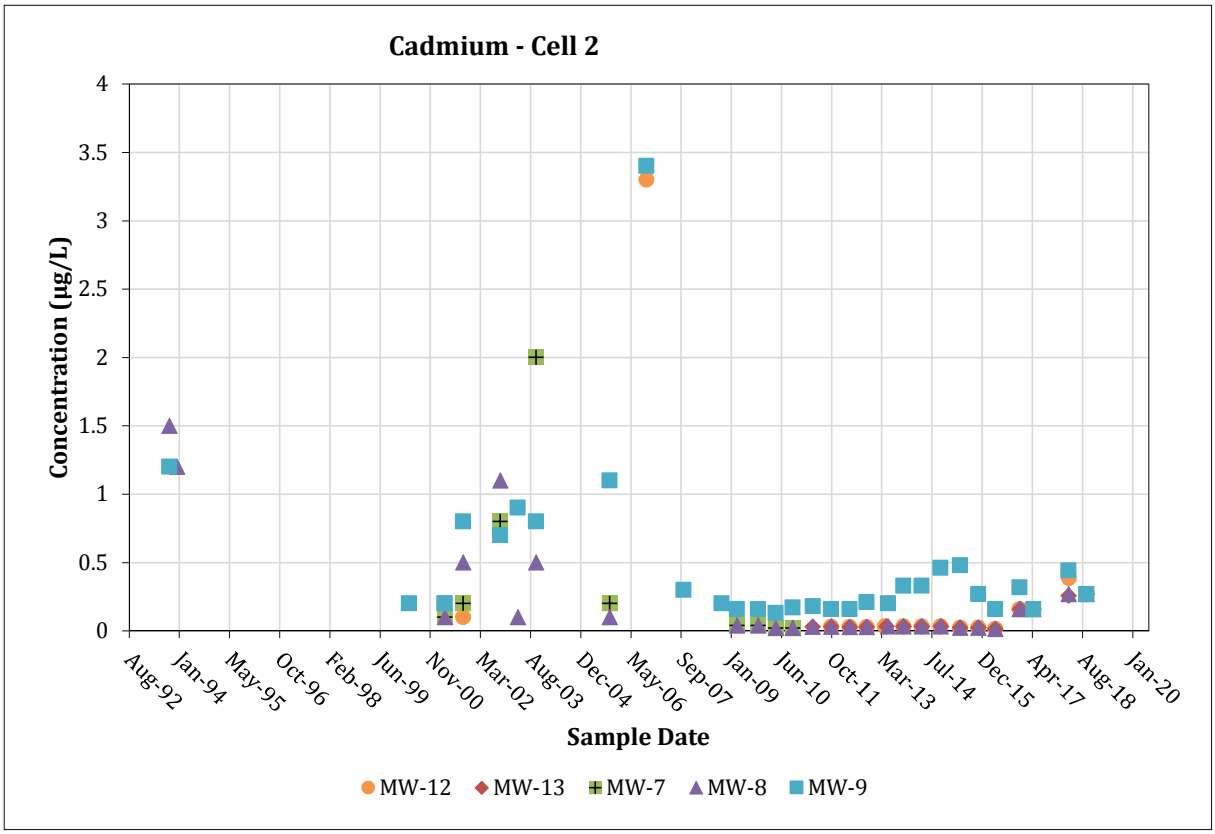

Arsenic - Cell 4
Concentration (µg/L)
6
5
4
3
2
1
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A

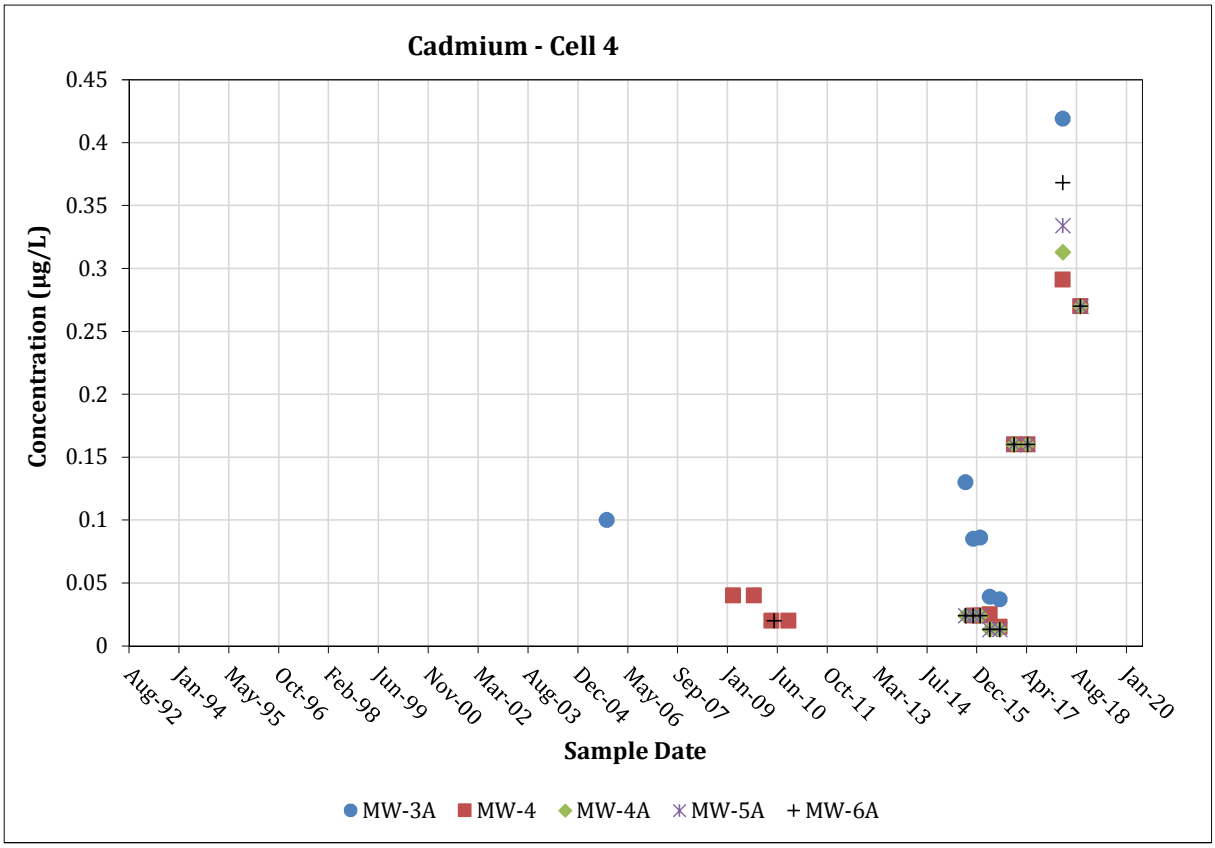

Barium - Cell 2
Concentration (µg/L)
1000
900
800
700
600
500
400
300
200
100
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9

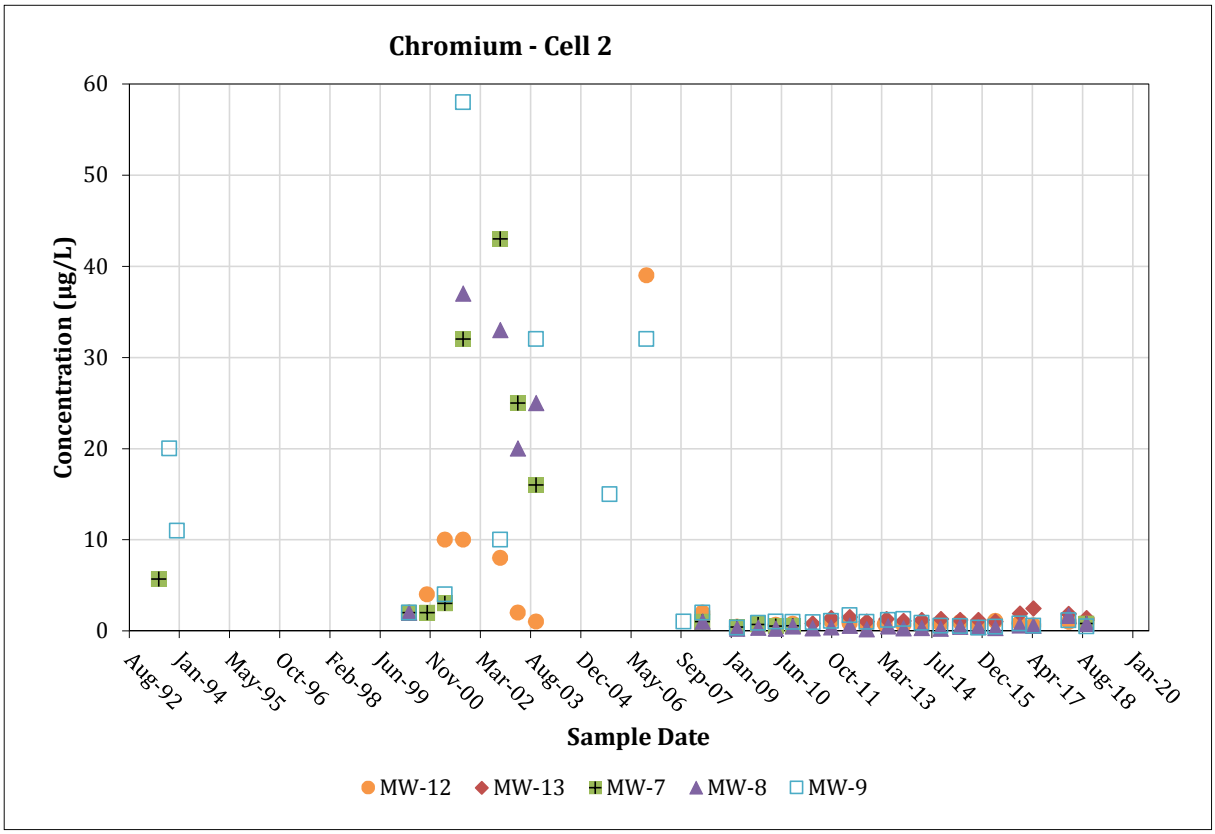

Barium - Cell 4
Concentration (µg/L)
250
200
150
100
50
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A

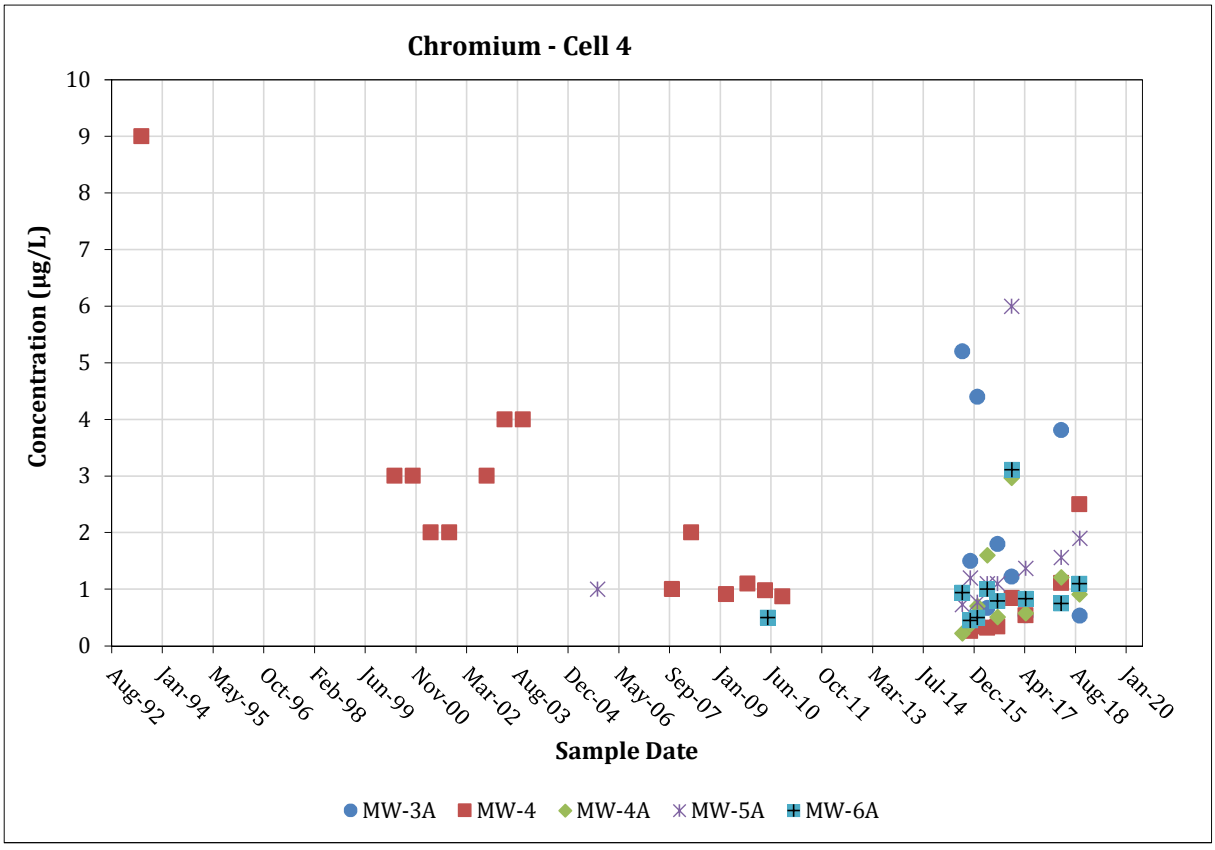

Beryllium - Cell 2
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-12
MW-7
MW-8
MW-9

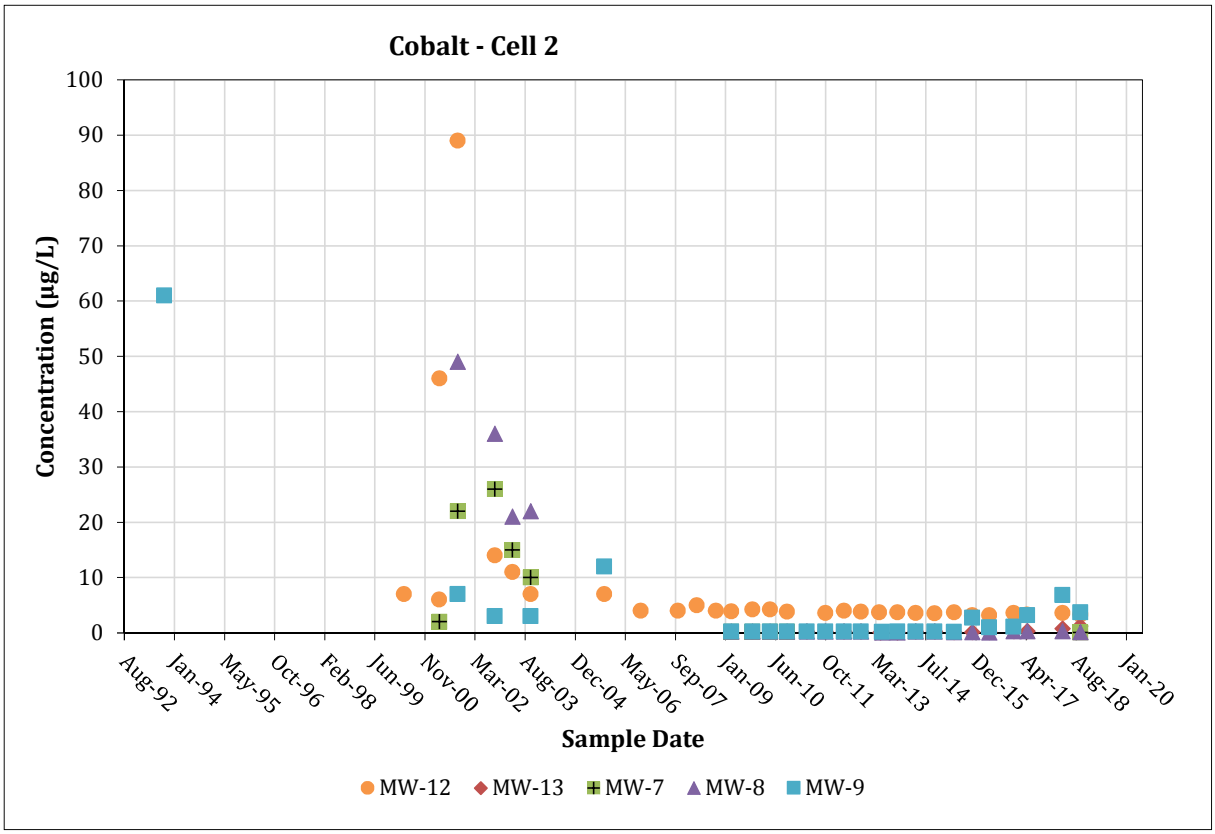

Beryllium - Cell 4
Concentration (µg/L)
0.25
0.2
0.15
0.1
0.05
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-3A
MW-5A
MW-6A

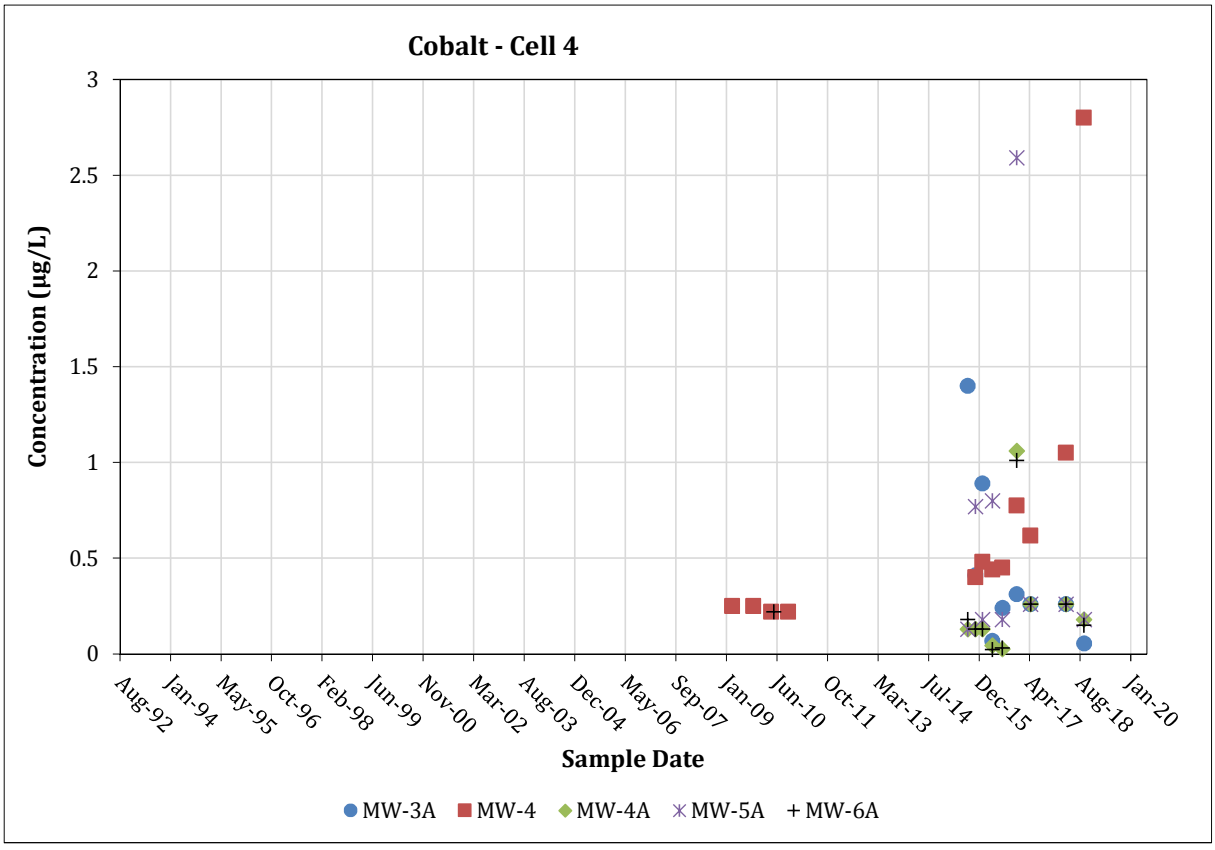

Cadmium - Cell 2
Concentration (µg/L)
4
3.5
3
2.5
2
1.5
1
0.5
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9

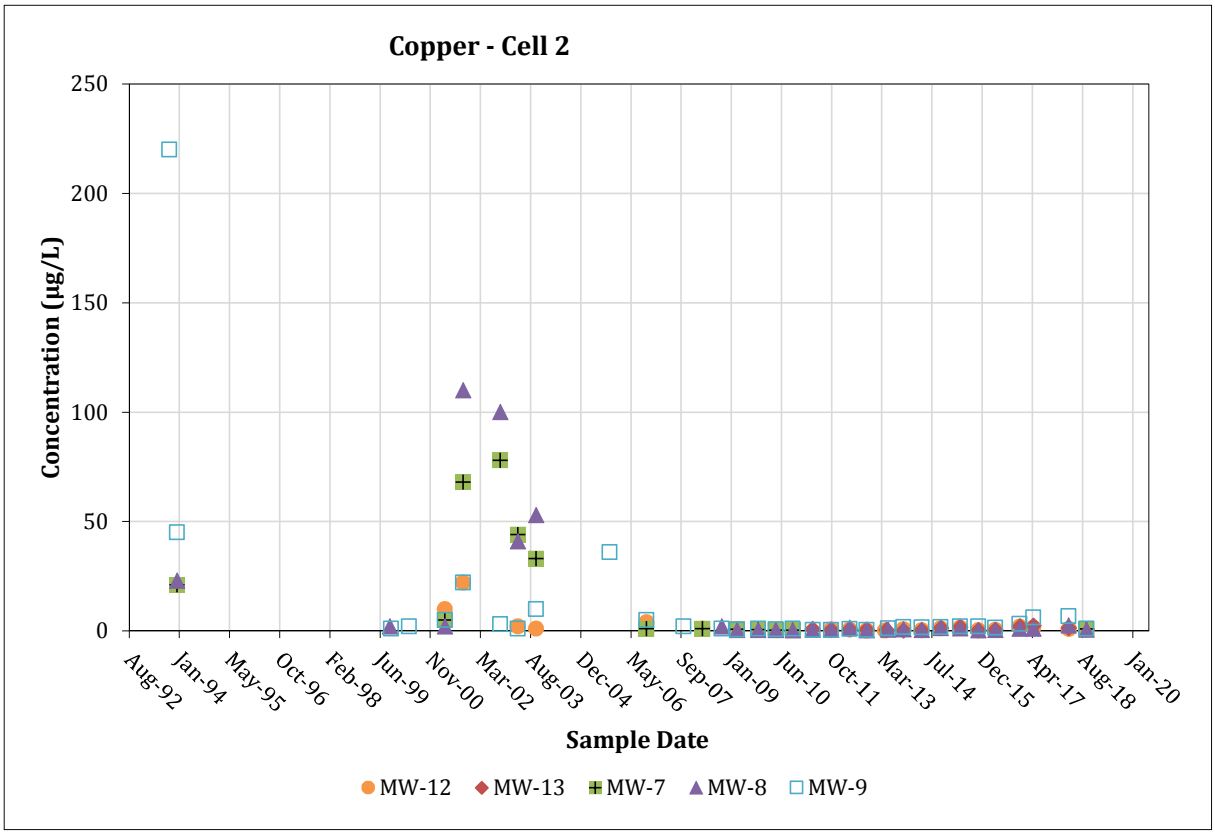

Cadmium - Cell 4
Concentration (µg/L)
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A

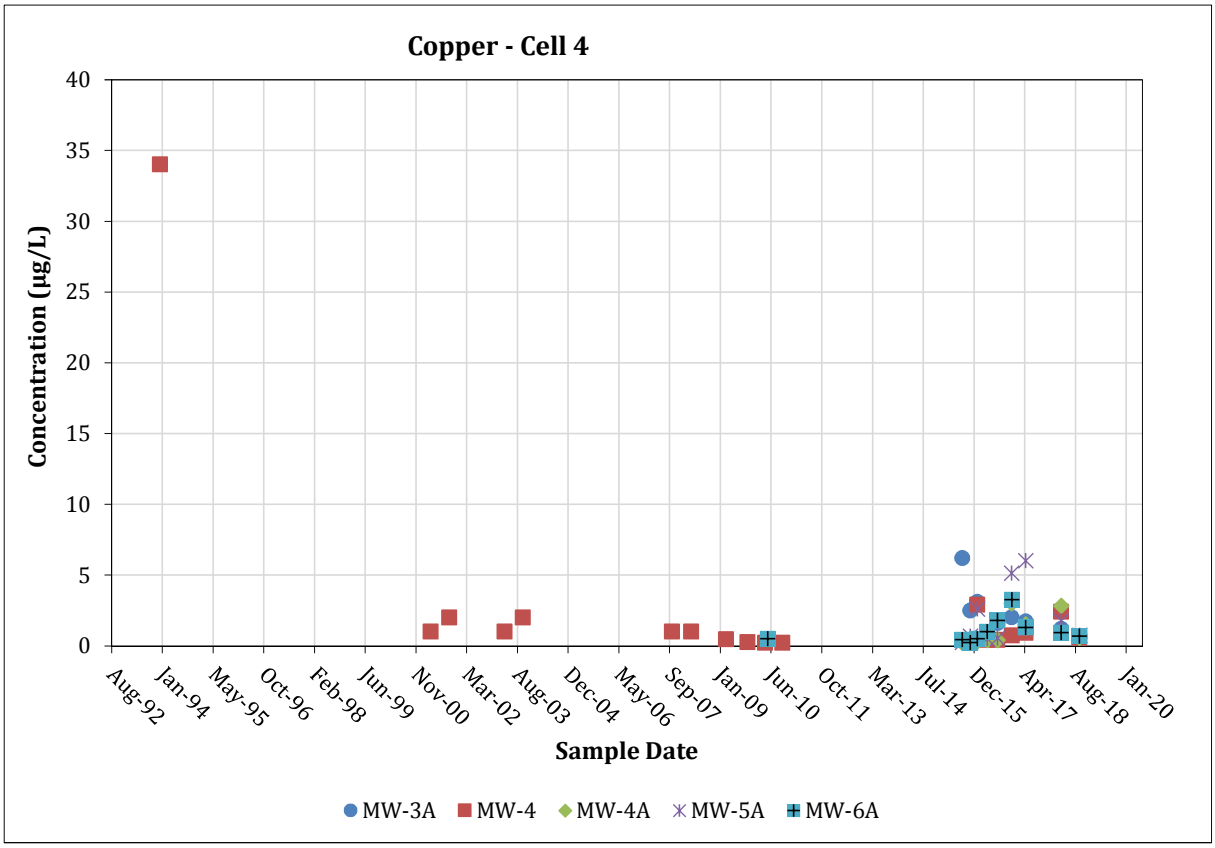

Chromium - Cell 2
Concentration (µg/L)
60
50
40
30
20
10
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9

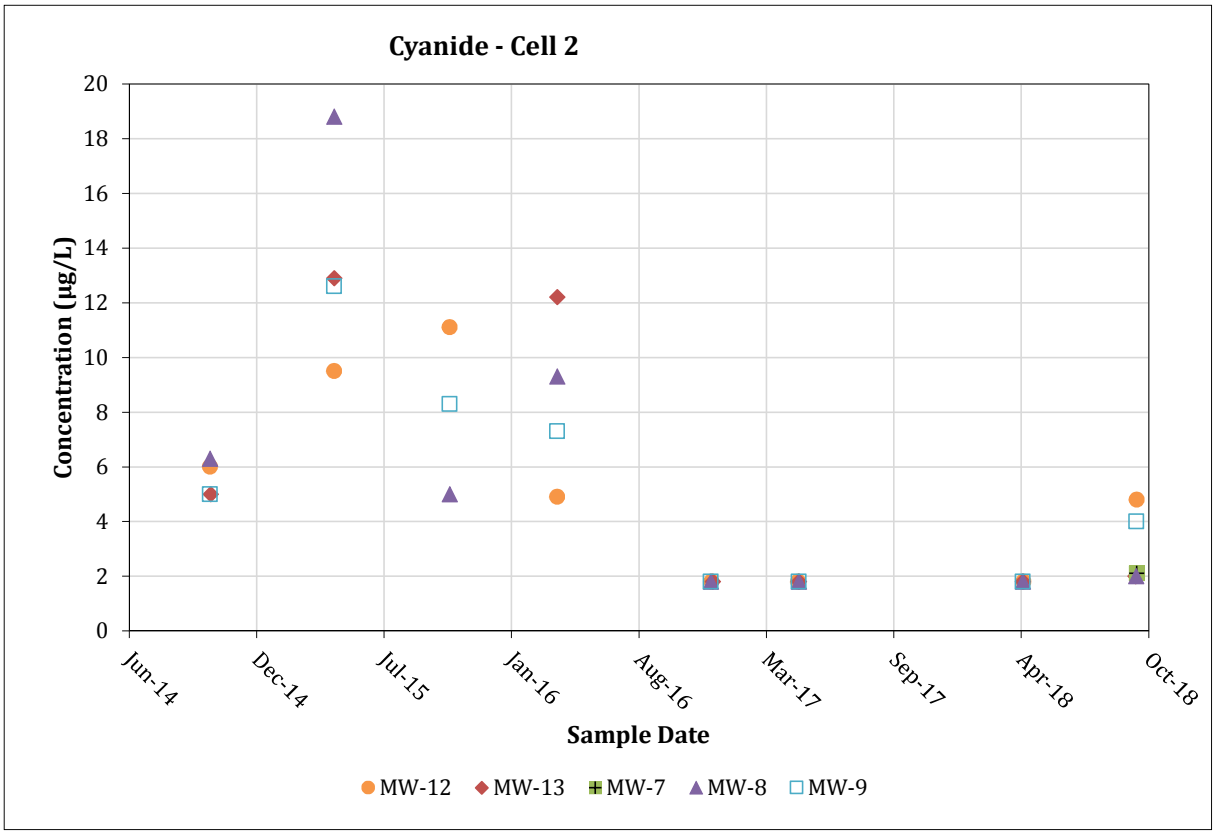

Chromium - Cell 4
Concentration (µg/L)
10
9
8
7
6
5
4
3
2
1
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A

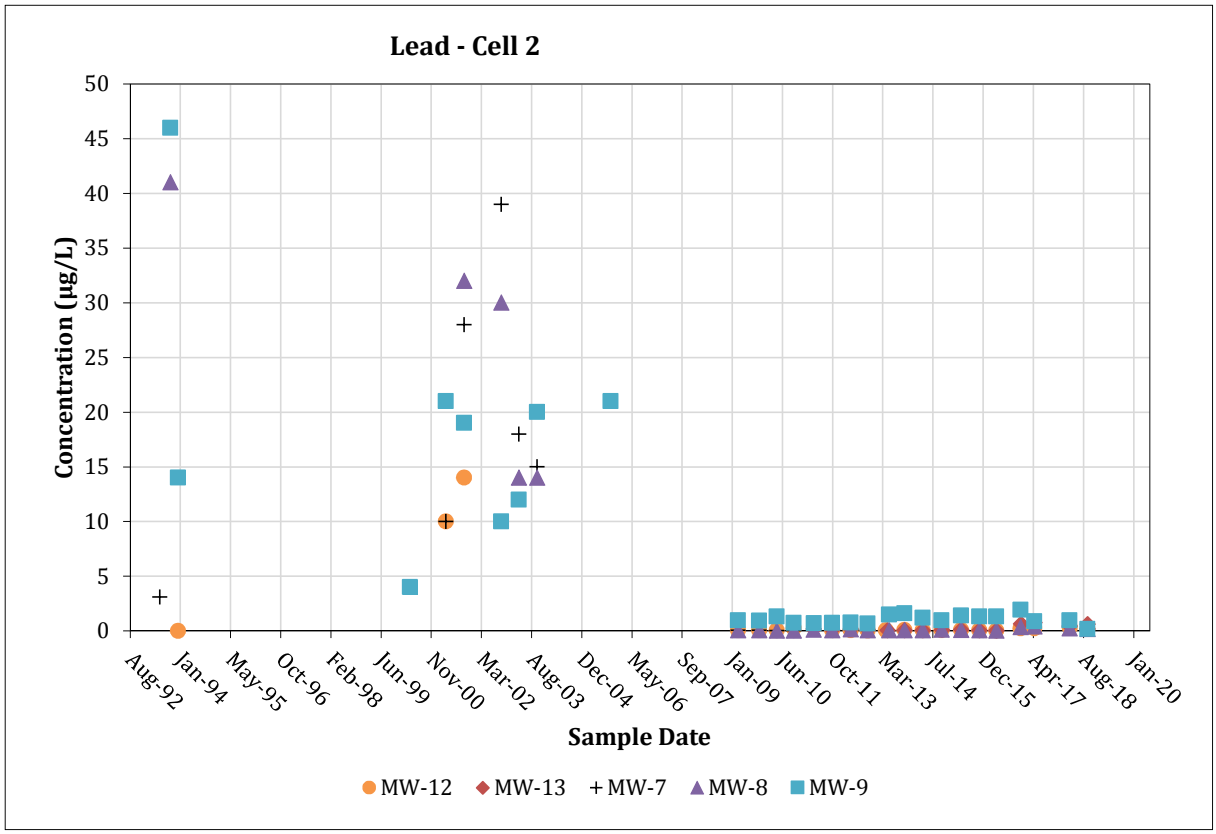

Cobalt - Cell 2
Concentration (µg/L)
100
90
80
70
60
50
40
30
20
10
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9

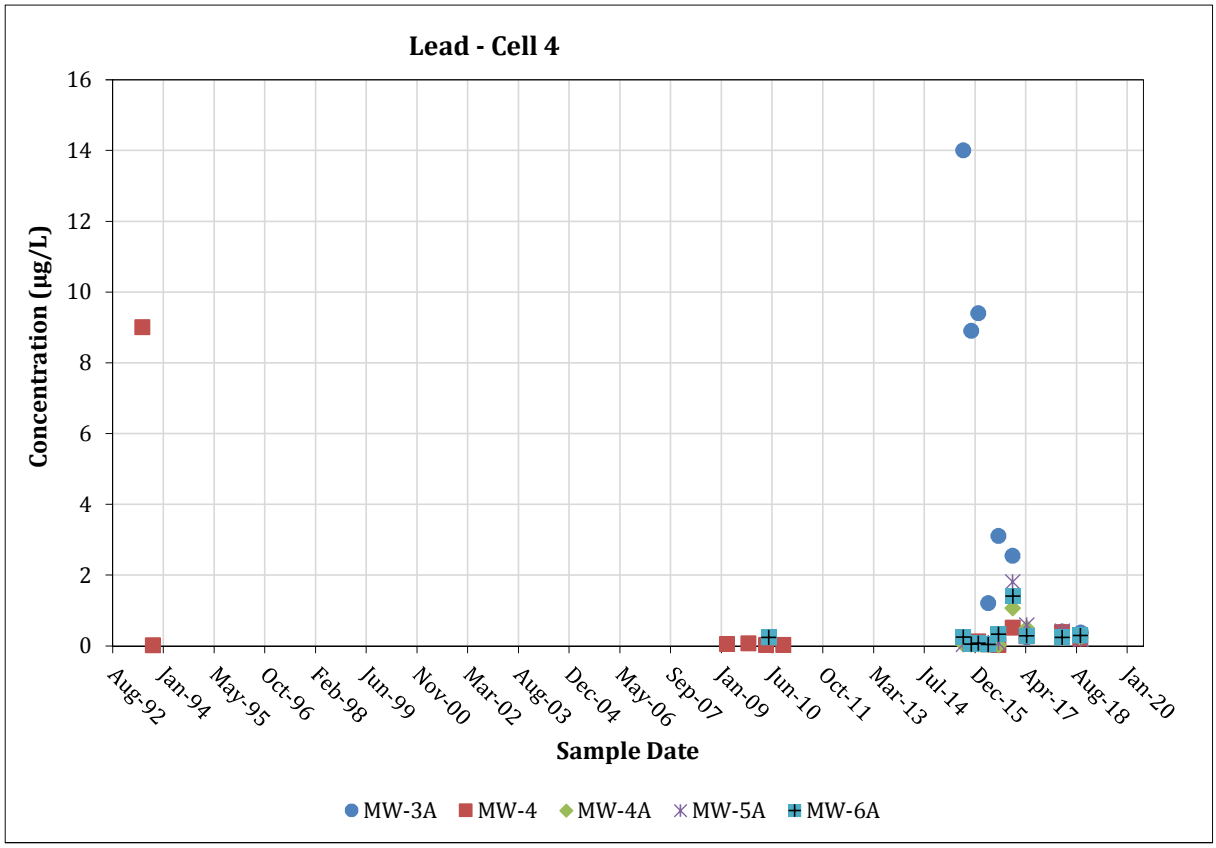

Cobalt - Cell 4
Concentration (µg/L)
3
2.5
2
1.5
1
0.5
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A

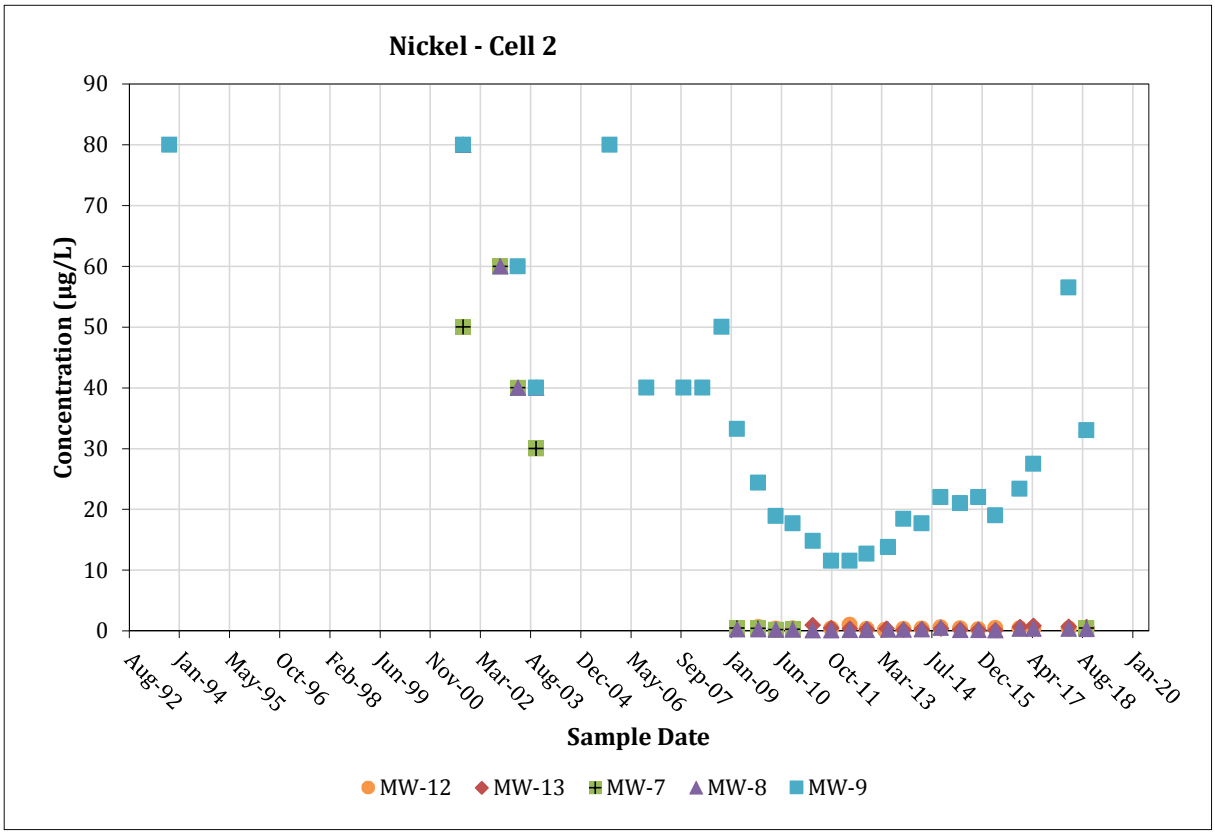

Copper - Cell 2
Concentration (µg/L)
250
200
150
100
50
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9

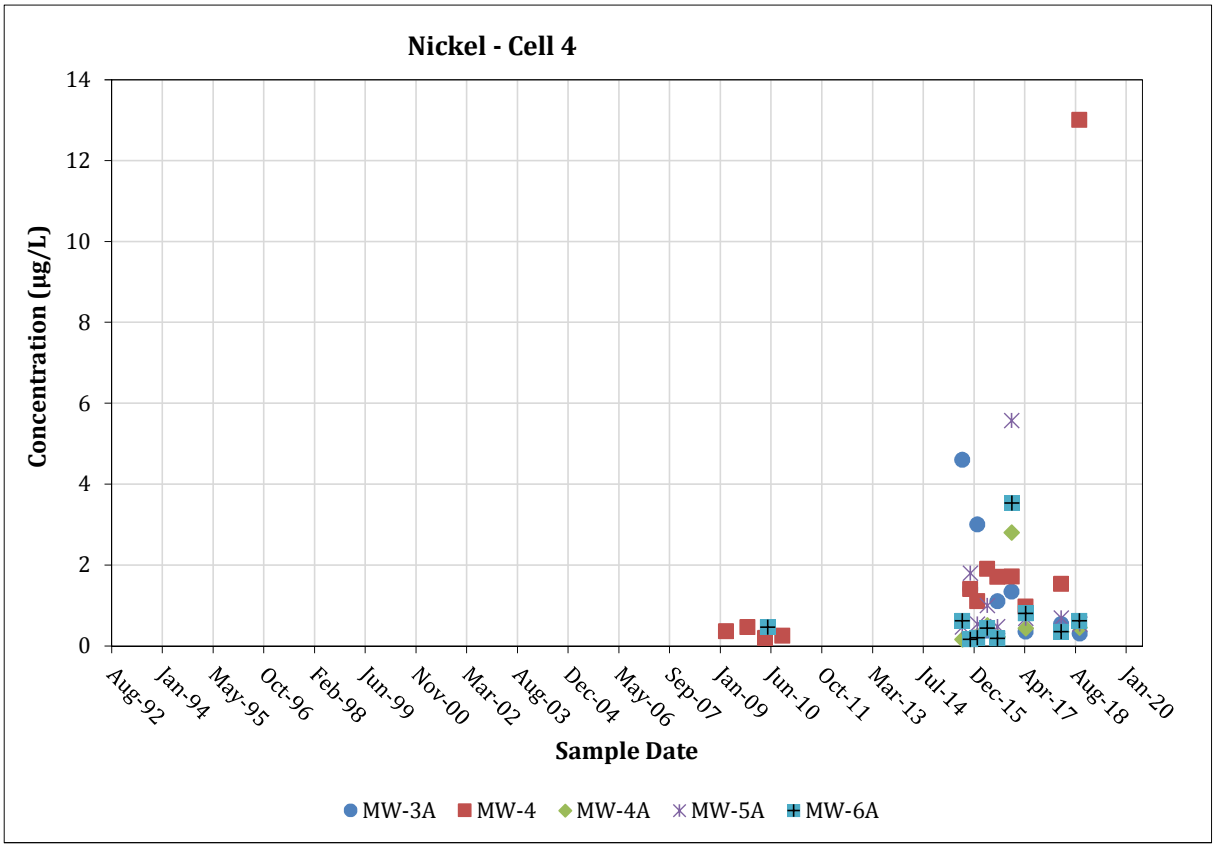

Copper - Cell 4
Concentration (µg/L)
40
35
30
25
20
15
10
5
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A

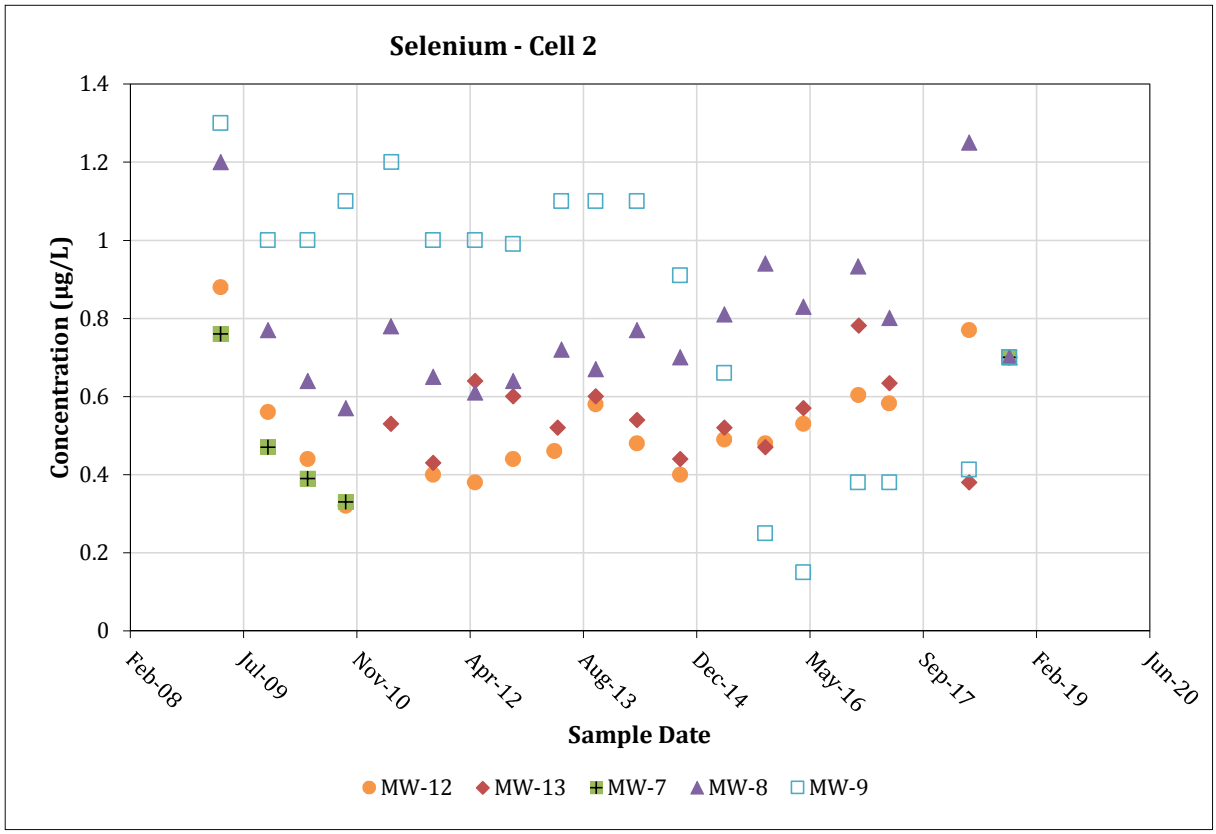

Cyanide - Cell 2
Concentration (µg/L)
20
18
16
14
12
10
8
6
4
2
0
Jun-14
Dec-14
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9

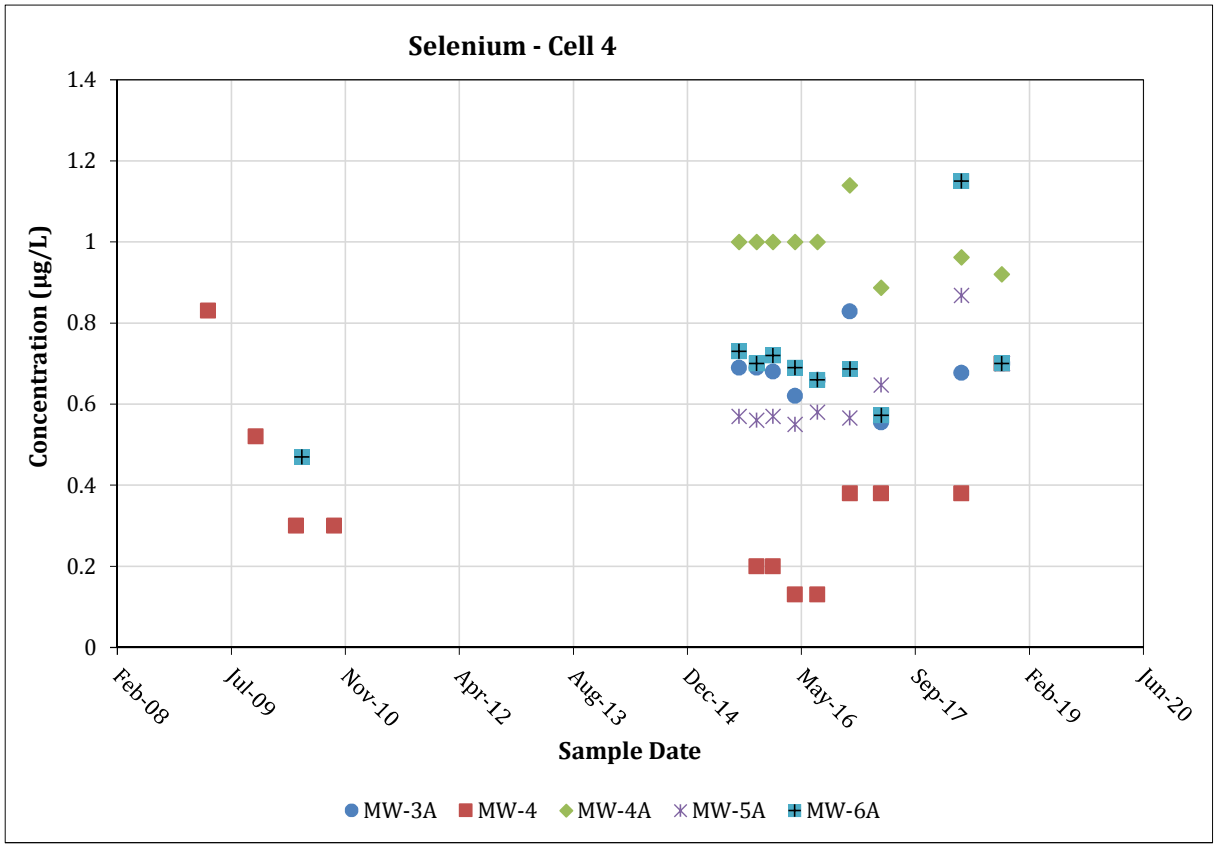

Lead - Cell 2
Concentration (µg/L)
50
45
40
35
30
25
20
15
10
5
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9

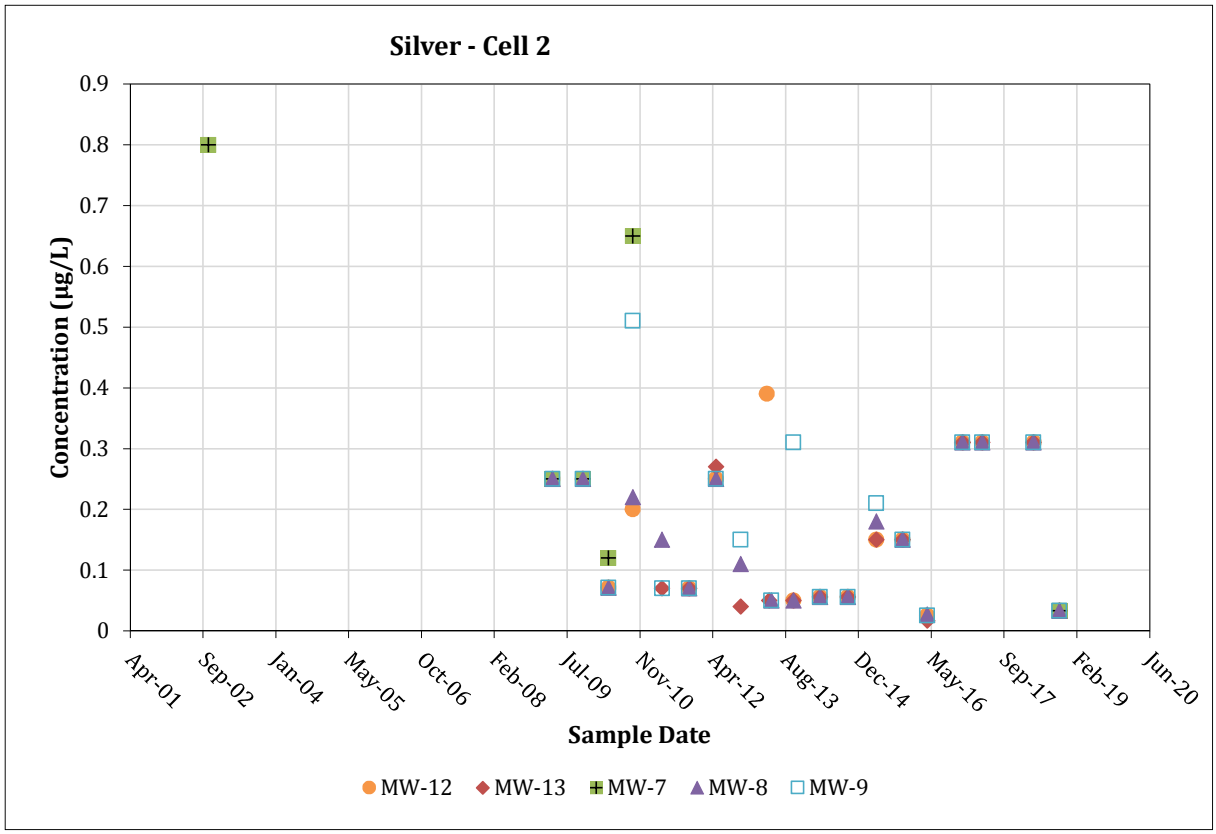

Lead - Cell 4
Concentration (µg/L)
16
14
12
10
8
6
4
2
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A

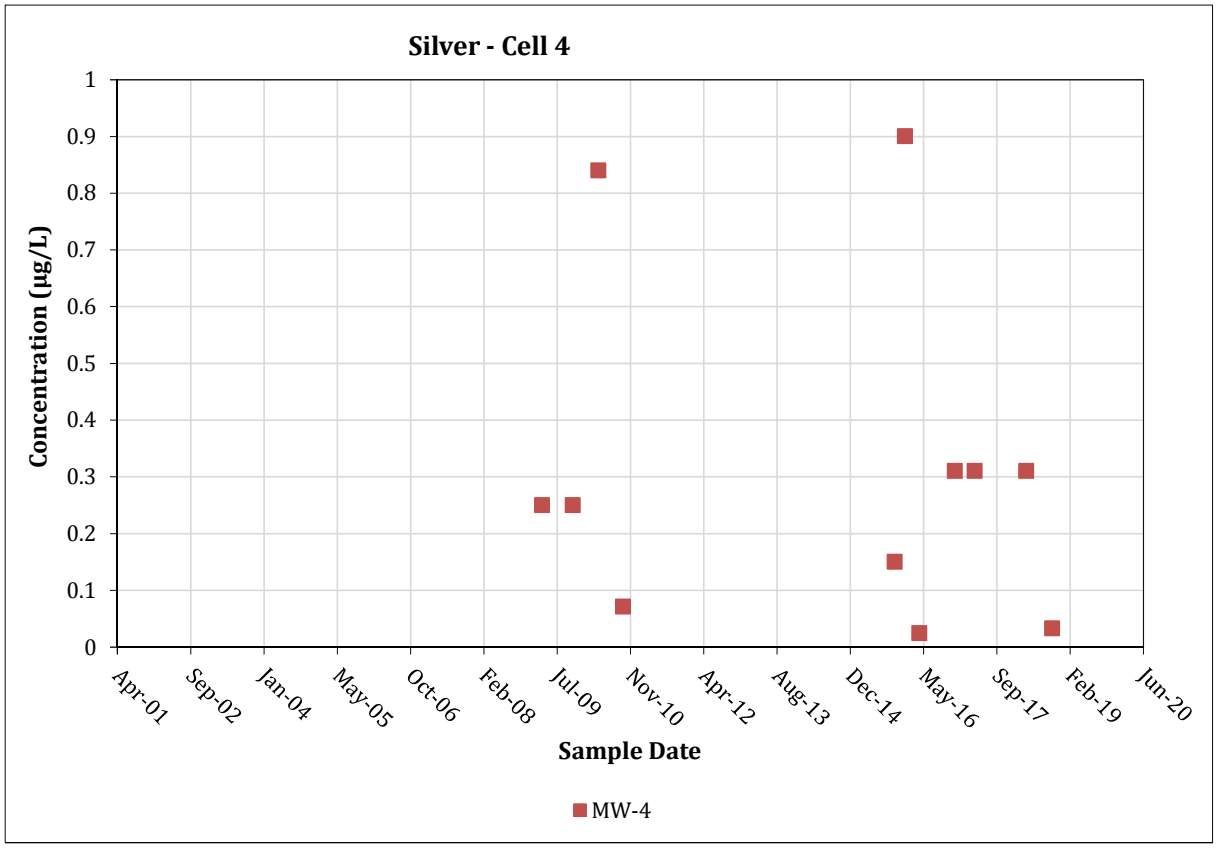

Nickel - Cell 2
Concentration (µg/L)
90
80
70
60
50
40
30
20
10
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9

