# 2022 Annual Status Report
# Boomsnub/Airco Superfund Site
# Hazel Dell, Washington

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## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AOC | Area of Concern |
| BOC | The BOC Group, Inc. |
| Boomsnub | Boomsnub Corporation |
| CAS | Chemical Abstract Service |
| CD | Consent Decree |
| City | City of Vancouver |
| COC | Contaminant of concern |
| CVOC | Chlorinated volatile organic compound |
| DCE | dichloroethene |
| EA | EA Engineering, Science, and Technology, Inc., PBC |
| Ecology | Washington State Department of Ecology |
| EPA | U.S. Environmental Protection Agency |
| ft | feet |
| GWTS | Groundwater Extraction and Treatment System |
| IWS | in-well stripping |
| µg/L | micrograms per liter |
| MCL | Maximum Contaminant Level |
| MTCA | Model Toxics Control Act |
| Messer | Messer LLC |
| NFS | no further sampling |
| O&M | operation and maintenance |
| OU | operable unit |
| PDB | passive diffusion bag |
| QASP | Quality Assurance and Sampling Plan |
| ROD | Record of Decision |
| Site | Boomsnub/Airco Superfund Site |
| SVE | soil vapor extraction |

## LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

| | |
|---|---|
| TCE | trichloroethene |
| VOC | volatile organic compound |

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# EXECUTIVE SUMMARY

## Introduction

This Annual Status Report summarizes information on activities that took place during 2022 at the Boomsnub/Airco Superfund Site (Site) in Hazel Dell, Washington. EA Engineering, Science, and Technology, Inc., PBC (EA). Under contract to Messer LLC (Messer), completed site-wide maintenance, groundwater monitoring and other Environmental Protection Agency (EPA)-approved remedial activities. Work at the Site is conducted under a Consent Decree between the EPA and The BOC Group, Inc. (herein referred to as Messer)[1], Docket Number CO7-5163FDB, which was entered by the court on June 29, 2007 (EPA 2007). In 2022 continued reductions of TCE concentrations were observed within most in-situ treatment areas, with a subset of locations identified as requiring evaluation for further treatment to meet remedial goals. Additionally, in 2022 chromium monitoring on the Boomsnub property did not show migration of the residual chromium. Closure monitoring continued to progress a significant number of wells with COC concentrations below applicable MCLs through remediation and attainment monitoring.

## 2022 Operable Unit (OU)-3 System Operations

The Groundwater Extraction and Treatment System (GWTS) was turned off, drained, and winterized on January 3, 2021, with prior approval from the EPA. The GWTS will remain in this "mothballed" state unless the EPA or Messer elects to reactivate the system. In July 2022, the GWTS Intermediate Wellhouse was damaged by a single vehicle accident and thus approved for decommissioning; these on-going activities are discussed further in Section 4.3. Due to recent construction activities associated with the PacTrust Corporate Park development, one monitoring well (MW-34) was decommissioned in 2022. Two other monitoring wells (AMW-17 and MW-12A) were found in need of rehabilitation. These are discussed in Section 2.5.

## 2022 Annual Screening of Groundwater Monitoring Data

Annual screening of groundwater monitoring data is conducted for each monitoring and extraction well currently sampled. As described in the Closure Plan, dated February 2018, and approved by the EPA on March 19, 2018, site closure will occur when the concentrations of all Site contaminants of concern in groundwater monitoring and extraction wells included in the Closure Monitoring Program have reached the Site-specific cleanup levels, as defined in the Record of Decision (EPA 2001). The following EPA guidance documents were used to develop the procedures in the Closure Plan to determine when the groundwater cleanup levels have been achieved: *Recommended Approach for Evaluating Completion of Groundwater Restoration Remedial Actions at a Groundwater Monitoring Well* (EPA 2014), and *Guidance for Evaluating Completion of Groundwater Restoration Remedial Actions* (EPA 2013).

## Status of Previous Recommendations for 2022

1 The BOC Group, Inc. (BOC) changed its name to Linde LLC and then, as of 1 March 2019, Linde LLC changed its name to Messer LLC. For ease of reporting, references to Messer in this report include the period of BOC and Linde responsibility prior to 1 March 2019.

To meet the operating objectives for OU-2 and OU-3, planned activities for 2022 were recommended in the 2021 Annual Status report (EA 2022d). The status of the 2022 planned activities is summarized below:

- **Well Sampling** – Wells were sampled in accordance with the updated sampling schedule.
- **Easement Agreements and Restrictive Covenants** – EA continued to work with the EPA as necessary to obtain the required agreements with non-responsive property owners. EA will continue efforts to obtain agreements as opportunities and need arise.
- **PacTrust Corporate Park** – Pacific Realty Associates, L.P. (the property owner), and PacTrust Development (the property developer), were kept informed of activities on the property during 2022. EA will continue to work with them regarding 2023 real estate development activities.
- **In-Situ Treatments** –Analysis of trichloroethene (TCE) trends shows that in-situ injections completed on August 1, 2020, have been effective at accelerating TCE mass removal in areas of recalcitrant contamination.
- **Northern Plume** – EA continues to work with EPA to develop a strategy for closure of OU-3 wells being impacted by the Northern Plume.