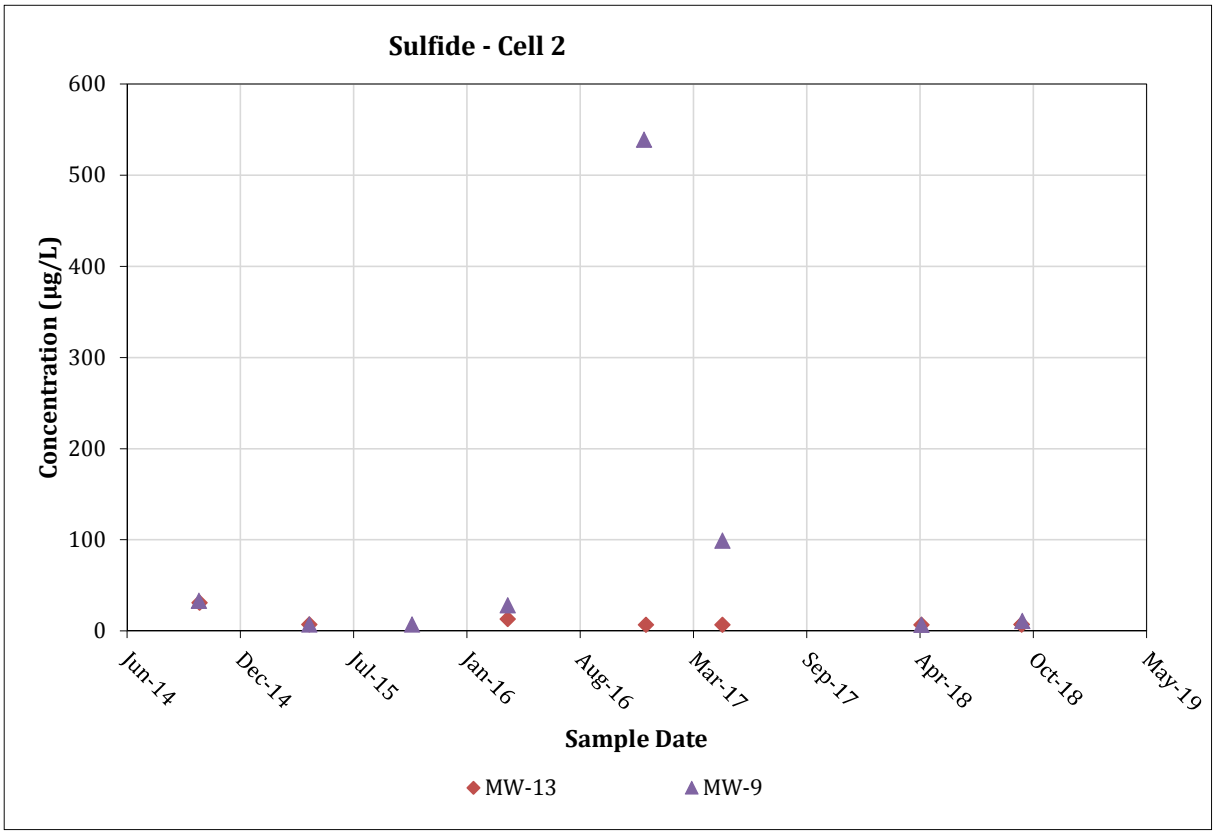

Nickel - Cell 4
Concentration (µg/L)
14
12
10
8
6
4
2
0
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A

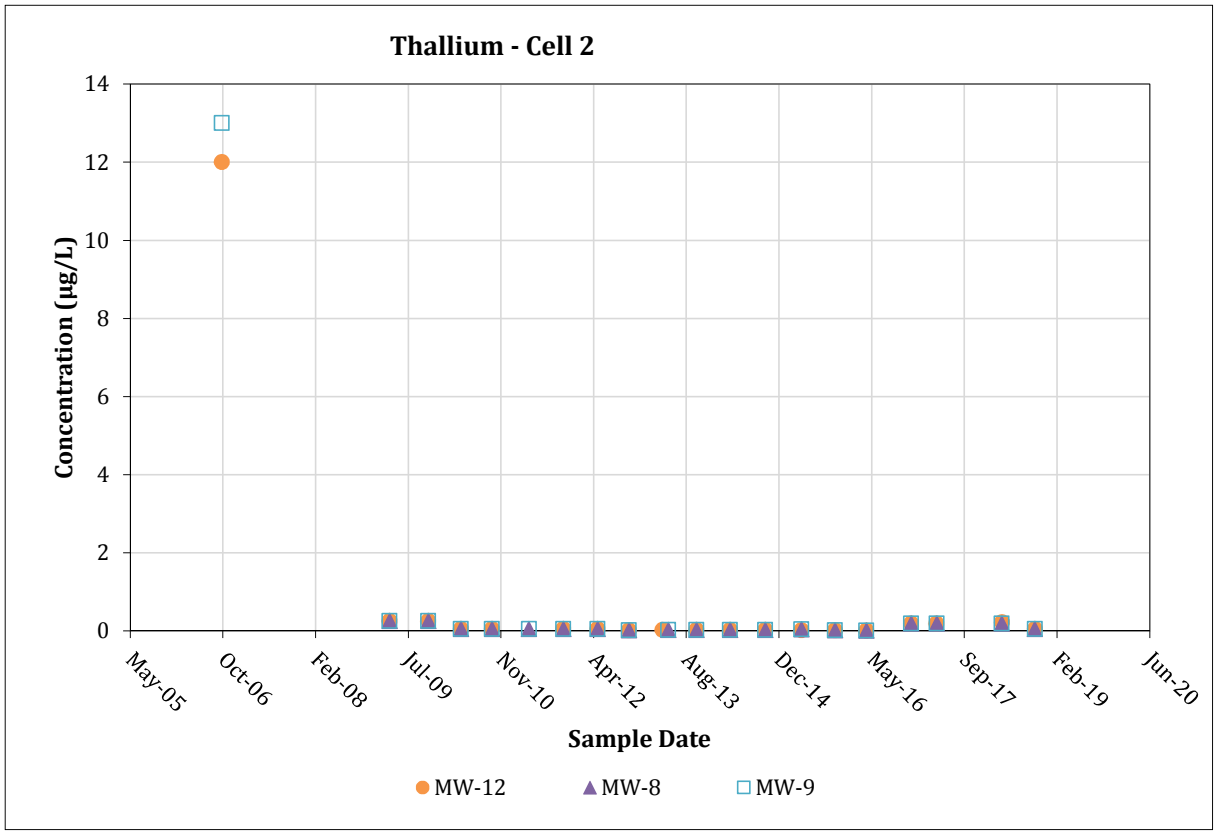

Selenium - Cell 2
Concentration (µg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9

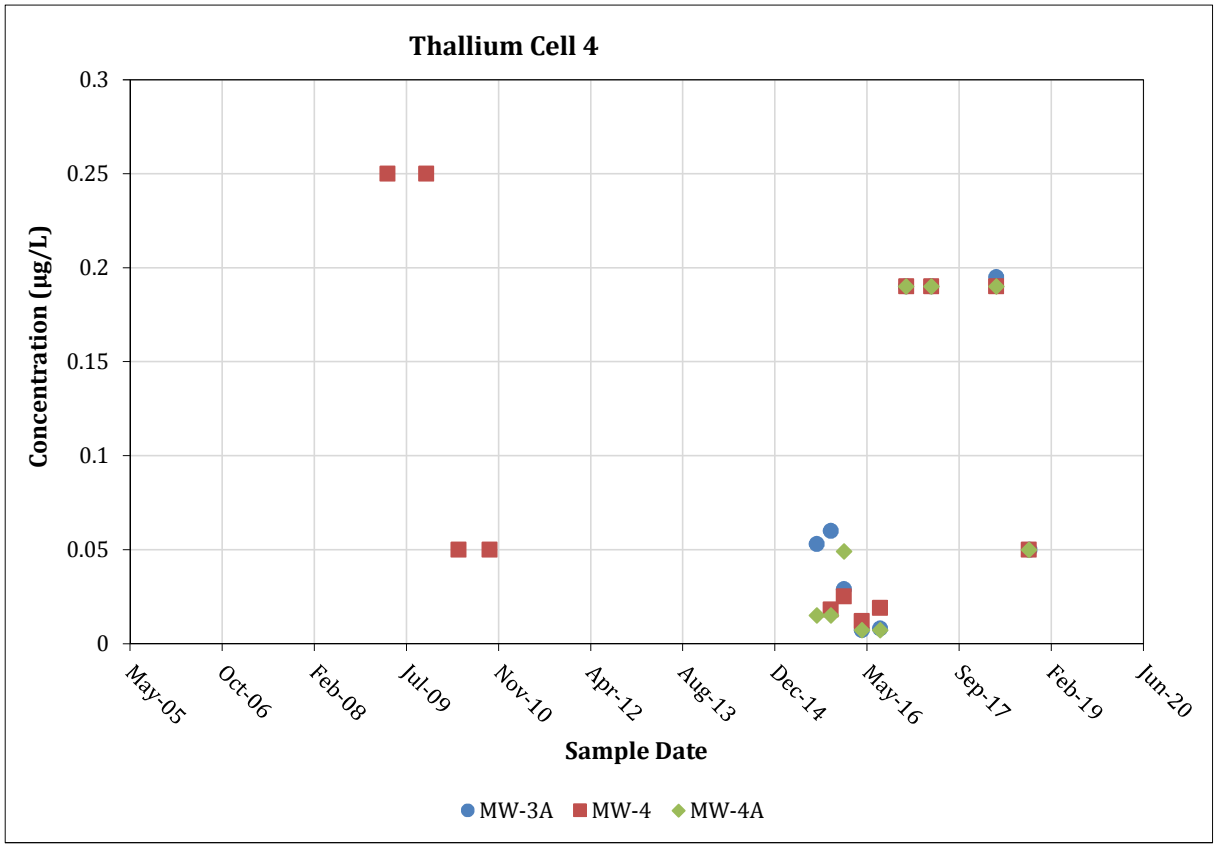

Selenium - Cell 4
Concentration (µg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A

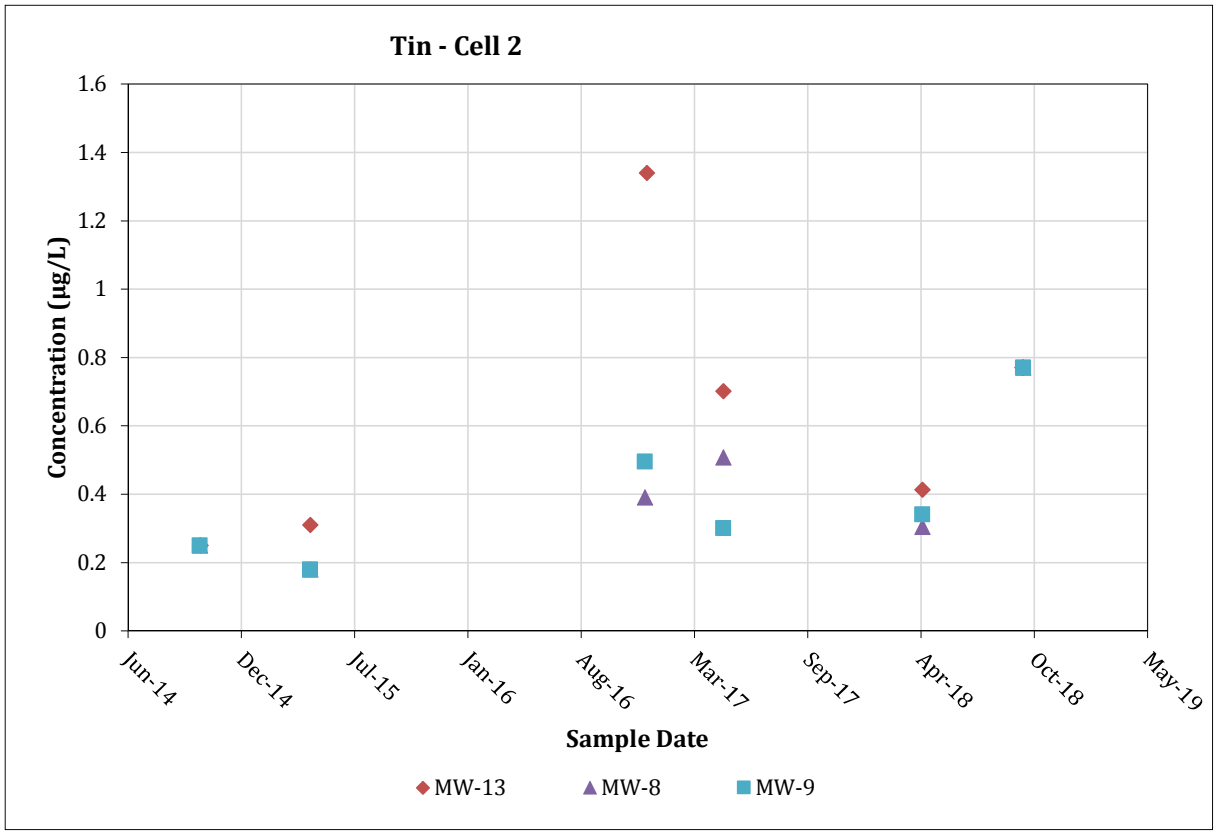

Silver - Cell 2
Concentration (µg/L)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Apr-01
Sep-02
Jan-04
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9

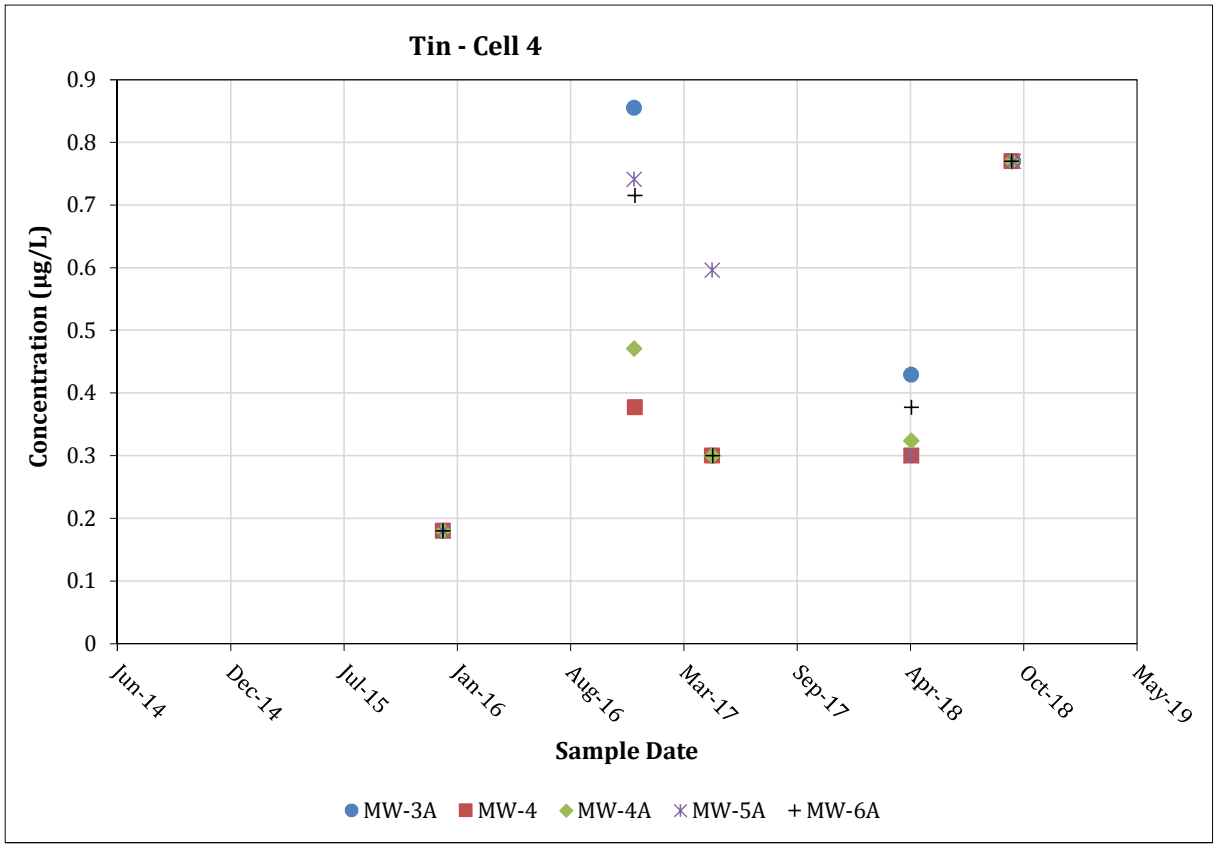

Silver - Cell 4
Concentration (µg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Apr-01
Sep-02
Jan-04
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-4

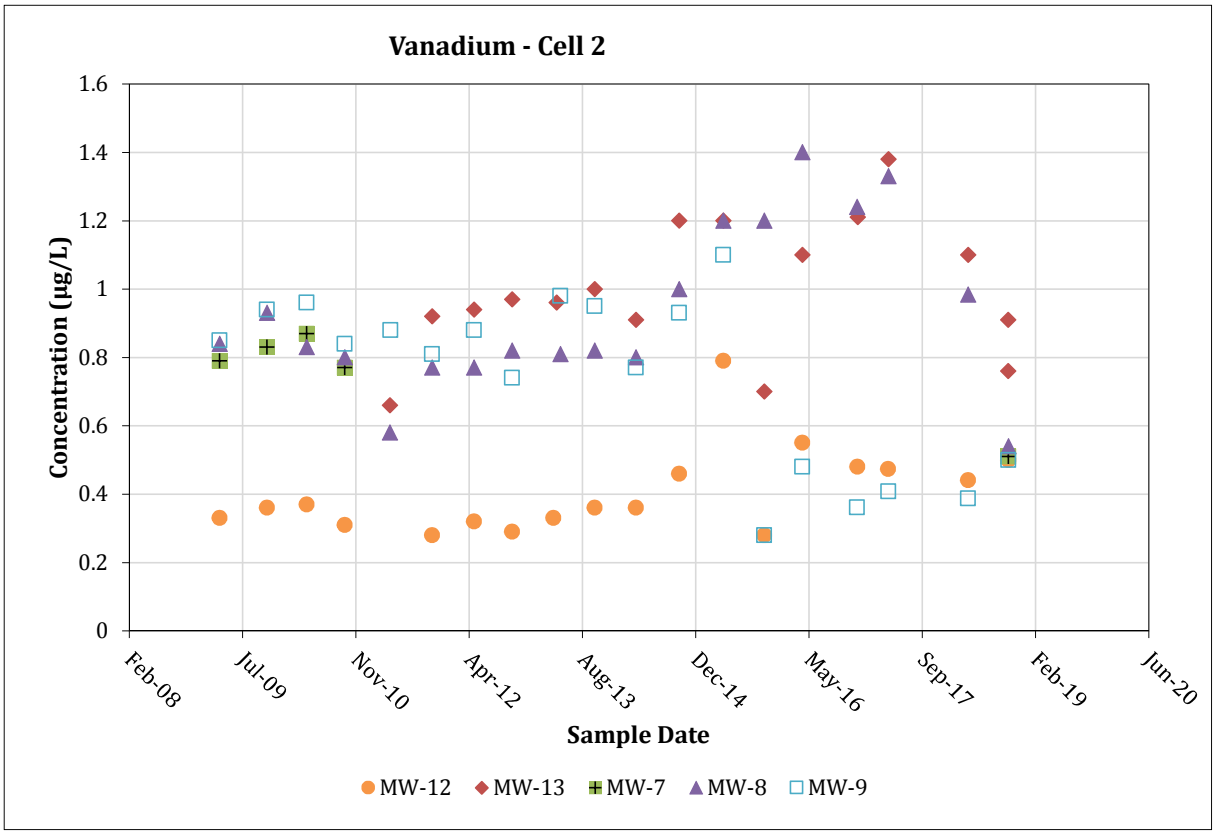

Sulfide - Cell 2
600
500
400
300
200
100
0
Concentration (µg/L)
Jun-14
Dec-14
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
May-19
Sample Date
MW-13
MW-9

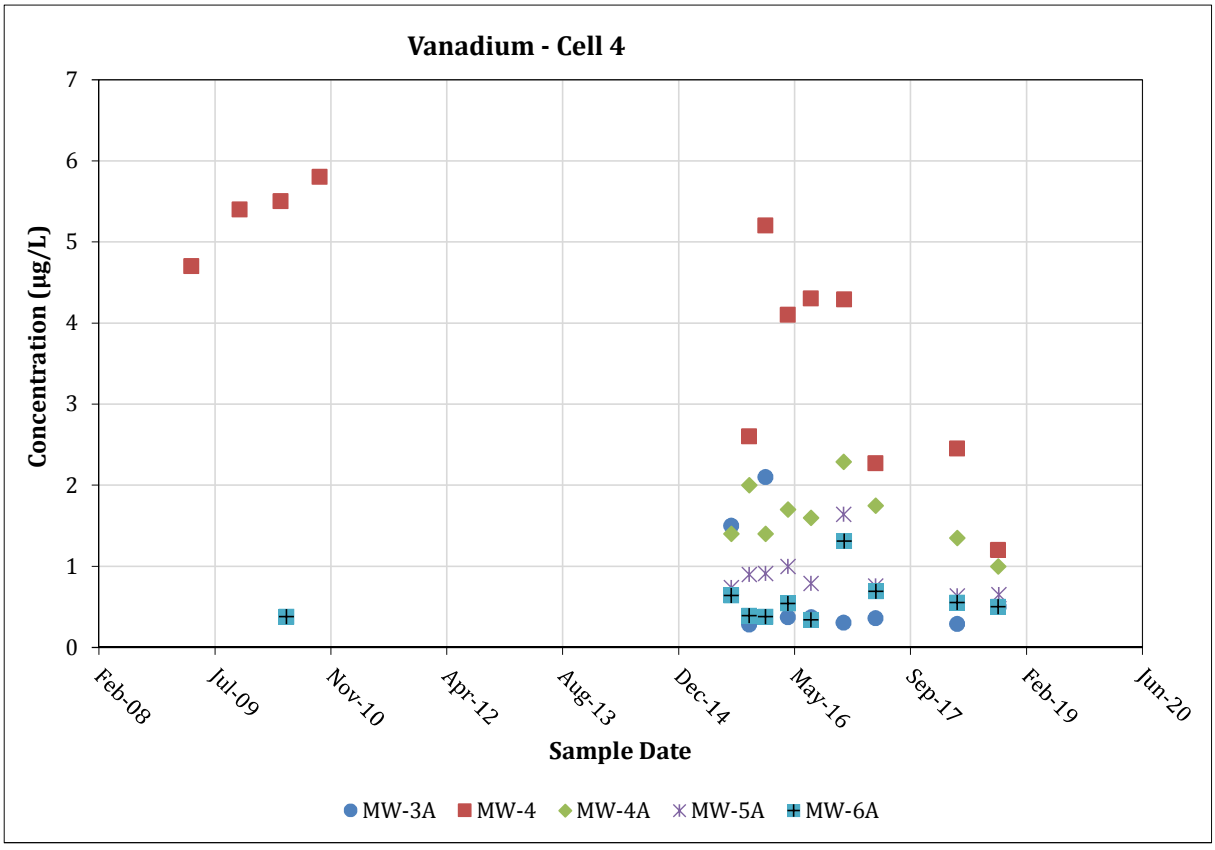

Thallium - Cell 2
Concentration (µg/L)
14
12
10
8
6
4
2
0
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-12
MW-8
MW-9

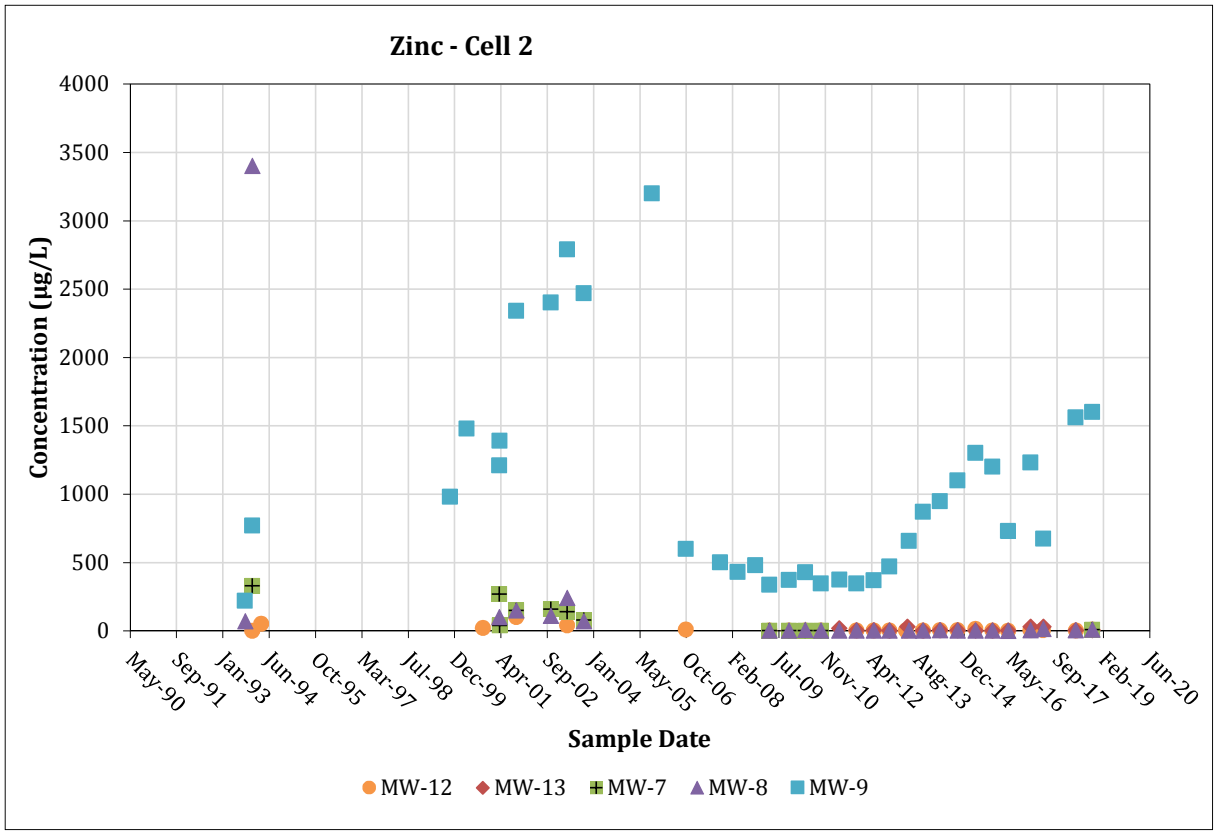

Thallium Cell 4
Concentration (µg/L)
0.3
0.25
0.2
0.15
0.1
0.05
0
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-3A
MW-4
MW-4A

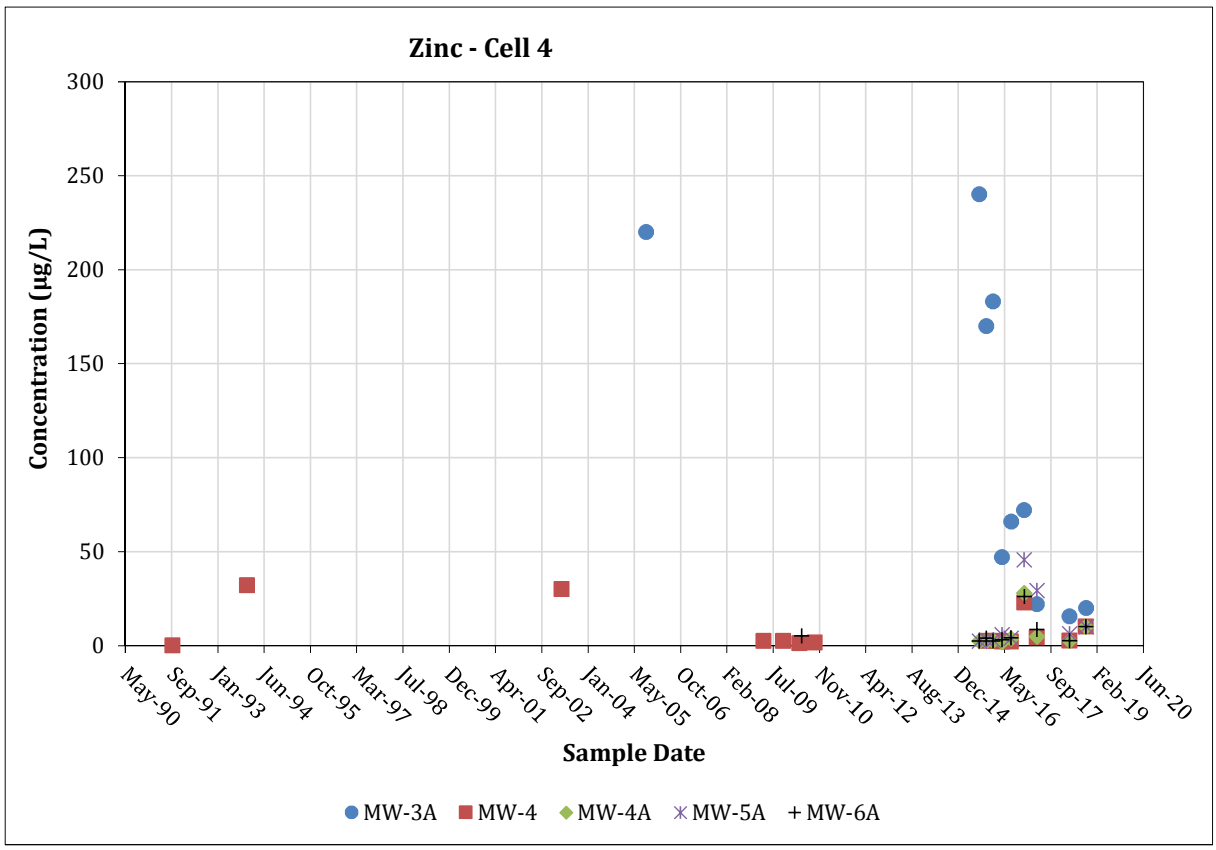

Tin - Cell 2
Concentration (µg/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jun-14
Dec-14
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
May-19
Sample Date
MW-13
MW-8
MW-9


Tin - Cell 4
Concentration (µg/L)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jun-14
Dec-14
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
May-19
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A


Vanadium - Cell 2
Concentration (µg/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9


Vanadium - Cell 4
Concentration (µg/L)
7
6
5
4
3
2
1
0
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A


Zinc - Cell 2
Concentration (µg/L)
4000
3500
3000
2500
2000
1500
1000
500
0
May-90
Sep-91
Jan-93
Jun-94
Oct-95
Mar-97
Jul-98
Dec-99
Apr-01
Sep-02
Jan-04
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-12
MW-13
MW-7
MW-8
MW-9


Zinc - Cell 4
Concentration (µg/L)
300
250
200
150
100
50
0
May-90
Sep-91
Jan-93
Jun-94
Oct-95
Mar-97
Jul-98
Dec-99
Apr-01
Sep-02
Jan-04
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Sample Date
MW-3A
MW-4
MW-4A
MW-5A
MW-6A

Section 2

ANOVA & Mann-Kendall Statistical Analysis

Statistical Analysis
October 2018 Sampling Event

Arsenic

BG (MW-12) MW-8 t-Test: Two-Sample Assuming Unequal Variances

	56			
			BG (MW-12)	*MW-8*
		Mean	0.6295	8.613
	18	Variance	0.04939	150.3
	32	Observations	18	24
	20	Hypothesized Mean Difference	0	
	9	df	23	
		t Stat	-3.189	
		P(T<=t) one-tail	0.0020	
		t Critical one-tail	1.714	
		P(T<=t) two-tail	0.0041	
		t Critical two-tail	2.069	
	3.1	**SIGNIFICANT**		
0.5	**3.7**			
0.57	**3.5**			
0.56	**3.7**			
0.8	**4.4**			
0.53	**3.6**			
0.57	**3.6**			
0.55	**3.6**			
0.56	**3.6**			
0.62	**3.6**			
0.58	**3.6**			
0.6	**4**			
0.62	**4.1**	Mann-Kendall Trend Test		
0.56	**4**			
0.62	**4.2**	Mann-Kendall S		-49
0.563	**4.03**	Mann-Kendall p-value		0.1147
0.558	**3.8**	Mann-Kendall trend result		**NO TREND**
1.48	**4.28**			
0.49	**3.3**			

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	18	11.33	0.6295	0.04939
MW-8	24	206.7	8.61	150.3

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	655.6	1	655.6	7.583	0.008821	4.085
Within Groups	3458	40	86.45			
Total	4114	41				

SIGNIFICANT

Barium

BG (MW-12) MW-8 t-Test: Two-Sample Assuming Unequal Variances

	130			
	140		*BG (MW-12)*	*MW-8*
54	**40**	Mean	62.89	68.21
150	**340**	Variance	945.1	6306
190	**320**	Observations	29	31
80	**150**	Hypothesized Mean Difference	0	
60	**160**	df	39	
60	**40**	t Stat	-0.3467	
60	**40**	P(T<=t) one-tail	0.3653	
50	**40**	t Critical one-tail	1.685	
60	**40**	P(T<=t) two-tail	0.7307	
60	**40**	t Critical two-tail	2.023	
60	**33.3**	**NOT SIGNIFICANT**		
51.4	**34.7**			
55.3	**34.3**			
53.8	**32.3**			
50.4	**33.3**			
51.2	**33.5**			
51.8	**33**			
54.7	**34.6**			
52.5	**34**			
55.4	**35.1**			
50.4	**32.4**			
52	**34**			
54	**34**			
51	**32**			
48	**31**			
51	**33.3**			
49.1	**32.3**			
53.7	**33.5**			
54	**34**			

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	29	1824	62.89	945.1
MW-8	31	2115	68.21	6306

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	425.1	1	425.1	0.1143	0.7365	4.007
Within Groups	215636	58	3718			
Total	216061	59				

NOT SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Chromium

BG (MW-12) MW-8 t-Test: Two-Sample Assuming Unequal Variances

			BG (MW-12)	*MW-8*
		Mean	3.476	5.210
10	**37**	Variance	62.74	123.4
10	**33**	Observations	25	24
8	**20**	Hypothesized Mean Difference	0	
2	**25**	df	41	
1		t Stat	-0.6266	
		P(T<=t) one-tail	0.2672	
39		t Critical one-tail	1.683	
	1	P(T<=t) two-tail	0.5344	
2		t Critical two-tail	2.020	
	0.25	**NOT SIGNIFICANT**		
0.45	**0.35**			
0.7	0.24			
0.67	**0.5**			
1.8	**0.34**			
1.1	**0.63**			
0.8	**0.58**			
0.69	**0.18**			
0.74	**0.49**			
0.63	**0.27**			
0.7	**0.31**			
0.72	**0.23**			
0.96	**0.44**			
0.63	**0.4**			
1.1	**0.3**			
0.717	**0.579**			
0.58	0.54			
0.995	**1.65**			
0.93	**0.76**			

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	25	86.91	3.476	62.74
MW-8	24	125.0	5.210	123.4

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	36.80	1	36.80	0.3981	0.5311	4.047
Within Groups	4345	47	92.44			
Total	4381.3	48				

NOT SIGNIFICANT

Cobalt

BG (MW-12) MW-8 t-Test: Two-Sample Assuming Unequal Variances

		Mean	5.728	9.173
46	**49**	Variance	175.8	311.5
89	**36**	Observations	23	28
14	**21**	Hypothesized Mean Difference	0	
11	**22**	df	49	
7		t Stat	-0.7950	
7		P(T<=t) one-tail	0.2152	
4		t Critical one-tail	1.677	
4		P(T<=t) two-tail	0.4304	
5		t Critical two-tail	2.010	
4	0.25	**NOT SIGNIFICANT**		
3.9	0.25			
4.2	0.22			
4.2	0.22			
3.8	0.25			
3.6	0.25			
4	0.25			
3.8	0.25			
3.7	0.052			
3.7	0.052			
3.6	0.25			
3.5	0.25			
3.7	0.13			
3.2	0.13			
3.2	**0.027**			
3.56	0.26			
3.29	0.26			
3.59	0.26			
3.3	**0.14**			

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	28	256.8	9.173	311.5
MW-8	23	131.8	5.728	175.8

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	149.8	1	149.8	0.5979	0.4431	4.038
Within Groups	12280	49	250.6			
Total	12429	50				

NOT SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Copper

BG (MW-12) MW-8 t-Test: Two-Sample Assuming Unequal Variances

	23		*BG (MW-12)*	*MW-8*
	2	Mean	2.122	13.27
10	**110**	Variance	22.11	902.6
22	**100**	Observations	24	26
	41	Hypothesized Mean Difference	0	
2	**53**	df	26	
1		t Stat	-1.867	
		P(T<=t) one-tail	0.0366	
4		t Critical one-tail	1.706	
		P(T<=t) two-tail	0.0732	
1	**2**	t Critical two-tail	2.056	
	0.38	**NOT SIGNIFICANT**		
0.25	**0.45**			
0.6	**0.43**			
0.2	0.2			
0.35	**0.55**			
0.62	**0.56**			
0.62	**1.4**			
0.18	**0.32**			
0.17	**0.52**			
0.71	**0.74**			
0.28	**0.44**			
0.3	1			
1.4	1.2			
0.21	**0.31**			
0.4	0.4			
1.83	0.993			
1.45	**1.06**			
0.789	**2.42**			
0.56	**0.58**			

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	24	50.92	2.122	22.11
MW-8	26	345.0	13.27	902.6

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1550	1	1550	3.225	0.0788	4.043
Within Groups	23074	48	480.7			
Total	24625	49				

NOT SIGNIFICANT

Vanadium

BG (MW-12) MW-8 t-Test: Two-Sample Assuming Unequal Variances

	0.84			
0.33	**0.93**		*BG (MW-12)*	*MW-8*
0.36	**0.83**	Mean	0.3908	0.9344
0.37	**0.8**	Variance	0.0179	0.0637
0.31	**0.73**	Observations	18	19
0.28	**0.8**	Hypothesized Mean Difference	0	
0.32	**0.77**	df	28	
0.29	**0.82**	t Stat	-8.246	
0.33	**0.81**	P(T<=t) one-tail	0.0000000028	
0.36	**0.82**	t Critical one-tail	1.701	
0.36	**0.8**	P(T<=t) two-tail	0.0000000057	
0.21	**0.71**	t Critical two-tail	2.048	
0.79	**1.4**	**SIGNIFICANT**		
0.28	**1.2**			
0.55	**1.4**			
0.48	**1.24**	Mann-Kendall Trend Test		
0.474	**1.33**	Mann-Kendall S		22
0.441	**0.984**	Mann-Kendall p-value		0.2305
0.5	**0.54**	Mann-Kendall trend result		**NO TREND**

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	18	7.035	0.3908	0.0179
MW-8	19	17.75	0.9344	0.0637

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2.731	1	2.731	65.90	0.0000000015	4.121
Within Groups	1.450	35	0.0414			
Total	4.182	36				

SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Arsenic

BG (MW-12) MW-9 t-Test: Two-Sample Assuming Unequal Variances

	10			
	3.1		*BG (MW-12)*	*MW-9*
		Mean	0.6295	1.930
		Variance	0.0494	3.892
		Observations	18	21
		Hypothesized Mean Difference	0	
		df	21	
		t Stat	-3.000	
		P(T<=t) one-tail	0.0034	
		t Critical one-tail	1.721	
		P(T<=t) two-tail	0.0068	
		t Critical two-tail	2.080	
	1.2	**SIGNIFICANT**		
0.5	**1.3**			
0.57	**1.4**			
0.56	**1**			
0.8	**1.7**			
0.53	**1.3**			
0.57	**1.1**			
0.55	**1.3**			
0.56	**1.2**			
0.62	**1.3**			
0.58	**1.1**			
0.6	**1.1**			
0.62	**1**			
0.56	**1.4**	Mann-Kendall Trend Test		
0.62	**1.1**	Mann-Kendall S		-11
0.563	**1.41**	Mann-Kendall p-value		0.3798
0.558	**2.87**	Mann-Kendall trend result		**NO TREND**
1.48	**3.36**			
0.49	**1.3**			

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	18	11.33	0.6295	0.0494
MW-9	21	40.5	1.930	3.892

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	16.40	1	16.40	7.714	0.0086	4.105
Within Groups	78.68	37	2.127			
Total	95.09	38				

SIGNIFICANT

Barium

BG (MW-12) MW-9 t-Test: Two-Sample Assuming Unequal Variances

	410			
	130		*BG (MW-12)*	*MW-9*
54	**50**	Mean	62.89	87.89
150	**90**	Variance	945.1	4320
190	**80**	Observations	29	31
80	**50**	Hypothesized Mean Difference	0	
60	**70**	df	43	
60	**130**	t Stat	-1.907	
60	**60**	P(T<=t) one-tail	0.0316	
50	**60**	t Critical one-tail	1.681	
60	**60**	P(T<=t) two-tail	0.0633	
60	**60**	t Critical two-tail	2.017	
60	**57.9**	**NOT SIGNIFICANT**		
51.4	**57.9**			
55.3	**59.6**			
53.8	**56.4**			
50.4	**61.7**			
51.2	**59.1**			
51.8	**60.4**			
54.7	**74.3**			
52.5	**90.3**			
55.4	**130**			
50.4	**114**			
52	**120**			
54	**81**			
51	**94**			
48	**85**			
51	**114**			
49.1	**88.1**			
53.7	**42.8**			
54	**28**			

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	29	1824	62.89	945.1
MW-9	31	2725	87.89	4320

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	9365	1	9365	3.480	0.0672	4.007
Within Groups	156067	58	2691			
Total	165433	59				

NOT SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Cobalt

BG (MW-12) MW-9 t-Test: Two-Sample Assuming Unequal Variances

	61		
		BG (MW-12)	*MW-9*
		Mean	9.173	4.483
46	**7**	Variance	311.5	153.5
89	**3**	Observations	28	24
14		Hypothesized Mean Difference	0	
11	**3**	df	48	
7	**12**	t Stat	1.120	
7		P(T<=t) one-tail	0.1340	
4		t Critical one-tail	1.677	
4		P(T<=t) two-tail	0.2681	
5		t Critical two-tail	2.011	
4	0.25	**NOT SIGNIFICANT**		
3.9	0.25			
4.2	0.22			
4.2	0.22			
3.8	0.25			
3.6	0.25			
4	0.25			
3.8	0.25			
3.7	**0.17**			
3.7	**0.24**			
3.6	0.25			
3.5	0.25			
3.7	**0.19**			
3.2	**2.7**			
3.2	**1**			
3.56	**1.09**			
3.29	**3.2**			
3.59	**6.85**			
3.3	**3.7**			

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	28	256.8	9.173	311.5
MW-9	24	107.6	4.483	153.5

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	284.3	1	284.3	1.190	0.2805	4.034
Within Groups	11942	50	238.8			
Total	12227	51				

NOT SIGNIFICANT

Copper

BG (MW-12) MW-9 t-Test: Two-Sample Assuming Unequal Variances

	220		
	45	*BG (MW-12)*	*MW-9*
	5	Mean	2.122	12.79
10	**22**	Variance	22.11	1641
22	**3**	Observations	24	30
	1	Hypothesized Mean Difference	0	
2	**10**	df	30	
1	**36**	t Stat	-1.431	
	5	P(T<=t) one-tail	0.0813	
4	**2**	t Critical one-tail	1.697	
		P(T<=t) two-tail	0.1627	
1	**1**	t Critical two-tail	2.042	
	0.54	**NOT SIGNIFICANT**		
0.25	**1**			
0.6	**0.69**			
0.2	**0.99**			
0.35	**0.38**			
0.62	**0.37**			
0.62	0.86			
0.18	**0.45**			
0.17	**1.2**			
0.71	**1.8**			
0.28	**1.6**			
0.3	**1.5**			
1.4	**2**			
0.21	**2.1**			
0.4	**1.4**			
1.83	**3.18**			
1.45	**6.1**			
0.789	**6.73**			
0.56	**0.95**			

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	24	50.92	2.122	22.11
MW-9	30	383.8	12.79	1641

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1519	1	1519	1.643	0.2057	4.027
Within Groups	48085	52	924.7			
Total	49604	53				

NOT SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Nickel

BG (MW-12) MW-9

	80
	80
	60
	40
	80
	40
	40
	40
	50
	33.2
0.43	**24.4**
0.63	**18.9**
0.34	**17.7**
0.8	**14.8**
0.37	**11.5**
0.98	**11.5**
0.33	**12.7**
0.15	**13.8**
0.29	**18.4**
0.37	**17.7**
0.33	**20**
0.41	**21**
0.23	**22**
0.46	**19**
0.35	**22.7**
0.35	**27.5**
0.35	**56.5**
0.3	**33**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-9*
Mean	0.4150	33.08
Variance	0.0404	450.0
Observations	18	28
Hypothesized Mean Difference	0	
df	27	
t Stat	-8.148	
P(T<=t) one-tail	0.0000000047	
t Critical one-tail	1.703	
P(T<=t) two-tail	0.0000000094	
t Critical two-tail	2.052	

SIGNIFICANT

Mann-Kendall Trend Test

Mann-Kendall S	-113
Mann-Kendall p-value	0.0132
Mann-Kendall trend result	**DECREASING**

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	18	7.47	0.415	0.040356
MW-9	28	926.3	33.08214286	450.0008

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	11692	1	11692	42.34	0.000000061	4.062
Within Groups	12151	44	276.2			
Total	23843	45				

SIGNIFICANT

Sulfide

BG (MW-12) MW-9

21	33
7.1	7.1
7.1	7.1
7.1	**28**
6.5	**539**
6.5	**99**
6.5	6.5
0.007	**0.011**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-9*
Mean	7.726	89.96
Variance	34.50	33941
Observations	8	8
Hypothesized Mean Difference	0	
df	7	
t Stat	-1.262	
P(T<=t) one-tail	0.1237	
t Critical one-tail	1.895	
P(T<=t) two-tail	0.2474	
t Critical two-tail	2.365	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	8	61.81	7.726	34.50
MW-9	8	719.7	89.96	33941

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	27052	1	27052	1.592	0.2276	4.600
Within Groups	237832	14	16988			
Total	264884	15				

NOT SIGNIFICANT

Vinyl Chloride

BG (MW-12) MW-9

	0.2
0.2	0.2
0.2	0.2
0.2	0.11
0.11	0.17
0.17	0.17
0.16	0.16
0.16	0.16
0.16	0.16
0.14	0.14
0.14	0.14
0.2	0.2
0.1	0.1
0.21	0.21
0.15	0.15
0.259	0.259
0.259	**0.367**
0.259	**0.884**
0.1	**0.53**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-9*
Mean	0.1765	0.2374
Variance	0.0026	0.0342
Observations	18	19
Hypothesized Mean Difference	0	
df	21	
t Stat	-1.380	
P(T<=t) one-tail	0.0911	
t Critical one-tail	1.721	
P(T<=t) two-tail	0.1821	
t Critical two-tail	2.080	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	18	3.177	0.1765	0.0026
MW-9	19	4.510	0.2374	0.0342

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.0342	1	0.0342	1.816	0.1865	4.121
Within Groups	0.6602	35	0.0189			
Total	0.6944	36				

NOT SIGNIFICANT

Zinc

BG (MW-12)	MW-9
	220
	770
	1390
50	**2340**
100	**2400**
	2790
40	**2470**
	3200
	600
10	**500**
	430
	480
	336
2.5	**371**
2.5	**429**
1.3	**347**
2	**375**
2.5	**346**
2.5	**369**
1	**470**
0.98	**658**
1.6	**870**
3.6	**948**
2.5	**1100**
13	**1300**
2.4	**1200**
0.78	**730**
2.56	**1230**
5.12	**673**
2.56	**1560**
10	**1600**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-9*
Mean	11.79	1048
Variance	548.1	665860
Observations	22	31
Hypothesized Mean Difference	0	
df	30	
t Stat	-7.069	
P(T<=t) one-tail	0.000000037	
t Critical one-tail	1.697	
P(T<=t) two-tail	0.000000074	
t Critical two-tail	2.042	

SIGNIFICANT

Mann-Kendall Trend Test	
Mann-Kendall S	41
Mann-Kendall p-value	0.2483
Mann-Kendall trend result	**NO TREND**

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	22	259.4	11.79	548.1
MW-9	31	32502	1048	665860

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	13828713	1	13828713	35.29	0.00000025	4.030
Within Groups	19987322	51	391908			
Total	33816036	52				

SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Antimony

BG (MW-12)	MW-13
5	
0.05	
0.25	
0.16	**0.081**
0.16	0.07
0.07	0.25
0.25	0.1
0.1	0.056
0.056	0.056
0.056	0.25
0.25	0.25
0.25	
0.15	0.15
0.15	0.15
0.032	0.032
0.754	0.754
0.754	0.754
0.754	0.754
0.4	**0.58**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-13*
Mean	0.5077	0.2858
Variance	1.241	0.0770
Observations	19	15
Hypothesized Mean Difference	0	
df	21	
t Stat	0.8359	
P(T<=t) one-tail	0.2063	
t Critical one-tail	1.721	
P(T<=t) two-tail	0.4126	
t Critical two-tail	2.080	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	19	9.646	0.5077	1.241
MW-13	15	4.287	0.2858	0.0770

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.4127	1	0.4127	0.5639	0.4582	4.149
Within Groups	23.42	32	0.7318			
Total	23.83	33				

NOT SIGNIFICANT

Arsenic

BG (MW-12)	MW-13
0.5	
0.57	
0.56	**1.4**
0.8	**3**
0.53	**3.5**
0.57	**3.9**
0.55	**3.8**
0.56	**4.3**
0.62	**4.2**
0.58	**4.3**
0.6	
0.62	**4.1**
0.56	**4.3**
0.62	**4.2**
0.563	**4.71**
0.558	**4.2**
1.48	**5.03**
0.49	**4.1**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-13*
Mean	0.6295	3.936
Variance	0.0494	0.7124
Observations	18	15
Hypothesized Mean Difference	0	
df	16	
t Stat	-14.75	
P(T<=t) one-tail	0.000000000049	
t Critical one-tail	1.746	
P(T<=t) two-tail	0.000000000098	
t Critical two-tail	2.120	

SIGNIFICANT

Mann-Kendall Trend Test

Mann-Kendall S	58
Mann-Kendall p-value	0.0022
Mann-Kendall trend result	**INCREASING**

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	18	11.33	0.6295	0.0494
MW-13	15	59.04	3.936	0.7124

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	89.45	1	89.45	256.4	1.5E-16	4.160
Within Groups	10.81	31	0.3488			
Total	100.3	32				

SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Barium

BG (MW-12)	MW-13
	95.2
	97.6
54	**98.6**
150	**106**
190	**105**
80	**113**
60	**107**
60	**110**
60	
50	**100**
60	**100**
60	**100**
60	**118**
51.4	**103**
55.3	**109**
53.8	**120**
50.4	
51.2	
51.8	
54.7	
52.5	
55.4	
50.4	
52	
54	
51	
48	
51	
49.1	
53.7	
54	

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-13*
Mean	62.89	105.5
Variance	945.1	55.08
Observations	29	15
Hypothesized Mean Difference	0	
df	34	
t Stat	-7.075	
P(T<=t) one-tail	0.000000018	
t Critical one-tail	1.691	
P(T<=t) two-tail	0.000000036	
t Critical two-tail	2.032	

SIGNIFICANT

Mann-Kendall Trend Test

Mann-Kendall S	48
Mann-Kendall p-value	0.0097
Mann-Kendall trend result	**INCREASING**

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	29	1824	62.89	945.1
MW-13	15	1582	105.5	55.08

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	17947	1	17947	27.68	0.0000045	4.073
Within Groups	27235	42	648.5			
Total	45182	43				

SIGNIFICANT

Chromium (Total)

BG (MW-12)	MW-13
10	**0.8**
10	**1.4**
8	**1.5**
2	**1**
1	**1.3**
	1.1
39	**1.2**
	1.3
2	
	1.2
0.45	**1.2**
0.7	**1**
0.67	2.43
1.8	**2.44**
1.1	**1.86**
0.8	**1.4**
0.69	
0.74	
0.63	
0.7	
0.72	
0.96	
0.63	
1.1	
0.717	
0.58	
0.995	
0.93	

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-13*
Mean	3.476	1.409
Variance	62.74	0.2338
Observations	25	15
Hypothesized Mean Difference	0	
df	24	
t Stat	1.301	
P(T<=t) one-tail	0.1028	
t Critical one-tail	1.711	
P(T<=t) two-tail	0.2055	
t Critical two-tail	2.064	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	25	86.91	3.476	62.74
MW-13	15	21.13	1.409	0.2338

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	40.09	1	40.09	1.009	0.3214	4.098
Within Groups	1509	38	39.71			
Total	1549	39				

NOT SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Cobalt

BG (MW-12)	MW-13
	0.25
	0.25
	0.25
46	0.25
89	0.052
14	0.052
11	0.25
7	0.25
7	
4	0.13
4	0.13
5	**0.097**
4	**0.473**
3.9	**0.281**
4.2	**0.727**
4.2	**1.2**
3.8	
3.6	
4	
3.8	
3.7	
3.7	
3.6	
3.5	
3.7	
3.2	
3.2	
3.56	
3.29	
3.59	
3.3	

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-13*
Mean	9.173	0.3095
Variance	311.5	0.0899
Observations	28	15
Hypothesized Mean Difference	0	
df	27	
t Stat	2.656	
P(T<=t) one-tail	0.0065	
t Critical one-tail	1.703	
P(T<=t) two-tail	0.0131	
t Critical two-tail	2.052	

SIGNIFICANT

***** Not a significant increase over background***

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	28	256.8	9.173	311.5
MW-13	15	4.642	0.3095	0.0899

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	767.3	1	767.3	3.740	0.0601	4.079
Within Groups	8413	41	205.2			
Total	9180	42				

NOT SIGNIFICANT

cis-1,2-Dichloroethene

BG (MW-12)	MW-13
0.5	0.37
0.5	0.37
0.5	0.085
0.23	0.085
0.37	0.085
0.085	0.23
0.085	0.23
0.085	0.13
0.23	0.13
0.23	0.13
0.13	0.15
0.13	0.25
0.15	0.26
0.25	0.26
0.26	**0.424**
0.26	**0.42**
0.26	
0.15	

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-13*
Mean	0.2447	0.2256
Variance	0.0196	0.0143
Observations	18	16
Hypothesized Mean Difference	0	
df	32	
t Stat	0.4303	
P(T<=t) one-tail	0.3349	
t Critical one-tail	1.694	
P(T<=t) two-tail	0.6698	
t Critical two-tail	2.037	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	18	4.405	0.2447	0.0196
MW-13	16	3.609	0.2256	0.0143