**Recommendations and Planned Activities for 2023**

Based on the results of the annual screening of groundwater monitoring data through 2022, the following changes to monitoring frequencies are recommended for 2023:

- To provide continued monitoring of the in-situ treatment area west of NE St. Johns Road, sampling frequency will continue to be semiannual in Intermediate wells AMW-59, MW-14E, MW-20D, MW-38 (volatile organic compounds [VOCs] only), Northern Plume, and PZ-39 (VOCs only). CPU-14 will be sampled semiannually for VOCs and chromium.
- No further sampling is recommended for TCE in Church of God well CPU-12; attainment monitoring was completed in 2022.
- Continue Attainment Monitoring for all wells made eligible through the onset of steady state hydrologic conditions caused by the shutdown of the GWTS.

The GWTS will remain in a state of readiness, should regular monitoring of chromium concentrations around the treatment system building in 2023 indicate migration of chromium, in response to which the EPA may elect to reactivate the system. If the system remains unused, it will be decommissioned when the wells in the network that it services have achieved attainment.

Messer recommends additional monitoring for chromium in monitoring wells located around the GWTS post-shutdown. The wells that Messer recommends for monitoring for the duration of the

GWTS mothball period are MW-3A, MW-4A, MW-4B, MW-4C, MW-6A, MW-6B, and MW-9B. Chromium concentrations in monitoring wells adjacent to the GWTS (such as MW-6A) have not been positively impacted by the GWTS for a period approaching 15 years (EA 2020). The GWTS will need to be removed, and the contaminated residual soil excavated, to achieve chromium cleanup levels in the affected monitoring wells in the vicinity of the GWTS. Additional monitoring in this area will identify any change to the residual chromium plume concentration or configuration in the period between GWTS shutdown and final soil excavation. The aforementioned wells were sampled semi-annually in 2022, per the recommendations of the September 23, 2020 Memorandum (EA 2020) and the 2021 Annual Report (EA 2022); the sampling frequency for these wells will continue to be performed on a semi-annual basis in 2023.

Messer plans on continuing to sample wells in the remediation monitoring stage and wells in the attainment monitoring stage on a semi-annual basis in 2023. With the GWTS shutdown having occurred in January 2021, Messer recommends that sampling of monitoring wells in the Attainment Monitoring phase of closure monitoring occur on a semi-annual basis for the first four events, as described in the Closure Plan (EA 2018). Semi-annual Quality Assurance and Sampling Plan (QASP) Addenda will precede semi-annual sampling events.

As described in a technical memorandum dated September 23, 2020 (EA 2020), in-situ treatment of remaining “hot spots” is planned as the means of addressing residual TCE contamination in the mid-plume and source areas. Specific recommendations for each monitoring location are discussed below and outlined in Table 5-2.

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# 1. INTRODUCTION

This Annual Status Report summarizes information on activities that took place during 2022 at the Boomsnub/Airco Superfund Site (Site) in Hazel Dell, Washington. It presents the combined Semi-Annual Groundwater Monitoring Report July – December 2022 and the 2022 Annual Status Report for the Site. Combining these reports was agreed to by the U.S. Environmental Protection Agency (EPA) on July 28, 2020.

The results of the Summer and Fall 2022 semi-annual sampling events, summary of the well monitoring status for 2022, and recommendations for 2023 are provided. A summary of site-wide activities in January 2022 was provided in the Semi-Annual Groundwater Monitoring Report January – June 2022 (EA Engineering, Science, and Technology, Inc., PBC [EA] 2022a).

EA, under contract to Messer LLC (Messer), performed site-wide maintenance and groundwater monitoring. Work at the Site is conducted under a Consent Decree (CD) between EPA and The BOC Group (herein referred to as Messer)[2], Docket Number CO7-5163FDB, which was entered by the court on June 29, 2007 (EPA 2007).

## 1.1 BACKGROUND

The Site is located just north of Vancouver, Washington city limits, as depicted on Figure 1-1. It includes two adjacent facilities, the former Boomsnub Corporation (Boomsnub) chrome plating facility located at 7608 NE 47$^{th}$ Avenue, Vancouver, Washington, and the Messer industrial gas production facility located at 4715 NE 78$^{th}$ Street, Vancouver, Washington. Boomsnub and its predecessor company, Pioneer Plating, conducted chrome plating operations at this location from 1967 until 1994. Boomsnub is no longer in business; the Boomsnub property is not owned by Messer. The Messer plant manufactures compressed and liquefied gas products including nitrogen, oxygen, and argon. The plant also stores and distributes other specialty gases such as hydrogen and helium. The facility was built by Air Liquide America Corporation in 1963 and has been in operation since 1964.