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.0031	1	0.0031	0.1817	0.6728	4.149
Within Groups	0.5477	32	0.0171			
Total	0.5508	33				

NOT SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Copper

BG (MW-12) MW-13 t-Test: Two-Sample Assuming Unequal Variances

	0.81			
	0.37		*BG (MW-12)*	*MW-9*
	0.68	Mean	2.122	1.055
10	**0.59**	Variance	22.11	1.483
22	**0.43**	Observations	24	15
	0.17	Hypothesized Mean Difference	0	
2	**0.45**	df	28	
1	0.55	t Stat	1.056	
		P(T<=t) one-tail	0.1499	
4	1.8	t Critical one-tail	1.701	
	0.24	P(T<=t) two-tail	0.2998	
1	0.4	t Critical two-tail	2.048	
	4.88	**NOT SIGNIFICANT**		
0.25	**2.36**			
0.6	**1.26**			
0.2	**0.83**			
0.35				
0.62				
0.62				
0.18				
0.17				
0.71				
0.28				
0.3				
1.4				
0.21				
0.4				
1.83				
1.45				
0.789				
0.56				

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	24	50.92	2.122	22.11
MW-9	15	15.82	1.055	1.483

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	10.51	1	10.51	0.7345	0.3970	4.105
Within Groups	529.4	37	14.31			
Total	539.9	38				

NOT SIGNIFICANT

Dichlorodifluoromethane

BG (MW-12) MW-13 t-Test: Two-Sample Assuming Unequal Variances

0.5	0.5			
0.5	0.5		*BG (MW-12)*	*MW-13*
2	0.5	Mean	0.3788	0.4816
0.22	0.28	Variance	0.1790	0.0086
0.48		Observations	18	8
0.14	0.551	Hypothesized Mean Difference	0	
0.21	0.551	df	20	
0.21	0.551	t Stat	-0.9800	
0.14	**0.42**	P(T<=t) one-tail	0.1694	
0.38		t Critical one-tail	1.725	
0.18		P(T<=t) two-tail	0.3388	
0.18		t Critical two-tail	2.086	
0.16		**NOT SIGNIFICANT**		
0.31				
0.346				
0.346				
0.346				
0.17				

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	18	6.818	0.3788	0.1790
MW-13	8	3.853	0.4816	0.0086

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.0586	1	0.0586	0.4532	0.5073	4.260
Within Groups	3.103	24	0.1293			
Total	3.161	25				

NOT SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Lead

BG (MW-12)	MW-13
10	**0.18**
14	**0.092**
	0.13
	0.081
	0.061
	0.046
	0.046
	0.083
	0.1
0.05	0.046
0.059	**0.017**
0.056	**2.06**
0.23	0.759
0.05	**0.424**
0.065	**0.6**
0.039	
0.046	
0.084	
0.046	
0.046	
0.091	
0.046	
0.012	
0.24	
0.24	
0.281	
0.18	

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-13*
Mean	1.293	0.315
Variance	13.84	0.2830
Observations	20	15
Hypothesized Mean Difference	0	
df	20	
t Stat	1.160	
P(T<=t) one-tail	0.1298	
t Critical one-tail	1.725	
P(T<=t) two-tail	0.2596	
t Critical two-tail	2.086	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	20	25.86	1.293	13.84
MW-13	15	4.725	0.3150	0.2830

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	8.199	1	8.199	1.014	0.3213	4.139
Within Groups	266.8	33	8.086			
Total	275.0	34				

NOT SIGNIFICANT

Nickel

BG (MW-12)	MW-13
0.43	**0.93**
0.63	**0.48**
0.34	**0.34**
0.8	**0.26**
0.37	**0.34**
0.98	0.15
0.33	**0.26**
0.15	**0.24**
0.29	
0.37	**0.22**
0.33	**0.22**
0.41	**0.1**
0.23	**1.46**
0.46	**0.827**
0.35	**0.66**
0.35	**0.62**
0.35	
0.3	

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-12)	*MW-9*
Mean	0.4150	0.4738
Variance	0.0404	0.1369
Observations	18	15
Hypothesized Mean Difference	0	
df	21	
t Stat	-0.5514	
P(T<=t) one-tail	0.2936	
t Critical one-tail	1.721	
P(T<=t) two-tail	0.5871	
t Critical two-tail	2.080	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	18	7.470	0.4150	0.0404
MW-13	15	7.107	0.4738	0.1369

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.0283	1	0.0283	0.3369	0.5658	4.160
Within Groups	2.603	31	0.0840			
Total	2.631	32				

NOT SIGNIFICANT

Tetrachloroethene

BG (MW-12)	MW-13	t-Test: Two-Sample Assuming Unequal Variances		
0.5	**0.55**			
0.5	0.26		*BG (MW-12)*	*MW-13*
0.5	**0.72**	Mean	0.2742	0.4929
0.15	**0.38**	Variance	0.0177	0.1207
0.26	**0.44**	Observations	18	16
0.13	**0.43**	Hypothesized Mean Difference	0	
0.13	**0.32**	df	19	
0.13	**0.36**	t Stat	-2.368	
0.29	**1.7**	P(T<=t) one-tail	0.0143	
0.29	**0.64**	t Critical one-tail	1.729	
0.16	**0.37**	P(T<=t) two-tail	0.0286	
0.16	**0.28**	t Critical two-tail	2.093	
0.23	**0.452**	**SIGNIFICANT**		
0.19	0.372			
0.372	0.372	Mann-Kendall Trend Test		
0.372	**0.24**	Mann-Kendall S		-25
0.372		Mann-Kendall p-value		0.1397
0.2		Mann-Kendall trend result		**NO TREND**

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	18	4.936	0.2742	0.0177
MW-13	16	7.886	0.4929	0.1207

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.4050	1	0.4050	6.139	0.0187	4.149
Within Groups	2.111	32	0.0660			
Total	2.516	33				

SIGNIFICANT

Vanadium

BG (MW-12)	MW-13	t-Test: Two-Sample Assuming Unequal Variances		
0.33	**0.66**			
0.36	**0.92**		*BG (MW-12)*	*MW-13*
0.37	**0.94**	Mean	0.3908	1.032
0.31	**0.97**	Variance	0.0179	0.0604
0.28	**0.96**	Observations	18	15
0.32	**1**	Hypothesized Mean Difference	0	
0.29	**0.91**	df	21	
0.33	**0.9**	t Stat	-9.053	
0.36		P(T<=t) one-tail	0.0000000054	
0.36	**1.2**	t Critical one-tail	1.721	
0.21	**0.84**	P(T<=t) two-tail	0.000000011	
0.79	1.1	t Critical two-tail	2.080	
0.28	**1.69**	**SIGNIFICANT**		
0.55	**1.38**			
0.48	**1.1**			
0.474	**0.91**			
0.441		Mann-Kendall Trend Test		
0.5		Mann-Kendall S		33
		Mann-Kendall p-value		0.0562
		Mann-Kendall trend result		**NO TREND**

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	18	7.035	0.3908	0.0179
MW-13	15	15.48	1.032	0.0604

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	3.364	1	3.364	90.77	1.01E-10	4.160
Within Groups	1.149	31	0.0371			
Total	4.512	32				

SIGNIFICANT

Zinc

BG (MW-12)	MW-13	t-Test: Two-Sample Assuming Unequal Variances		
	19.2			
	3.9		*BG (MW-12)*	*MW-13*
	4	Mean	11.791	13.091
50	**2**	Variance	548.1	415.4
100	**31.1**	Observations	22	15
	2	Hypothesized Mean Difference	0	
40	5	df	33	
	4.4	t Stat	-0.1792	
		P(T<=t) one-tail	0.4294	
10	2.4	t Critical one-tail	1.692	
	2.4	P(T<=t) two-tail	0.8589	
	2.2	t Critical two-tail	2.035	
	77.5	**NOT SIGNIFICANT**		
2.5	**29.8**			
2.5	**4.26**			
1.3	**6.2**			
2				
2.5				
2.5				
1				
0.98				
1.6				
3.6				
2.5				
13				
2.4				
0.78				
2.56				
5.12				
2.56				
10				

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-12)	22	259.4	11.79	548.1
MW-13	15	196.4	13.09	415.4

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	15.07	1	15.07	0.0304	0.8625	4.121
Within Groups	17327	35	495.0			
Total	17342	36				

NOT SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Barium

BG (MW-4A)	MW-3A
	130
190	
	170
170	**160**
170	**177**
175	**170**
190	**160**
190	**160**
185	**149**
173	**161**
179	**160**
190	

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	MW-3A
Mean	181.200	159.7000
Variance	76.1778	167.7889
Observations	10	10
Hypothesized Mean Difference	0	
df	16	
t Stat	4.353	
P(T<=t) one-tail	0.0002466	
t Critical one-tail	1.746	
P(T<=t) two-tail	0.0004933	
t Critical two-tail	2.120	

SIGNIFICANT

***** Not a significant increase over background***

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	10	1812	181.200	76.1778
MW-3A	10	1597	159.7000	167.7889

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2311.250	1	2311.250	18.95	0.0003835	4.414
Within Groups	2195.700	18	121.9833			
Total	4507	19				

SIGNIFICANT

Chromium (Total)

BG (MW-4A)	MW-3A
0.22	**5.2**
0.38	**1.5**
0.7	**4.4**
1.6	**0.67**
0.34	**1.8**
2.97	**1.22**
0.58	0.54
1.21	**3.81**
0.91	**0.53**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	MW-3A
Mean	1.0	2.2
Variance	0.75	3.2
Observations	9	9
Hypothesized Mean Difference	0	
df	12	
t Stat	-1.796	
P(T<=t) one-tail	0.0488666	
t Critical one-tail	1.782	
P(T<=t) two-tail	0.0977331	
t Critical two-tail	2.179	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	9	1.0	0.75
MW-3A	9	20	2.2	3.2

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	6	1	6	3.22	0.09143773	4.494
Within Groups	32	16	1.99			
Total	38	17				

NOT SIGNIFICANT

Copper

BG (MW-4A)	MW-3A
0.21	**6.2**
0.21	**2.5**
0.21	**3.1**
0.4	**0.92**
0.4	**1.2**
3	2.02
1.51	**1.73**
2.83	**1.2**
0.57	**0.66**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	MW-3A
Mean	1.0	2.17
Variance	1.30	2.894
Observations	9	9
Hypothesized Mean Difference	0	
df	14	
t Stat	-1.66	
P(T<=t) one-tail	0.0597	
t Critical one-tail	1.7613	
P(T<=t) two-tail	0	
t Critical two-tail	2	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	9	1.0	1.30
MW-3A	9	19.53	2.17	2.894

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	6	1.000	5.7687	2.7528	1.2E-01	4.494
Within Groups	34	16	2.0955			
Total	39	17				

NOT SIGNIFICANT

Lead

BG (MW-4A)	MW-3A
0.046	**14**
0.046	**8.9**
0.046	**9.4**
0.03	**1.2**
0.012	**3.1**
1.07	**2.54**
0.501	0.24
0.24	**0.399**
0.24	**0.37**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	MW-3A
Mean	0.2479	4.4610
Variance	0.1207	25.2901
Observations	9	9
Hypothesized Mean Difference	0	
df	8	
t Stat	-2.5074	
P(T<=t) one-tail	0.0183	
t Critical one-tail	1.8595	
P(T<=t) two-tail	0	
t Critical two-tail	2	

SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	2.231	0.2479	0.1207
MW-3A	9	40.15	4.461	25.29

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	80	1	79.8764	6.2868	0.0233	4.494
Within Groups	203	16	12.7054			
Total	283.1624	17				

SIGNIFICANT

Mann-Kendall Trend Test

Mann-Kendall S	-26
Mann-Kendall p-value	0.0046
Trend Result	**DECREASING**

Statistical Analysis
October 2018 Sampling Event

Zinc

BG (MW-4A)	MW-3A
2.4	**220**
2.4	
2.6	**240**
1.9	**170**
1.6	**183**
27.9	**47**
4.88	**66**
2.56	**72.1**
10	**22**
	15.6
	20

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-3A*
Mean	6.249	105.570
Variance	72.724	7758.8357
Observations	9	10
Hypothesized Mean Difference	0	
df	9	
t Stat	-3.5473	
P(T<=t) one-tail	0.0031	
t Critical one-tail	1.833	
P(T<=t) two-tail	0.0062	
t Critical two-tail	2.262	

SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	56.24	6.249	72.724
MW-3A	10	1055.70	105.570	7758.8357

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	46727.4463	1	46727.4463	11.2818	0.0037	4.451
Within Groups	70411.31	17	4141.842			
Total	117138.76	18				

SIGNIFICANT

Mann-Kendall Trend Test

Mann-Kendall S	-33
Mann-Kendall p-value	0.0021
Trend Result	**DECREASING**

Statistical Analysis
October 2018 Sampling Event

Antimony

BG (MW-4A)	MW-5A
0.15	0.15
0.15	0.15
0.15	0.15
0.056	**0.048**
0.05	**0.034**
0.754	0.754
0.754	0.754
0.754	0.754
0.4	**1.1**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-5A*
Mean	0.358	0.4327
Variance	0.0985	0.1627
Observations	9	9
Hypothesized Mean Difference	0	
df	15	
t Stat	-0.441	
P(T<=t) one-tail	0.3327938	
t Critical one-tail	1.753	
P(T<=t) two-tail	0.6655876	
t Critical two-tail	2.131	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	3.218	0.358	0.0985
MW-5A	9	3.894	0.4327	0.1627

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.025	1	0.025	0.19	0.6651987	4.494
Within Groups	2.090	16	0.1306			
Total		2	17			

NOT SIGNIFICANT

Arsenic

BG (MW-4A)	MW-5A
1.5	**1.2**
1.6	**1.2**
1.5	**1.2**
1.7	**1.3**
1.6	**1.2**
2.17	**1.32**
1.6	**0.904**
2.24	**2.02**
1.4	**1.4**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-5A*
Mean	1.7	1.3
Variance	0.09	0.1
Observations	9	9
Hypothesized Mean Difference	0	
df	16	
t Stat	2.804	
P(T<=t) one-tail	0.0063709	
t Critical one-tail	1.746	
P(T<=t) two-tail	0.0127419	
t Critical two-tail	2.120	

SIGNIFICANT

***** Not a significant increase over background***

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	15	1.7	0.09
MW-5A	9	12	1.3	0.1

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1	1	1	7.86	0.01274189	4.494
Within Groups	1	16	0.09			
Total	2	17				

SIGNIFICANT

Barium

BG (MW-4A)	MW-5A
	50
190	
170	**50**
170	**50**
175	**49.4**
190	**53**
190	**51**
185	**51.6**
173	**51.4**
179	**54.7**
190	**54**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-5A*
Mean	181.2	51.51
Variance	76.18	3.352
Observations	10	10
Hypothesized Mean Difference	0	
df	10	
t Stat	45.99	
P(T<=t) one-tail	0.0000	
t Critical one-tail	1.8125	
P(T<=t) two-tail	0	
t Critical two-tail	2	

SIGNIFICANT

***** Not a significant increase over background***

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	10	1812	181.2	76.18
MW-5A	10	515.1	51.51	3.352

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	84097	1.000	84097.4805	2114.8648	4.0E-20	4.414
Within Groups	716	18	39.7649			
Total	84813	19				

SIGNIFICANT

Beryllium

BG (MW-4A)	MW-5A
0.067	0.067
0.067	0.067
0.067	0.067
0.03	0.03
0.03	0.03
0.12	0.12
0.12	0.12
0.12	0.12
0.08	**0.17**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-5A*
Mean	0.0779	0.0879
Variance	0.0013	0.0022
Observations	9	9
Hypothesized Mean Difference	0	
df	15	
t Stat	-0.5061	
P(T<=t) one-tail	0.3101	
t Critical one-tail	1.7531	
P(T<=t) two-tail	1	
t Critical two-tail	2	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	0.701	0.0779	0.0013
MW-5A	9	0.79	0.08788889	0.00

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0	1	0.0004	0.2561	0.6197	4.494
Within Groups	0	16	0.0018			
Total	0.0286	17				

NOT SIGNIFICANT

Chromium (Total)

BG (MW-4A)	MW-5A
0.22	**1**
0.38	
0.7	
1.6	**0.73**
0.34	**1.2**
2.97	**0.77**
0.58	**1.1**
1.21	**1.1**
0.91	**1.59**
	1.37
	1.56
	1.9

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-5A*
Mean	0.9900	1.232
Variance	0.7484	0.1396
Observations	9	10
Hypothesized Mean Difference	0	
df	11	
t Stat	-0.7766	
P(T<=t) one-tail	0.227	
t Critical one-tail	1.796	
P(T<=t) two-tail	0	
t Critical two-tail	2	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	8.910	0.9900	0.7484
MW-5A	10	12.32	1.232	0.1396

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0	1	0.277	0.651	0.4309	4.451
Within Groups	7	17.00	0.426			
Total	7.52056842	18				

NOT SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Cobalt

BG (MW-4A)	MW-5A
0.13	0.13
0.13	**0.77**
0.13	**0.18**
0.044	**0.8**
0.025	**0.18**
1.06	**0.276**
0.26	0.26
0.26	0.26
0.18	**0.18**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-5A*
Mean	0.2466	0.3373
Variance	0.0997	0.0668
Observations	9	9
Hypothesized Mean Difference	0	
df	15	
t Stat	-0.6675	
P(T<=t) one-tail	0.2573	
t Critical one-tail	1.7531	
P(T<=t) two-tail	1	
t Critical two-tail	2	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	2.219	0.2466	0.0997
MW-5A	9	3.036	0.3373	0.0668

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0	1	0.0371	0.4456	0.5140	4.494
Within Groups	1	16	0.0832			
Total	1.369	17				

NOT SIGNIFICANT

Copper

BG (MW-4A)	MW-5A
0.21	**0.25**
0.21	**0.69**
0.21	**0.28**
0.4	**0.51**
0.4	**0.44**
3	0.943
1.51	**6.01**
2.83	**1.76**
0.57	**0.75**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-5A*
Mean	1.038	1.293
Variance	1.297	3.338
Observations	9	9
Hypothesized Mean Difference	0	
df	13	
t Stat	-0.3550	
P(T<=t) one-tail	0.3641	
t Critical one-tail	1.7709	
P(T<=t) two-tail	1	
t Critical two-tail	2	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	9.34	1.03777778	1.296669
MW-5A	9	11.633	1.29255556	3.337981

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0	1	0.2921	0.1261	0.7272	4.494
Within Groups	37	16	2.3173			
Total	37.37	17				

NOT SIGNIFICANT

Nickel

BG (MW-4A)	MW-5A
0.16	**0.47**
0.17	**1.8**
0.25	**0.54**
0.51	**1**
0.099	**0.48**
2.8	**0.78**
0.437	**0.685**
0.35	**0.693**
0.45	**0.54**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-5A*
Mean	0.5807	0.7764
Variance	0.7135	0.1758
Observations	9	9
Hypothesized Mean Difference	0	
df	12	
t Stat	-0.6228	
P(T<=t) one-tail	0.2725	
t Critical one-tail	1.782	
P(T<=t) two-tail	0.5451	
t Critical two-tail	2.179	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	5.226	0.5807	0.7135
MW-5A	9	6.988	0.7764	0.1758

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.1725	1	0.1725	0.3879	0.5422	4.494
Within Groups	7.115	16	0.4447			
Total	7.287	17				

NOT SIGNIFICANT

Vanadium

BG (MW-4A)	MW-5A
1.4	**0.74**
2	**0.9**
1.4	**0.7**
1.7	0.94
1.6	**0.7**
2.29	**0.805**
1.75	**0.759**
1.35	**0.636**
1	**0.65**

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-5A*
Mean	1.610	0.7589
Variance	0.1463	0.0111
Observations	9	9
Hypothesized Mean Difference	0	
df	9	
t Stat	6.436	
P(T<=t) one-tail	0.00006	
t Critical one-tail	1.833	
P(T<=t) two-tail	0.00012	
t Critical two-tail	2.262	

SIGNIFICANT

***** Not a significant increase over background***

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	14.49	1.610	0.1463
MW-5A	9	6.830	0.7589	0.0111

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	3.260	1	3.260	41.42	0.0000082	4.494
Within Groups	1.259	16	0.0787			
Total	4.519	17				

SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Arsenic

BG (MW-4A)	MW-6A
1.5	**0.41**
1.6	
1.5	**0.6**
1.7	**0.34**
1.6	
2.17	**0.44**
1.6	**0.48**
2.24	**0.43**
1.4	**1.37**
	0.541
	1.31
	0.48

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-6A*
Mean	1.701	0.6401
Variance	0.0891	0.1413
Observations	9	10
Hypothesized Mean Difference	0	
df	17	
t Stat	6.846	
P(T<=t) one-tail	0.0000014	
t Critical one-tail	1.740	
P(T<=t) two-tail	0.0000028	
t Critical two-tail	2.110	

SIGNIFICANT

***** Not a significant increase over background***

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	15.31	1.701	0.0891
MW-6A	10	6.401	0.6401	0.1413

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	5.332	1	5.332	45.69	0.0000033	4.451
Within Groups	1.984	17	0.1167			
Total	7	18				

SIGNIFICANT

Barium

BG (MW-4A)	MW-6A
	200
190	**197**
170	**220**
170	**210**
175	
190	**217**
190	**230**
185	**220**
173	**225**
179	**206**
190	**208**
	210

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-6A*
Mean	180.2	213.0
Variance	74.94	106.4
Observations	9	11
Hypothesized Mean Difference	0	
df	18	
t Stat	-7.726	
P(T<=t) one-tail	0.0000002	
t Critical one-tail	1.734	
P(T<=t) two-tail	0.0000004	
t Critical two-tail	2.101	

SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	10	1812	181.2	76.18
MW-6A	11	2343	213.0	106.4

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	5297	1	5297	57.52	0.00000037	4.381
Within Groups	1750	19	92.08			
Total	7047	20				

SIGNIFICANT

Mann-Kendall Trend Test

Mann-Kendall S	9
Mann-Kendall p-value	0.2655
Trend Result	**NO TREND**

Chromium (Total)

BG (MW-4A)	MW-6A
0.22	**0.5**
0.38	
0.7	**0.94**
1.6	**0.36**
0.34	
2.97	**0.5**
0.58	**1**
1.21	**0.79**
0.91	**3.11**
	0.832
	0.745
	1.1

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-6A*
Mean	0.9900	0.9877
Variance	0.7484	0.6123
Observations	9	10
Hypothesized Mean Difference	0	
df	16	
t Stat	0.0061	
P(T<=t) one-tail	0.4976	
t Critical one-tail	1.746	
P(T<=t) two-tail	0.9952	
t Critical two-tail	2.120	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	8.910	0.9900	0.7484
MW-6A	10	9.877	0.9877	0.6123

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.00003	1	0.00003	0.00004	0.9952	4.451
Within Groups	11.50	17	0.6764			
Total	11.50	18				

NOT SIGNIFICANT

Cobalt

BG (MW-4A)	MW-6A
0.13	0.22
0.13	
0.13	**0.18**
0.044	0.13
0.025	
1.06	0.13
0.26	**0.023**
0.26	**0.027**
0.18	**1.01**
	0.26
	0.26
	0.15

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-5A*
Mean	0.2466	0.2390
Variance	0.0997	0.0803
Observations	9	10
Hypothesized Mean Difference	0	
df	16	
t Stat	0.0547	
P(T<=t) one-tail	0.4785	
t Critical one-tail	1.746	
P(T<=t) two-tail	0.9571	
t Critical two-tail	2.120	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	2.219	0.2466	0.0997
MW-5A	10	2.39	0.2390	0.080272

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.0003	1	0.0003	0.0030	0.9568	4.451
Within Groups	1.520	17	0.0894			
Total	1.520	18				

NOT SIGNIFICANT

Statistical Analysis
October 2018 Sampling Event

Copper

BG (MW-4A)	MW-6A
0.21	**0.51**
0.21	
0.21	**0.44**
0.4	**0.24**
0.4	
3	**0.44**
1.51	**1**
2.83	**1.8**
0.57	**3.26**
	1.29
	0.935
	0.68

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-6A*
Mean	1.038	1.060
Variance	1.297	0.8164
Observations	9	10
Hypothesized Mean Difference	0	
df	15	
t Stat	-0.0457	
P(T<=t) one-tail	0.4821	
t Critical one-tail	1.753	
P(T<=t) two-tail	0.9641	
t Critical two-tail	2.131	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	9.34	1.038	1.297
MW-6A	10	10.60	1.060	0.8164

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.0022	1	0.0022	0.0021	0.9636	4.451
Within Groups	17.72	17	1.042			
Total	17.72	18				

NOT SIGNIFICANT

Lead

BG (MW-4A)	MW-6A
0.046	**0.24**
0.046	
0.046	**0.25**
0.03	0.046
0.012	
1.07	**0.071**
0.501	**0.038**
0.24	**0.33**
0.24	**1.4**
	0.283
	0.24
	0.29

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-6A*
Mean	0.2479	0.3188
Variance	0.1207	0.1559
Observations	9	10
Hypothesized Mean Difference	0	
df	17	
t Stat	-0.4164	
P(T<=t) one-tail	0.3412	
t Critical one-tail	1.740	
P(T<=t) two-tail	0.6823	
t Critical two-tail	2.110	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	2.231	0.2479	0.1207
MW-6A	10	3.188	0.3188	0.1559

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.0238	1	0.0238	0.1710	0.6844	4.451
Within Groups	2.369	17	0.1393			
Total	2.392	18				

NOT SIGNIFICANT

Nickel

BG (MW-4A)	MW-6A
0.16	**0.46**
0.17	
0.25	**0.62**
0.51	0.16
0.099	
2.8	**0.2**
0.437	**0.44**
0.35	**0.18**
0.45	**3.53**
	0.798
	0.35
	0.62

t-Test: Two-Sample Assuming Unequal Variances

	BG (MW-4A)	*MW-6A*
Mean	0.5807	0.7358
Variance	0.7135	1.009
Observations	9	10
Hypothesized Mean Difference	0	
df	17	
t Stat	-0.3655	
P(T<=t) one-tail	0.3596	
t Critical one-tail	1.740	
P(T<=t) two-tail	0.7192	
t Critical two-tail	2.110	

NOT SIGNIFICANT

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
BG (MW-4A)	9	5.226	0.5807	0.7135
MW-6A	10	7.358	0.7358	1.009

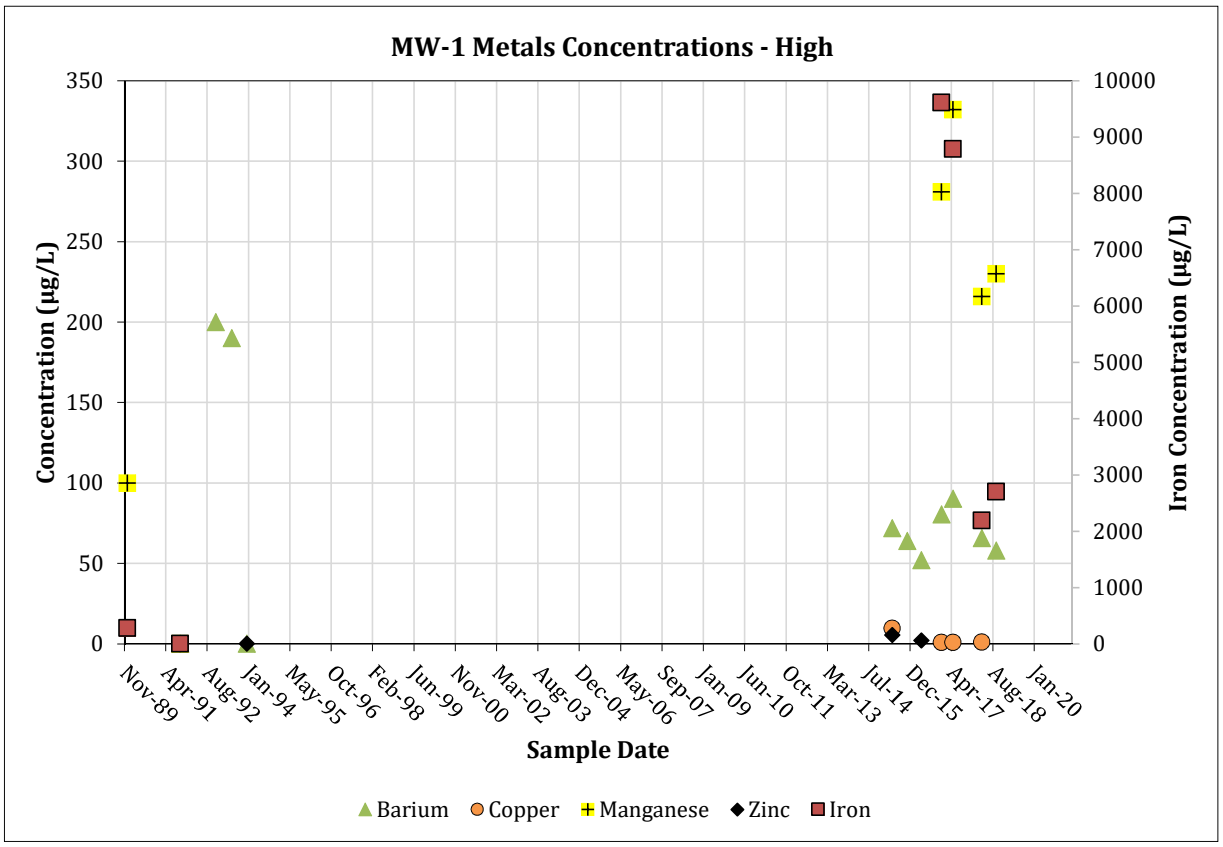
ANOVA

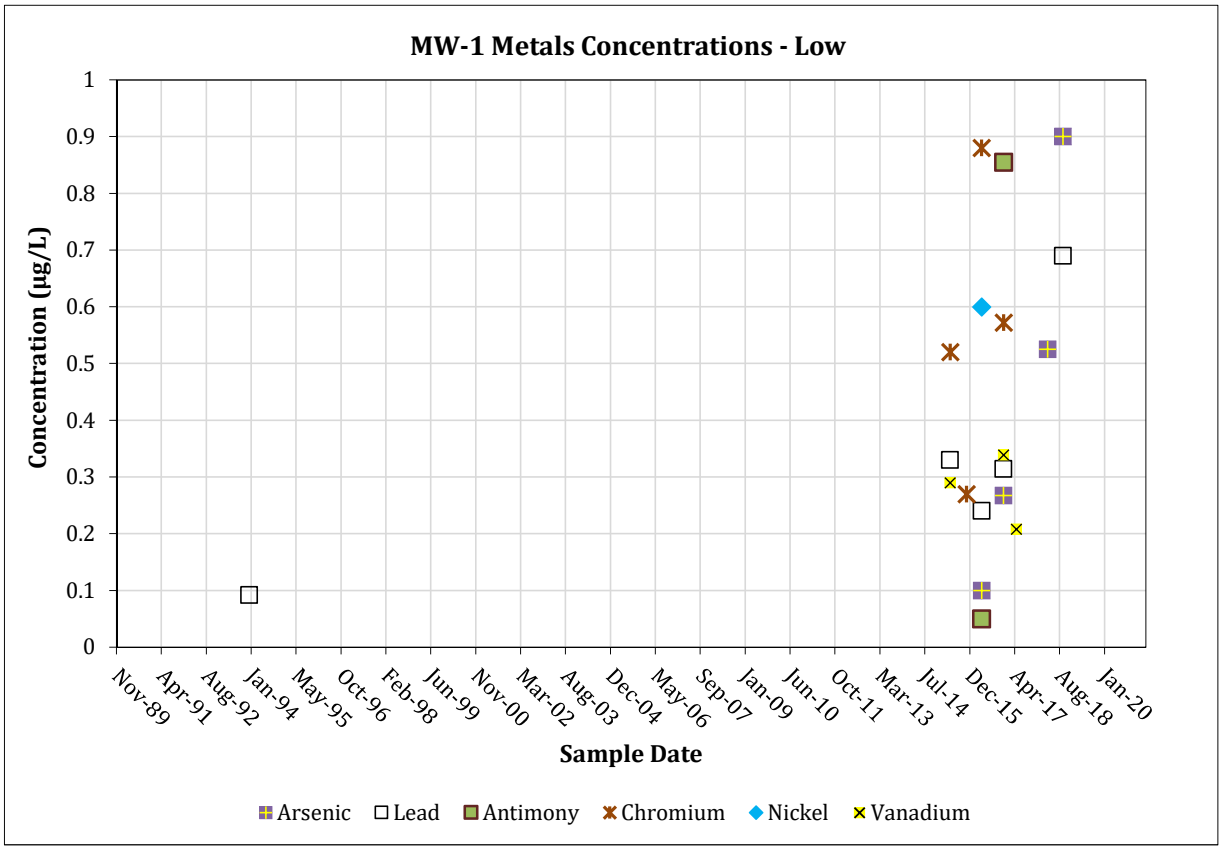
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.1140	1	0.1140	0.1311	0.7218	4.451
Within Groups	14.79	17	0.8698			
Total	14.90	18				

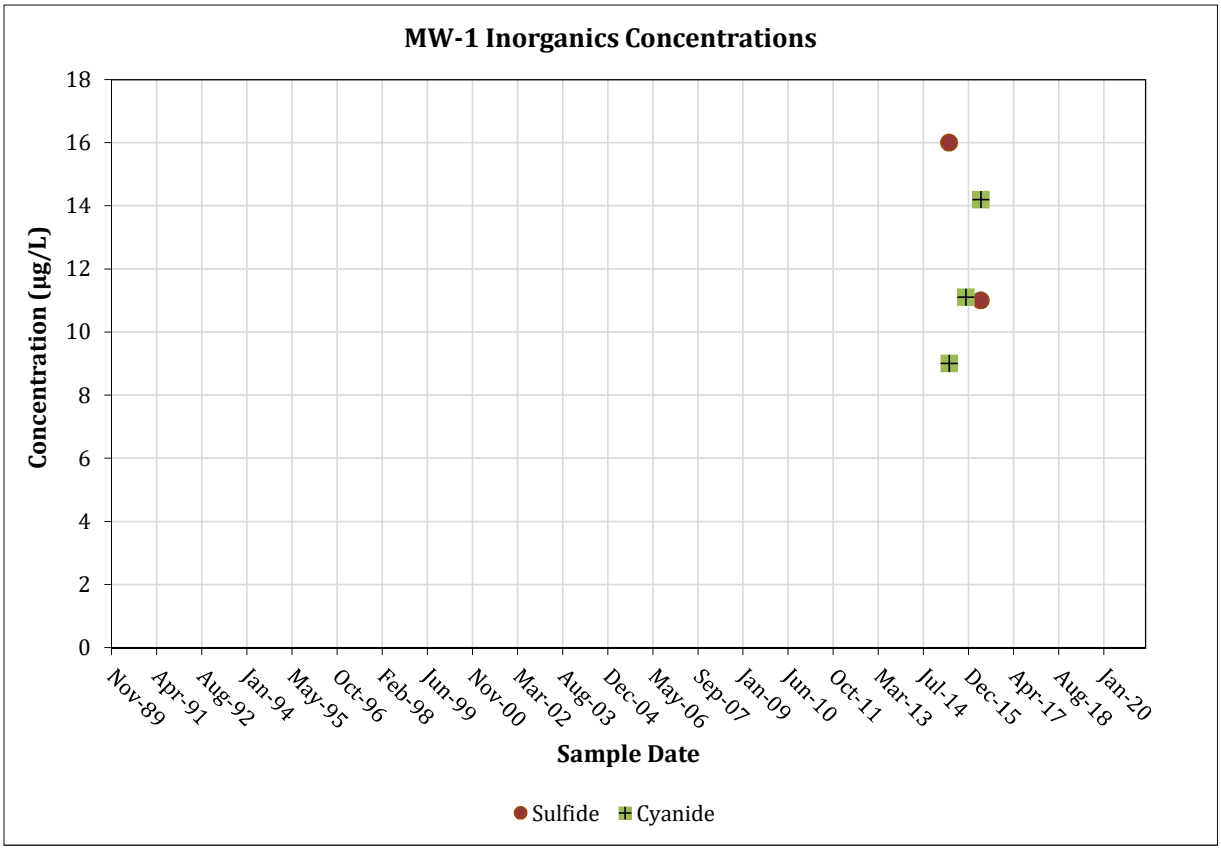
NOT SIGNIFICANT

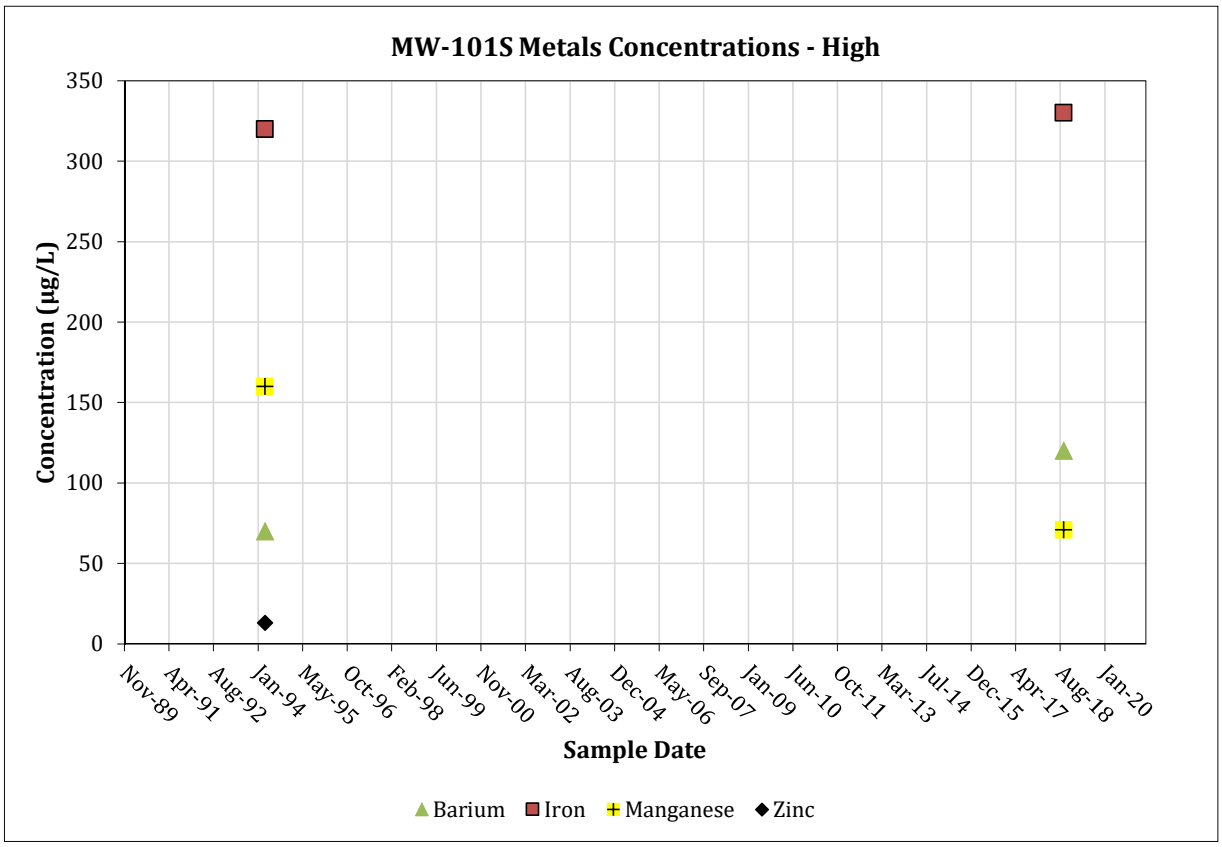
Appendix I

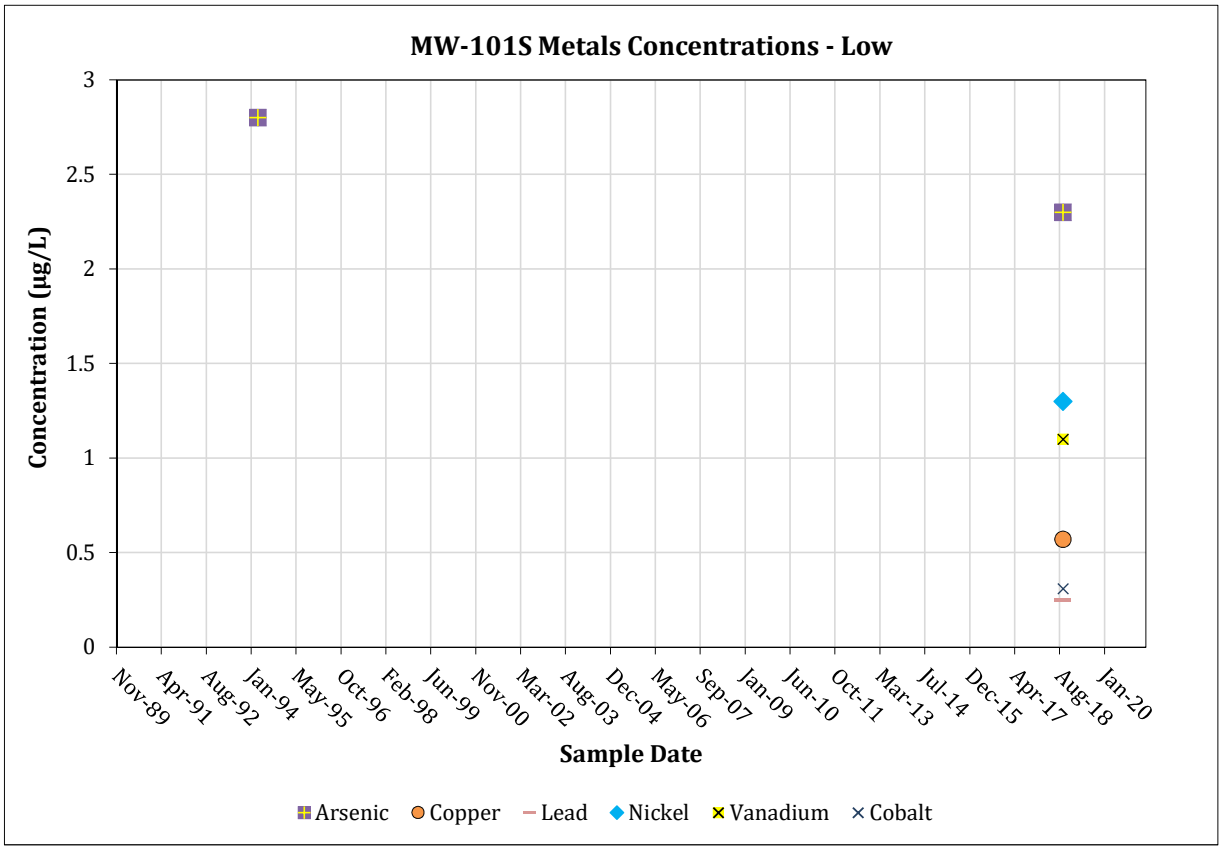
Inorganics Trend Charts for Cell 1 and Offsite Monitoring Wells

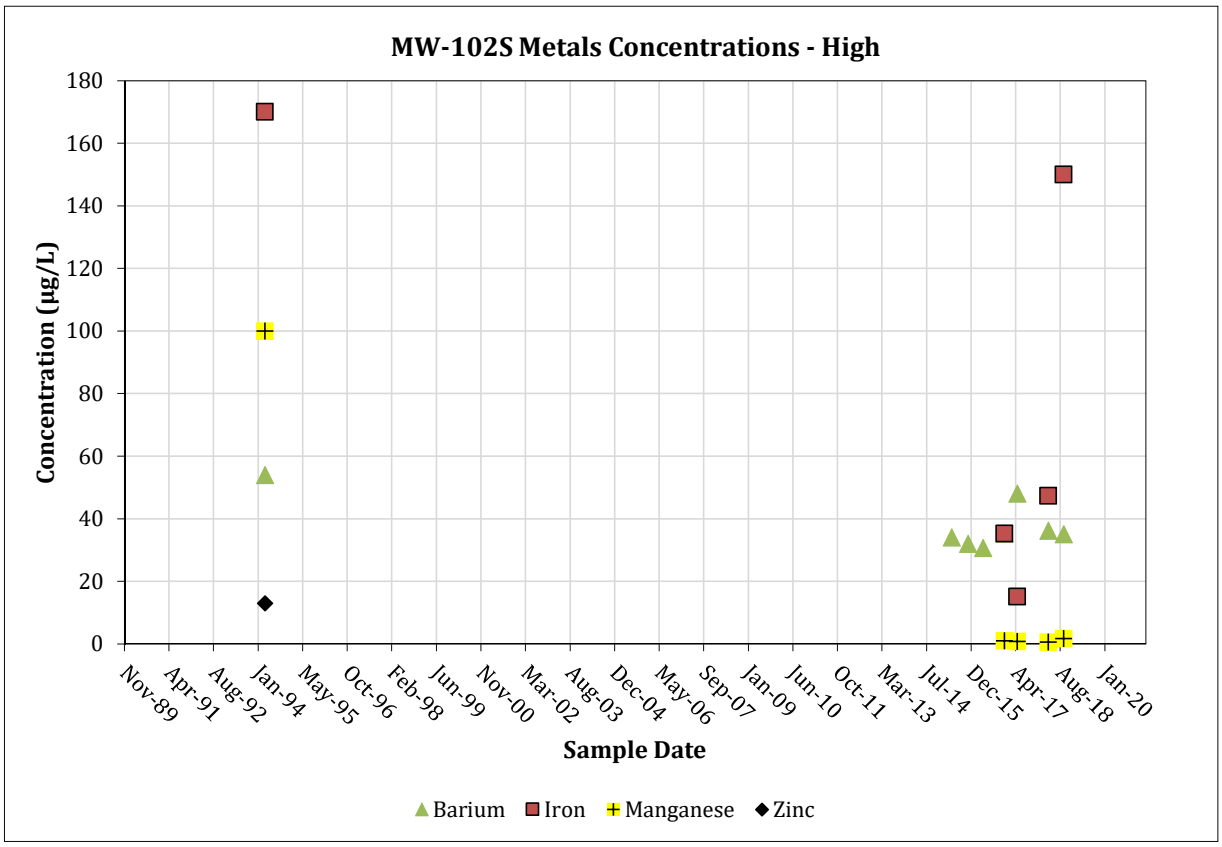

MW-1 Metals Concentrations - High
Concentration (µg/L)
Iron Concentration (µg/L)
Sample Date
Barium
Copper
Manganese
Zinc
Iron

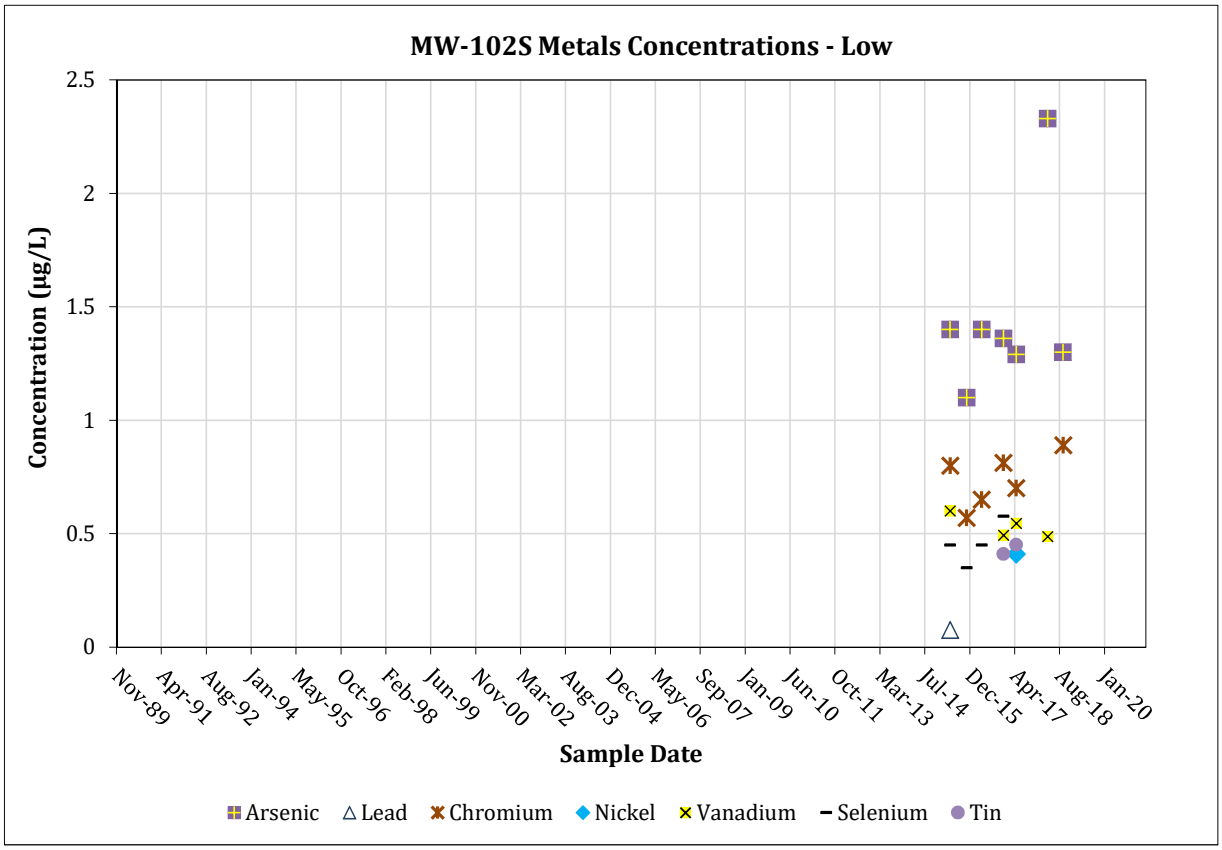

MW-1 Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Arsenic
Lead
Antimony
Chromium
Nickel
Vanadium

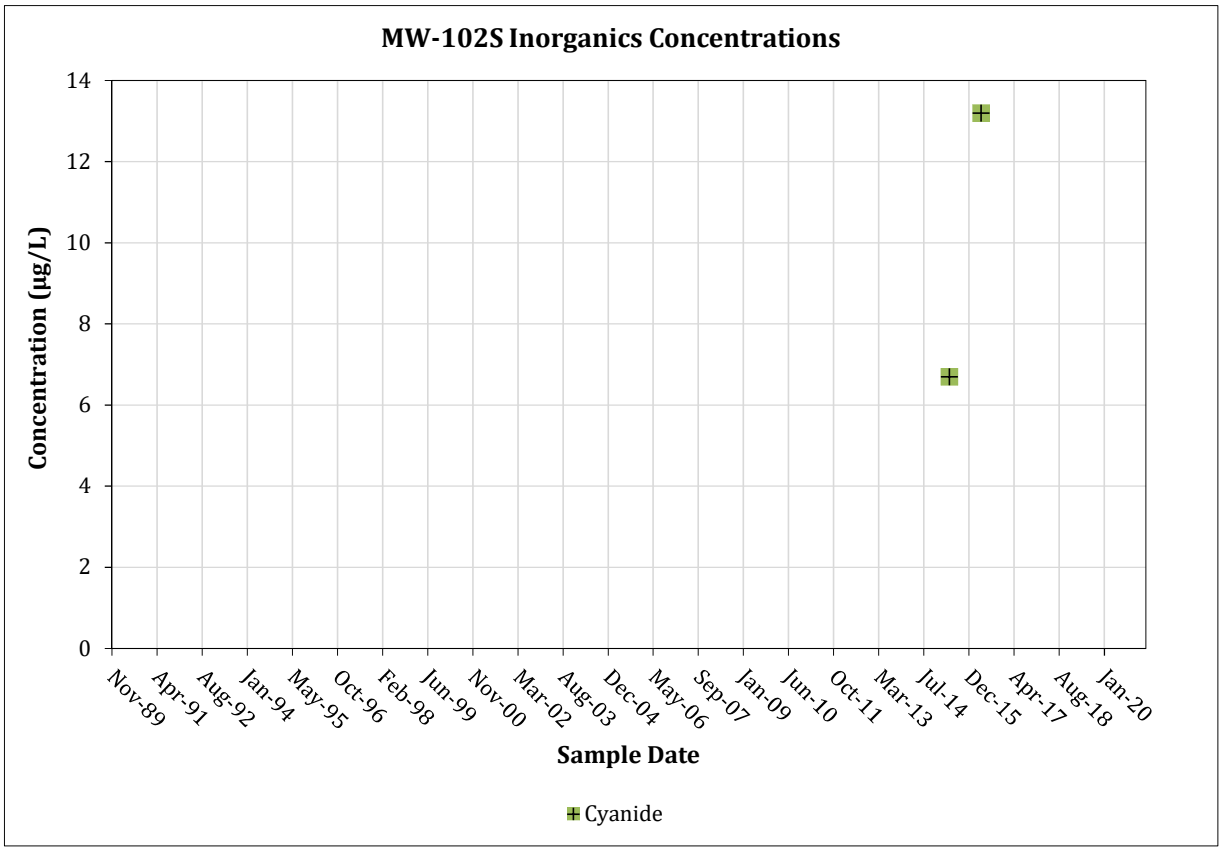

MW-1 Inorganics Concentrations
Concentration (µg/L)
18
16
14
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Sulfide
Cyanide

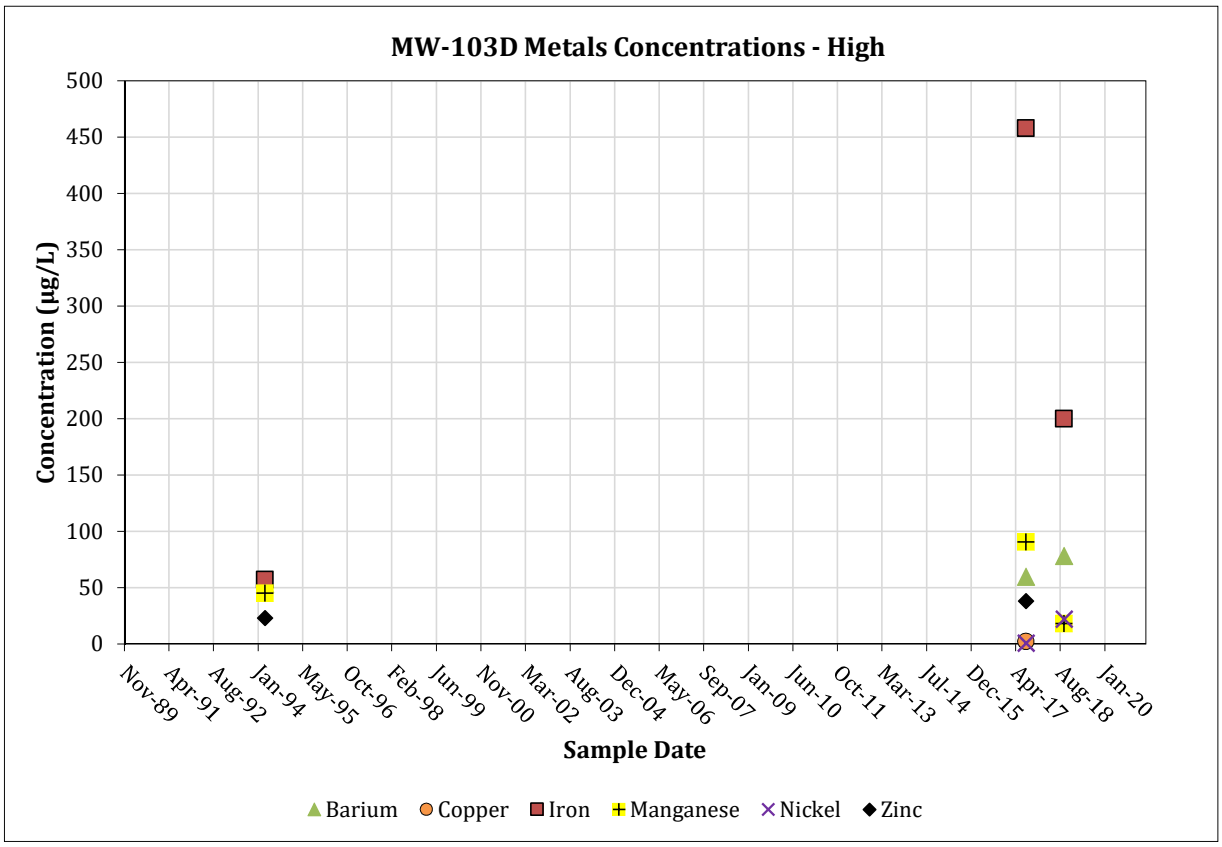

MW-101S Metals Concentrations - High
Concentration (µg/L)
350
300
250
200
150
100
50
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Iron
Manganese
Zinc

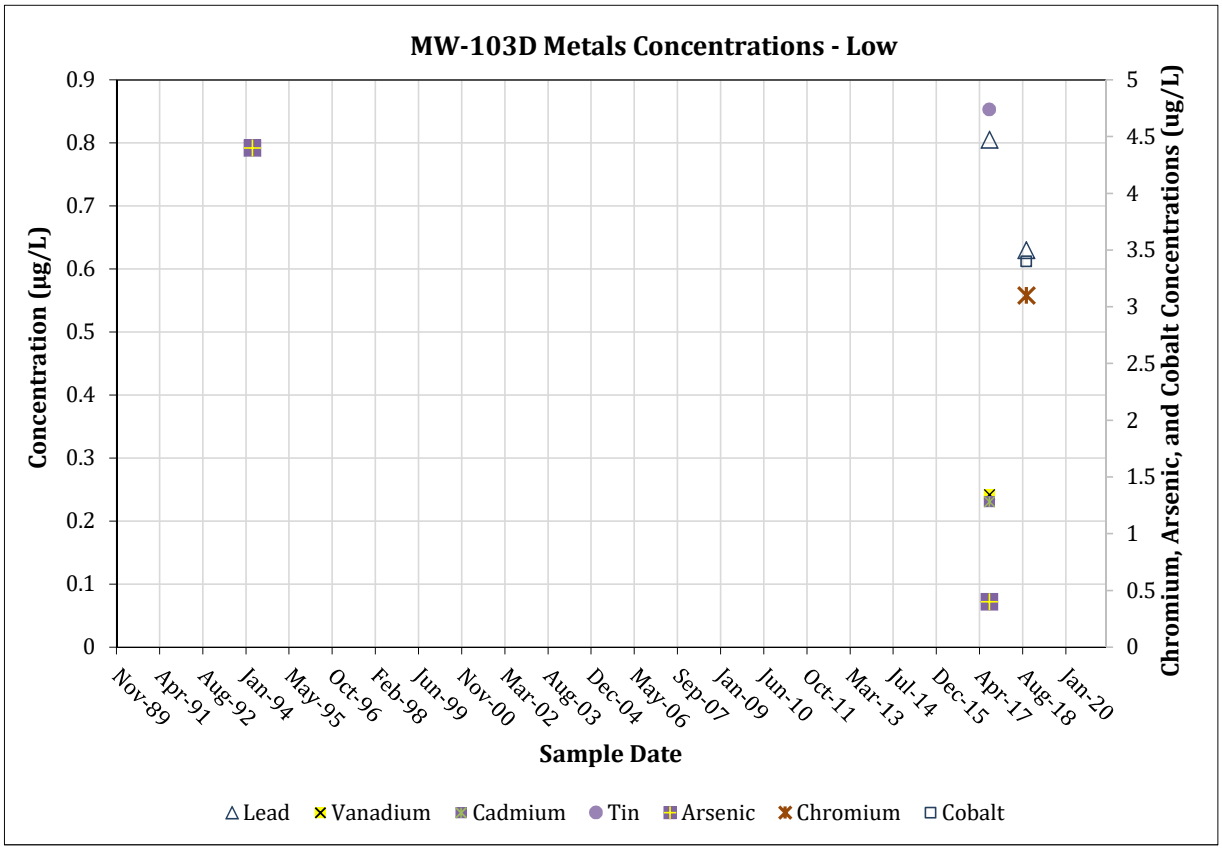

MW-101S Metals Concentrations - Low
Concentration (µg/L)
3
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Copper
Lead
Nickel
Vanadium
Cobalt

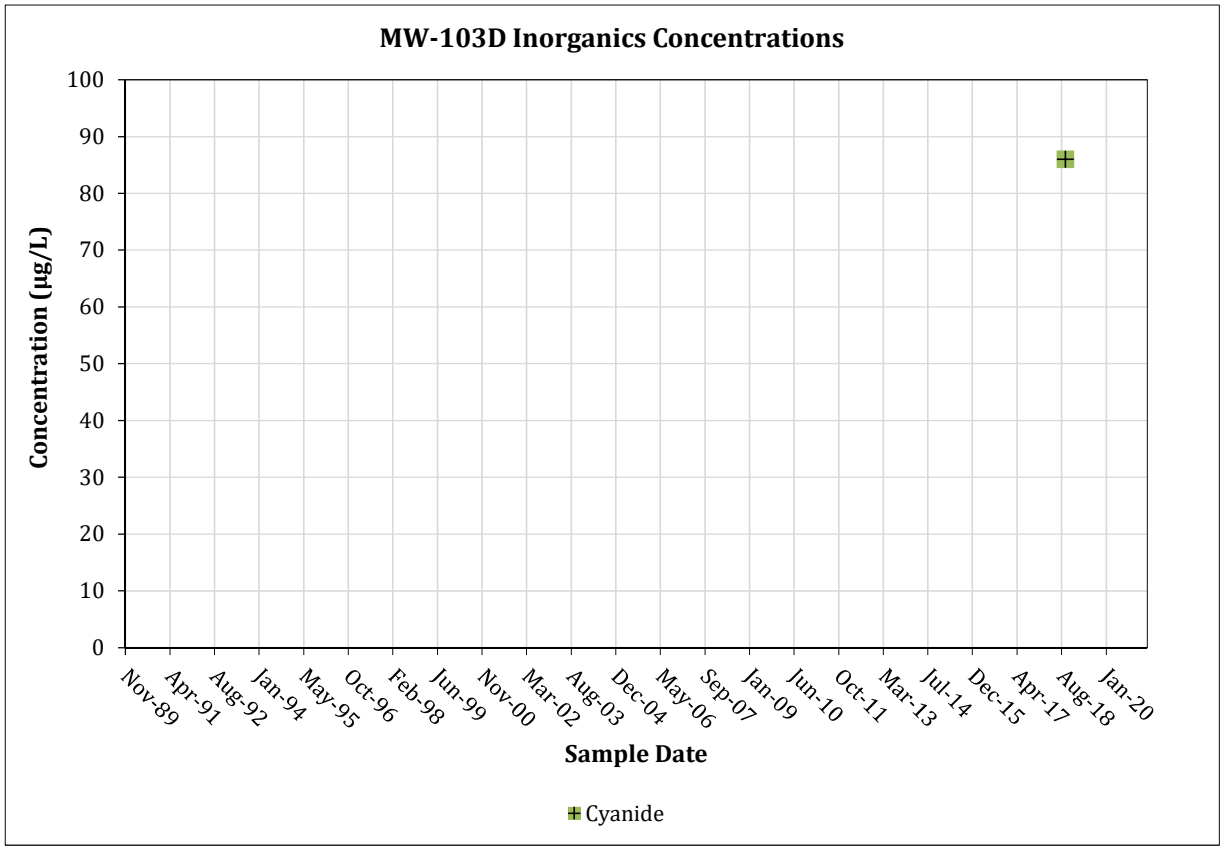

MW-102S Metals Concentrations - High
Concentration (µg/L)
180
160
140
120
100
80
60
40
20
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Iron
Manganese
Zinc

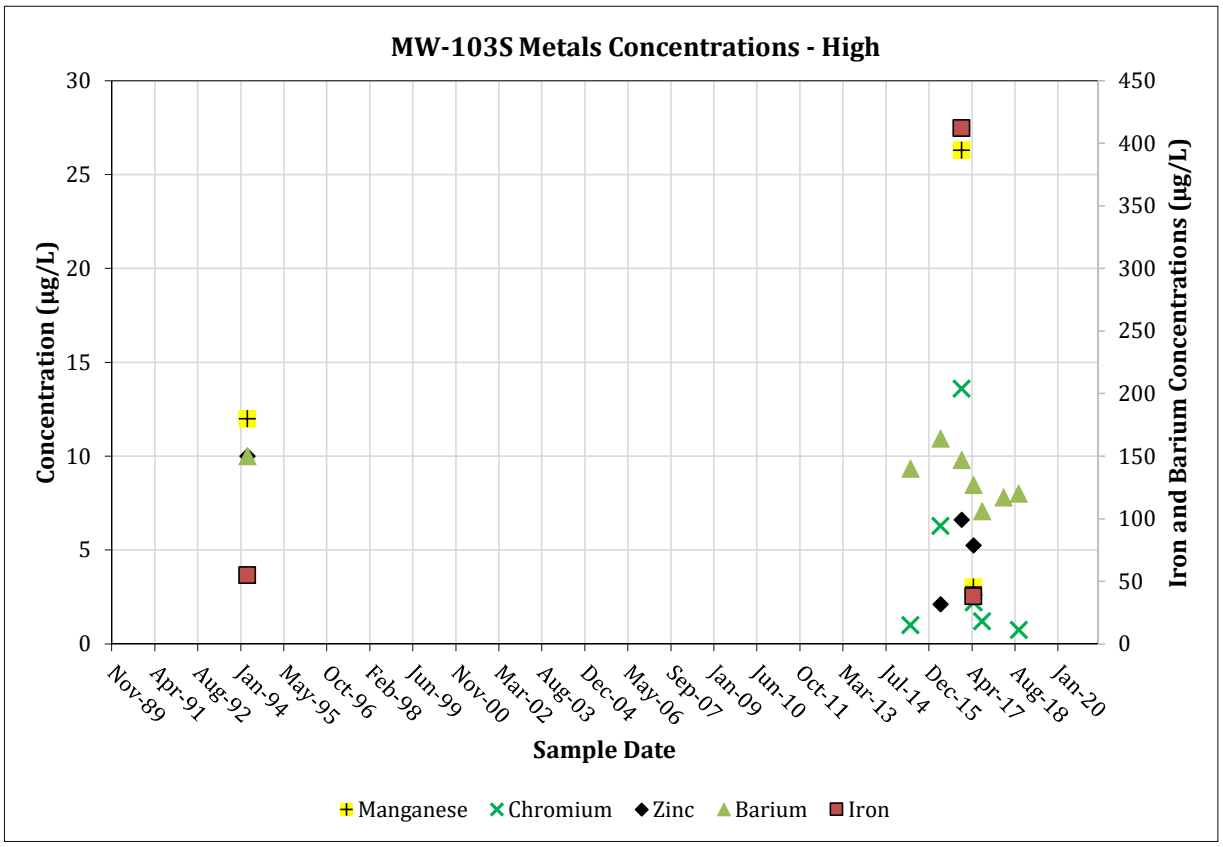

MW-102S Metals Concentrations - Low
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Lead
Chromium
Nickel
Vanadium
Selenium
Tin

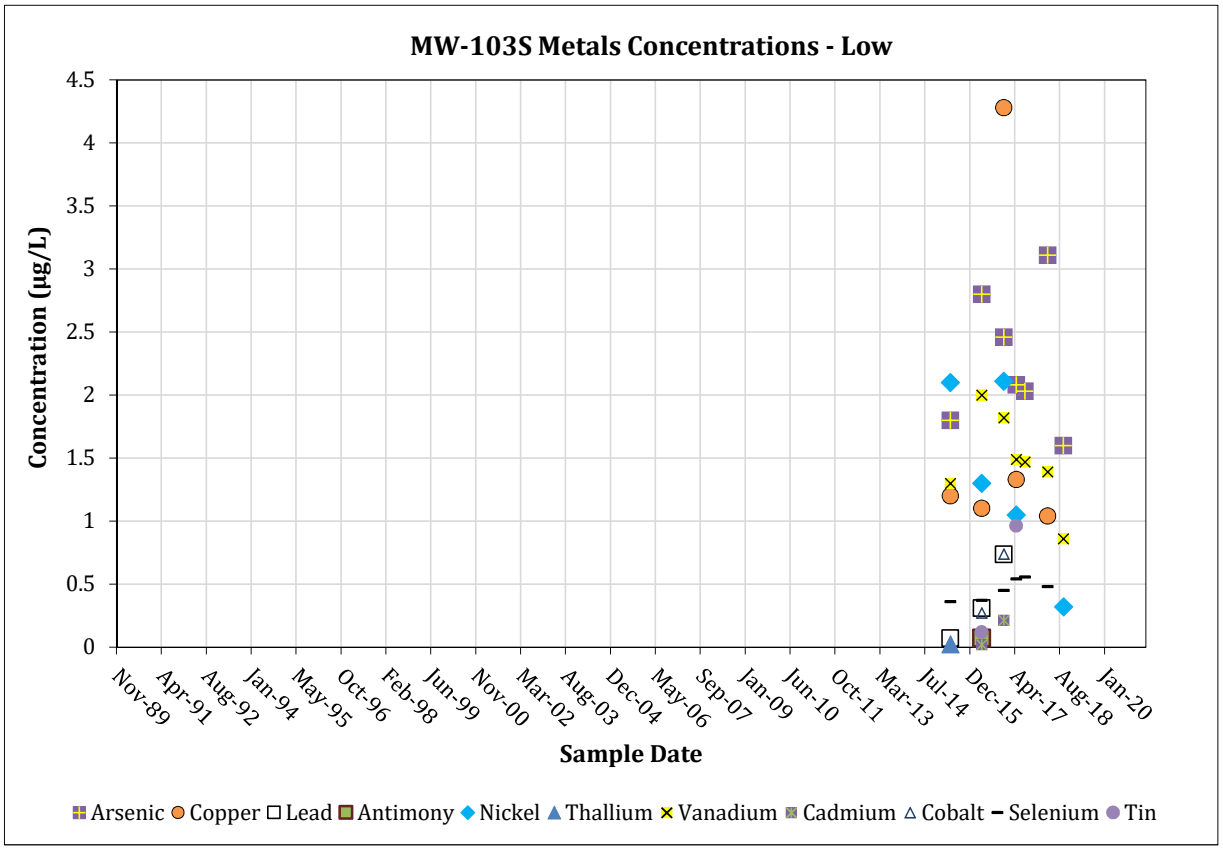

MW-102S Inorganics Concentrations
Concentration (µg/L)
14
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Cyanide

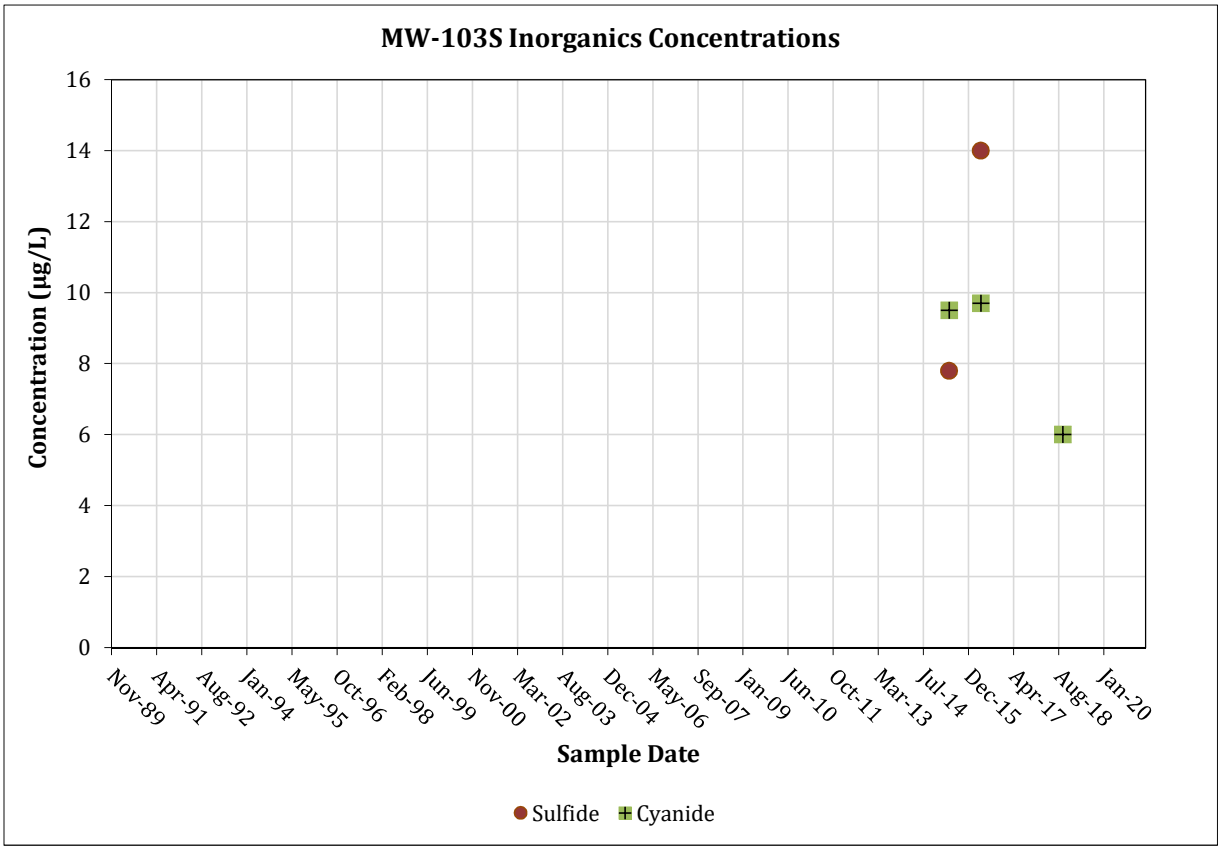

MW-103D Metals Concentrations - High
Concentration (µg/L)
500
450
400
350
300
250
200
150
100
50
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Copper
Iron
Manganese
Nickel
Zinc

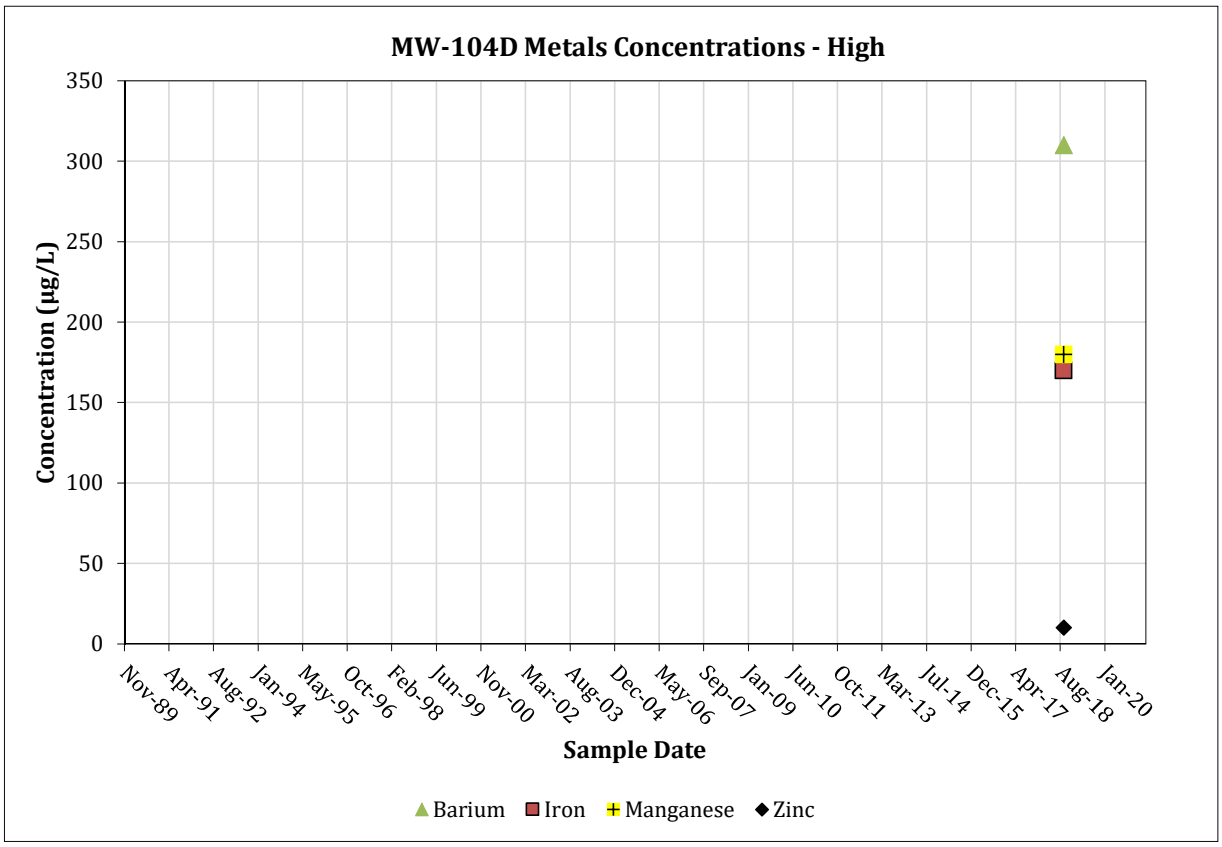

MW-103D Metals Concentrations - Low
Concentration (µg/L)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Chromium, Arsenic, and Cobalt Concentrations (ug/L)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Lead
Vanadium
Cadmium
Tin
Arsenic
Chromium
Cobalt

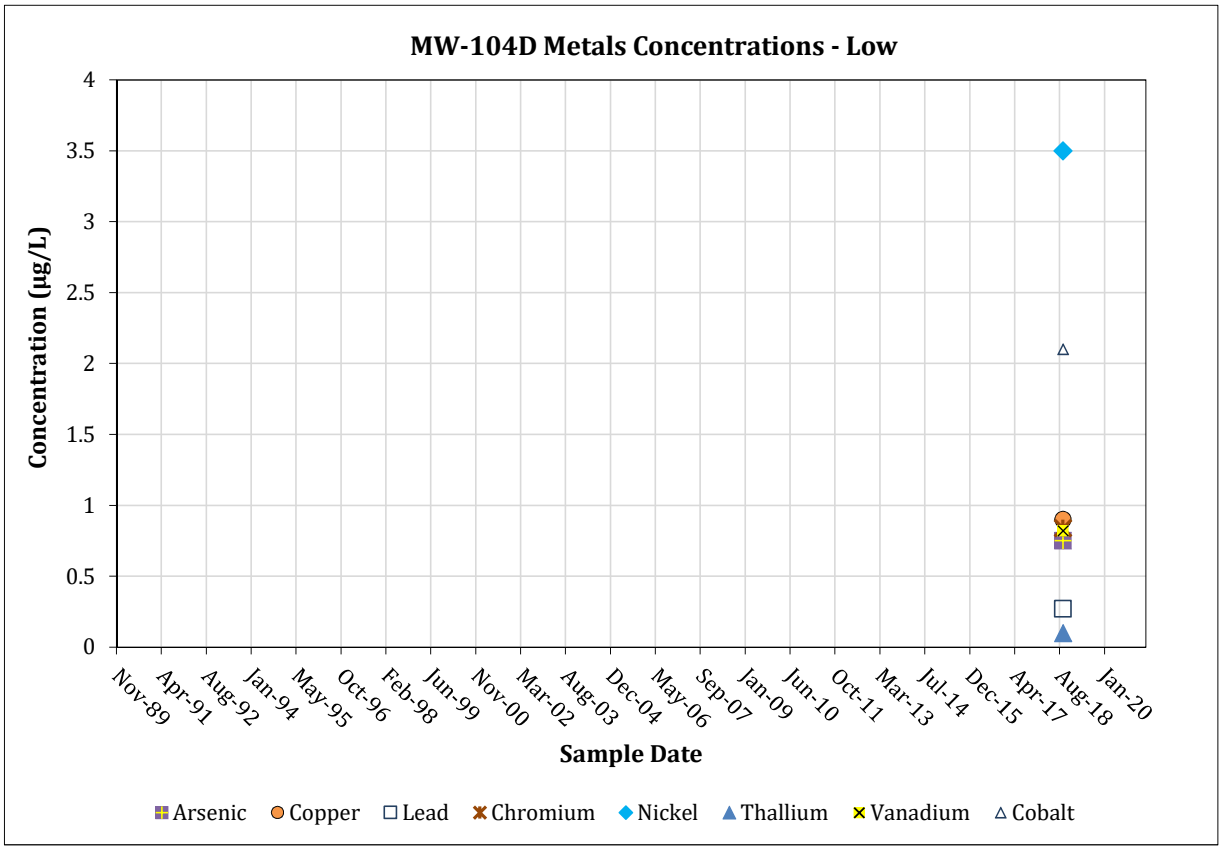

MW-103D Inorganics Concentrations
Concentration (µg/L)
100
90
80
70
60
50
40
30
20
10
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Cyanide

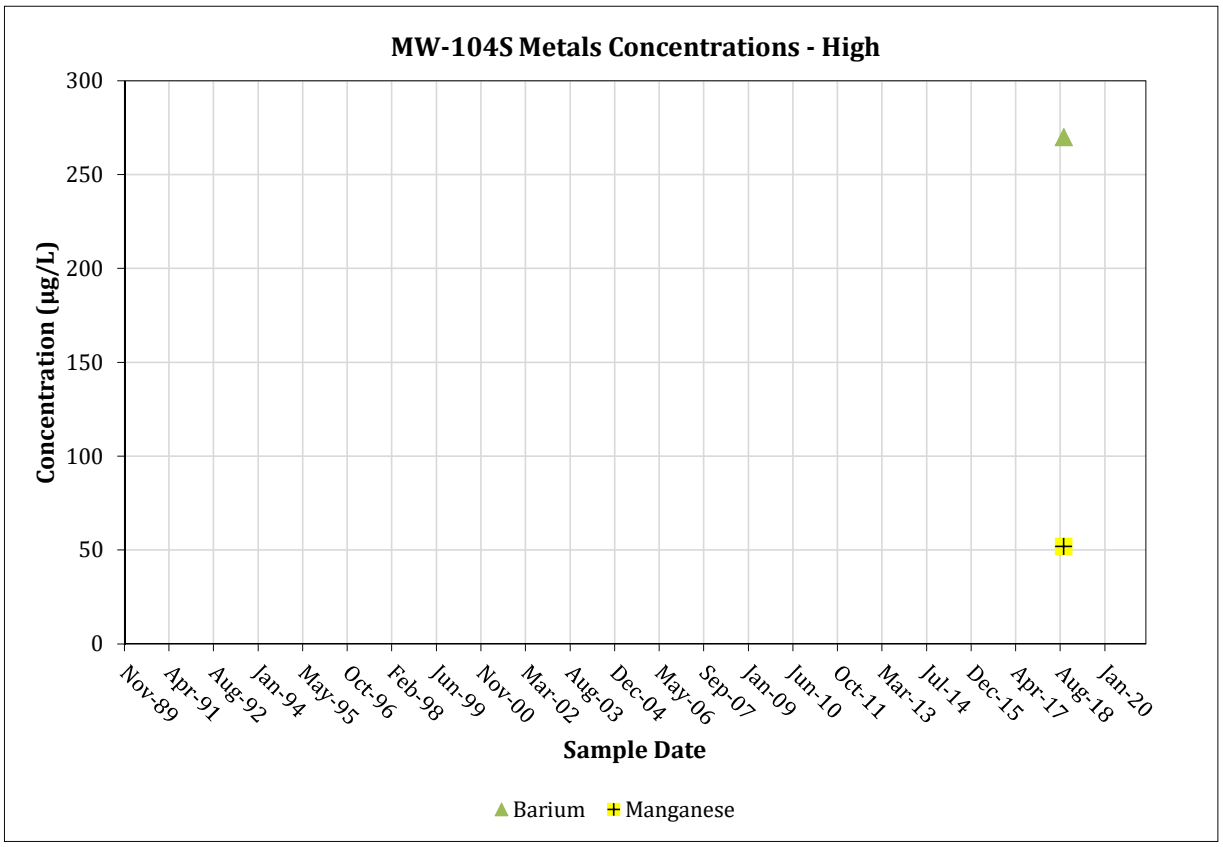

MW-103S Metals Concentrations - High
Concentration (µg/L)
Iron and Barium Concentrations (µg/L)
Sample Date
Manganese
Chromium
Zinc
Barium
Iron

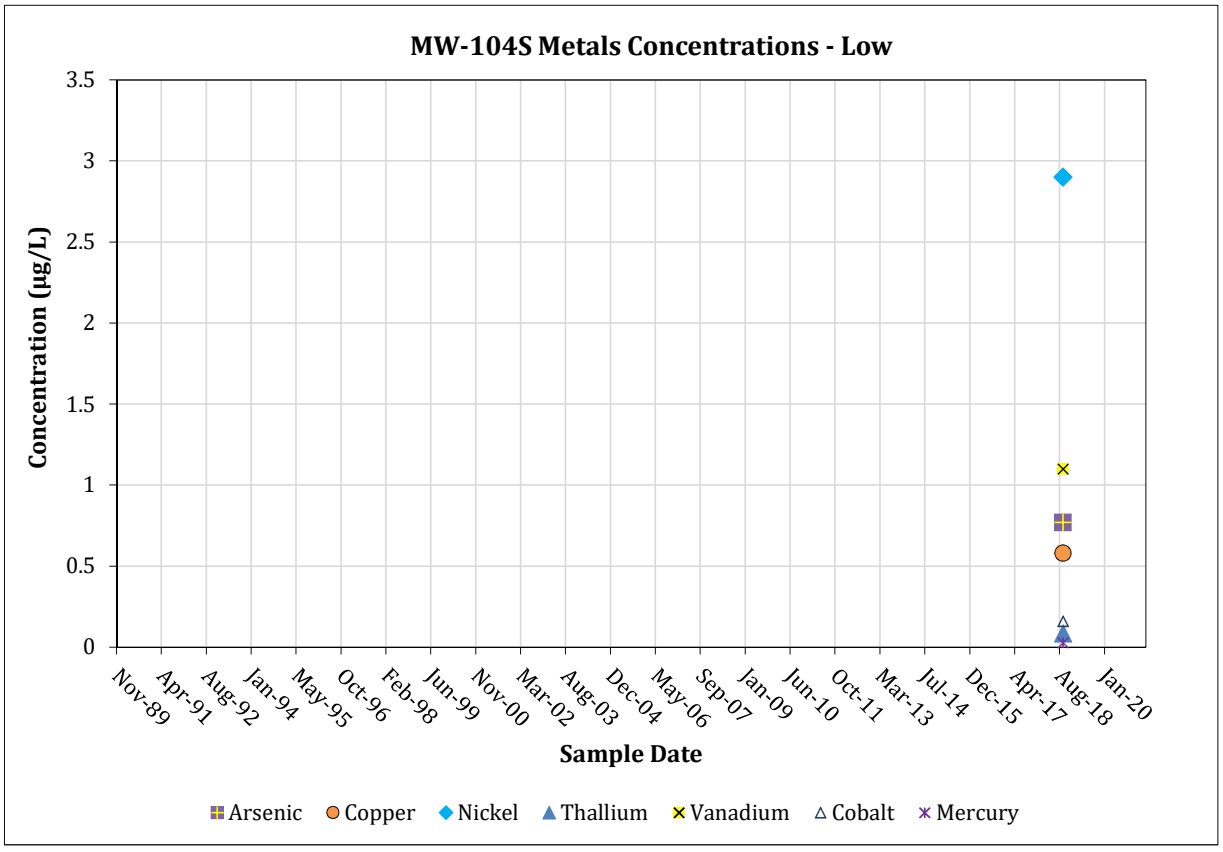

MW-103S Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Arsenic
Copper
Lead
Antimony
Nickel
Thallium
Vanadium
Cadmium
Cobalt
Selenium
Tin

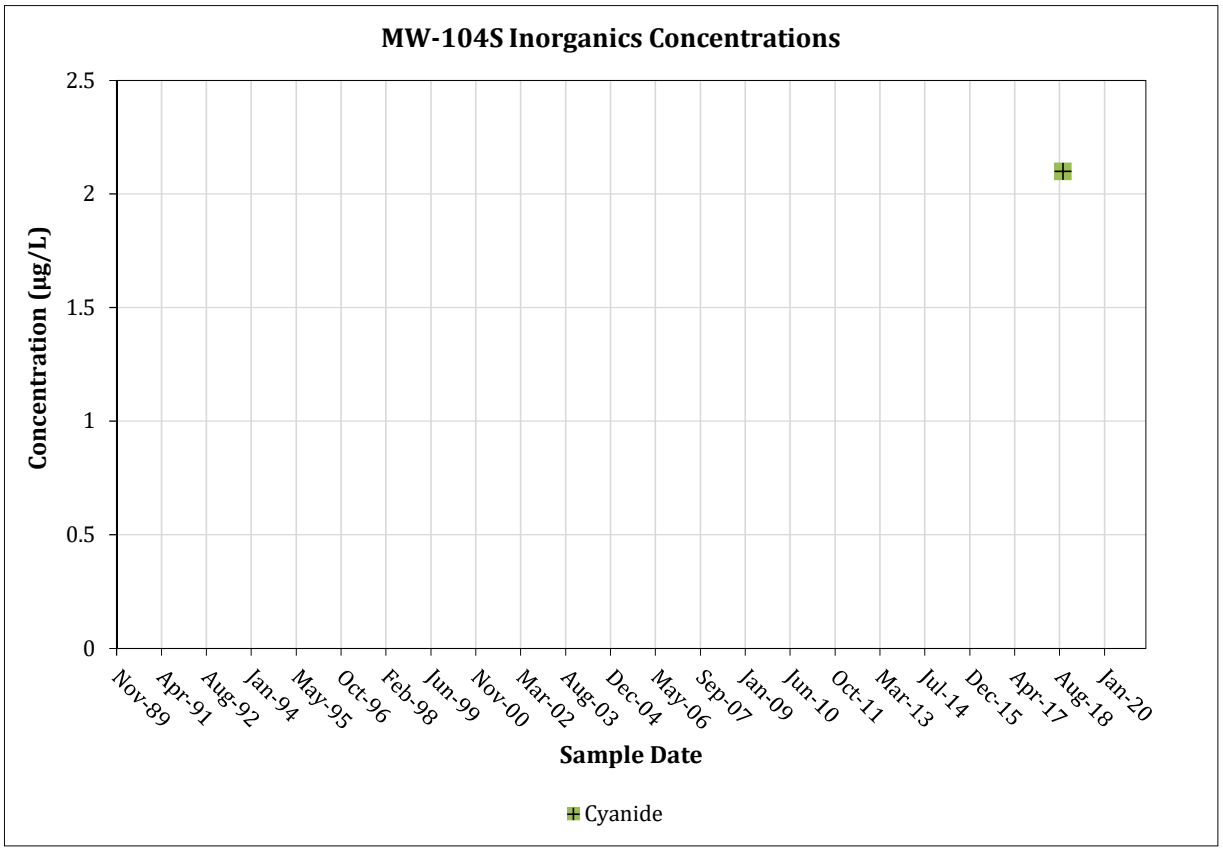

MW-103S Inorganics Concentrations
Concentration (µg/L)
16
14
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Sulfide
Cyanide

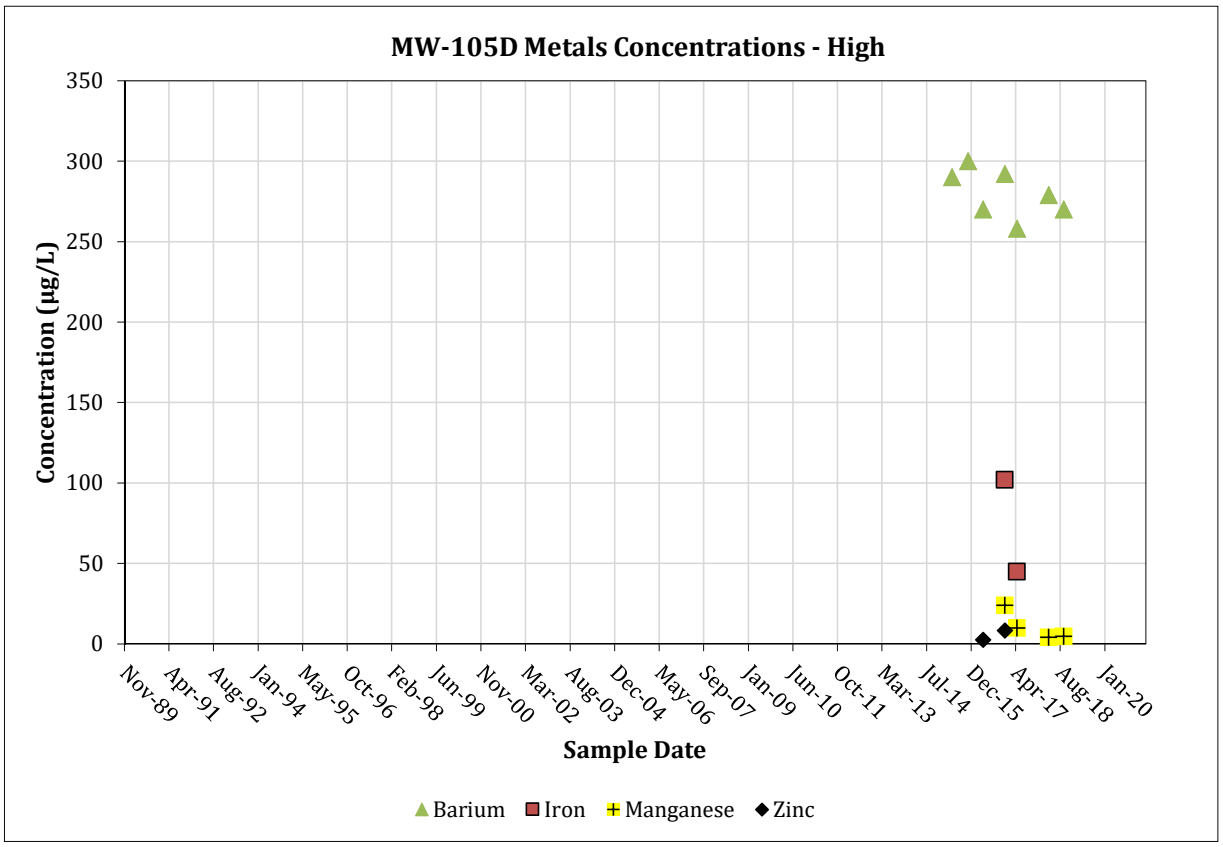

MW-104D Metals Concentrations - High
Concentration (µg/L)
350
300
250
200
150
100
50
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Iron
Manganese
Zinc

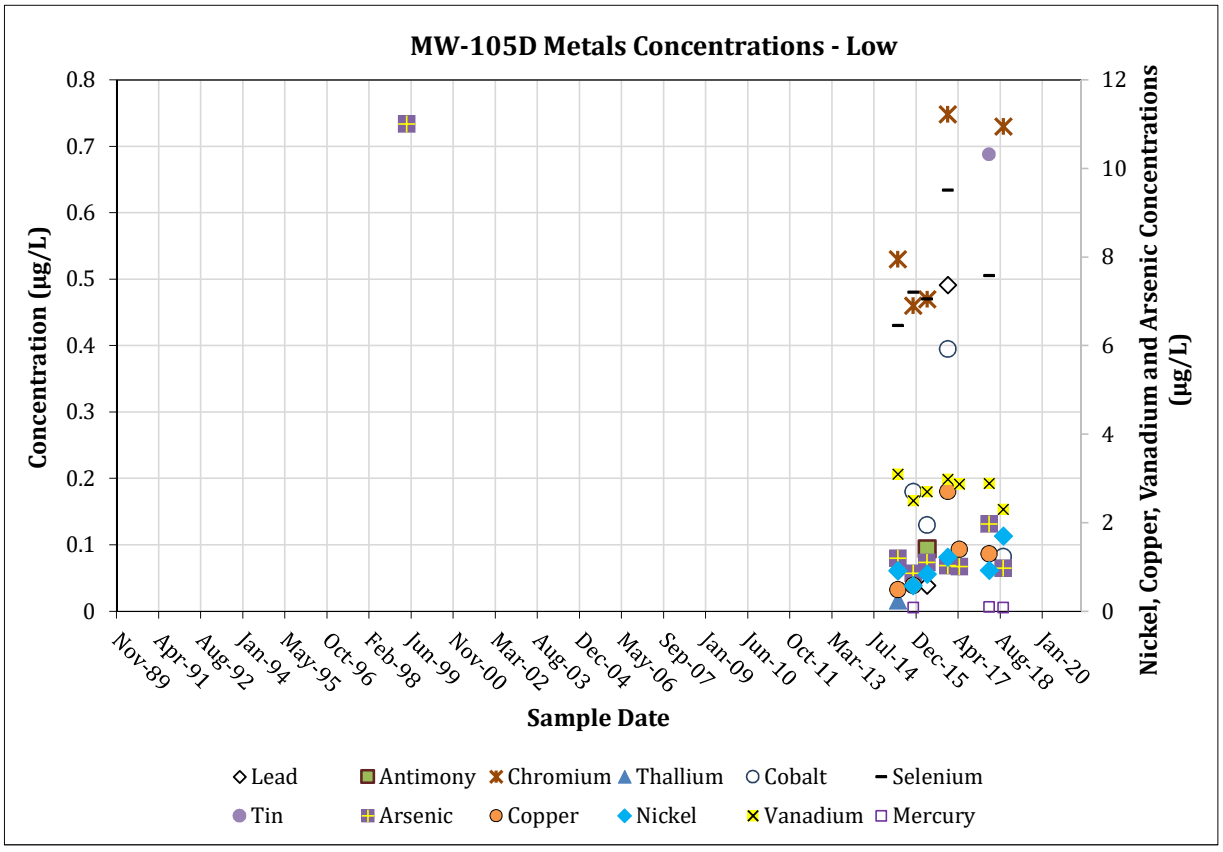

MW-104D Metals Concentrations - Low
Concentration (µg/L)
4
3.5
3
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Copper
Lead
Chromium
Nickel
Thallium
Vanadium
Cobalt

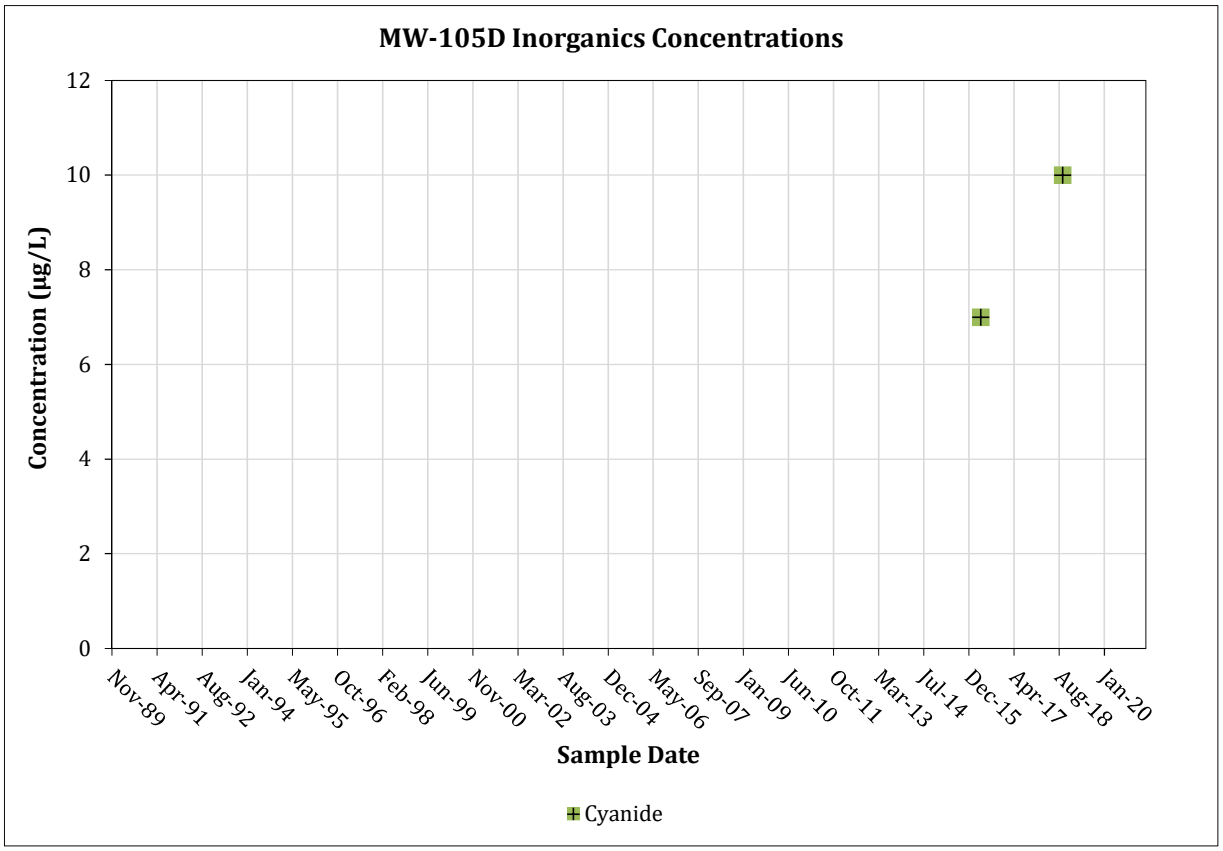

MW-104S Metals Concentrations - High
Concentration (µg/L)
300
250
200
150
100
50
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Manganese

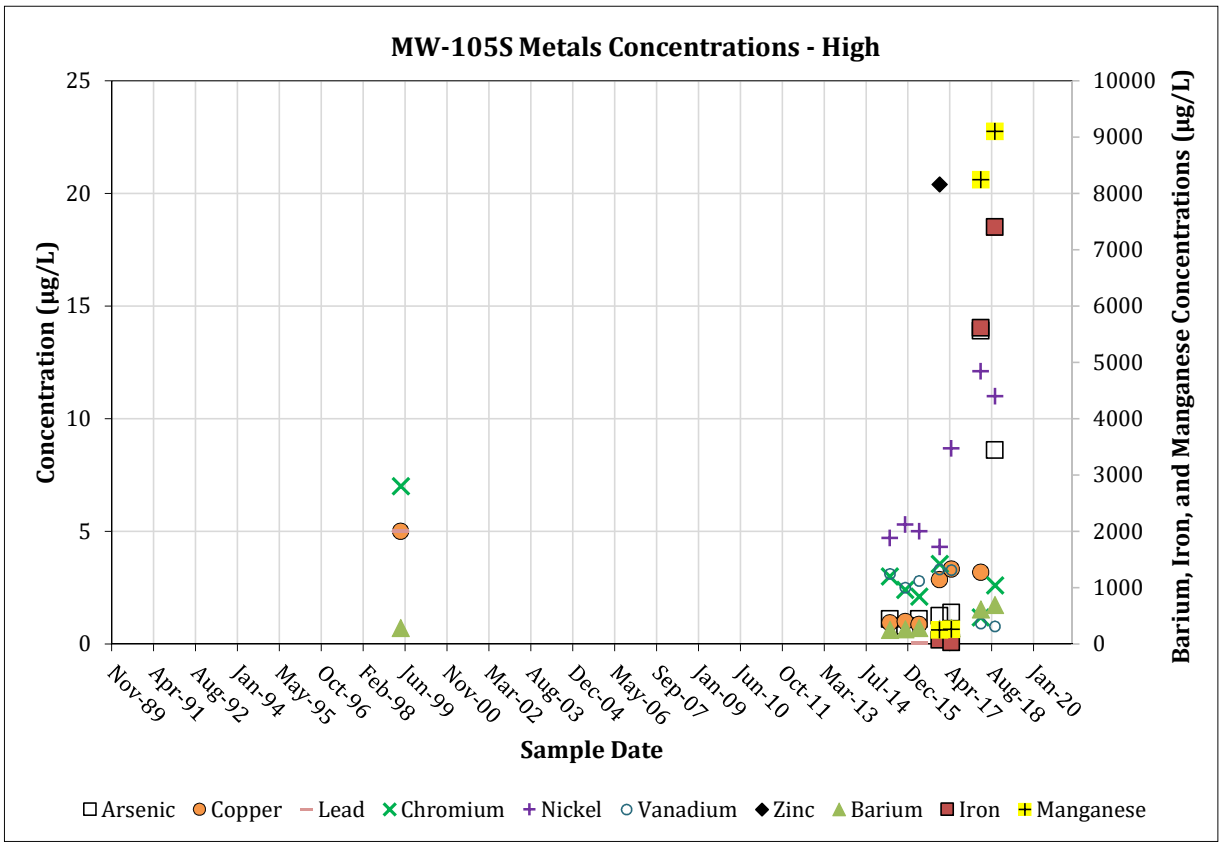

MW-104S Metals Concentrations - Low
Concentration (µg/L)
3.5
3
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Copper
Nickel
Thallium
Vanadium
Cobalt
Mercury

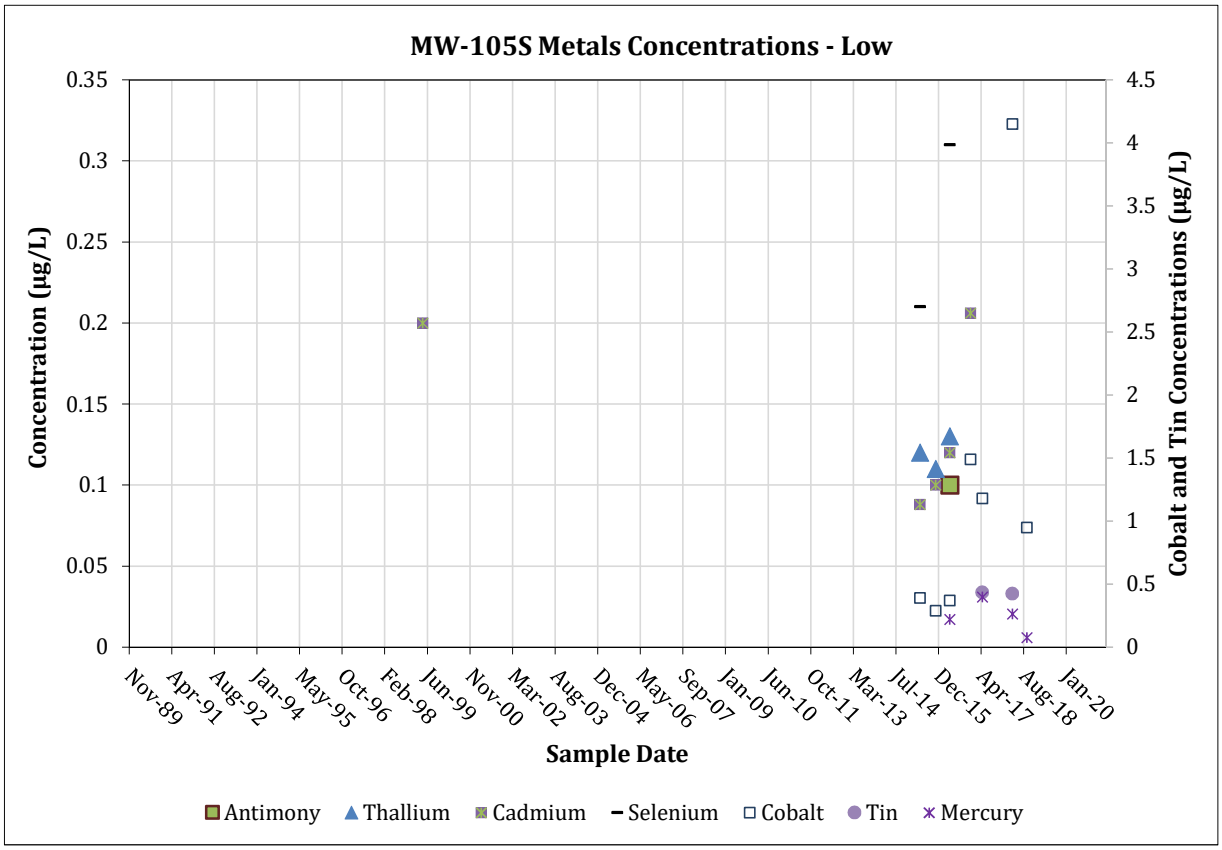

MW-104S Inorganics Concentrations
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Cyanide

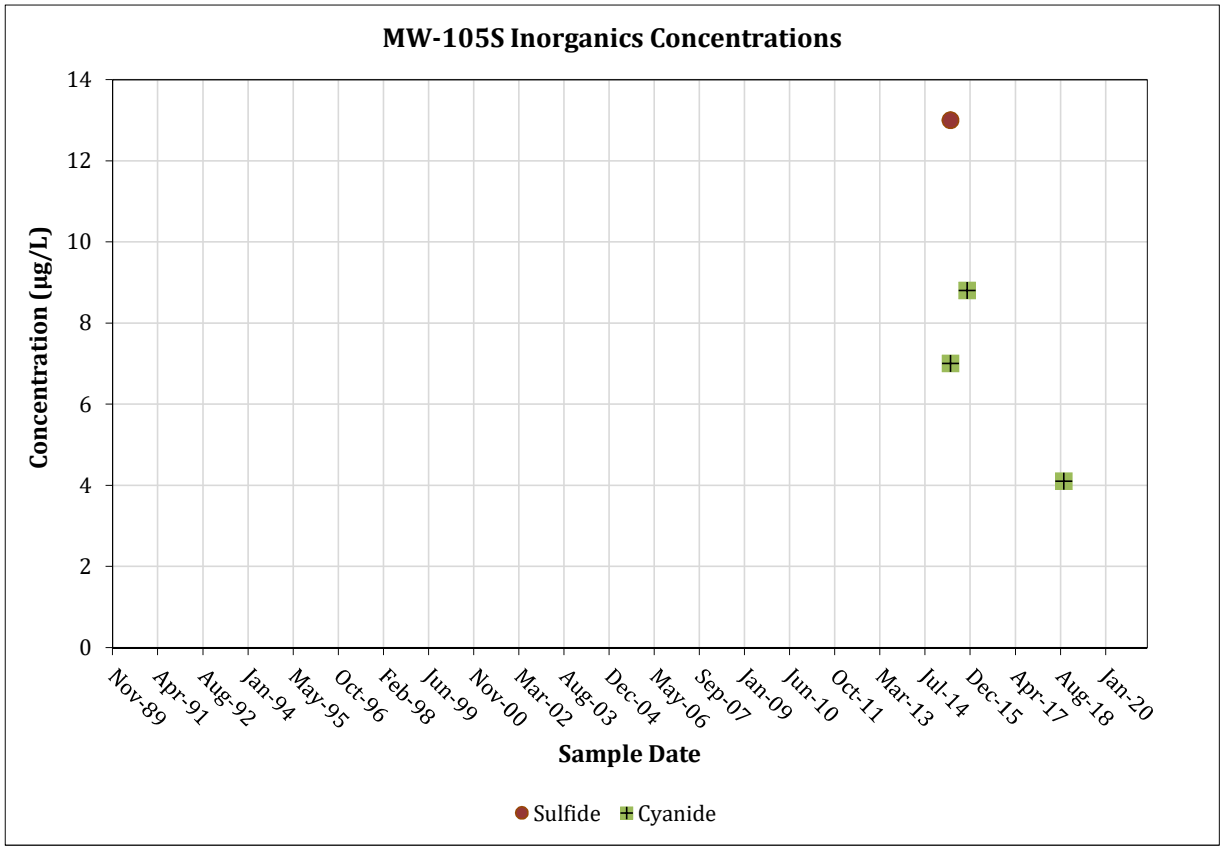

MW-105D Metals Concentrations - High
Concentration (µg/L)
350
300
250
200
150
100
50
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Iron
Manganese
Zinc

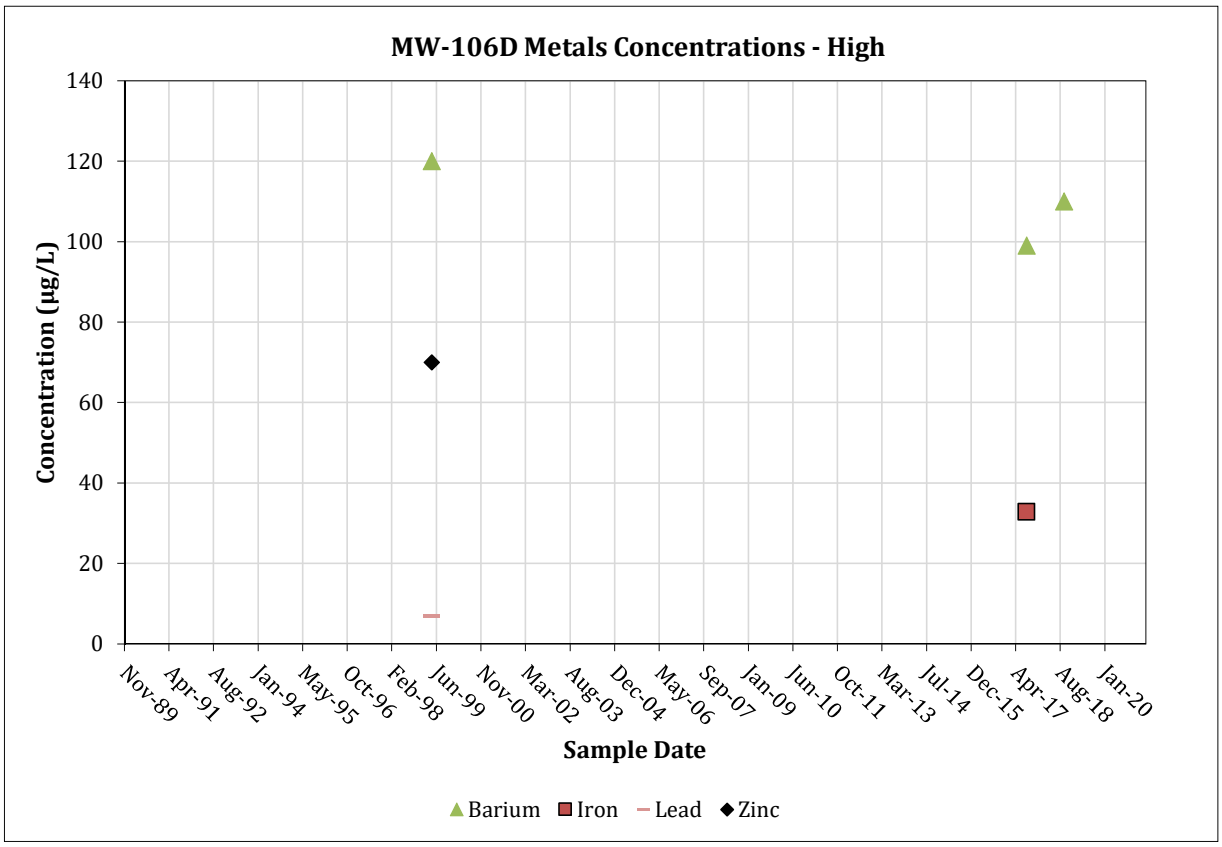

MW-105D Metals Concentrations - Low
Concentration (µg/L)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Nickel, Copper, Vanadium and Arsenic Concentrations (µg/L)
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Lead
Antimony
Chromium
Thallium
Cobalt
Selenium
Tin
Arsenic
Copper
Nickel
Vanadium
Mercury

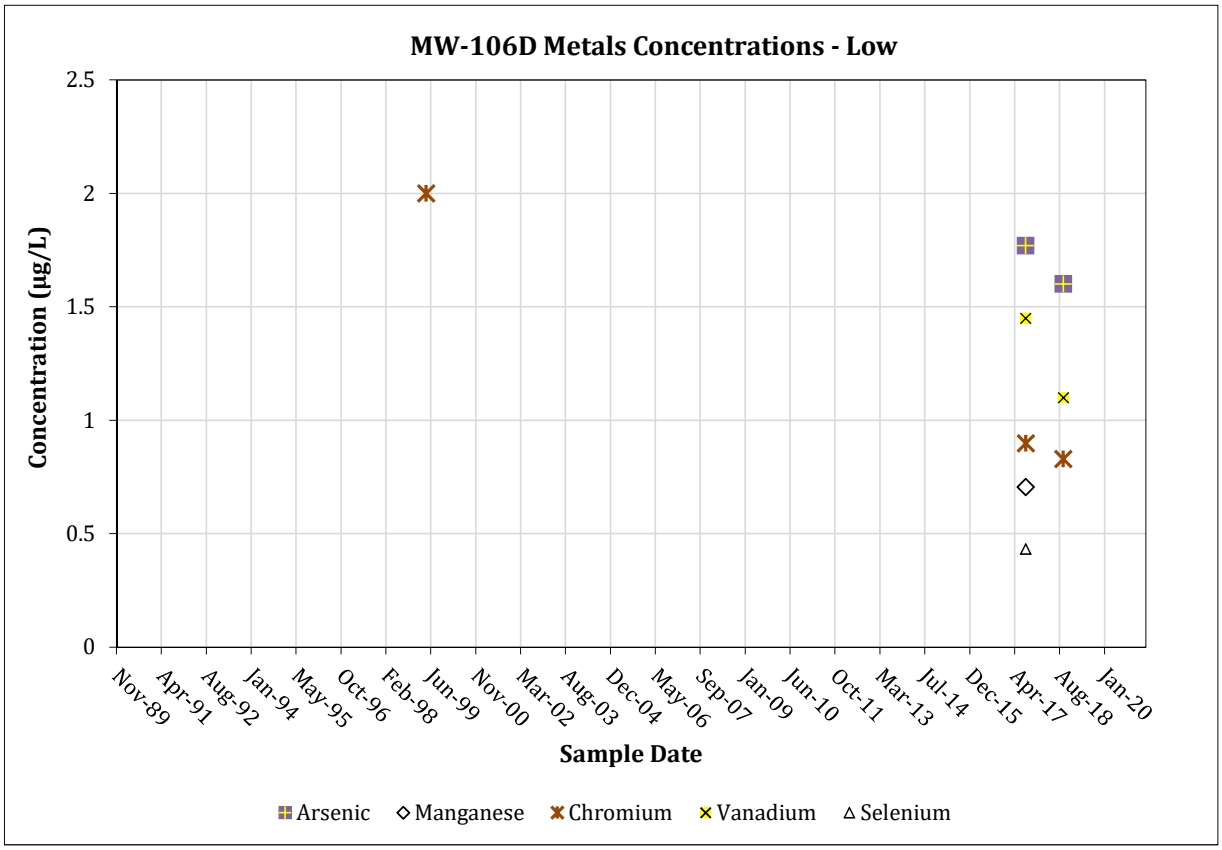

MW-105D Inorganics Concentrations
Concentration (µg/L)
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Cyanide

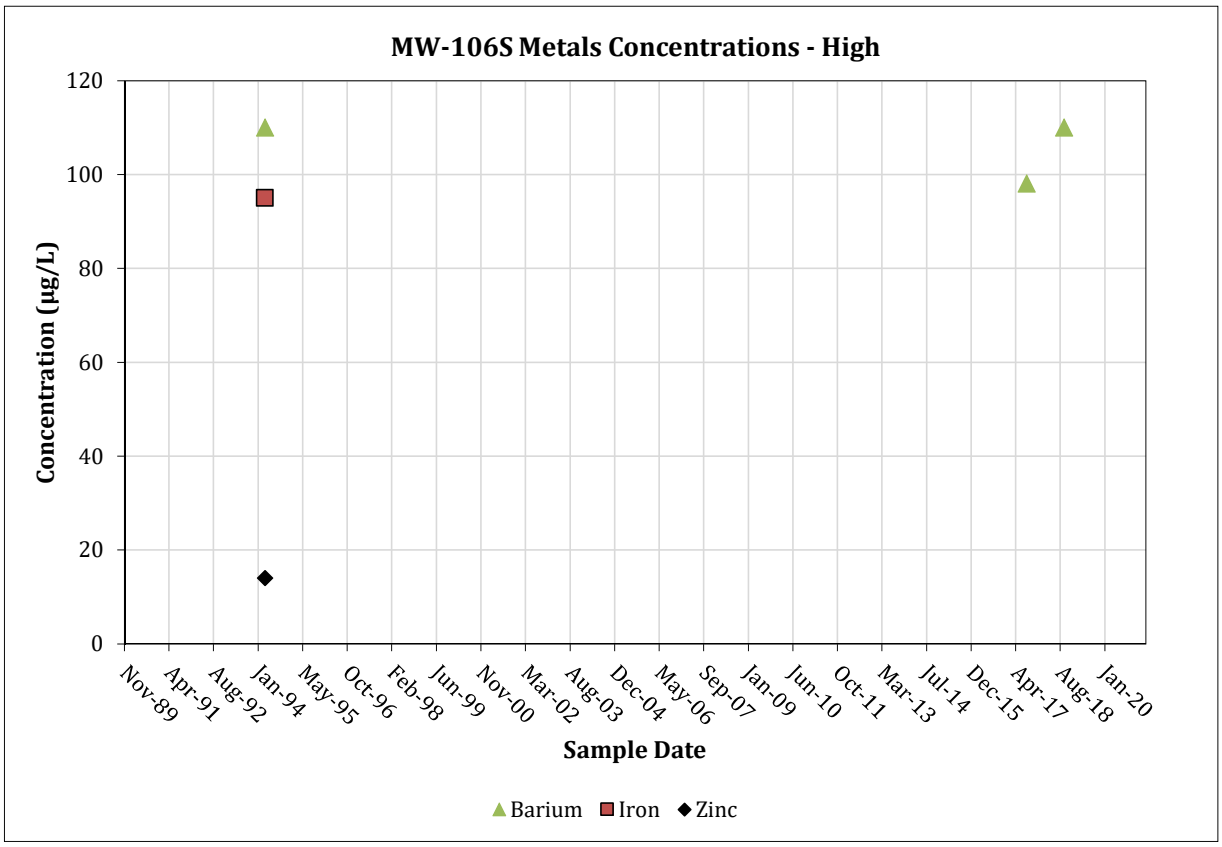

MW-105S Metals Concentrations - High
Concentration (µg/L)
Barium, Iron, and Manganese Concentrations (µg/L)
Sample Date
Arsenic
Copper
Lead
Chromium
Nickel
Vanadium
Zinc
Barium
Iron
Manganese

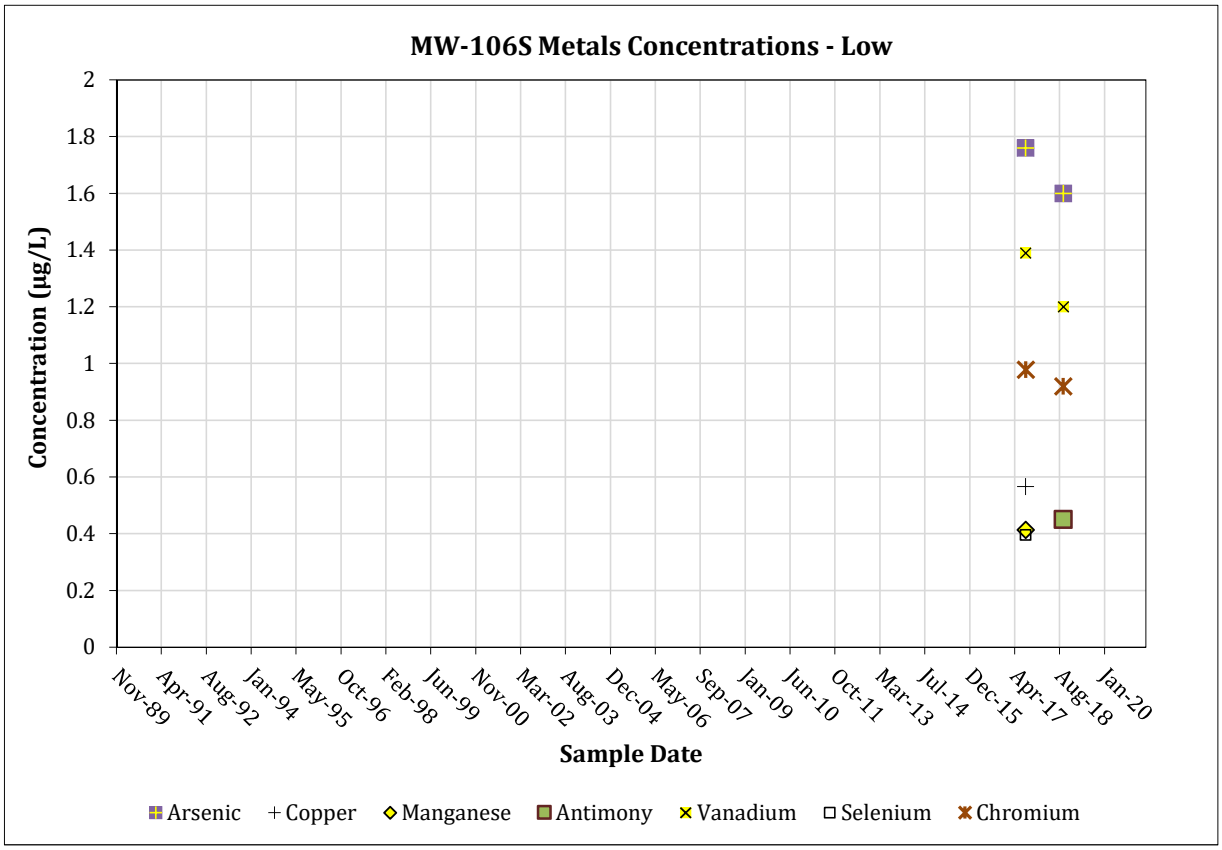

MW-105S Metals Concentrations - Low
Concentration (µg/L)
Cobalt and Tin Concentrations (µg/L)
Sample Date
Antimony
Thallium
Cadmium
Selenium
Cobalt
Tin
Mercury

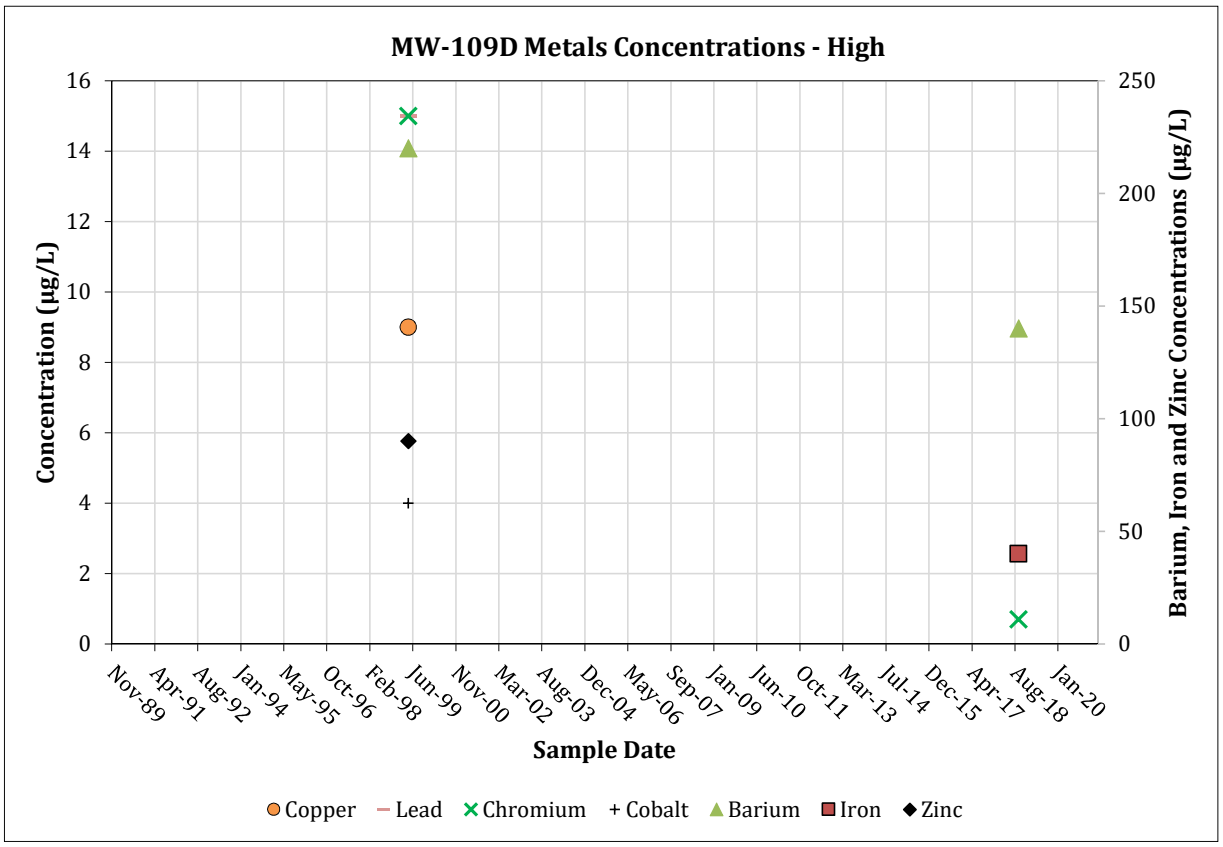

MW-105S Inorganics Concentrations
Concentration (µg/L)
14
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Sulfide
Cyanide

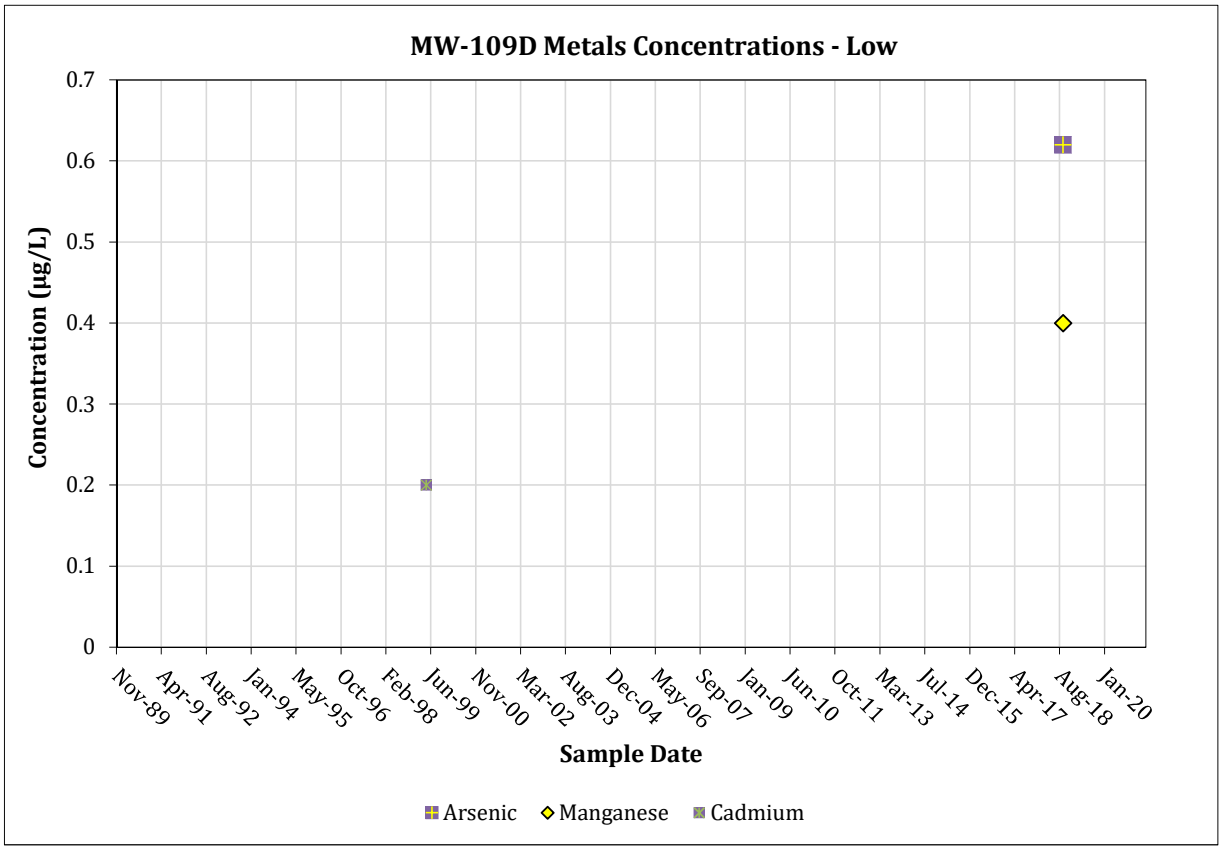

MW-106D Metals Concentrations - High
Concentration (µg/L)
140
120
100
80
60
40
20
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Iron
Lead
Zinc

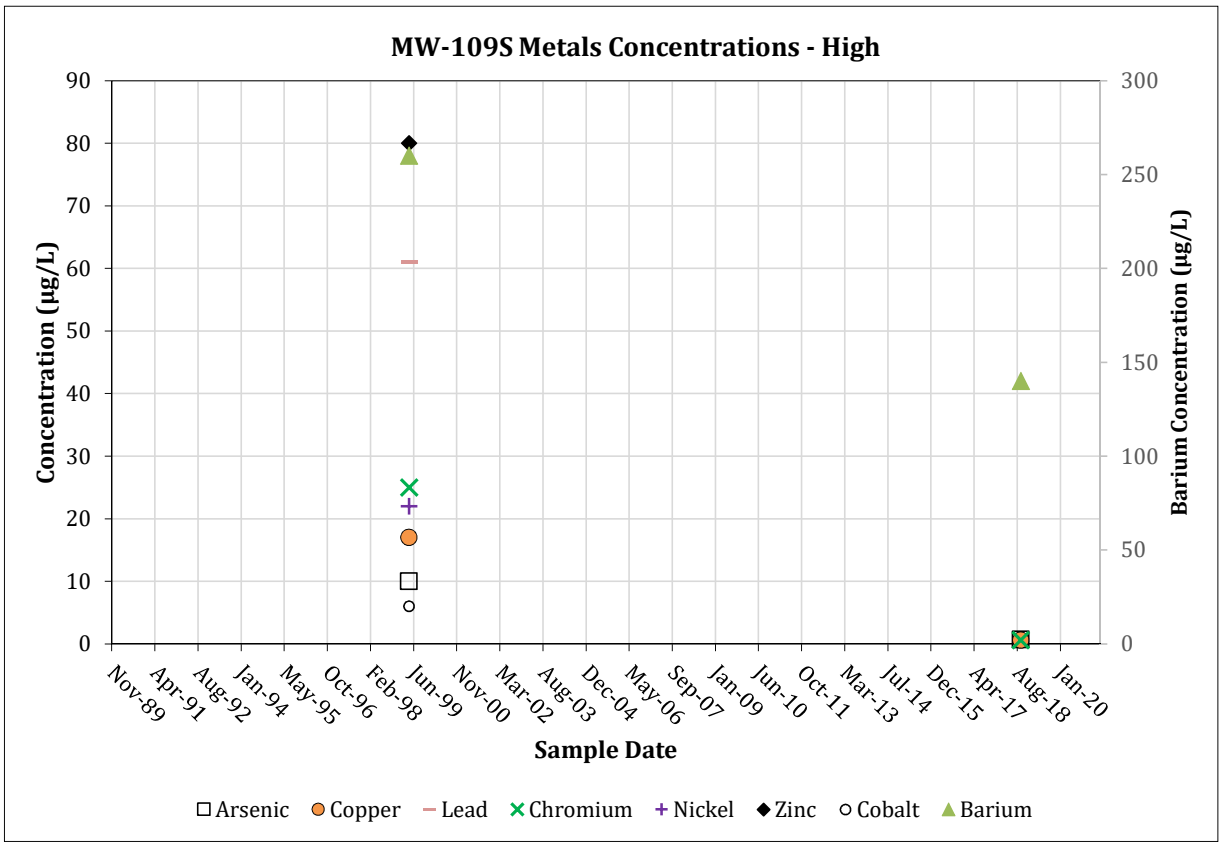

MW-106D Metals Concentrations - Low
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Manganese
Chromium
Vanadium
Selenium

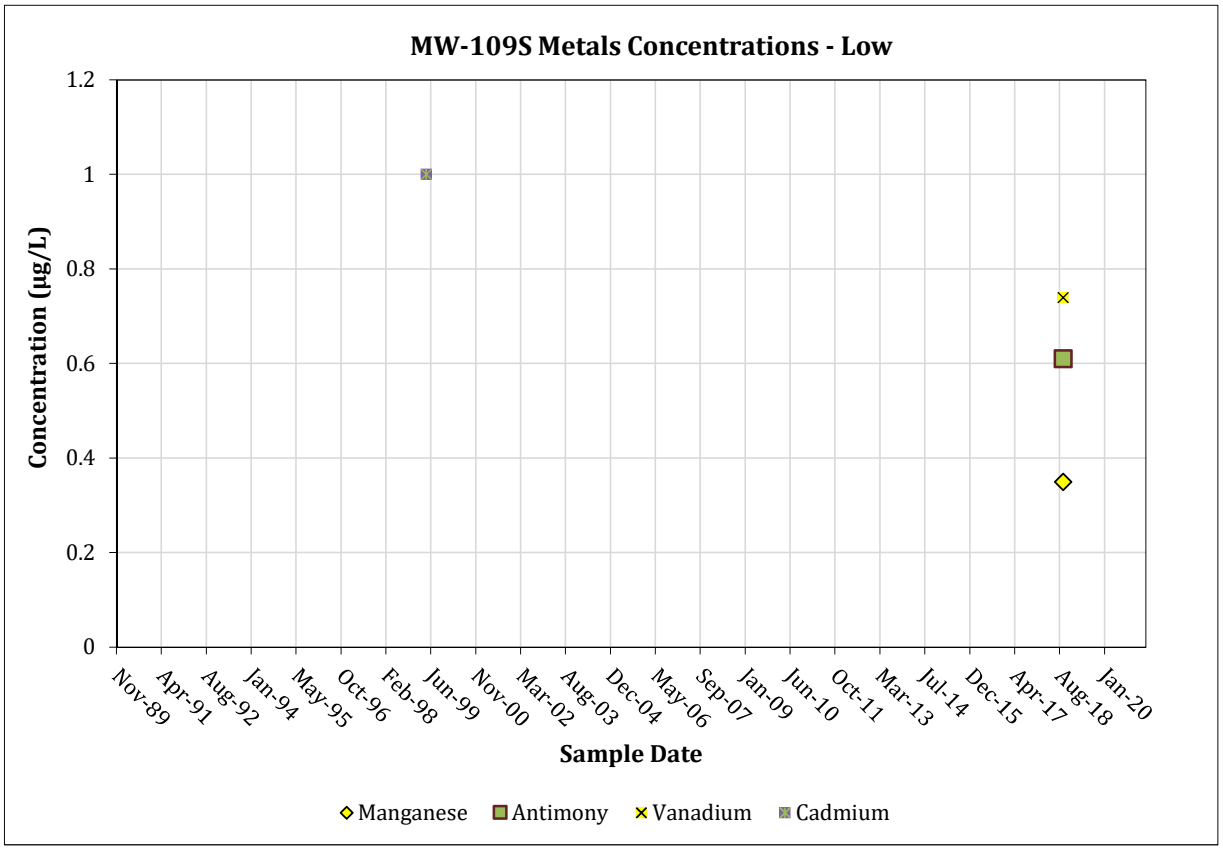

MW-106S Metals Concentrations - High
Concentration (µg/L)
120
100
80
60
40
20
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Iron
Zinc

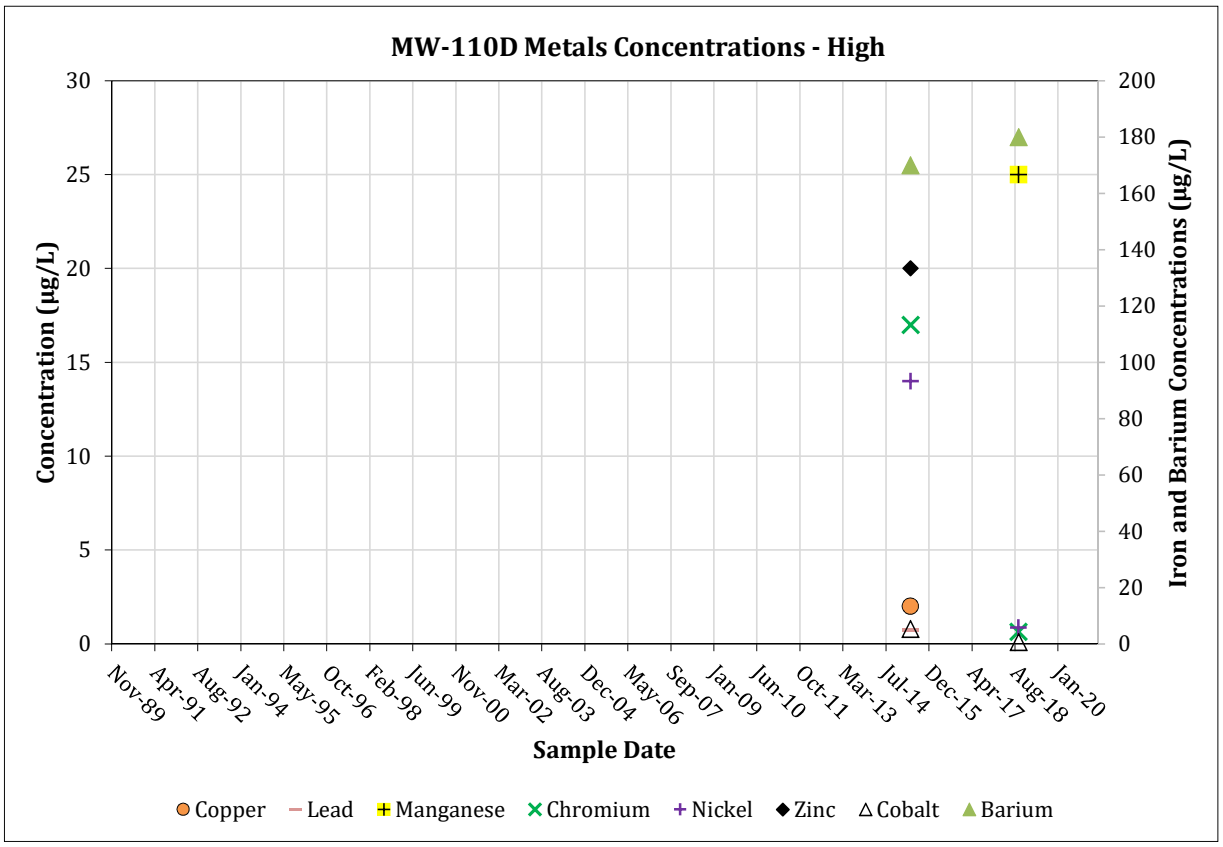

MW-106S Metals Concentrations - Low
Concentration (µg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Copper
Manganese
Antimony
Vanadium
Selenium
Chromium

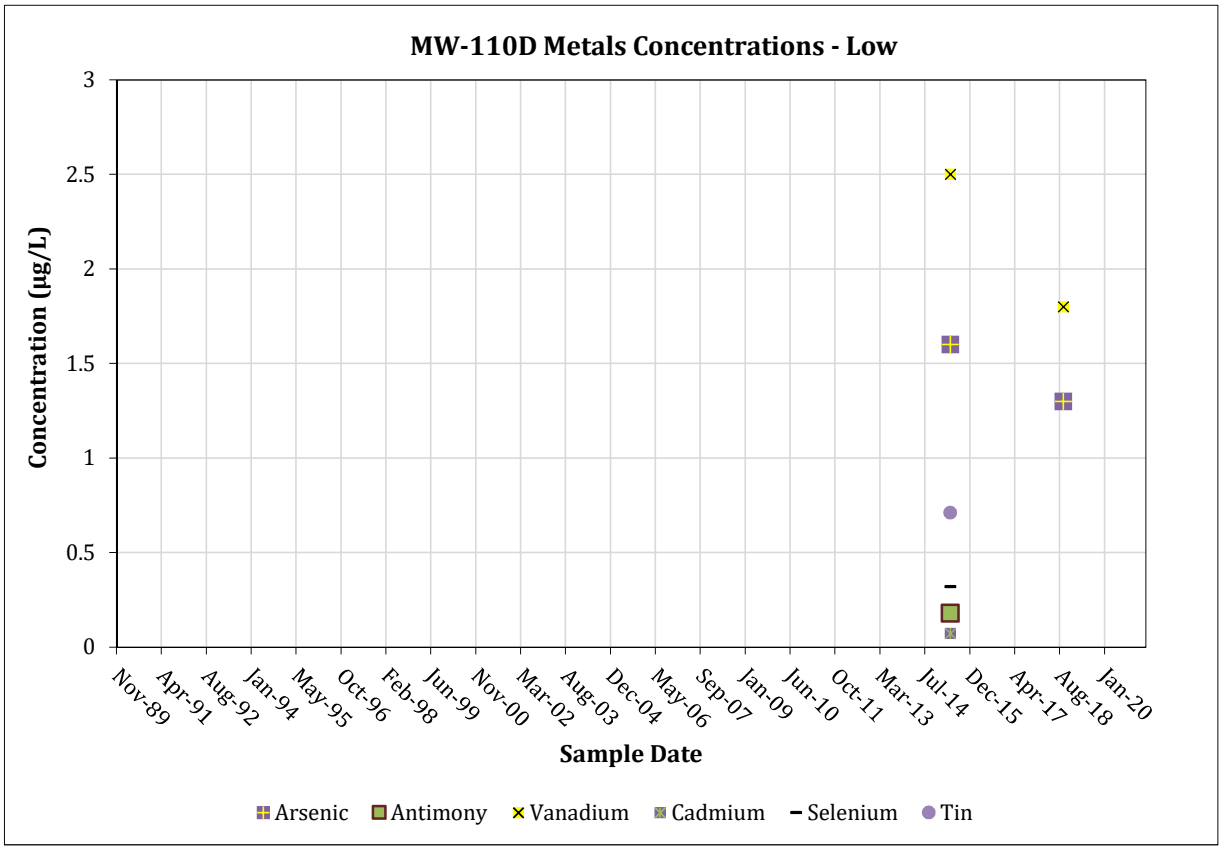

MW-109D Metals Concentrations - High
Concentration (µg/L)
Barium, Iron and Zinc Concentrations (µg/L)
Sample Date
Copper
Lead
Chromium
Cobalt
Barium
Iron
Zinc

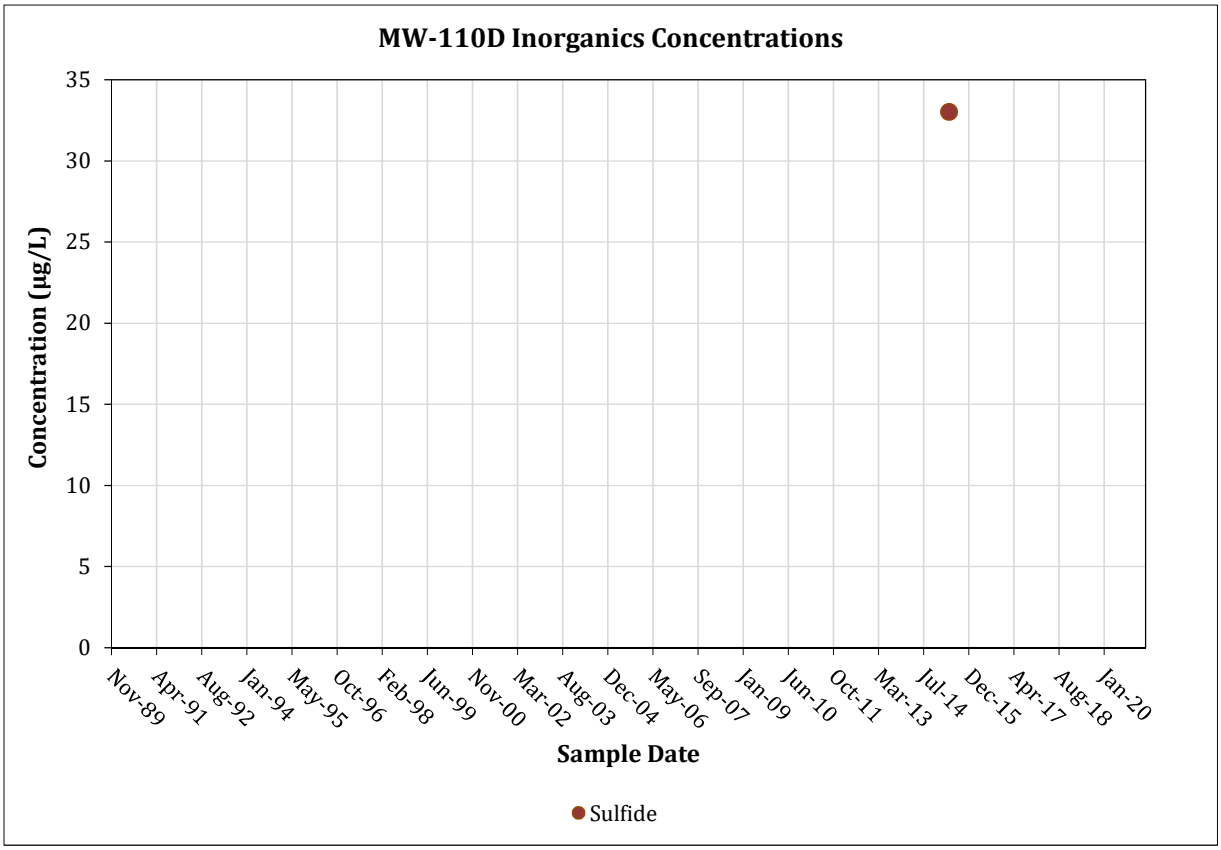

MW-109D Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Arsenic
Manganese
Cadmium

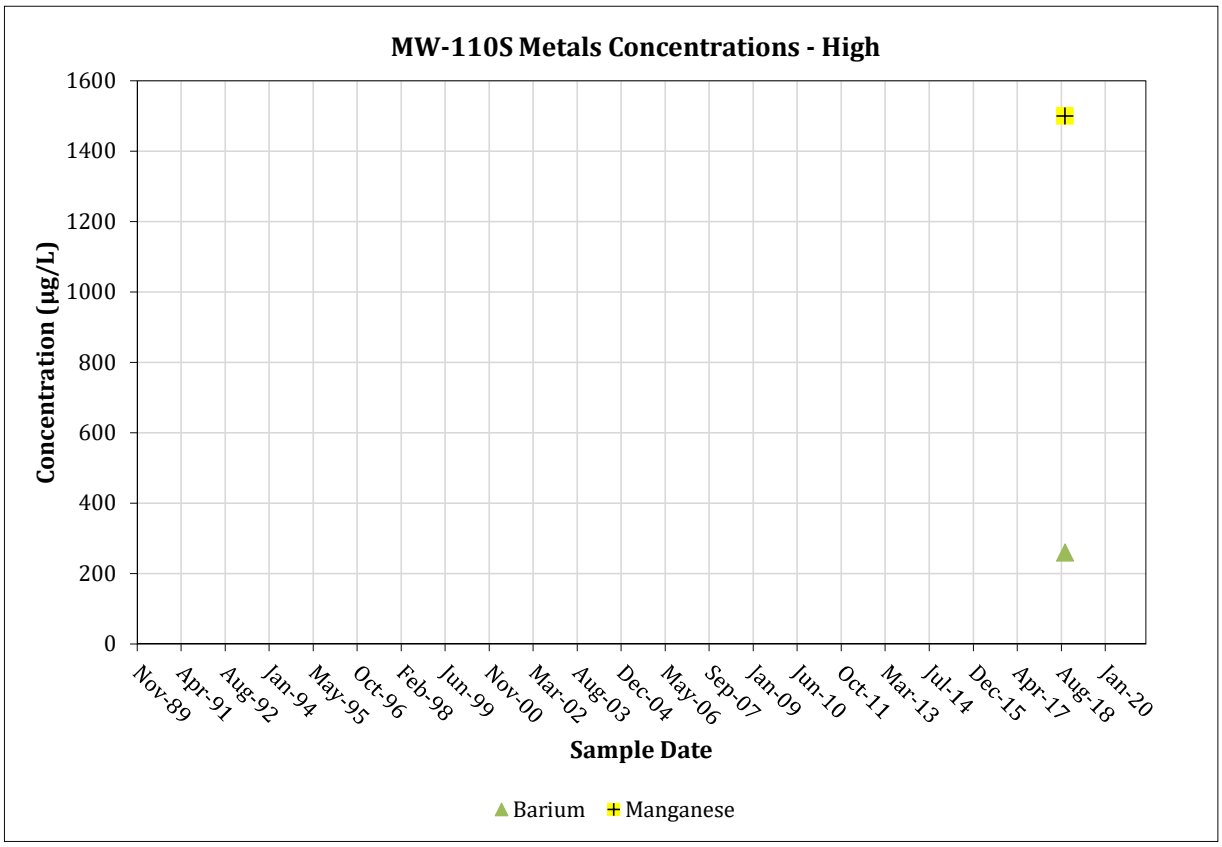

MW-109S Metals Concentrations - High
Concentration (µg/L)
Barium Concentration (µg/L)
Sample Date
Arsenic
Copper
Lead
Chromium
Nickel
Zinc
Cobalt
Barium

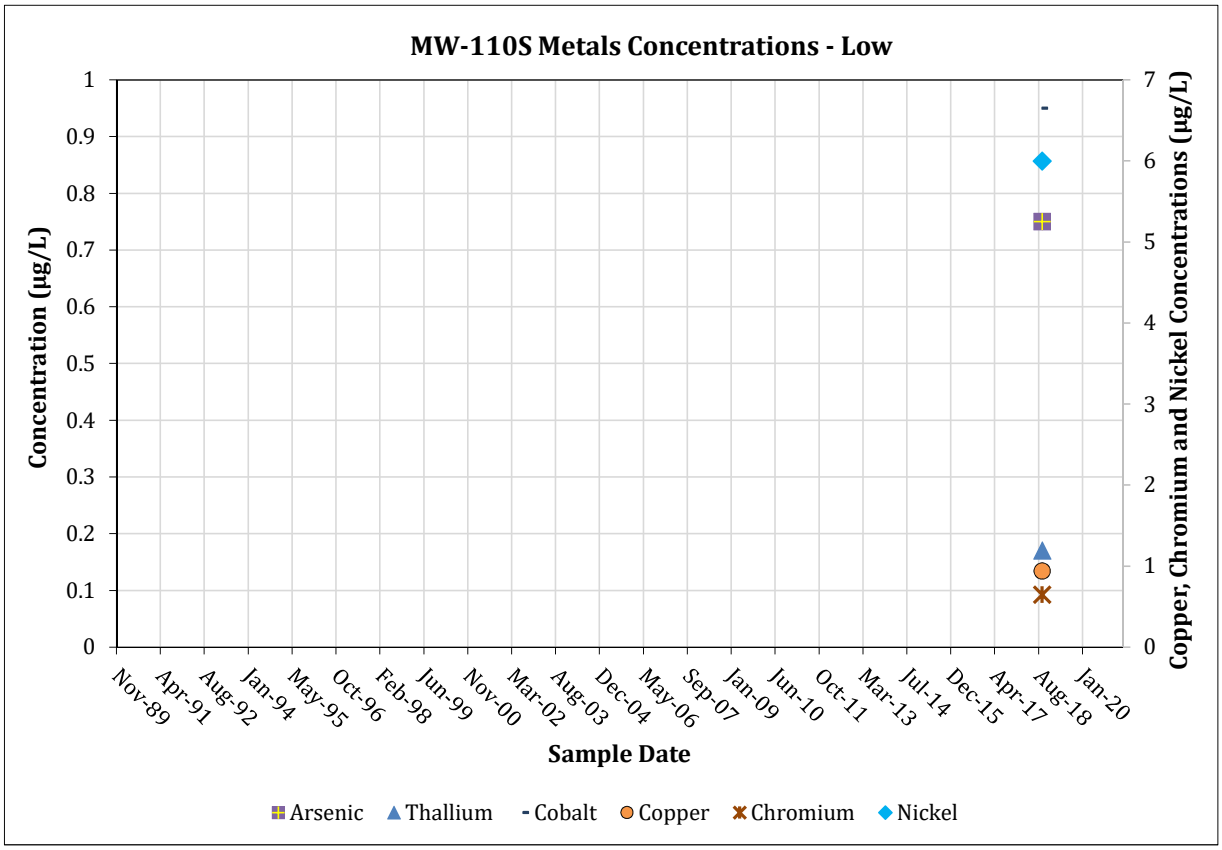

MW-109S Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Manganese
Antimony
Vanadium
Cadmium

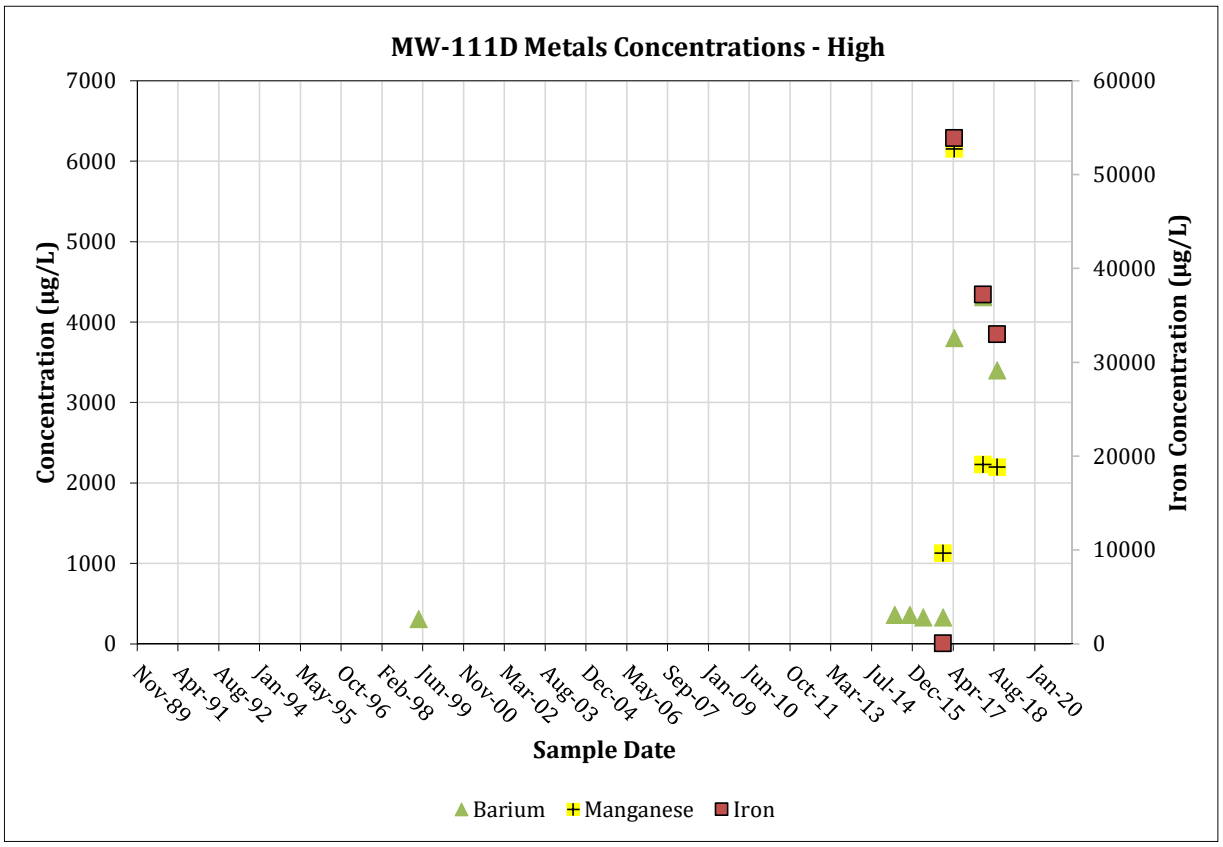

MW-110D Metals Concentrations - High
Concentration (µg/L)
Iron and Barium Concentrations (µg/L)
Sample Date
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Copper
Lead
Manganese
Chromium
Nickel
Zinc
Cobalt
Barium

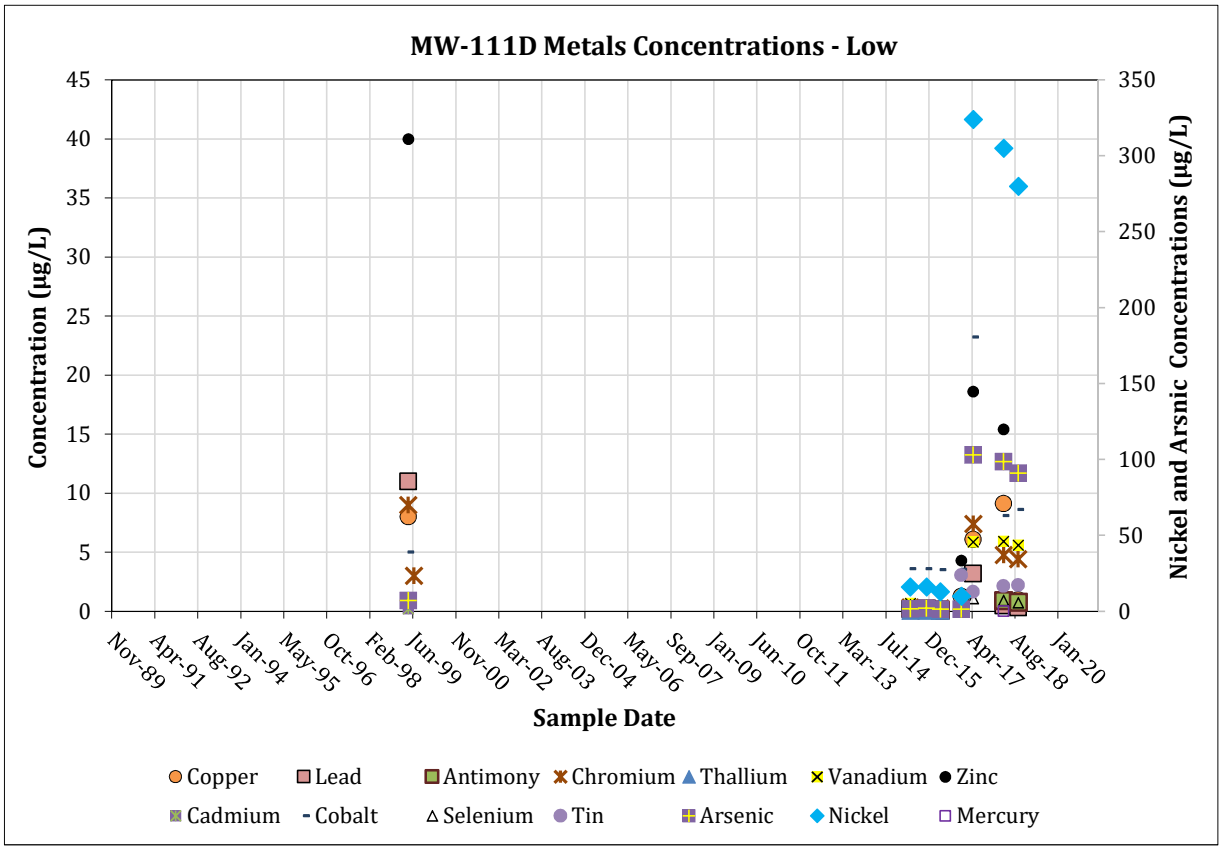

MW-110D Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Arsenic
Antimony
Vanadium
Cadmium
Selenium
Tin

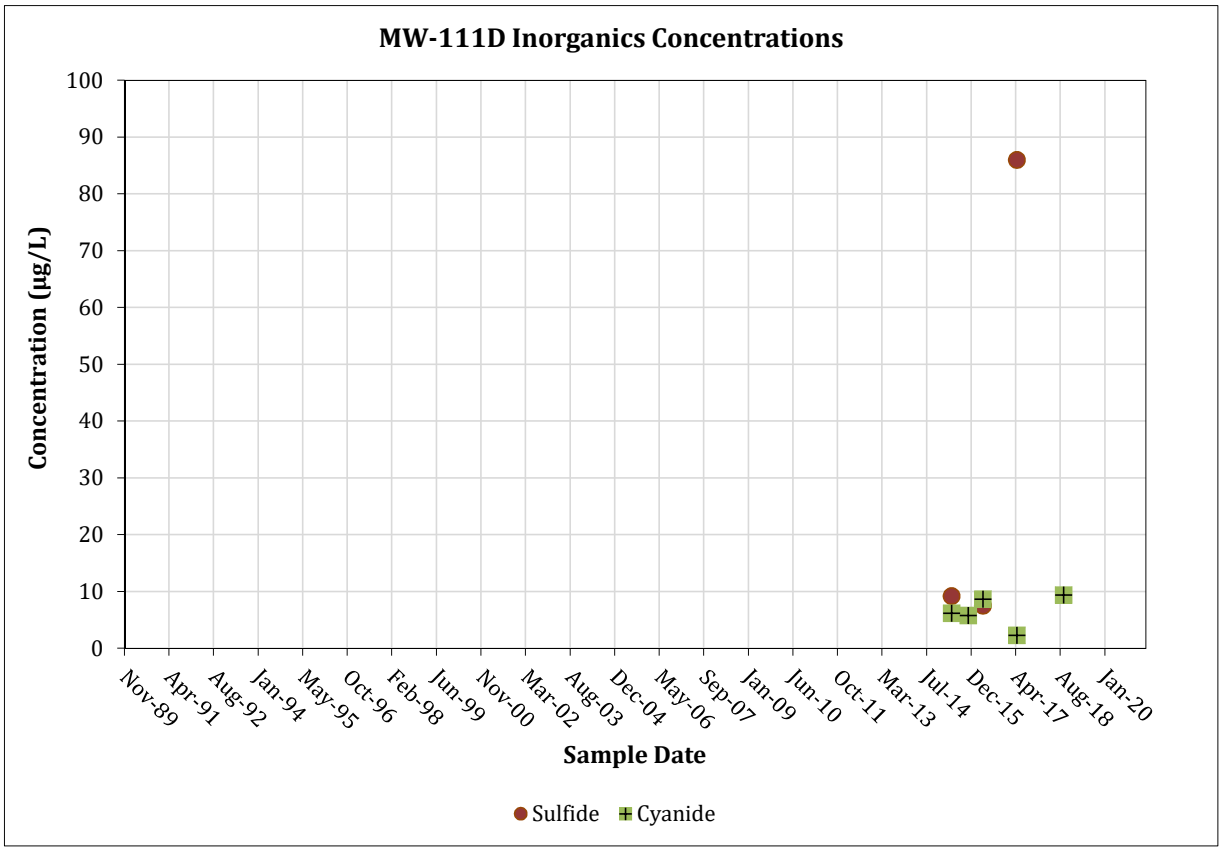

MW-110D Inorganics Concentrations
Concentration (µg/L)
35
30
25
20
15
10
5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Sulfide

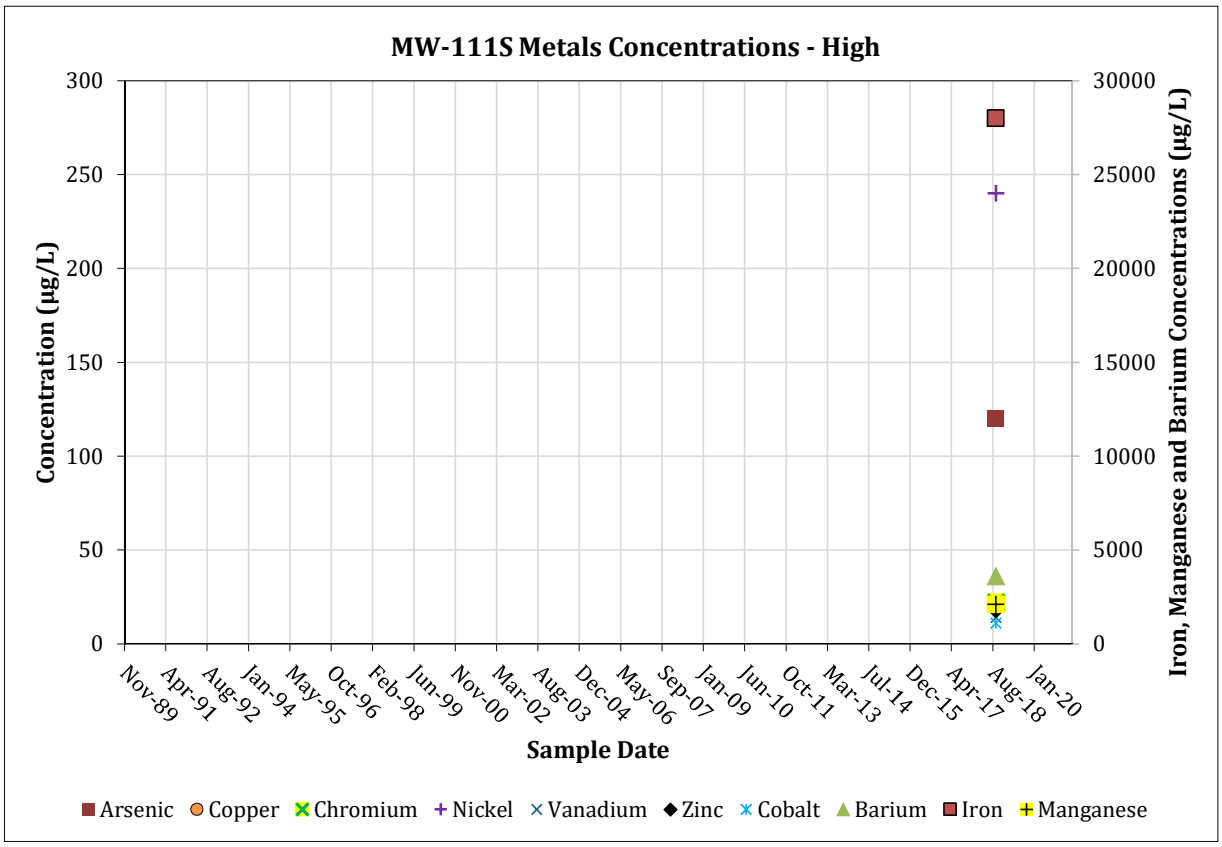

MW-110S Metals Concentrations - High
Concentration (µg/L)
1600
1400
1200
1000
800
600
400
200
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Manganese

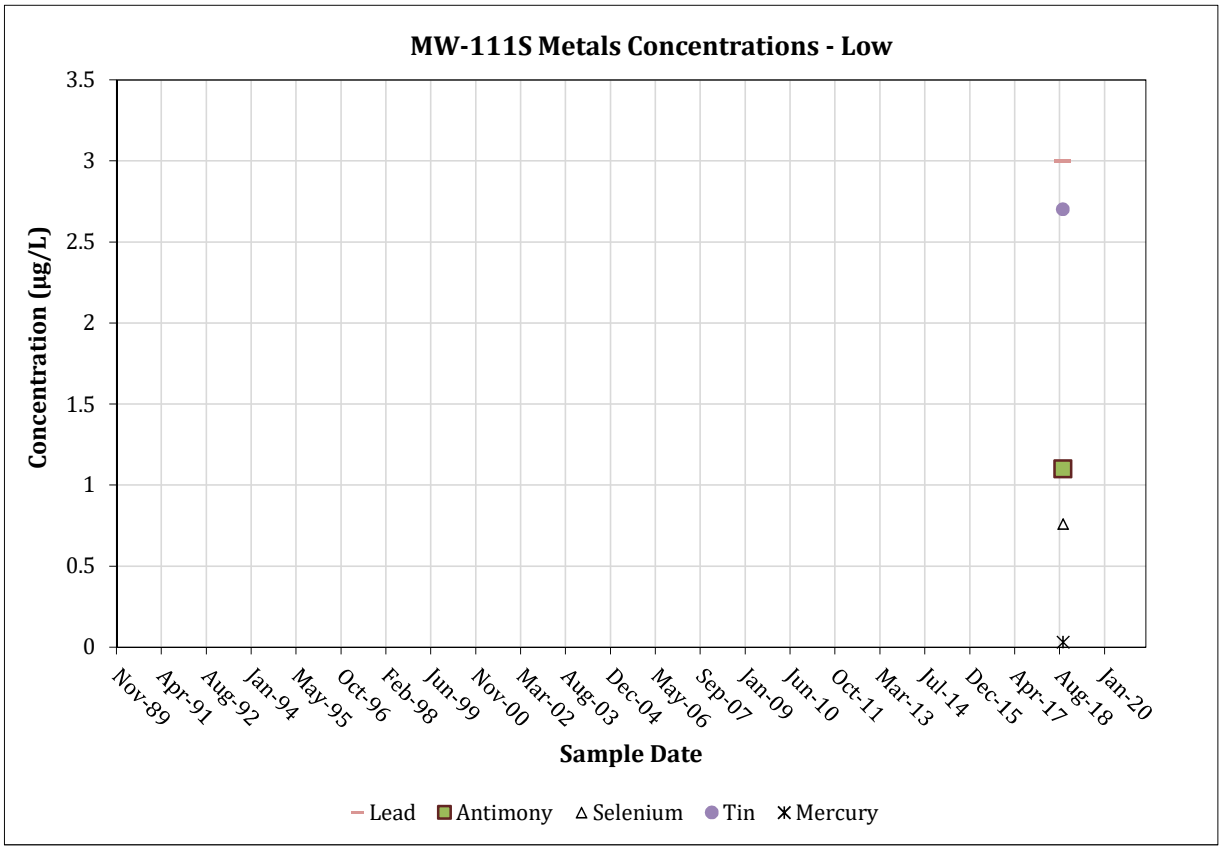

MW-110S Metals Concentrations - Low
Concentration (µg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Copper, Chromium and Nickel Concentrations (µg/L)
7
6
5
4
3
2
1
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Thallium
Cobalt
Copper
Chromium
Nickel

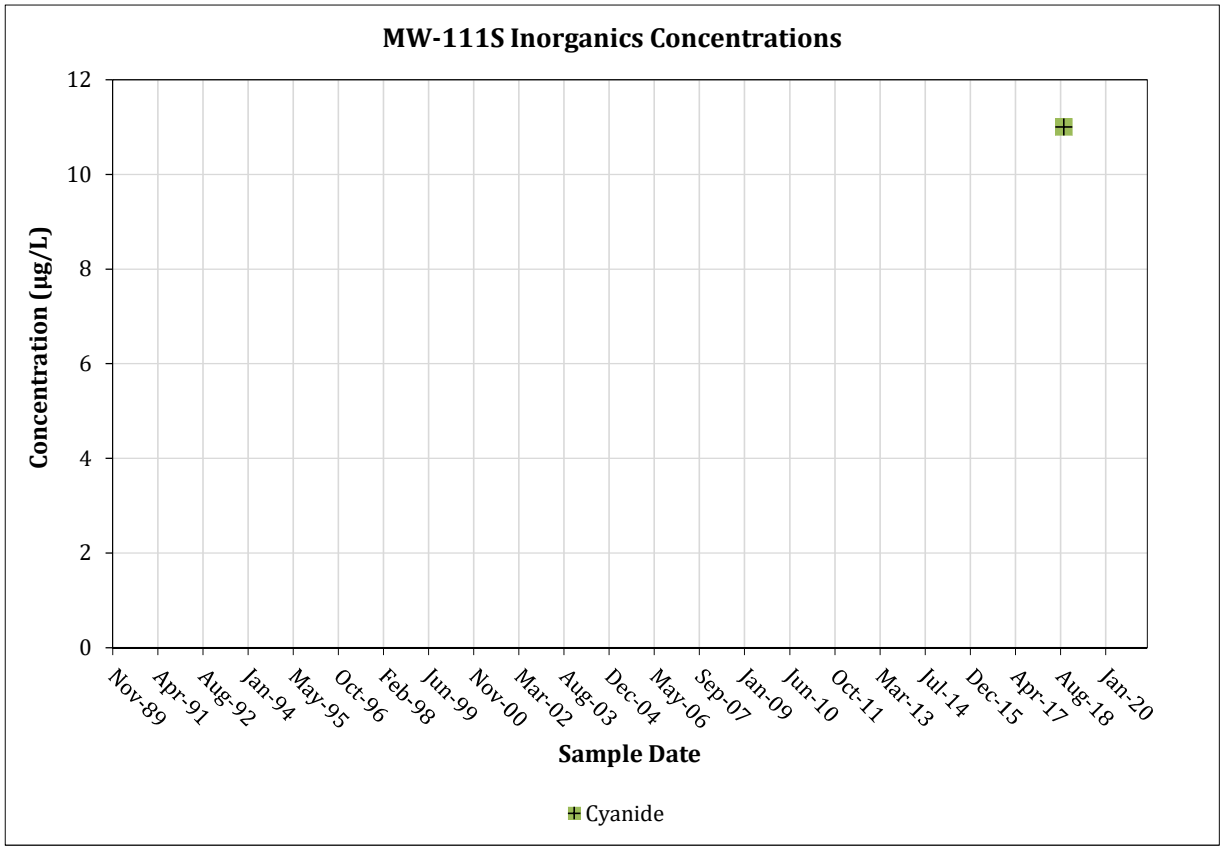

MW-111D Metals Concentrations - High
Concentration (µg/L)
Iron Concentration (µg/L)
Sample Date
Barium
Manganese
Iron

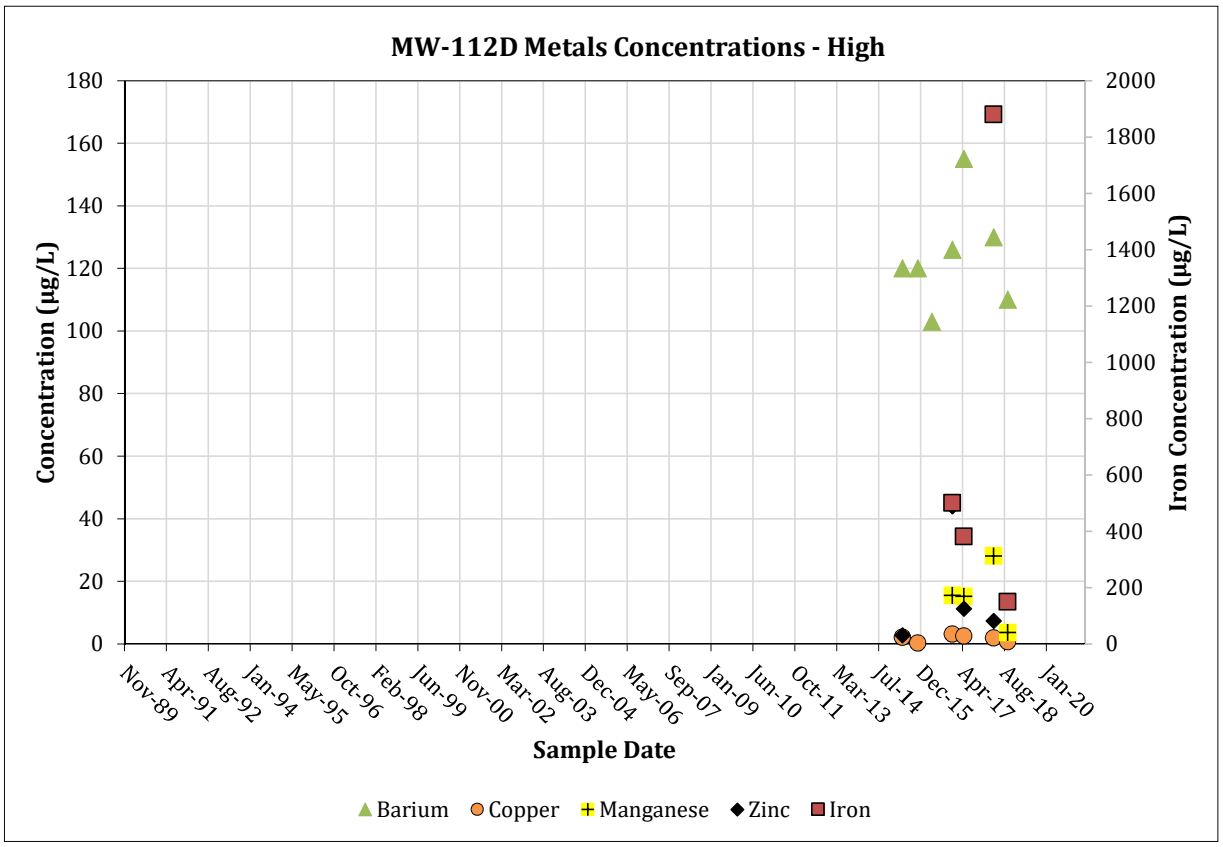

MW-111D Metals Concentrations - Low
Concentration (µg/L)
Nickel and Arsnic Concentrations (µg/L)
Sample Date
Copper
Lead
Antimony
Chromium
Thallium
Vanadium
Zinc
Cadmium
Cobalt
Selenium
Tin
Arsenic
Nickel
Mercury

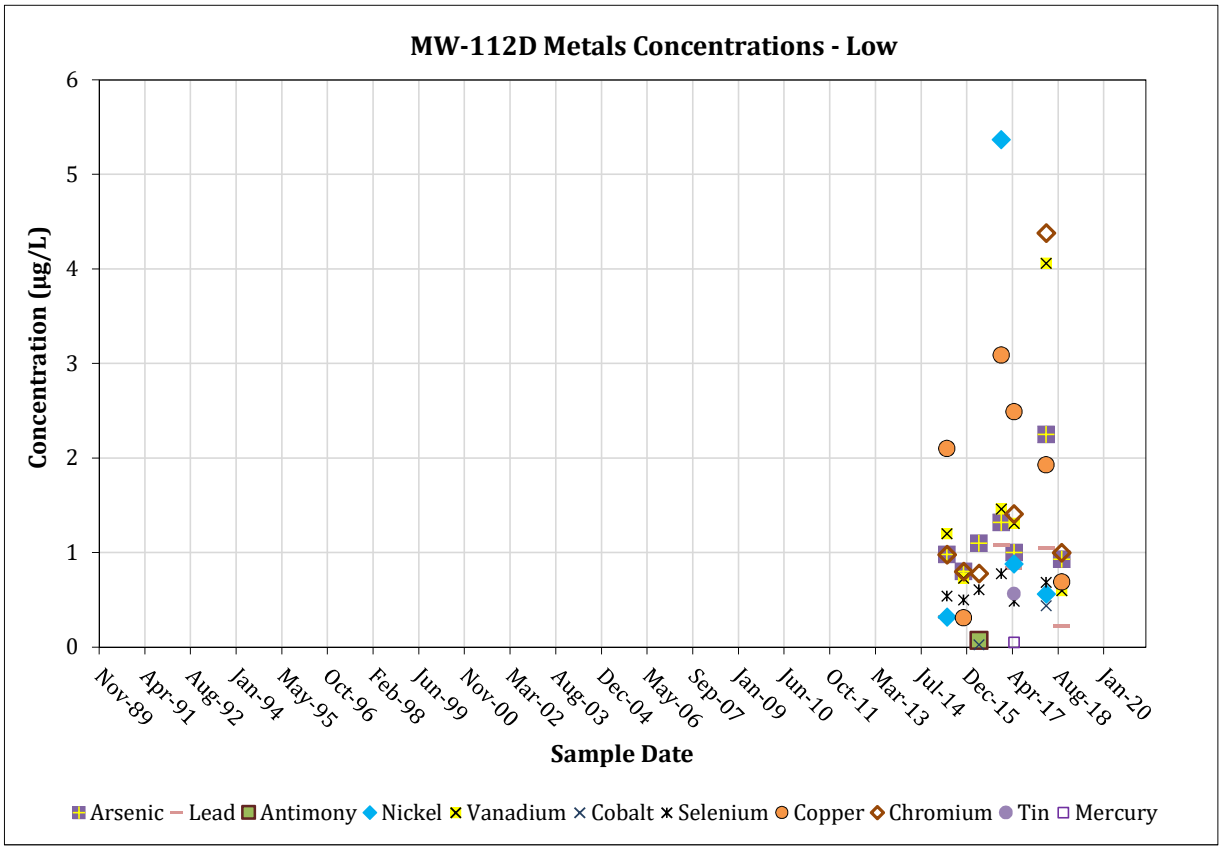

MW-111D Inorganics Concentrations
Concentration (µg/L)
100
90
80
70
60
50
40
30
20
10
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Sulfide
Cyanide

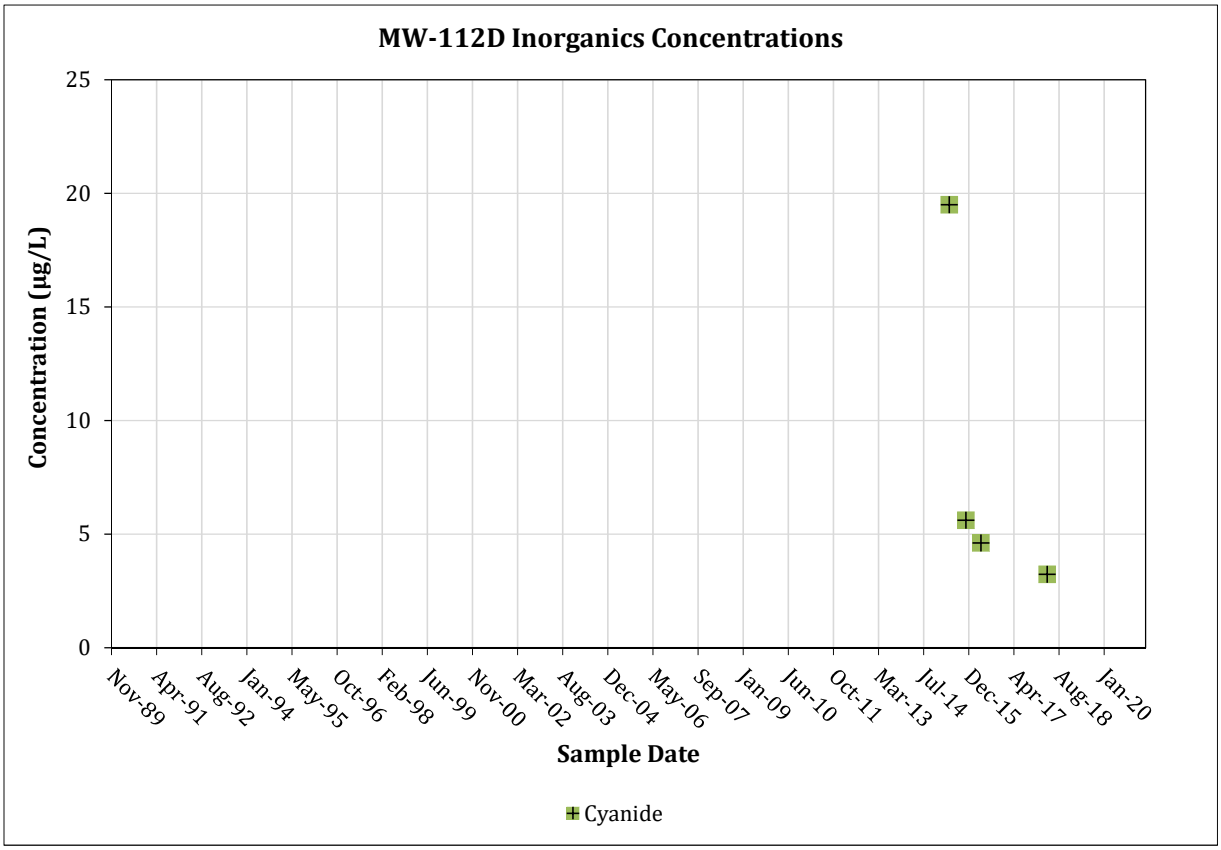

MW-111S Metals Concentrations - High
Concentration (µg/L)
Iron, Manganese and Barium Concentrations (µg/L)
300
250
200
150
100
50
0
30000
25000
20000
15000
10000
5000
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Copper
Chromium
Nickel
Vanadium
Zinc
Cobalt
Barium
Iron
Manganese

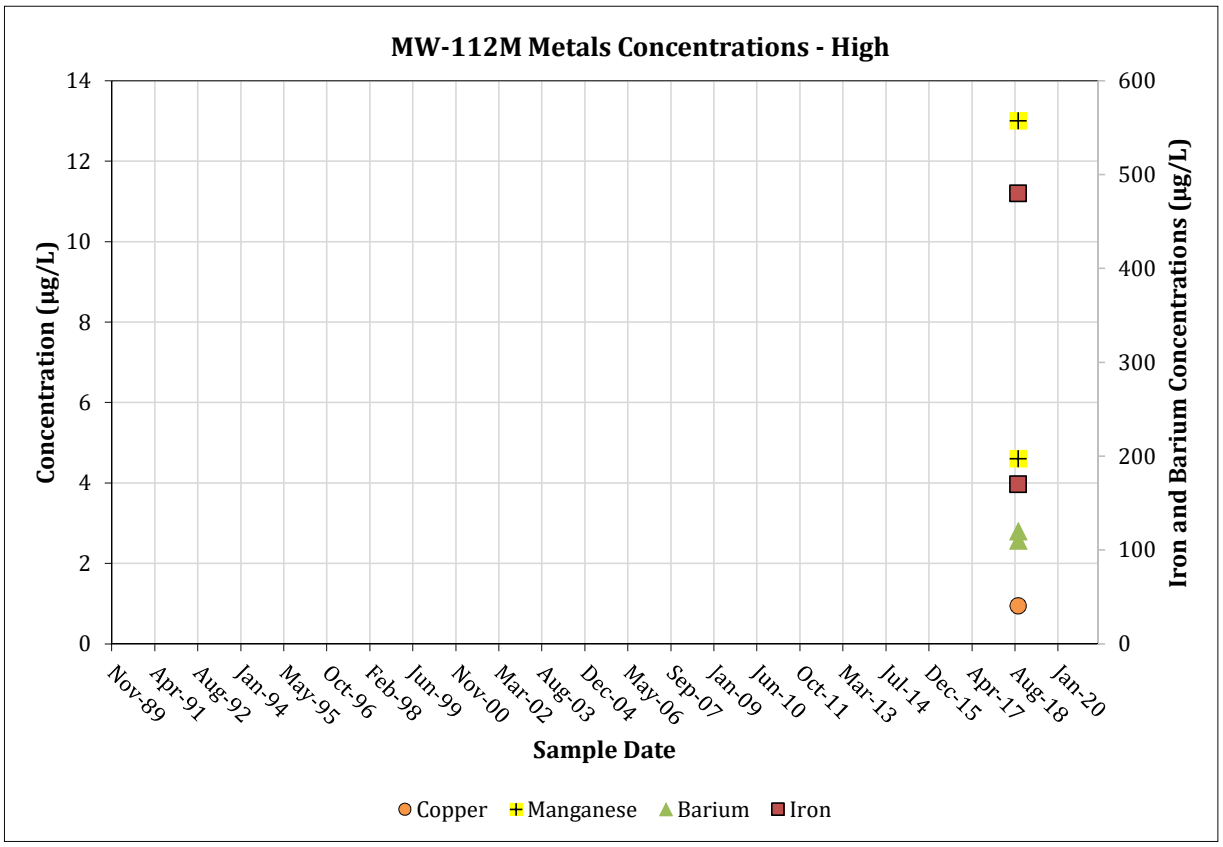

MW-111S Metals Concentrations - Low
Concentration (µg/L)
3.5
3
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Lead
Antimony
Selenium
Tin
Mercury

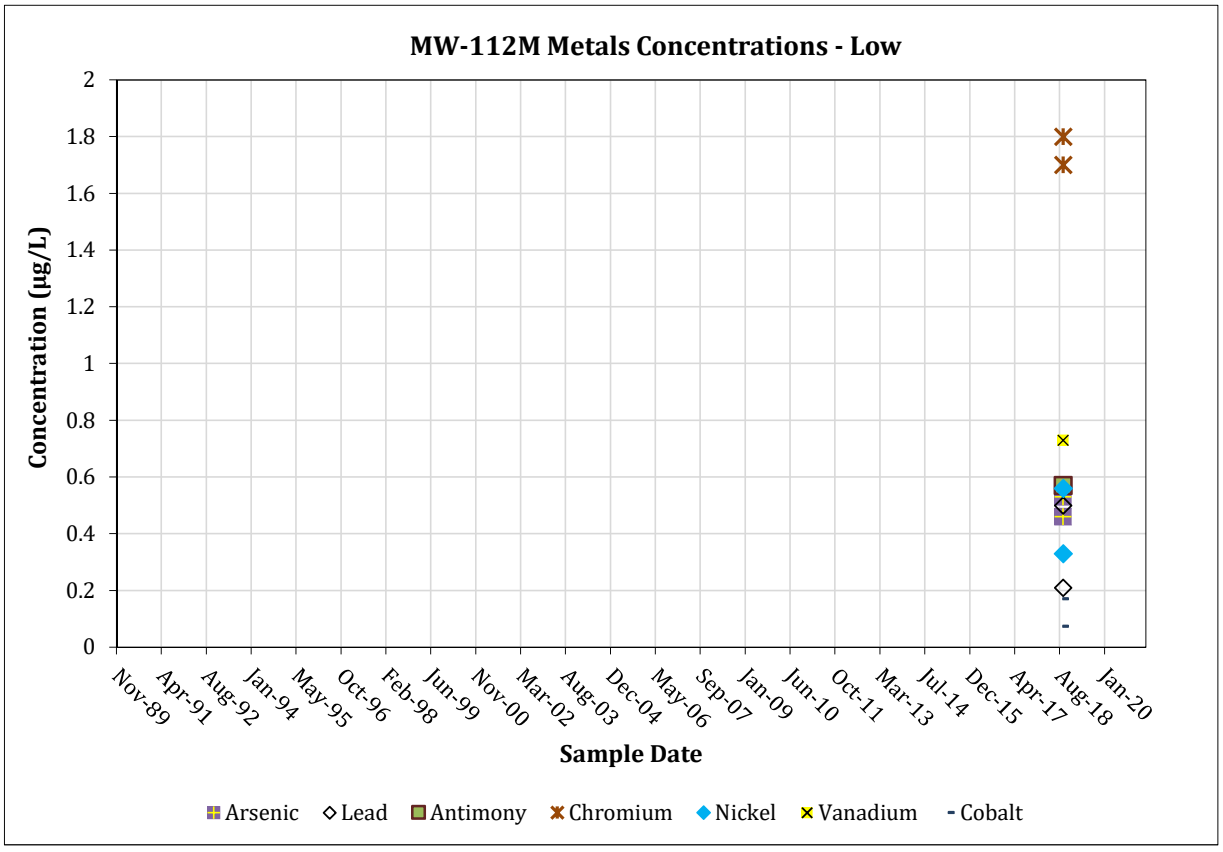

MW-111S Inorganics Concentrations
Concentration (µg/L)
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Cyanide

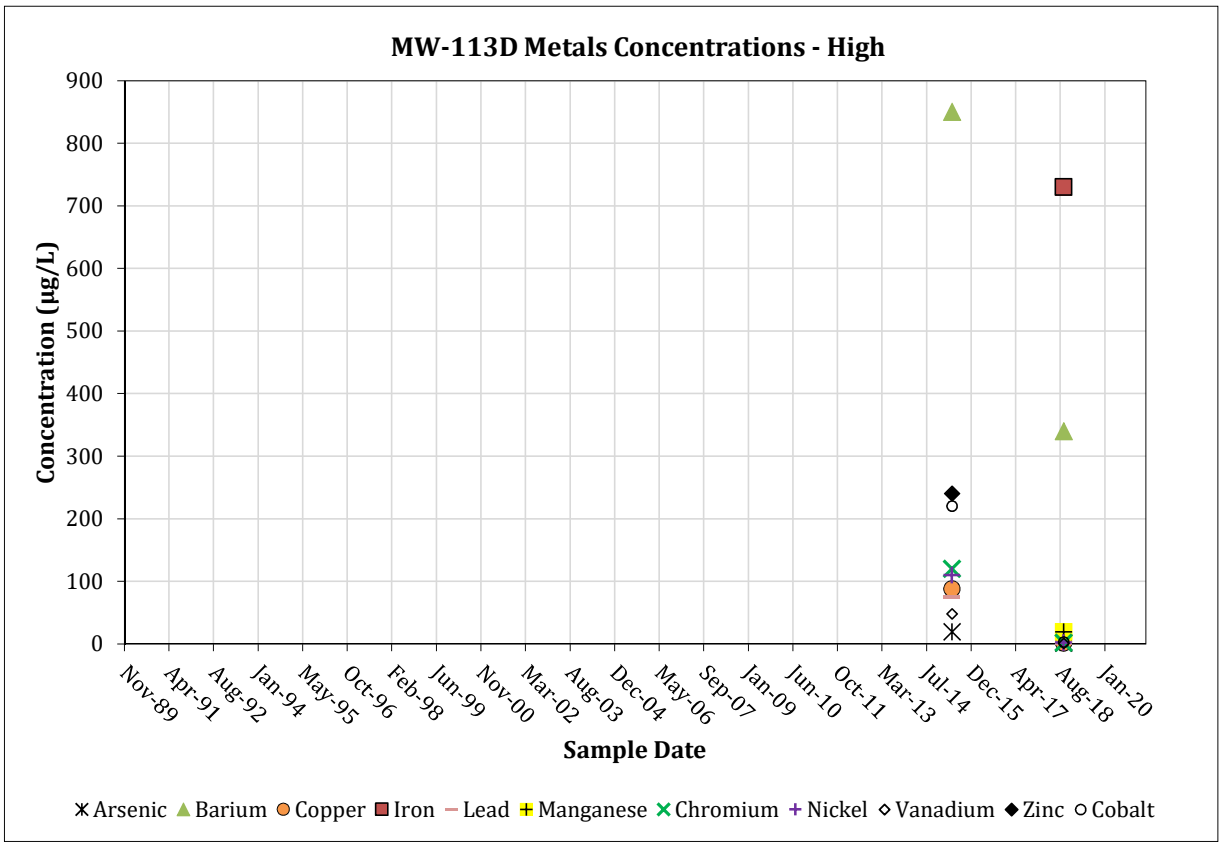

MW-112D Metals Concentrations - High
Concentration (µg/L)
Iron Concentration (µg/L)
Sample Date
Barium
Copper
Manganese
Zinc
Iron

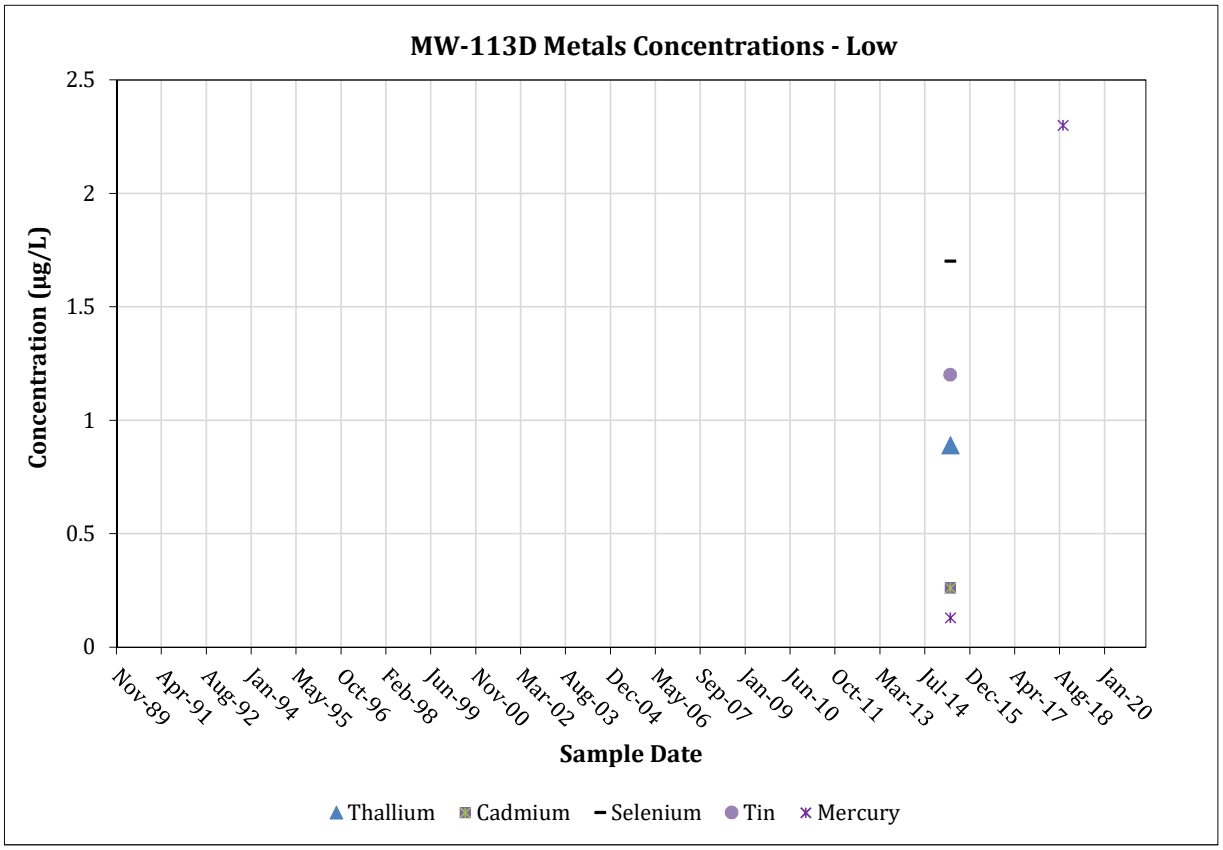

MW-112D Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Arsenic
Lead
Antimony
Nickel
Vanadium
Cobalt
Selenium
Copper
Chromium
Tin
Mercury

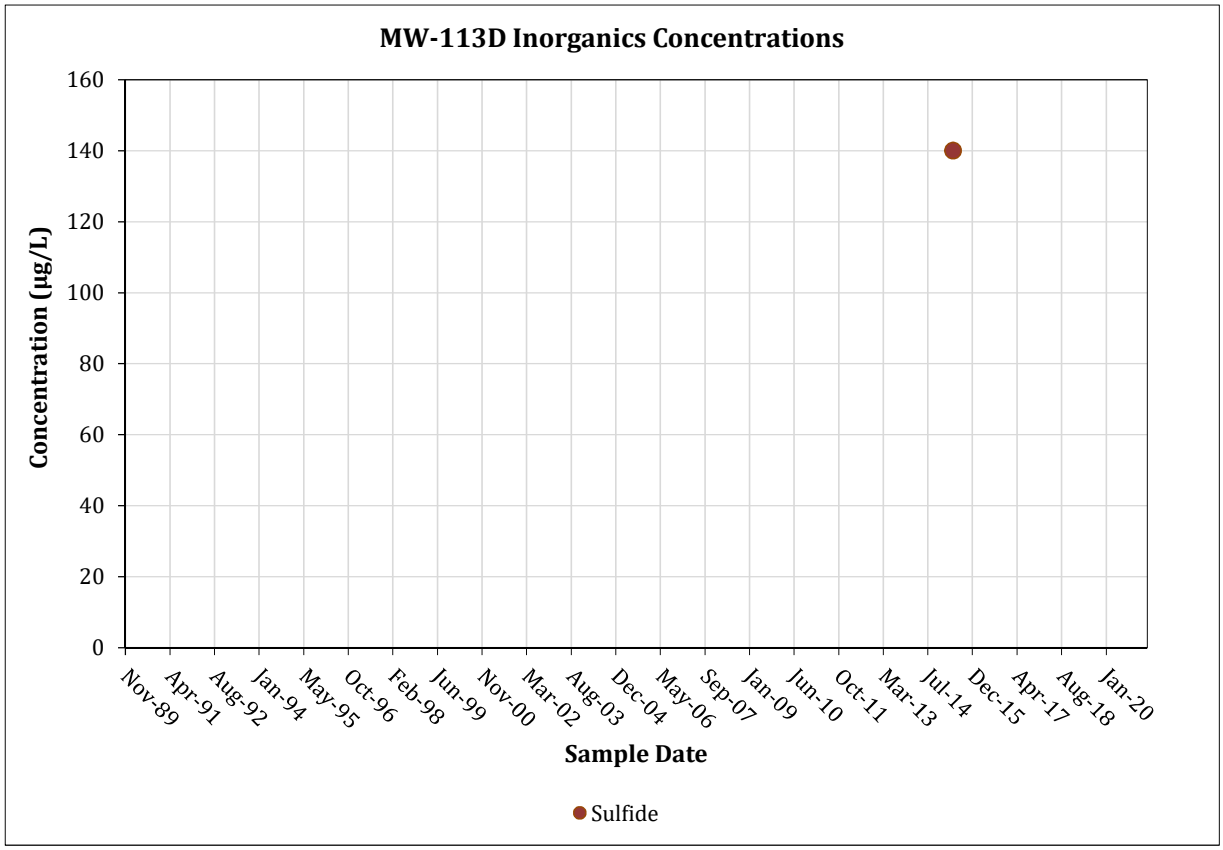

MW-112D Inorganics Concentrations
Concentration (µg/L)
25
20
15
10
5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Cyanide

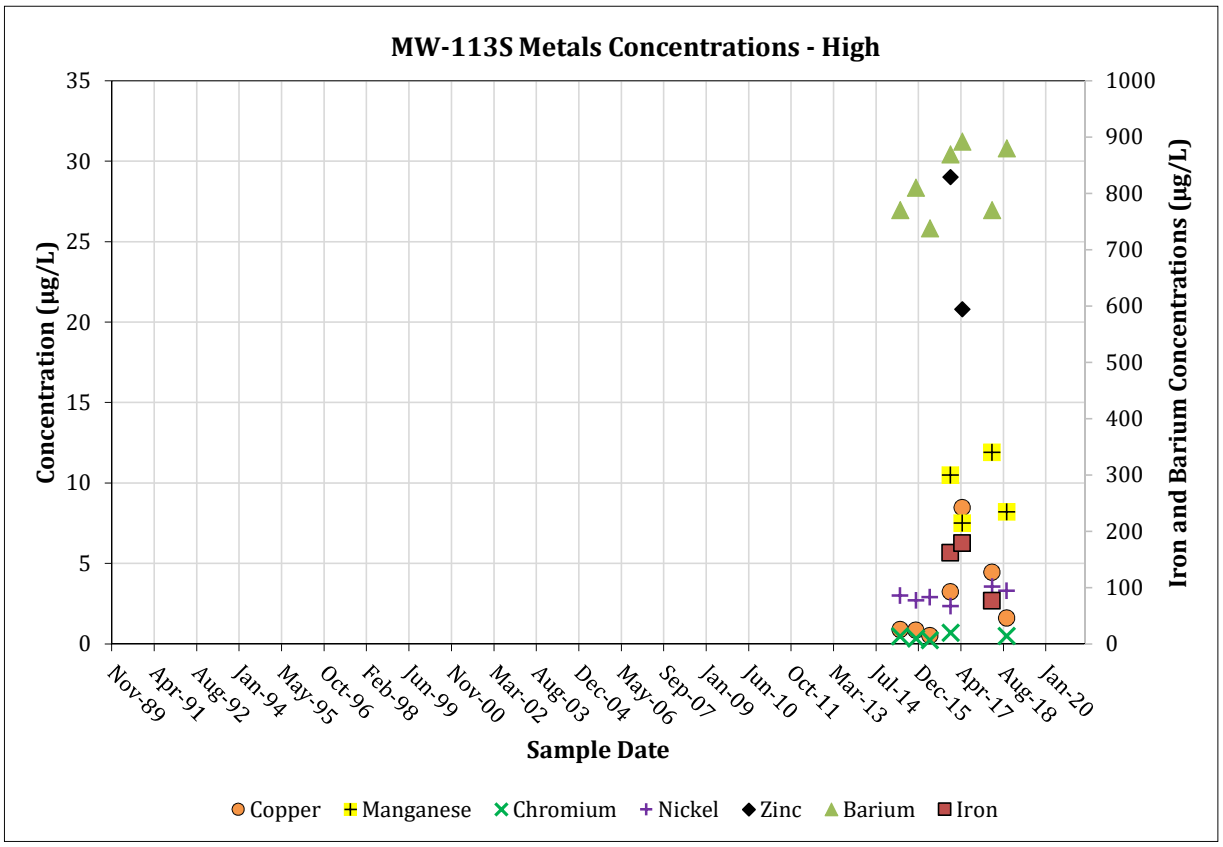

MW-112M Metals Concentrations - High
Concentration (µg/L)
Iron and Barium Concentrations (µg/L)
Sample Date
Copper
Manganese
Barium
Iron

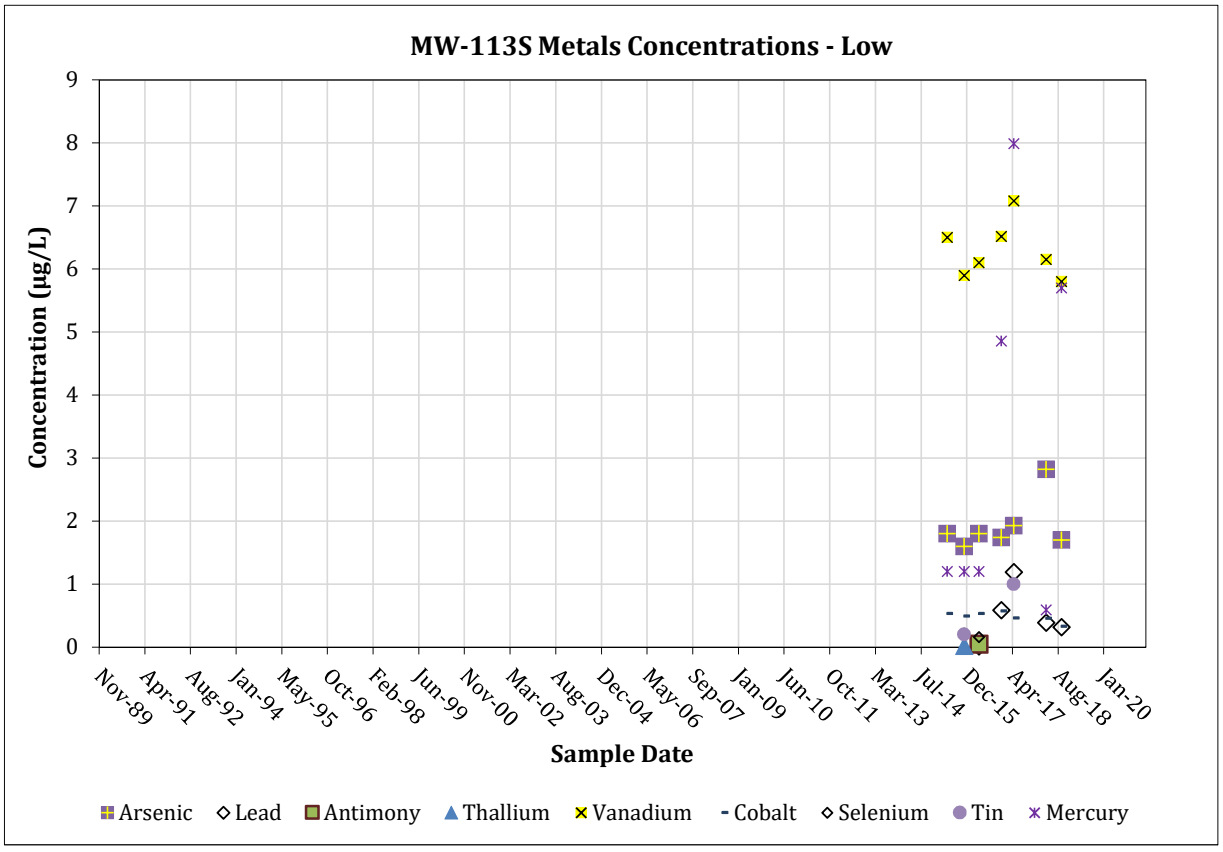

MW-112M Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Arsenic
Lead
Antimony
Chromium
Nickel
Vanadium
Cobalt

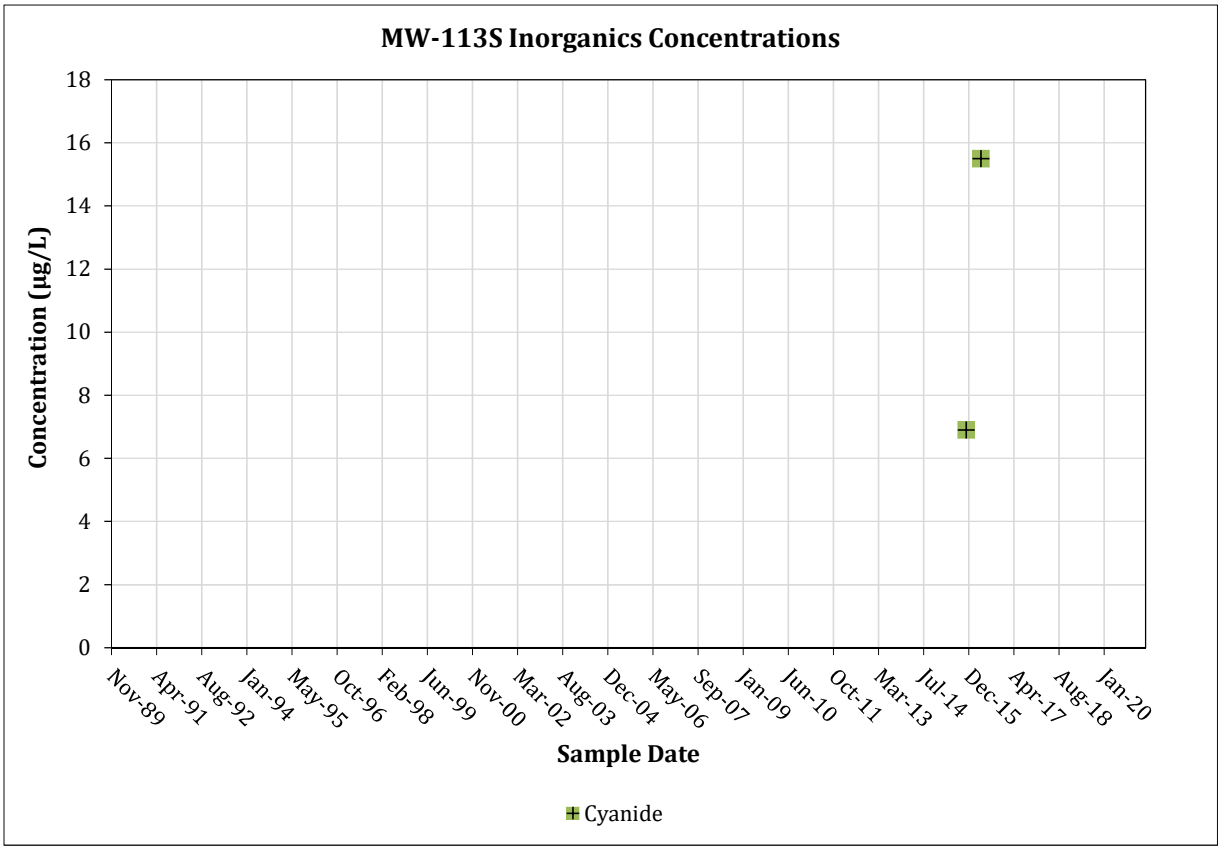

MW-113D Metals Concentrations - High
Concentration (µg/L)
900
800
700
600
500
400
300
200
100
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Barium
Copper
Iron
Lead
Manganese
Chromium
Nickel
Vanadium
Zinc
Cobalt

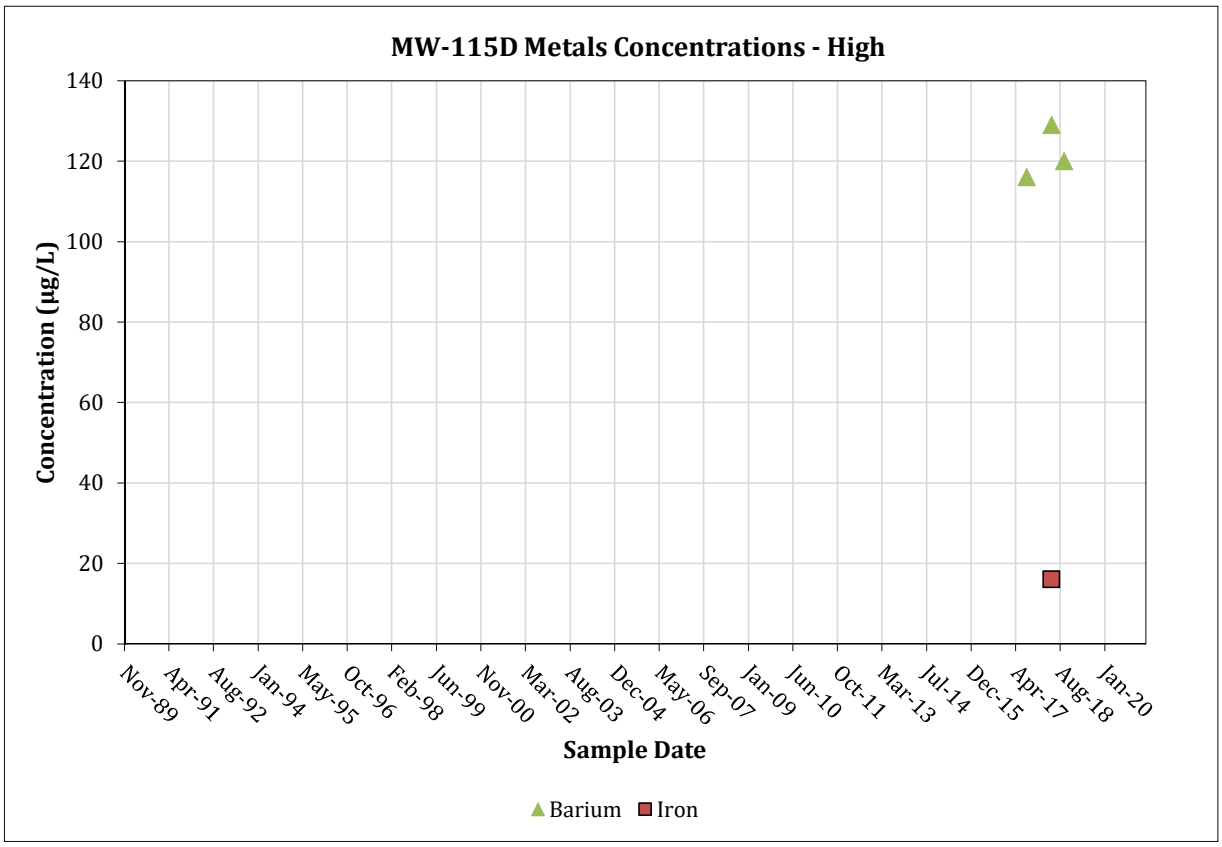

MW-113D Metals Concentrations - Low
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Thallium
Cadmium
Selenium
Tin
Mercury

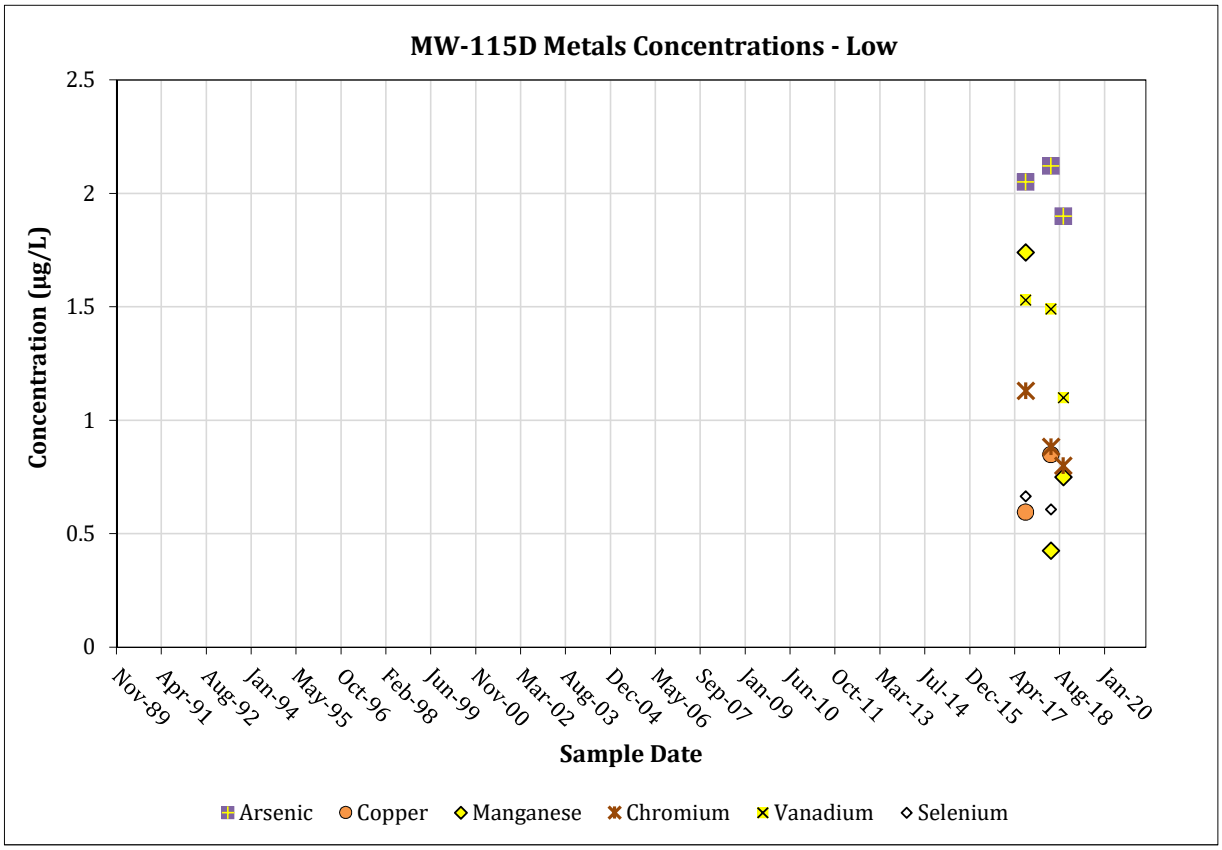

MW-113D Inorganics Concentrations
Concentration (µg/L)
160
140
120
100
80
60
40
20
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Sulfide

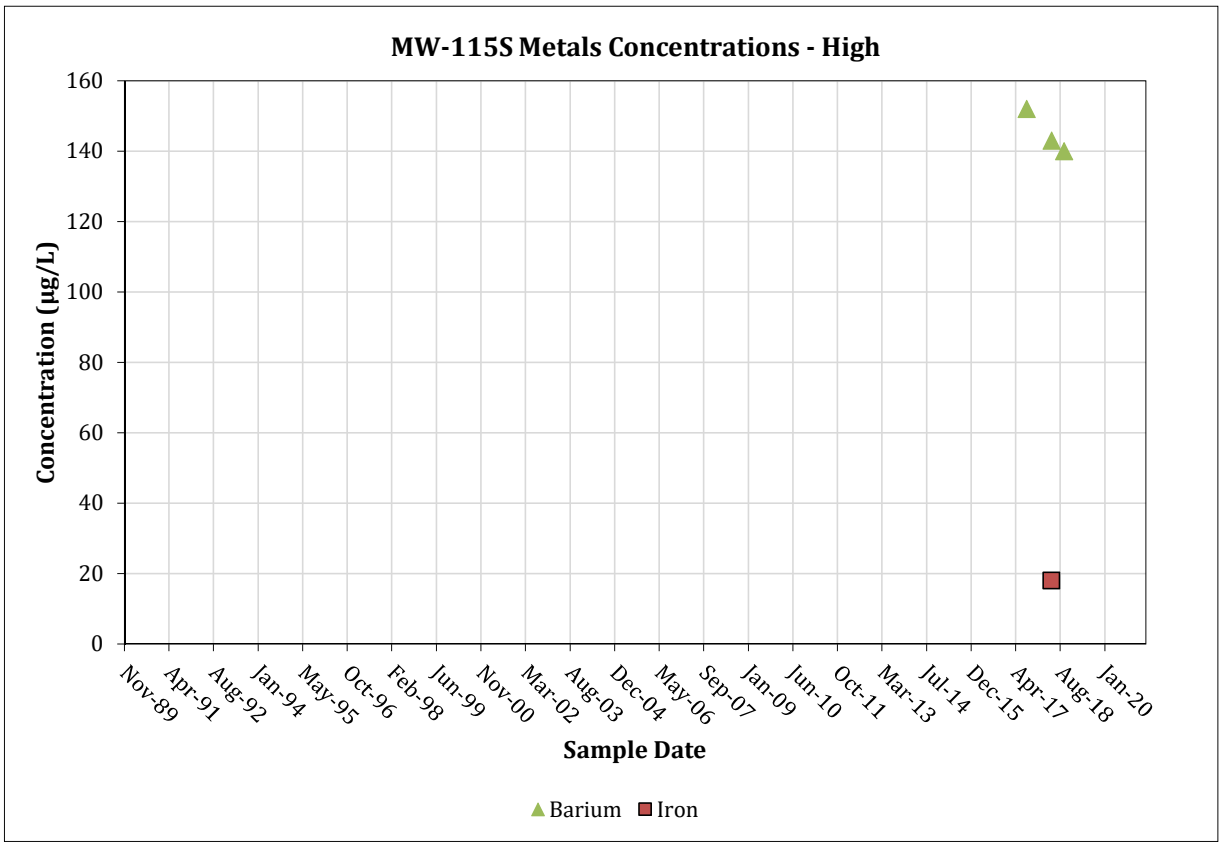

MW-113S Metals Concentrations - High
Concentration (µg/L)
Iron and Barium Concentrations (µg/L)
Sample Date
Copper
Manganese
Chromium
Nickel
Zinc
Barium
Iron

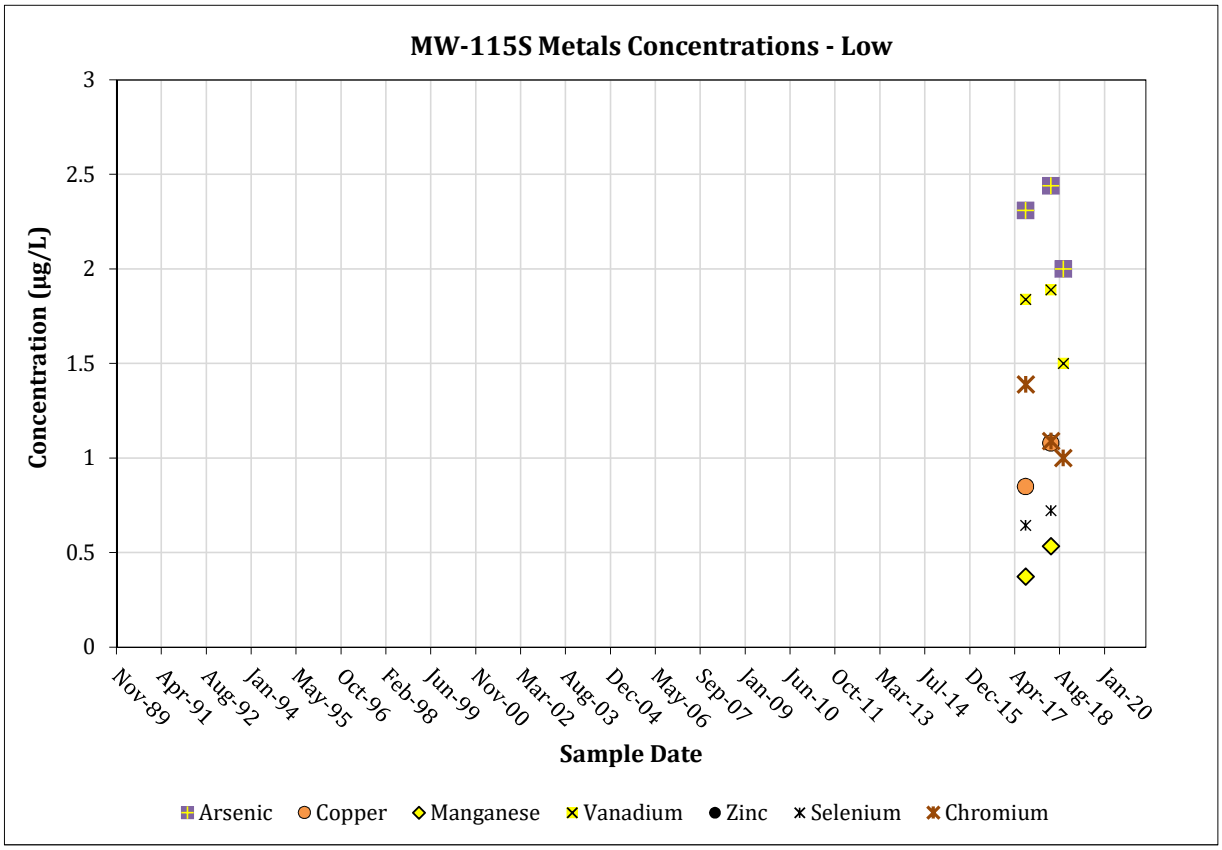

MW-113S Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Arsenic
Lead
Antimony
Thallium
Vanadium
Cobalt
Selenium
Tin
Mercury

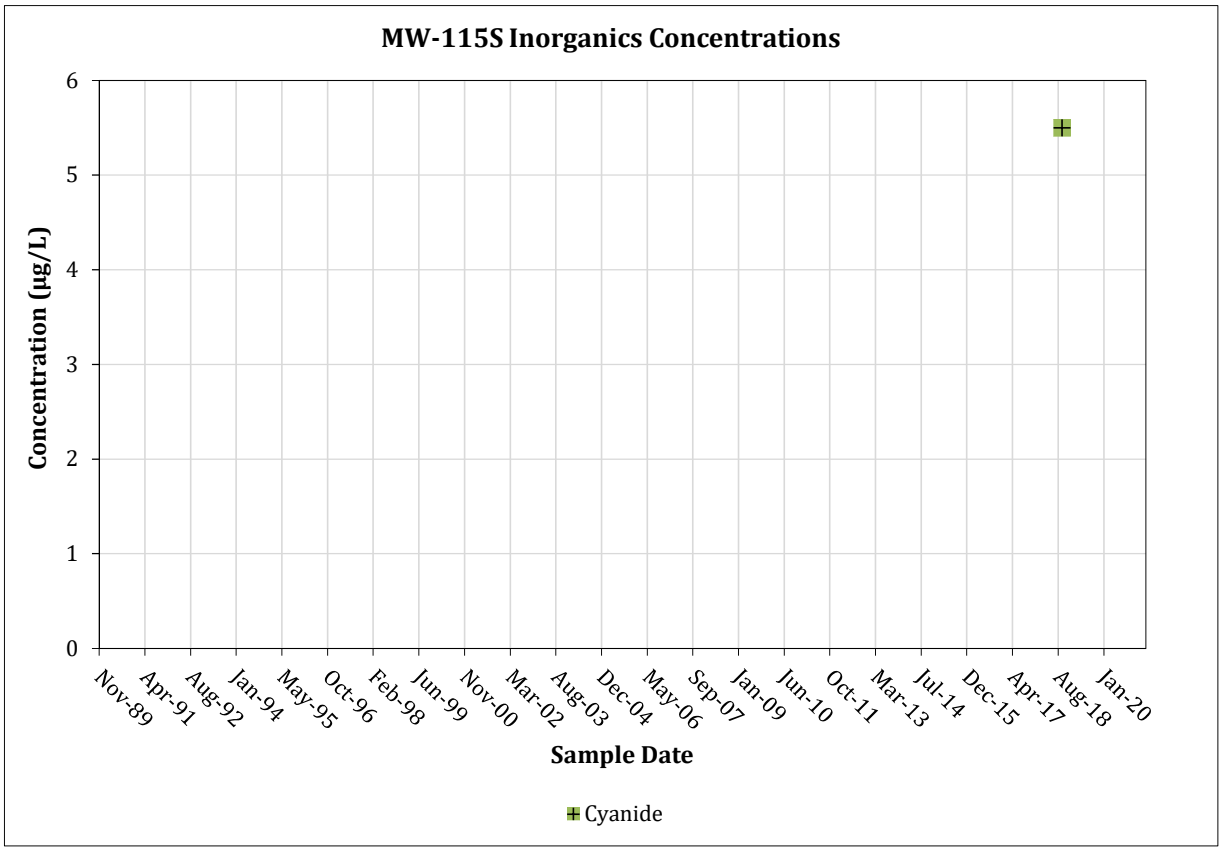

MW-113S Inorganics Concentrations
Concentration (µg/L)
18
16
14
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Cyanide

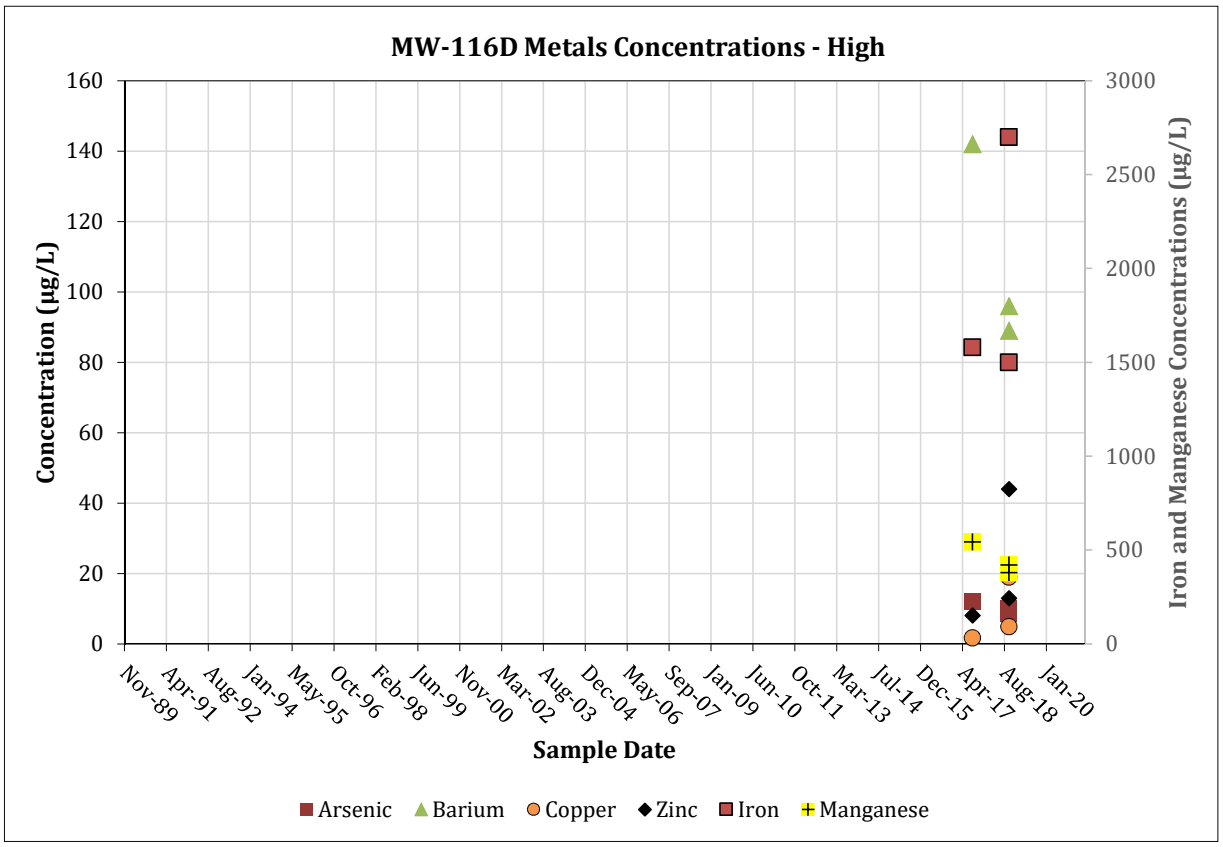

MW-115D Metals Concentrations - High
Concentration (µg/L)
140
120
100
80
60
40
20
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Iron

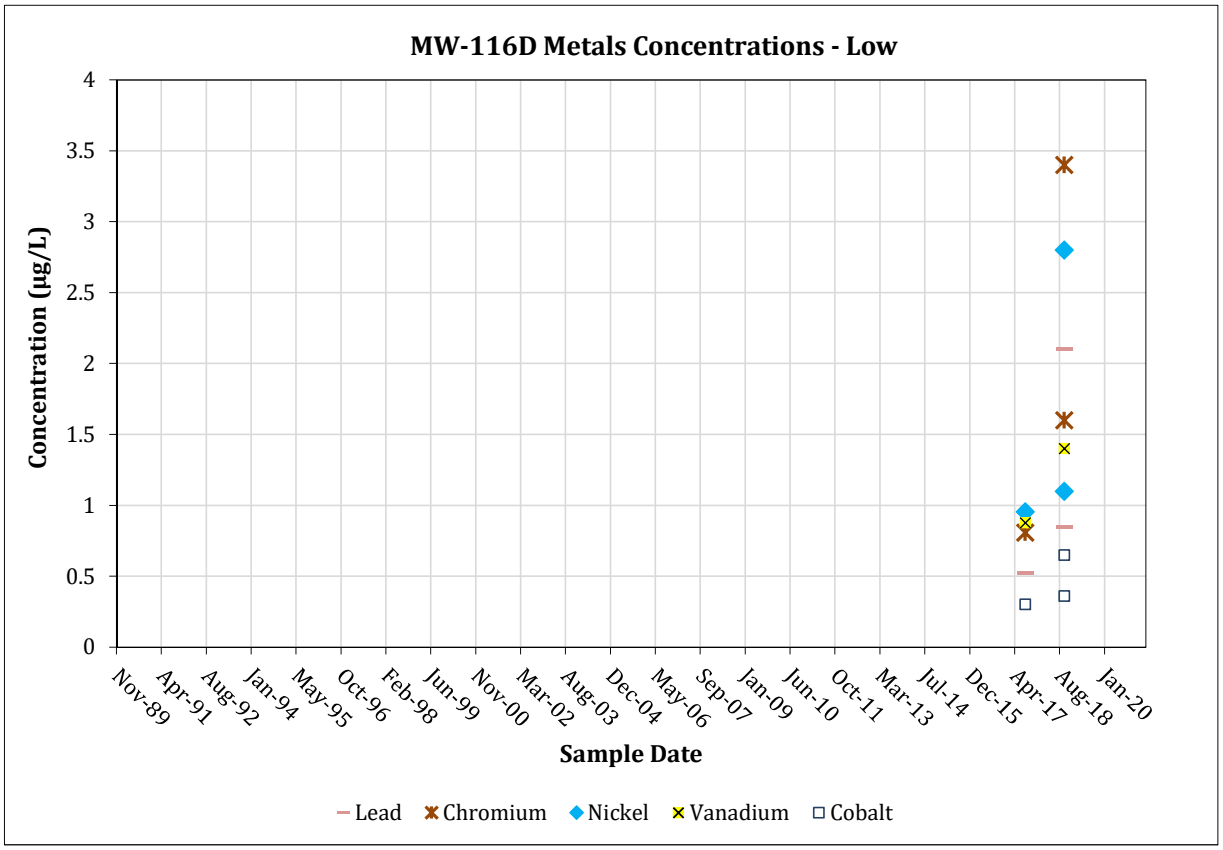

MW-115D Metals Concentrations - Low
Concentration (µg/L)
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Copper
Manganese
Chromium
Vanadium
Selenium

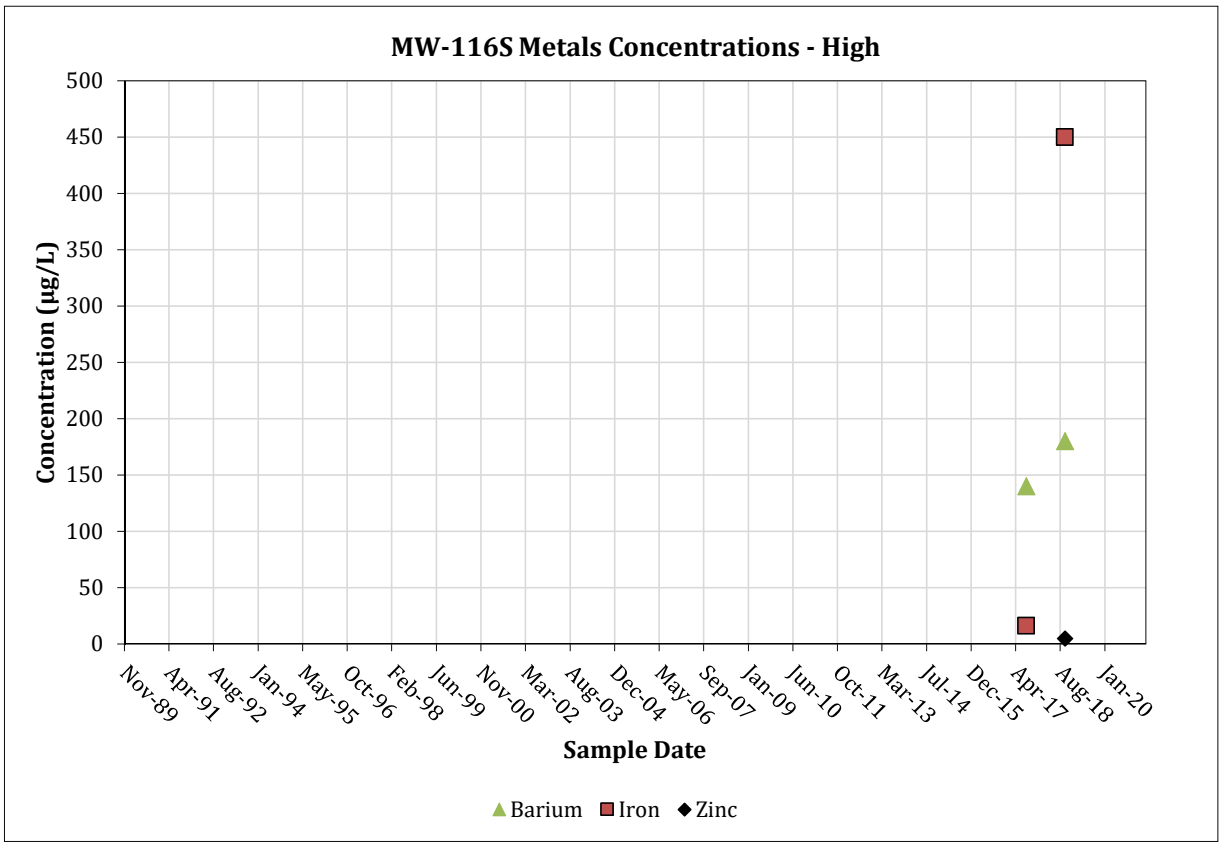

MW-115S Metals Concentrations - High
Concentration (µg/L)
160
140
120
100
80
60
40
20
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Iron

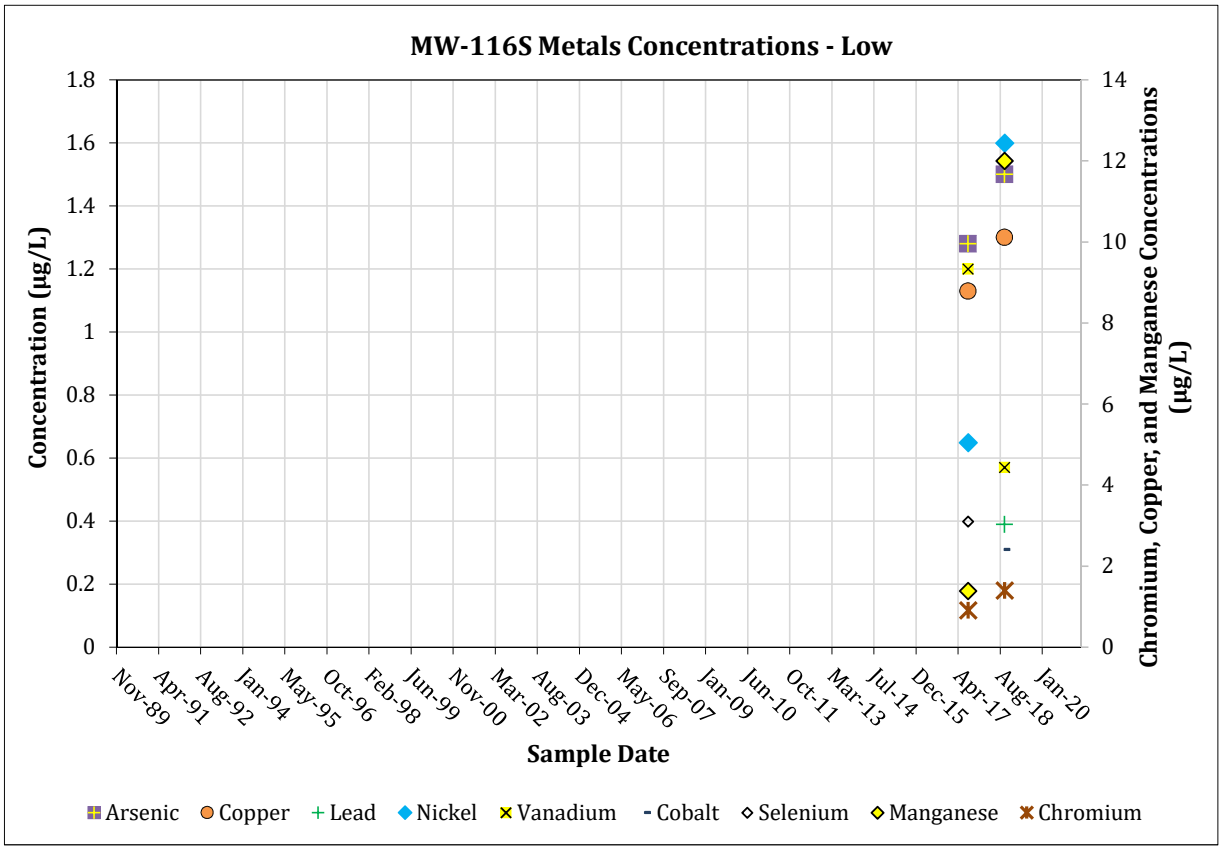

MW-115S Metals Concentrations - Low
Concentration (µg/L)
3
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Copper
Manganese
Vanadium
Zinc
Selenium
Chromium

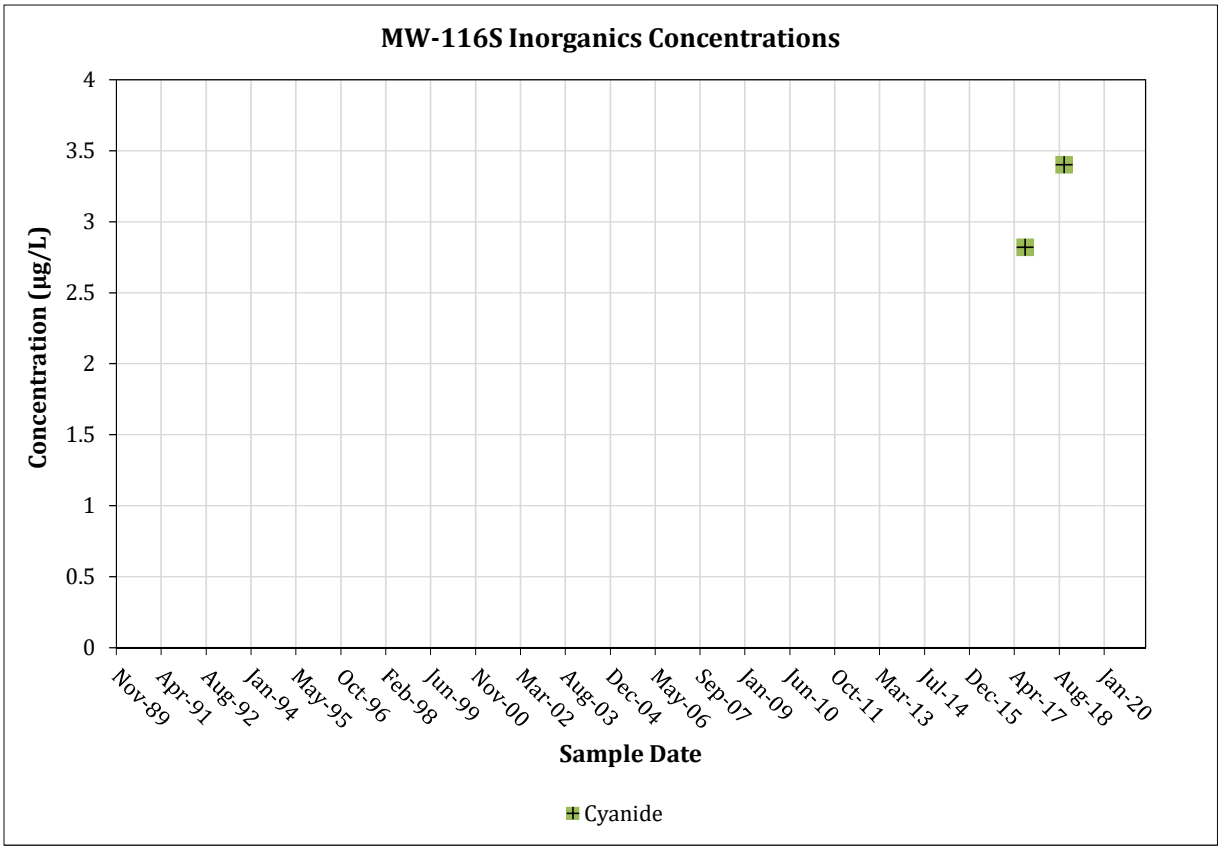

MW-115S Inorganics Concentrations
Concentration (µg/L)
0
1
2
3
4
5
6
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Cyanide

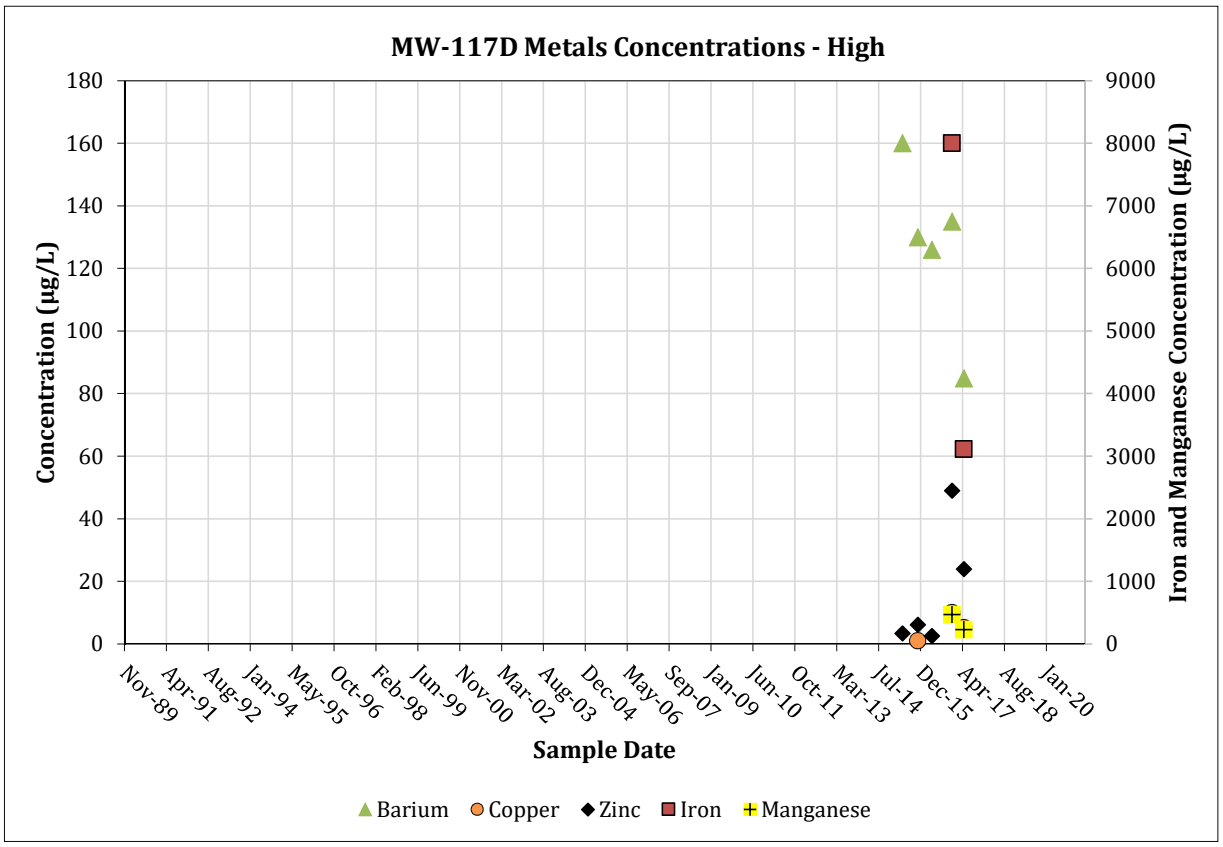

MW-116D Metals Concentrations - High
Concentration (µg/L)
Iron and Manganese Concentrations (µg/L)
Sample Date
Arsenic
Barium
Copper
Zinc
Iron
Manganese

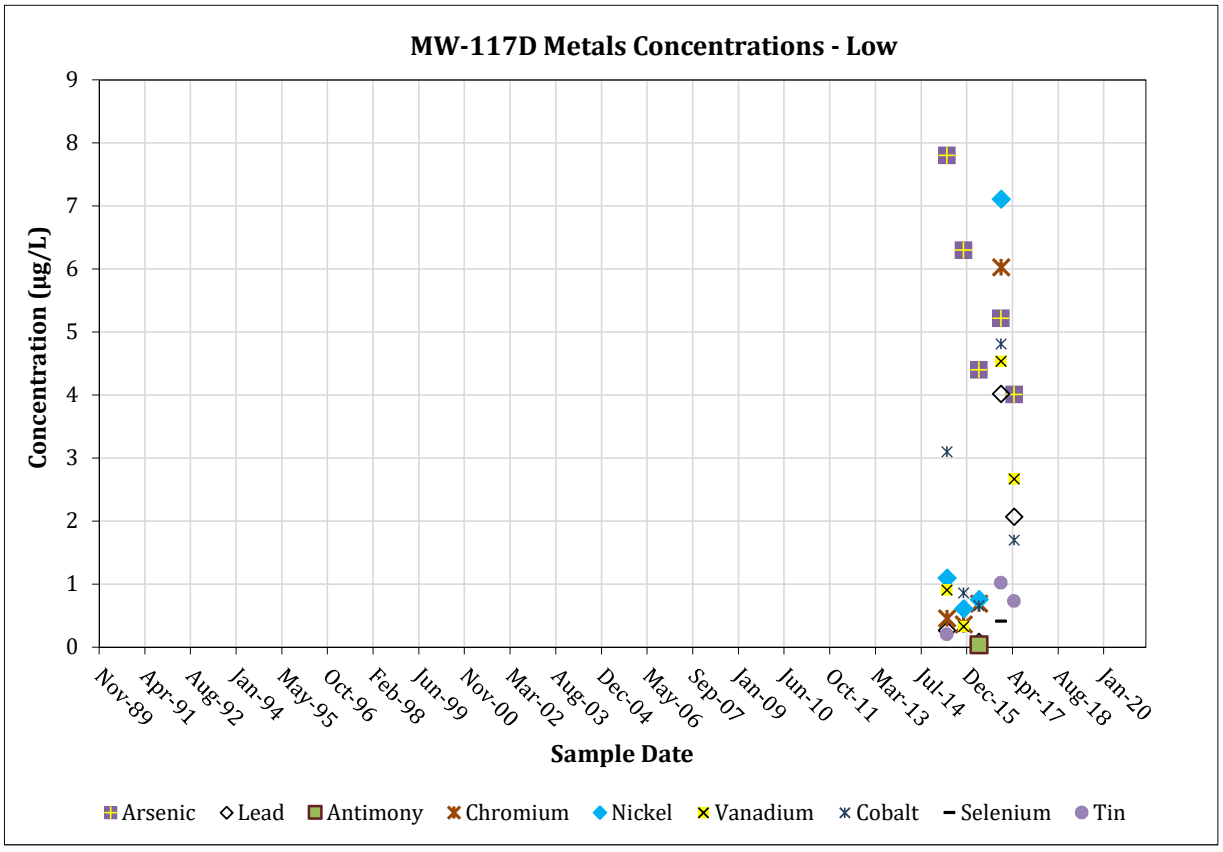

MW-116D Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Lead
Chromium
Nickel
Vanadium
Cobalt

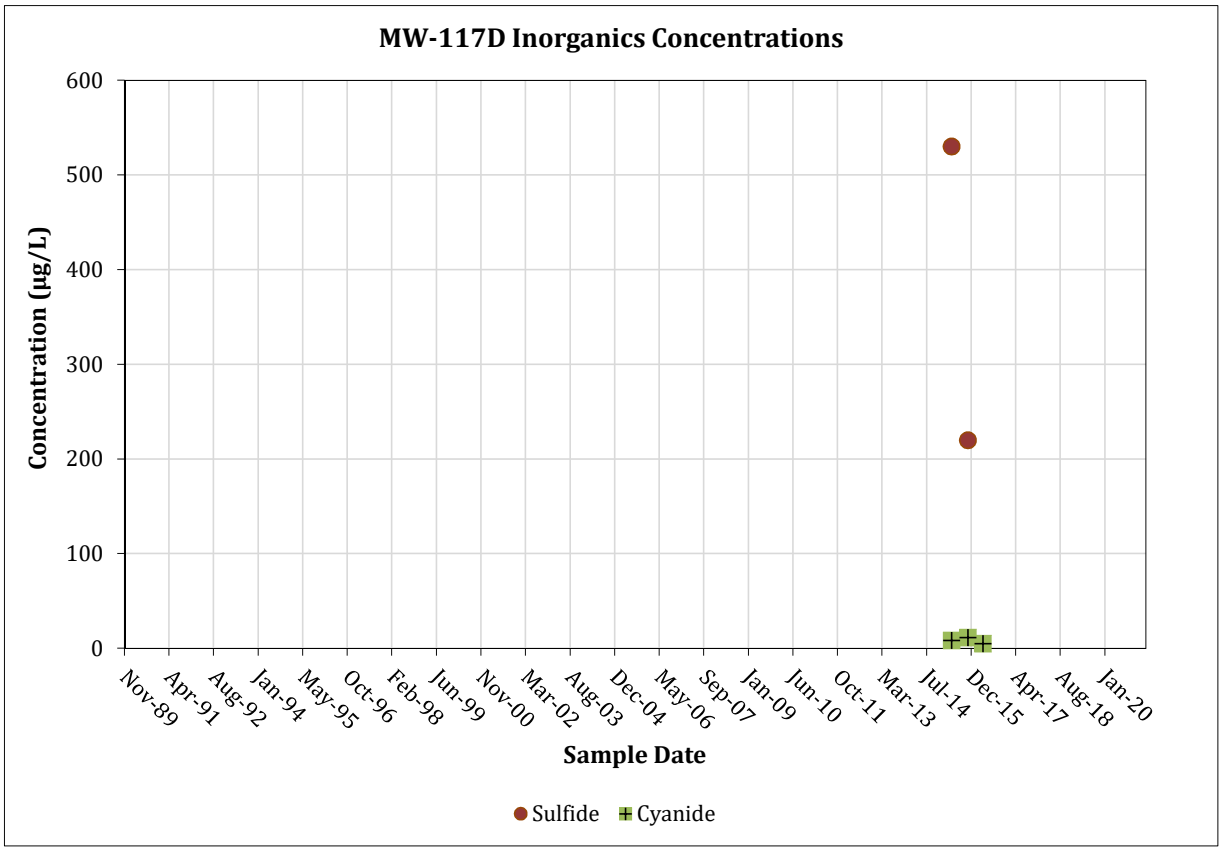

MW-116S Metals Concentrations - High
Concentration (µg/L)
500
450
400
350
300
250
200
150
100
50
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Iron
Zinc

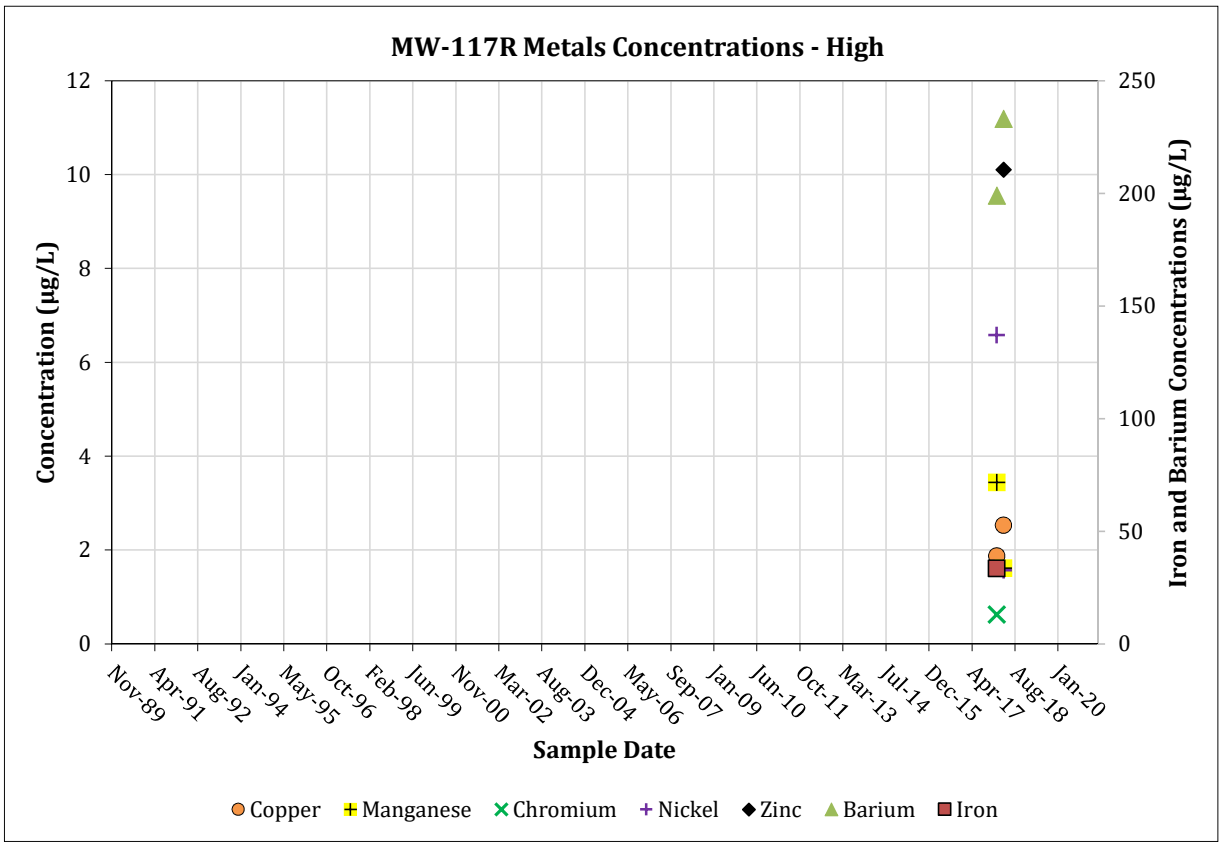

MW-116S Metals Concentrations - Low
Concentration (µg/L)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Chromium, Copper, and Manganese Concentrations (µg/L)
14
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Copper
Lead
Nickel
Vanadium
Cobalt
Selenium
Manganese
Chromium

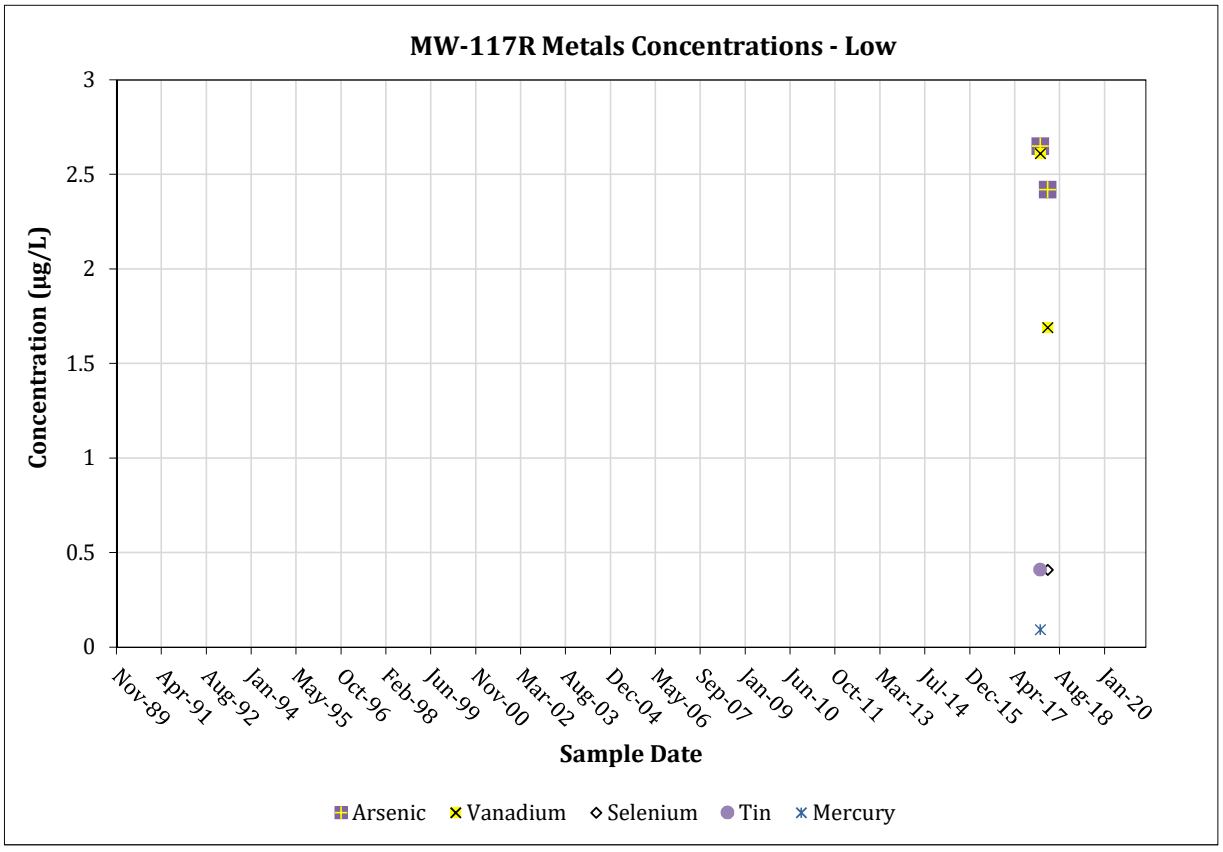

MW-116S Inorganics Concentrations
Concentration (µg/L)
4
3.5
3
2.5
2
1.5
1
0.5
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Cyanide

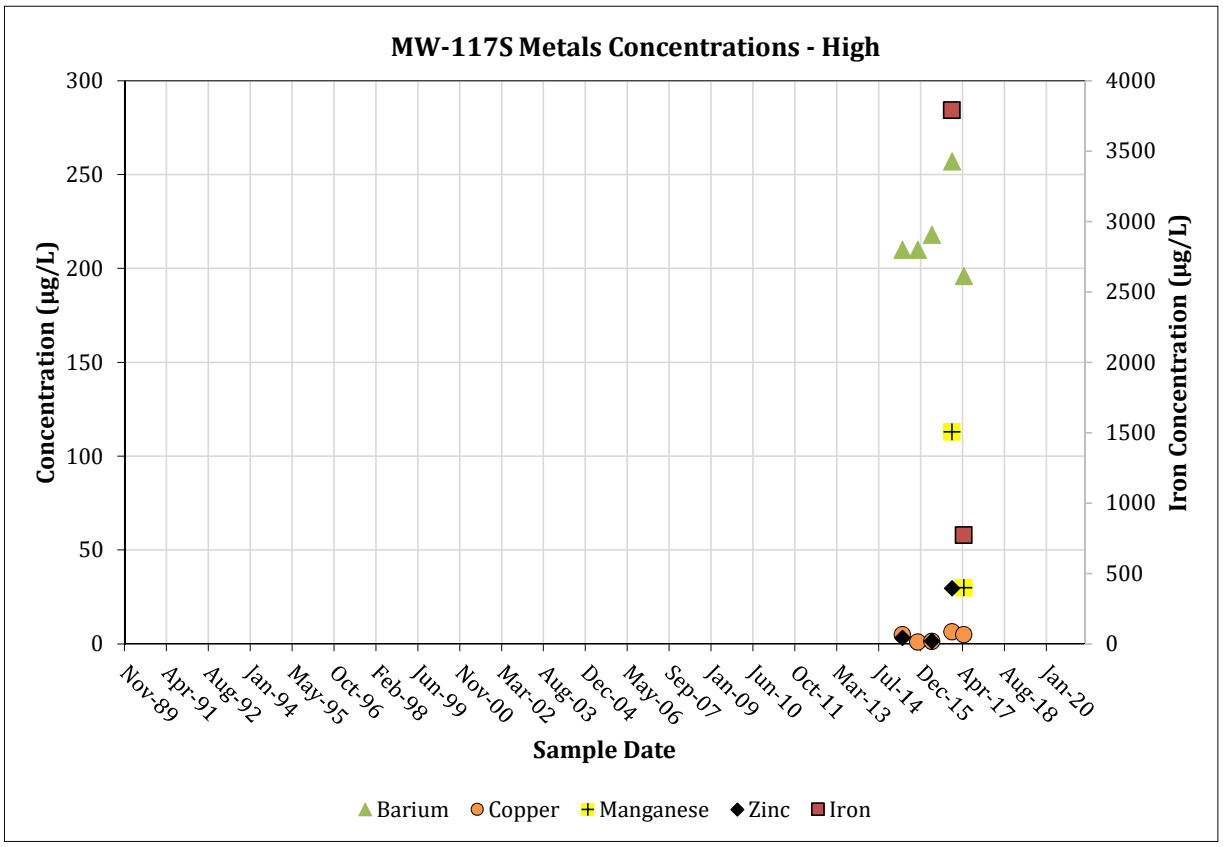

MW-117D Metals Concentrations - High
Concentration (µg/L)
Iron and Manganese Concentration (µg/L)
Sample Date
Barium
Copper
Zinc
Iron
Manganese

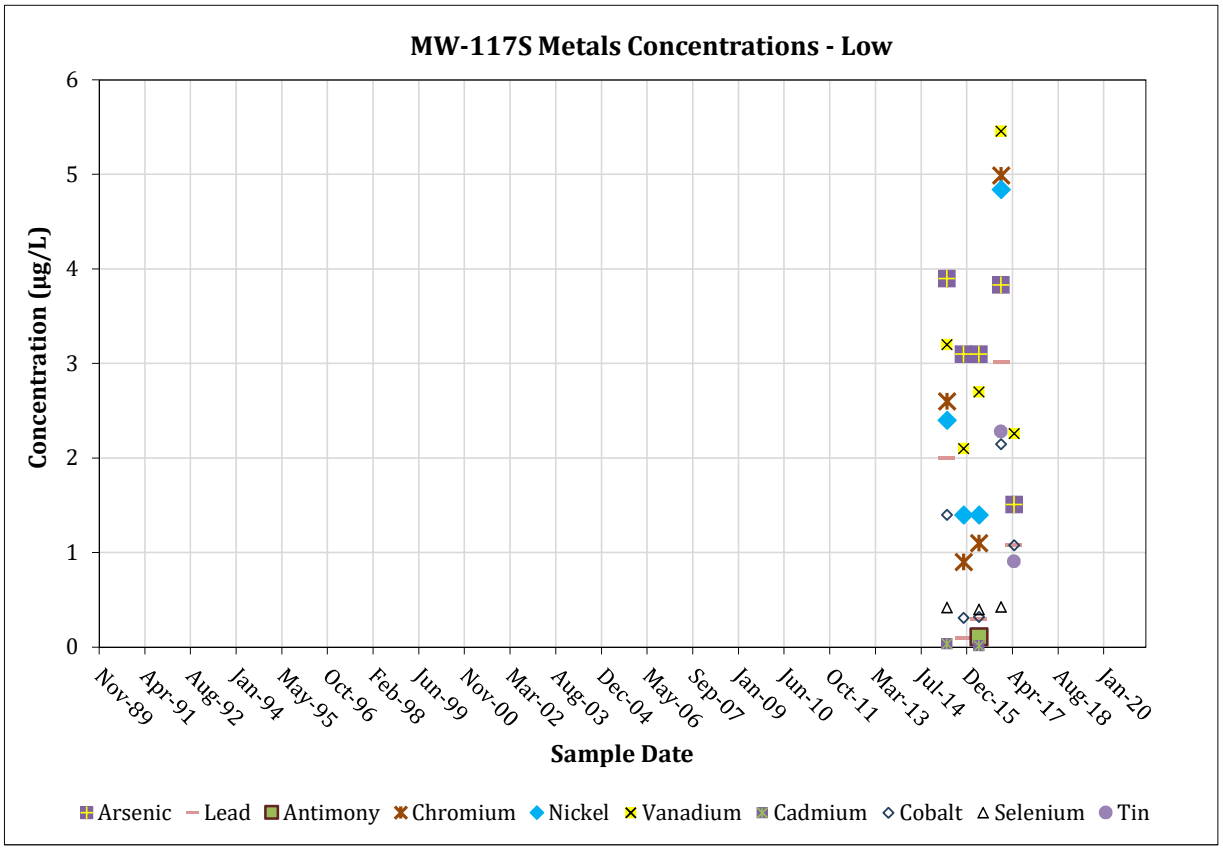

MW-117D Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Arsenic
Lead
Antimony
Chromium
Nickel
Vanadium
Cobalt
Selenium
Tin

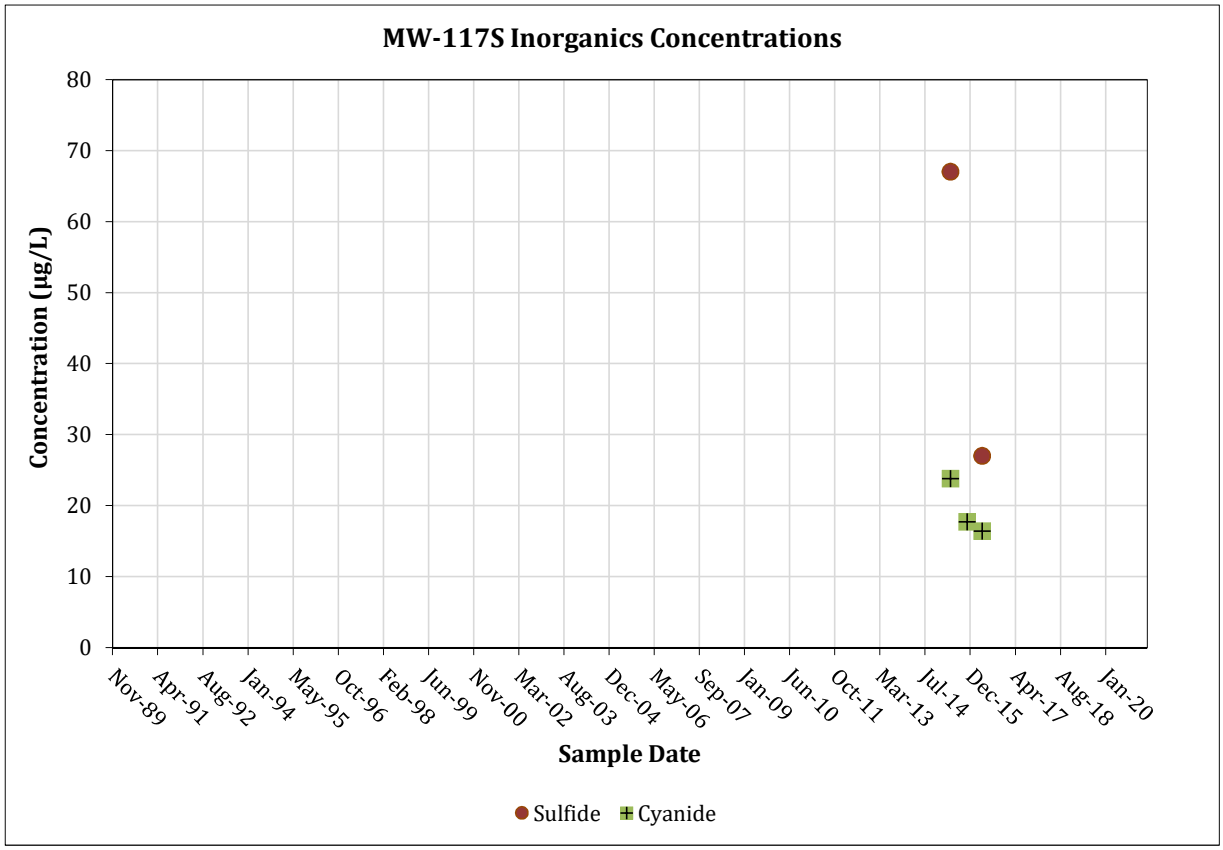

MW-117D Inorganics Concentrations
Concentration (µg/L)
600
500
400
300
200
100
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Sulfide
Cyanide

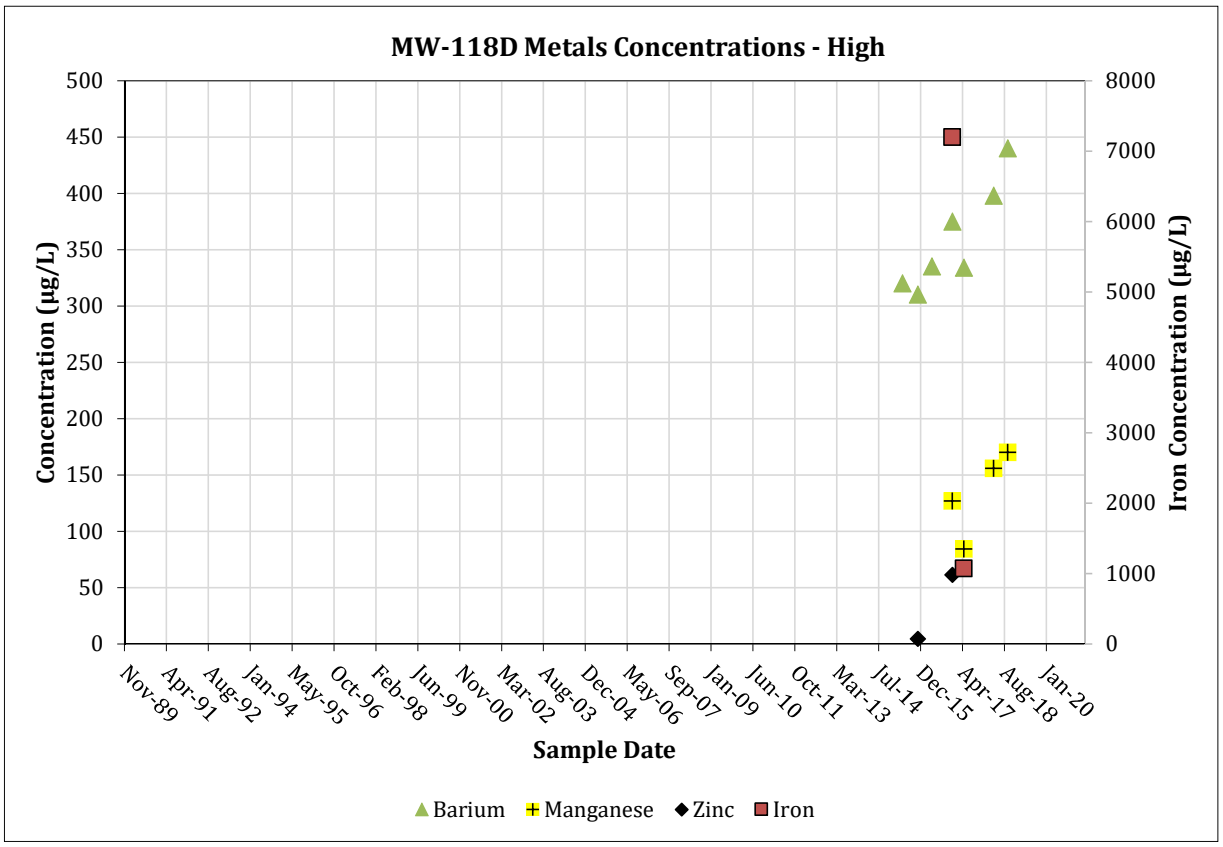

MW-117R Metals Concentrations - High
Concentration (µg/L)
Iron and Barium Concentrations (µg/L)
Sample Date
Copper
Manganese
Chromium
Nickel
Zinc
Barium
Iron

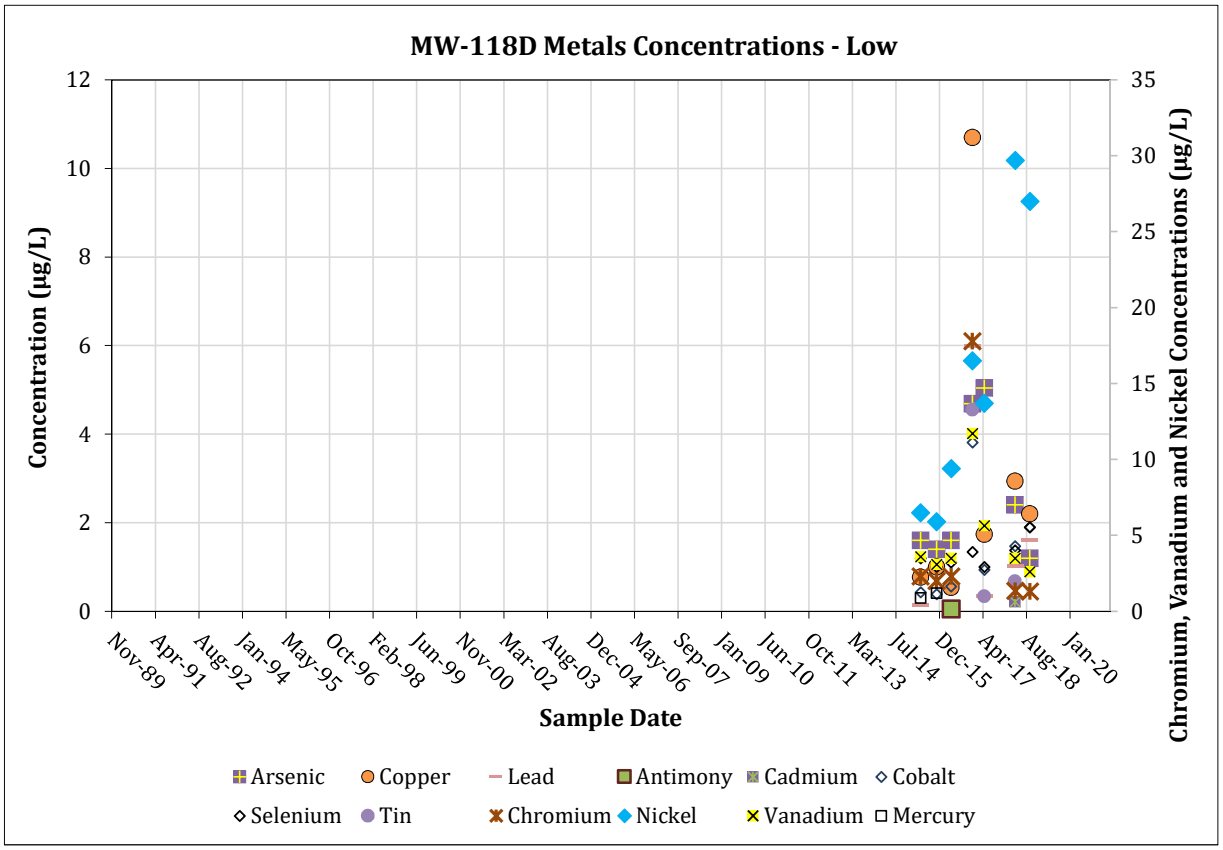

MW-117R Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Arsenic
Vanadium
Selenium
Tin
Mercury

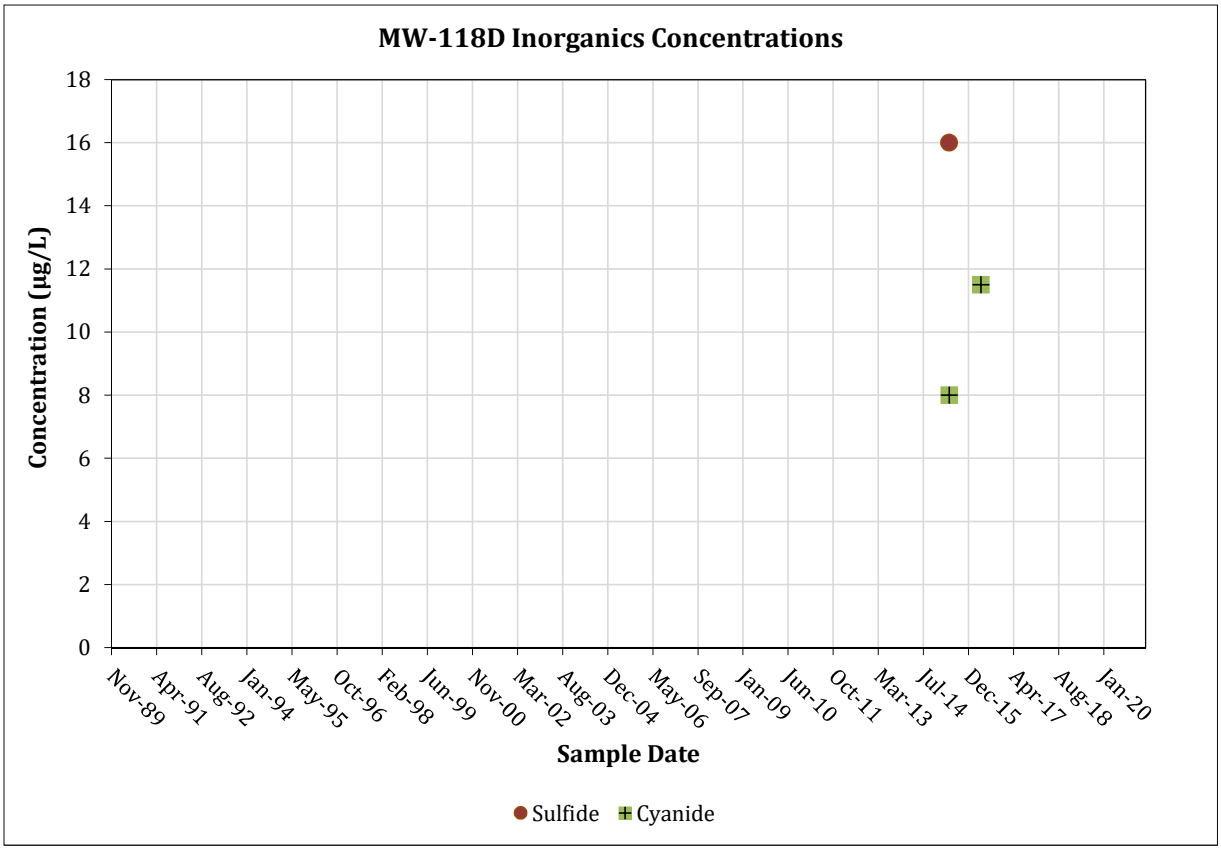

MW-117S Metals Concentrations - High
Concentration (µg/L)
Iron Concentration (µg/L)
300
250
200
150
100
50
0
4000
3500
3000
2500
2000
1500
1000
500
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Copper
Manganese
Zinc
Iron

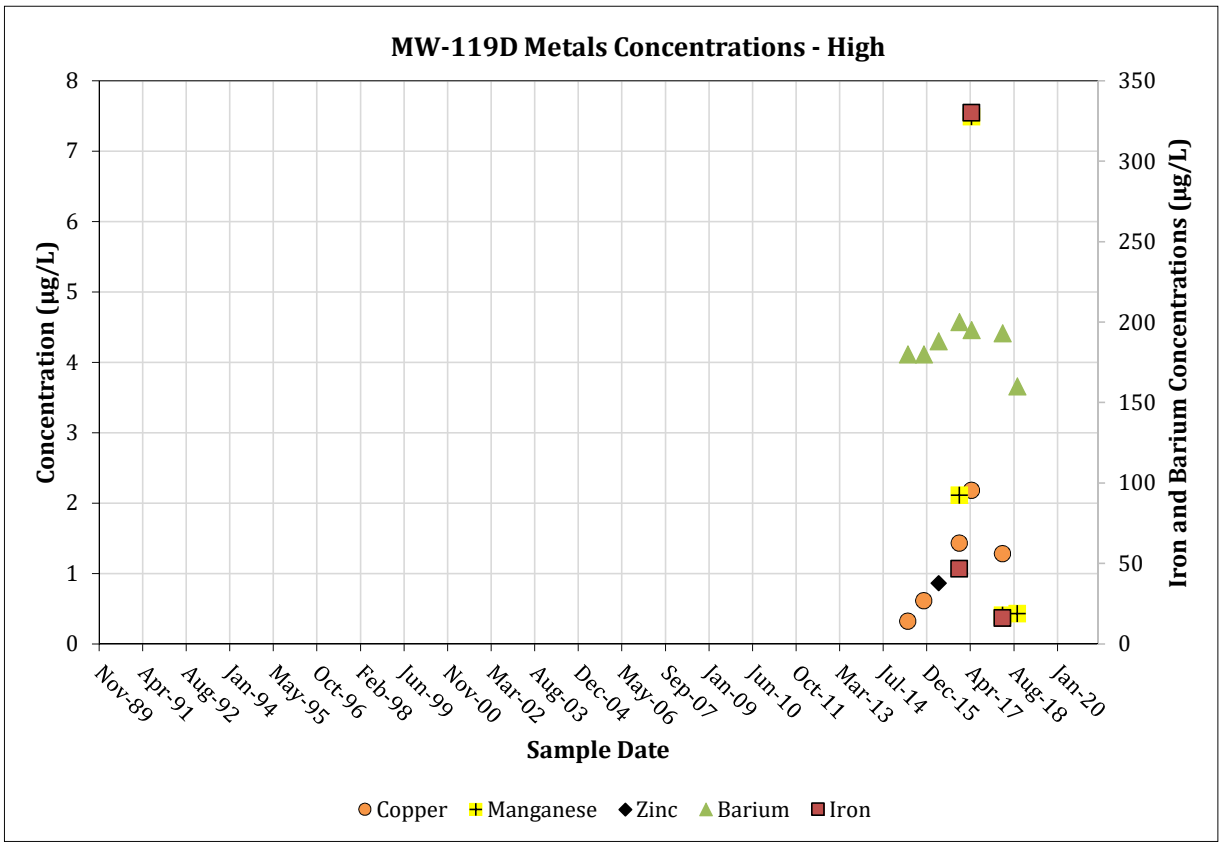

MW-117S Metals Concentrations - Low
Concentration (µg/L)
6
5
4
3
2
1
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Lead
Antimony
Chromium
Nickel
Vanadium
Cadmium
Cobalt
Selenium
Tin

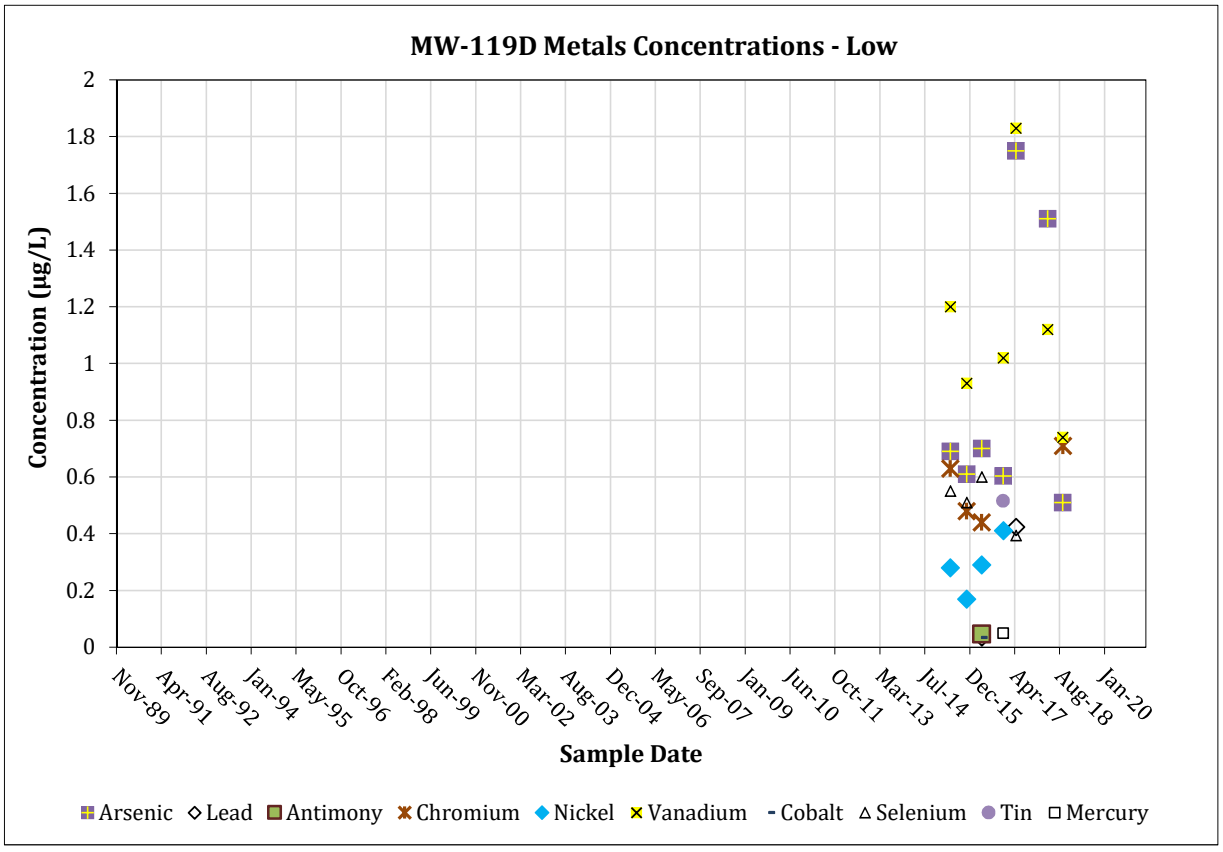

MW-117S Inorganics Concentrations
Concentration (µg/L)
80
70
60
50
40
30
20
10
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Sulfide
Cyanide

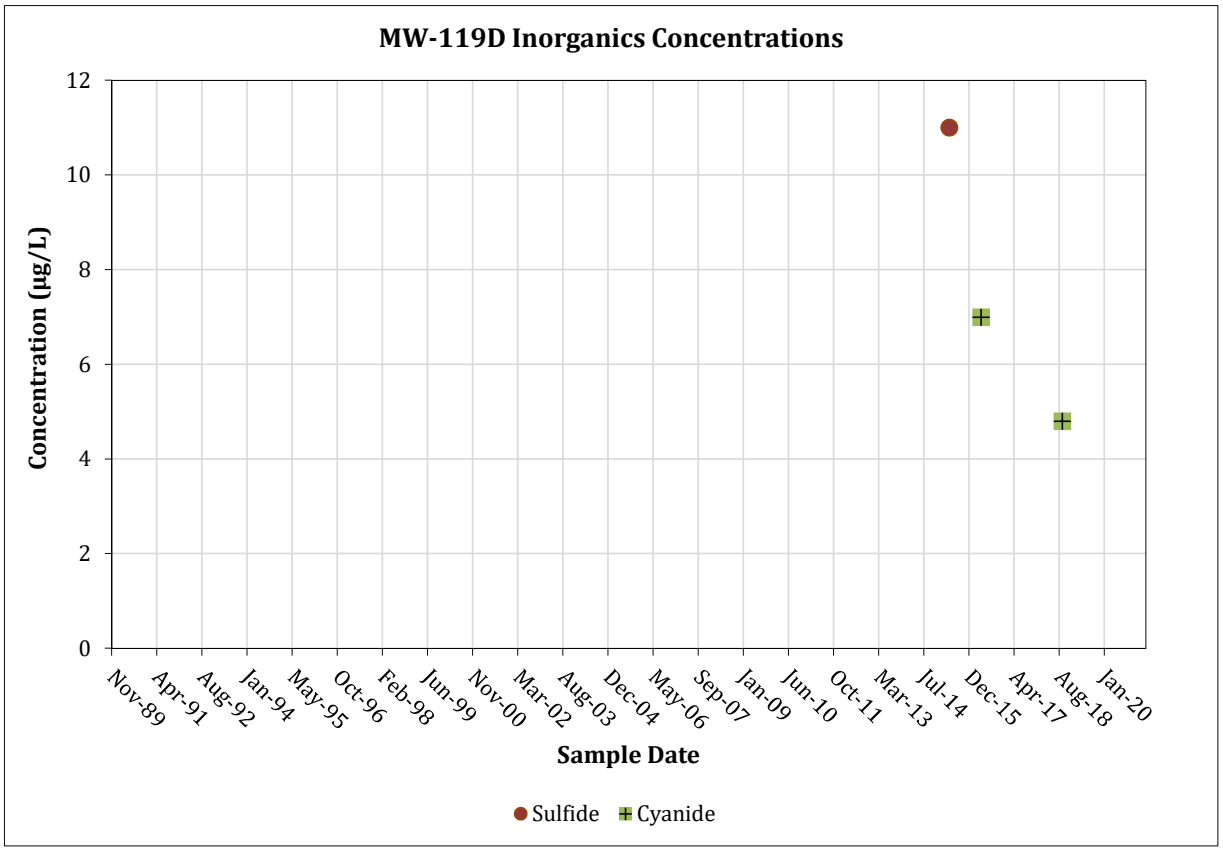

MW-118D Metals Concentrations - High
Concentration (µg/L)
Iron Concentration (µg/L)
Sample Date
Barium
Manganese
Zinc
Iron

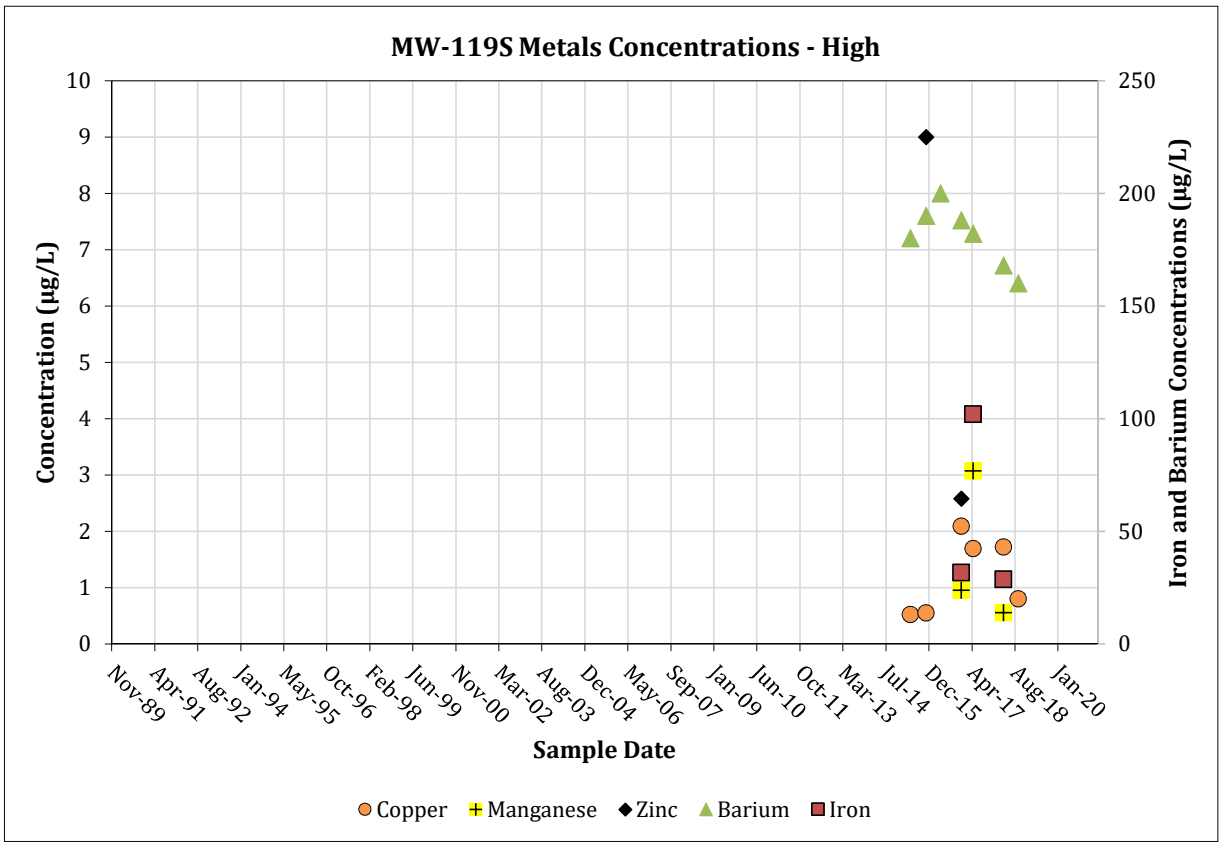

MW-118D Metals Concentrations - Low
Concentration (µg/L)
Chromium, Vanadium and Nickel Concentrations (µg/L)
Sample Date
Arsenic
Copper
Lead
Antimony
Cadmium
Cobalt
Selenium
Tin
Chromium
Nickel
Vanadium
Mercury

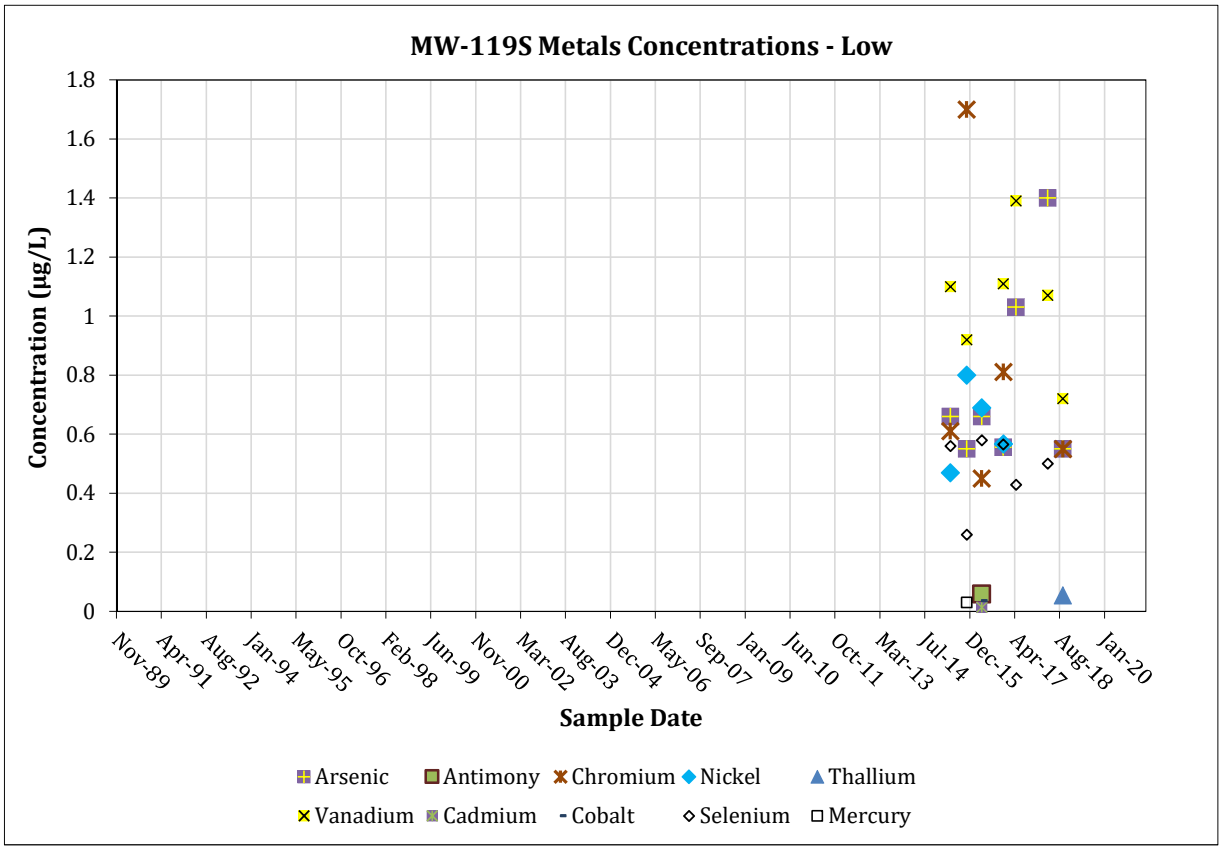

MW-118D Inorganics Concentrations
Concentration (µg/L)
18
16
14
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Sulfide
Cyanide

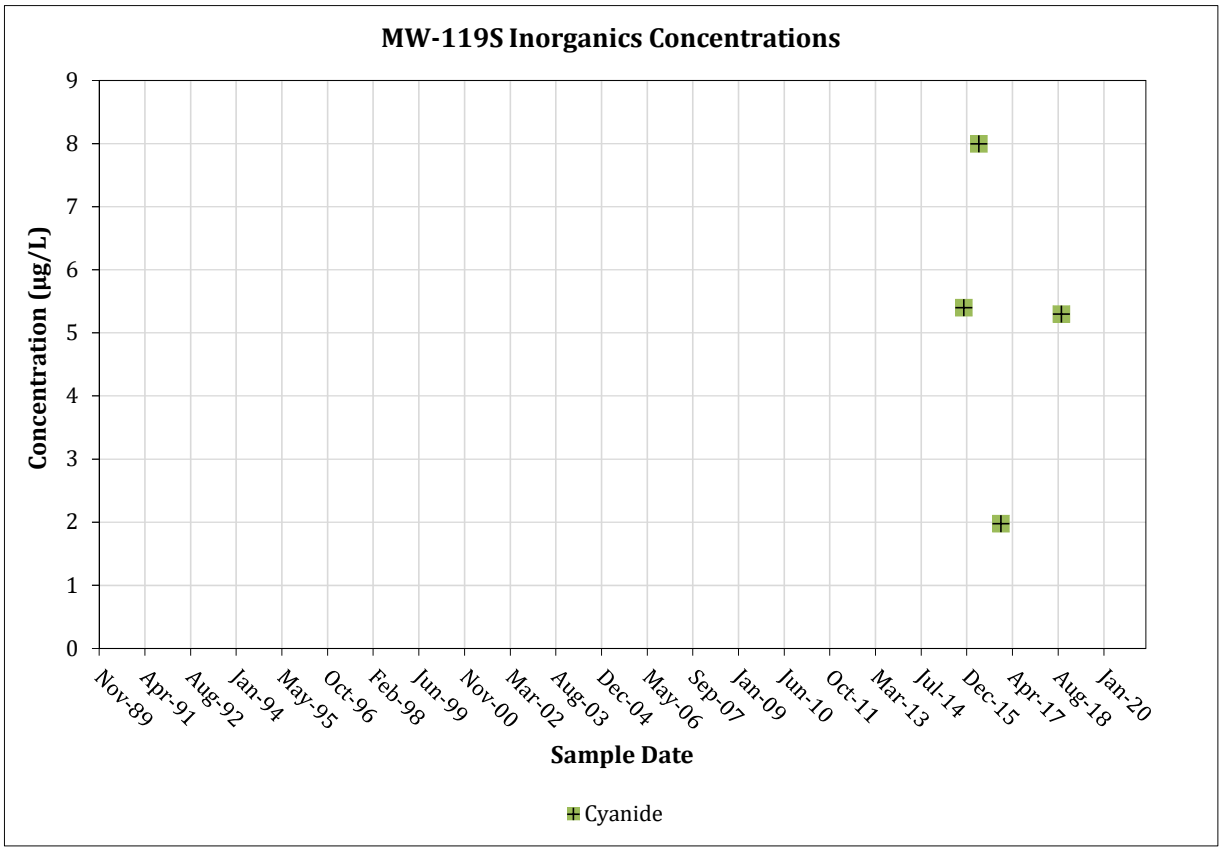

MW-119D Metals Concentrations - High
Concentration (µg/L)
Iron and Barium Concentrations (µg/L)
Sample Date
Copper
Manganese
Zinc
Barium
Iron

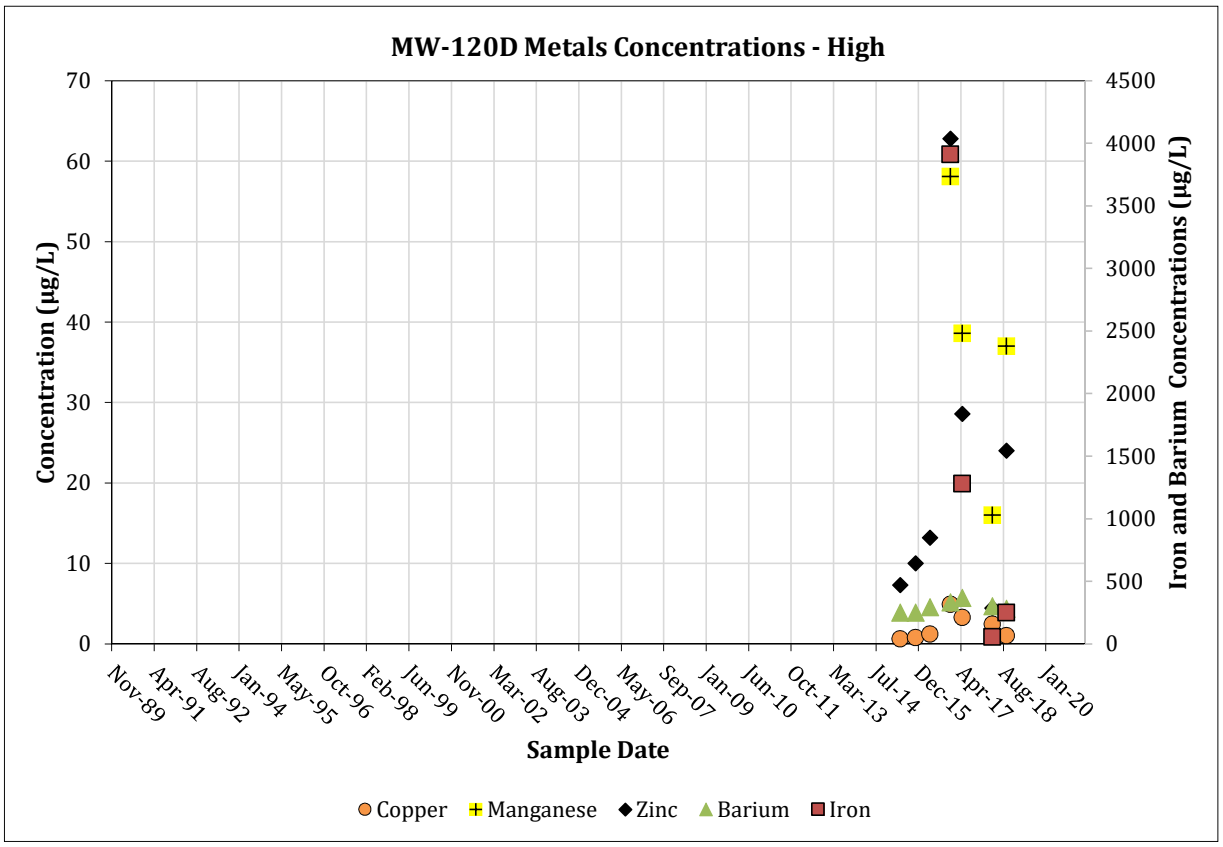

MW-119D Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Arsenic
Lead
Antimony
Chromium
Nickel
Vanadium
Cobalt
Selenium
Tin
Mercury

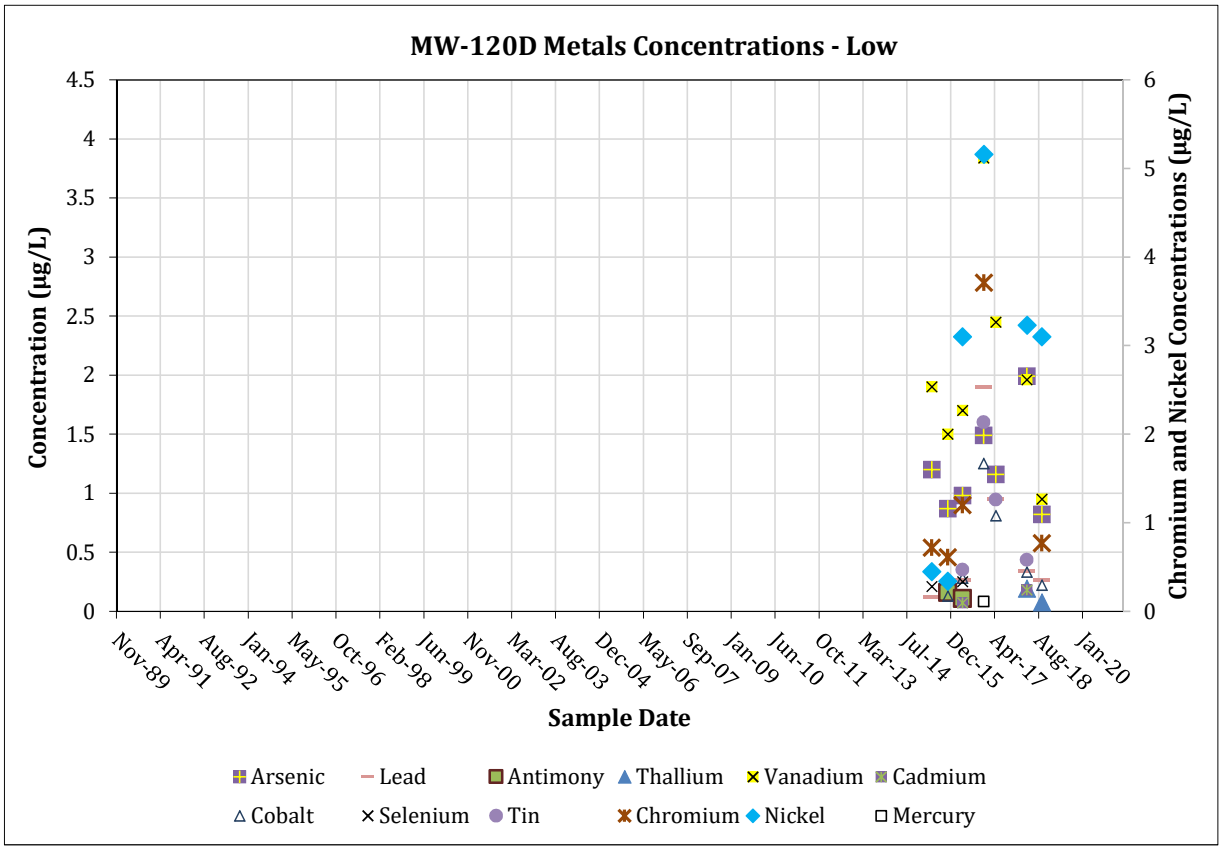

MW-119D Inorganics Concentrations
Concentration (µg/L)
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Sulfide
Cyanide

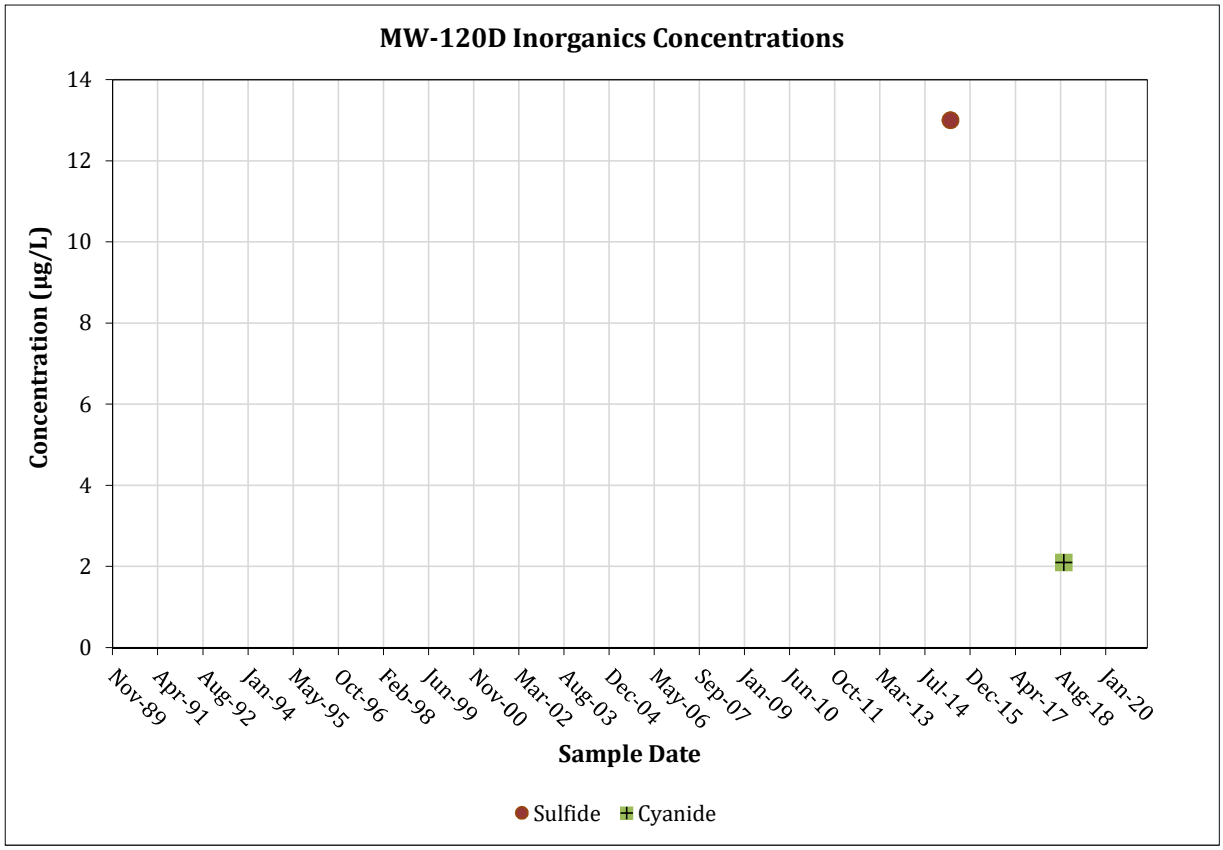

MW-119S Metals Concentrations - High
Concentration (µg/L)
Iron and Barium Concentrations (µg/L)
Sample Date
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Copper
Manganese
Zinc
Barium
Iron

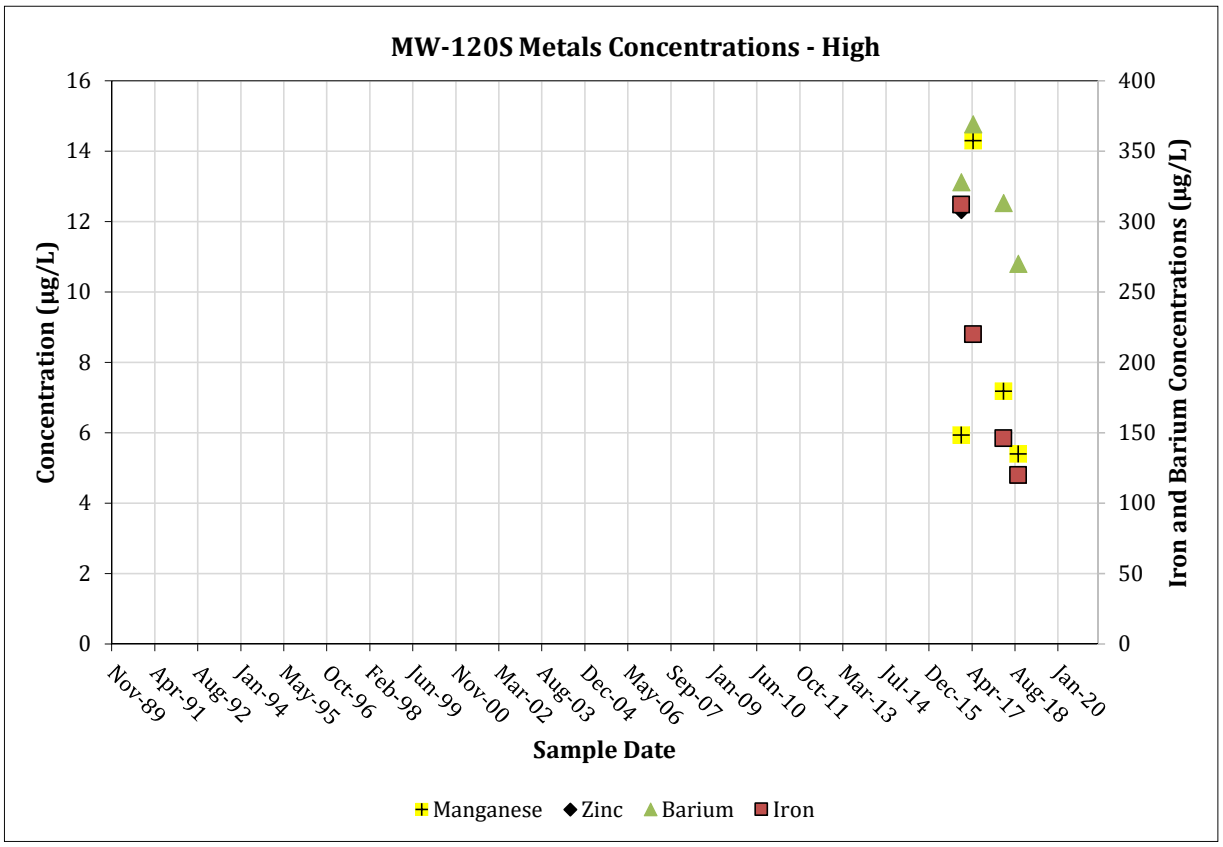

MW-119S Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Arsenic
Antimony
Chromium
Nickel
Thallium
Vanadium
Cadmium
Cobalt
Selenium
Mercury

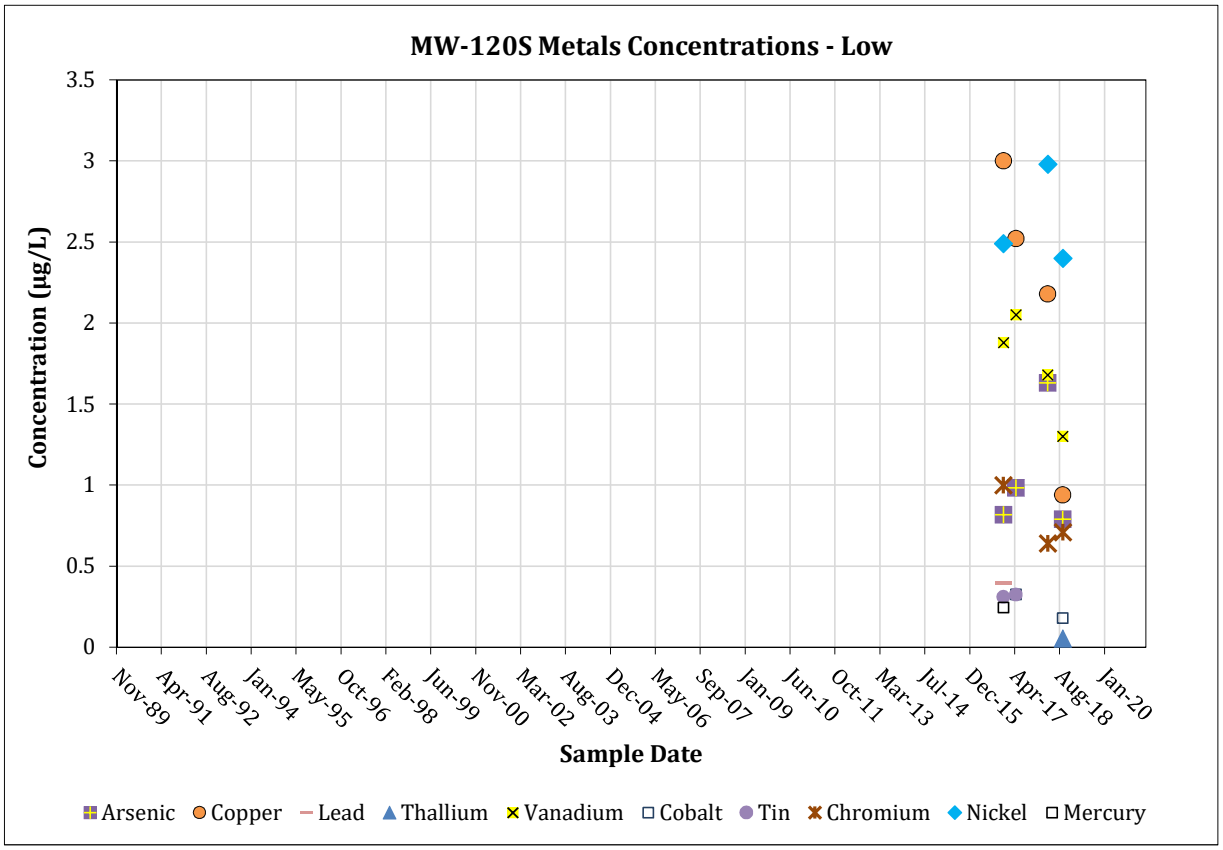

MW-119S Inorganics Concentrations
Concentration (µg/L)
0
1
2
3
4
5
6
7
8
9
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Cyanide

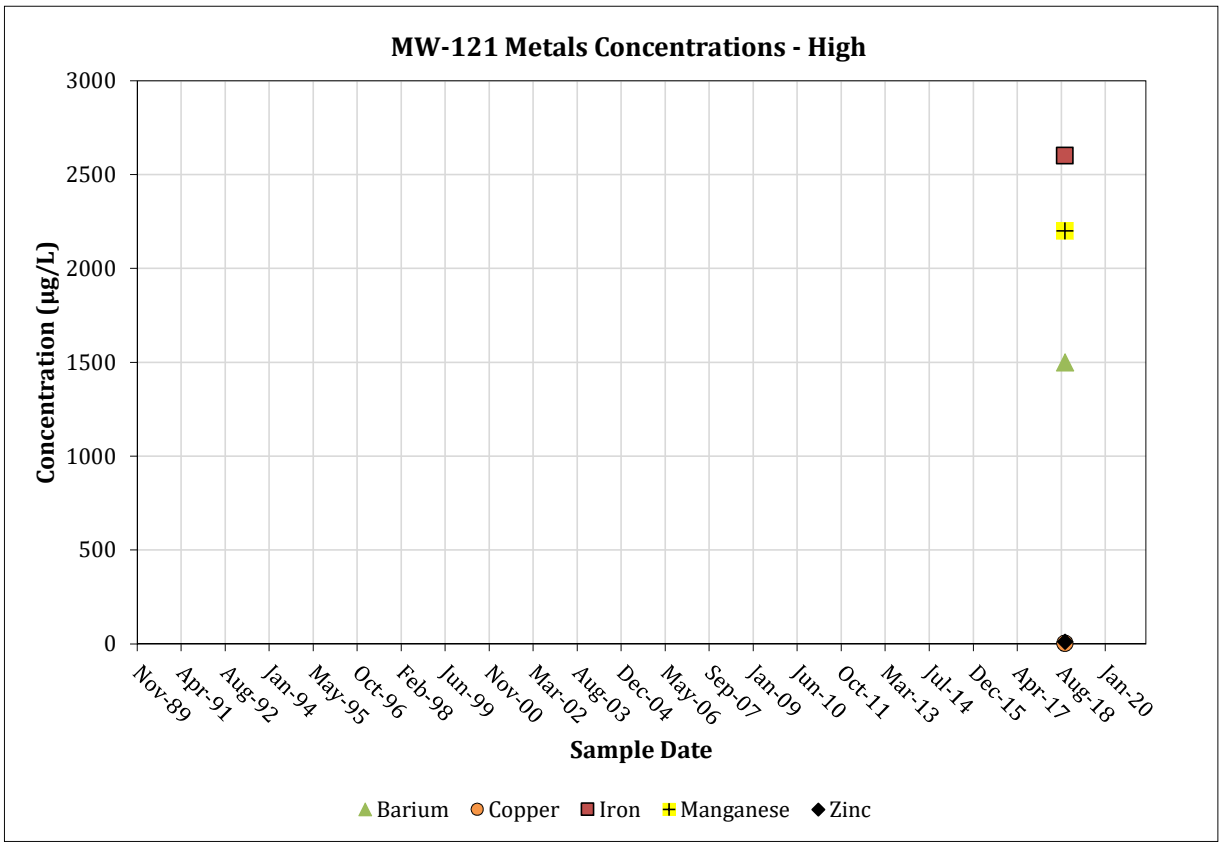

MW-120D Metals Concentrations - High
Concentration (µg/L)
Iron and Barium Concentrations (µg/L)
Sample Date
Copper
Manganese
Zinc
Barium
Iron

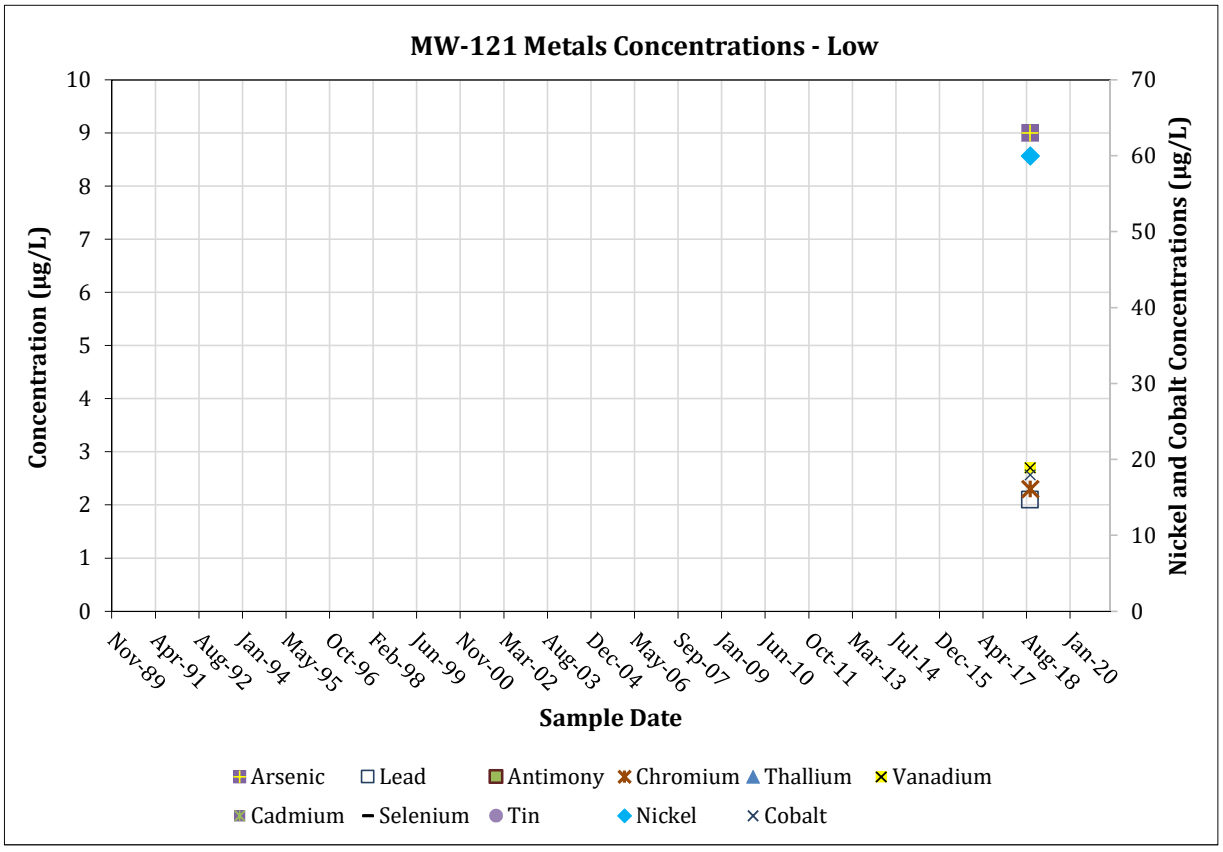

MW-120D Metals Concentrations - Low
Concentration (µg/L)
Chromium and Nickel Concentrations (µg/L)
Sample Date
Arsenic
Lead
Antimony
Thallium
Vanadium
Cadmium
Cobalt
Selenium
Tin
Chromium
Nickel
Mercury


MW-120D Inorganics Concentrations
Concentration (µg/L)
14
12
10
8
6
4
2
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Sulfide
Cyanide


MW-120S Metals Concentrations - High
Concentration (µg/L)
Iron and Barium Concentrations (µg/L)
Sample Date
Manganese
Zinc
Barium
Iron


MW-120S Metals Concentrations - Low
Concentration (µg/L)
Sample Date
Arsenic
Copper
Lead
Thallium
Vanadium
Cobalt
Tin
Chromium
Nickel
Mercury


MW-121 Metals Concentrations - High
Concentration (µg/L)
3000
2500
2000
1500
1000
500
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Barium
Copper
Iron
Manganese
Zinc


MW-121 Metals Concentrations - Low
Concentration (µg/L)
Nickel and Cobalt Concentrations (µg/L)
10
9
8
7
6
5
4
3
2
1
0
70
60
50
40
30
20
10
0
Nov-89
Apr-91
Aug-92
Jan-94
May-95
Oct-96
Feb-98
Jun-99
Nov-00
Mar-02
Aug-03
Dec-04
May-06
Sep-07
Jan-09
Jun-10
Oct-11
Mar-13
Jul-14
Dec-15
Apr-17
Aug-18
Jan-20
Sample Date
Arsenic
Lead
Antimony
Chromium
Thallium
Vanadium
Cadmium
Selenium
Tin
Nickel
Cobalt