In 1987, the Washington State Department of Ecology (Ecology) determined that a plume of chromium-contaminated groundwater was emanating from the Boomsnub facility. While cleanup activities were being conducted at the Boomsnub facility, volatile organic compounds (VOCs) were detected in groundwater samples and were suspected to be coming from the Messer property. Messer began investigating the nature and extent of VOCs in 1991. In June 1994, EPA took over the role of lead regulatory agency from Ecology and in April 1995 the Site was placed on the National Priorities List. The primary constituents of concern at the Site are hexavalent chromium and selected VOCs. Previous studies indicated that almost all chromium in groundwater was hexavalent chromium (ICF Kaiser 1999). For this reason, most historical and recent groundwater samples have been analyzed only for total chromium to represent hexavalent

2 The BOC Group, Inc. (BOC) changed its name to Linde LLC and then, as of 1 March 2019, Linde LLC changed its name to Messer LLC. For ease of reporting, references to Messer in this report include the period of BOC and Linde responsibility prior to 1 March 2019.

chromium. The primary VOC of concern is trichloroethene (TCE), which serves as an indicator of VOC presence at the Site. The chromium and TCE groundwater contaminant plumes overlapped and were commingled downgradient of the source areas. In the 1990s, the plumes were found to extend approximately 4,400 feet (ft) in a west-northwest direction from the sources.

The Site is divided into three operable units (OUs) to manage cleanup activities: OU-1 (Boomsnub source); OU-2 (BOC [Messer] TCE source); and OU-3 (Site-wide Groundwater) (Figure 1-2). EPA conducted soil removal actions at OU-1 in 1994 and 2001 to remove hexavalent chromium-contaminated soils serving as a source for groundwater contamination. Soil with contamination above clean up levels was left in place underneath and adjacent to buildings and other site structures. Messer has conducted numerous site investigations, a removal action, and operated a VOC source removal system for soil and groundwater on their property.

The highest concentrations of Site contaminants have occurred in a shallow groundwater-bearing zone referred to as the alluvial aquifer. The alluvial aquifer is not used as a municipal water supply, although a limited number of private wells pump from this aquifer. TCE and chromium have been detected, although at considerably lower concentrations, in the deeper groundwater-bearing zone, the Troutdale Aquifer. Chromium has not been detected in the Troutdale Aquifer since 2006. The Troutdale Aquifer serves as a municipal water supply for the City of Vancouver (City) and Clark County. Municipal water supply wells are not located in areas impacted by the chromium or TCE groundwater contaminant plumes.

A GWTS was used to capture and treat Site groundwater. The GWTS began operating in 1990 and was originally constructed along the axis of the chromium plume. The GWTS removed chromium from extracted groundwater using an ion-exchange system and removed VOCs from the extracted groundwater using air stripping with granular activated carbon treatment of the off-gases. The GWTS was modified, upgraded, and expanded several times to increase pumping and treatment capacity and capabilities and removal efficiency. The treatment facility is located on the Boomsnub property, while treated groundwater was discharged to an infiltration gallery located on the Messer property. The infiltration gallery was constructed during September and October 2005 and began receiving treated groundwater in February 2006 (EA 2006); the treated groundwater was previously discharged to the City sanitary sewer system prior to the construction of the infiltration gallery. The monitoring and extraction well network for the Site is presented on Figure 1-3. With approval from the EPA, the infiltration gallery stopped receiving effluent, and the GWTS system was turned off, drained, and winterized on January 3, 2021. The GWTS will remain in this “mothballed” state unless the EPA or Messer elects to reactivate the system later.

The Record of Decision (ROD) identified the remedy for OU-3 as continued groundwater extraction and treatment until groundwater cleanup levels are achieved throughout the groundwater plume (EPA 2000). The remediation goals include the reduction of total chromium in groundwater to 80 micrograms per liter (µg/L) and the reduction of TCE to 5 µg/L. The ROD for the Site, dated February 2000, identified the following groundwater cleanup levels:

**Groundwater Cleanup Levels**

| Contaminant of Concern | CAS Number | Basis | Practical[(a)] Quantitation Limit (µg/L) | Cleanup[(b)] Level (µg/L) |
|---|---|---|---|---|
| Hexavalent chromium | 18540-29-9 | MTCA B | 5 | 80 |
| Chromium (total) | 7440-47-3 | MCL | 5 | 100 |
| Bromodichloromethane | 75-27-4 | MTCA B | 1 | 1 |
| Carbon tetrachloride | 56-23-5 | MTCA B | 1 | 1 |
| Dibromochloromethane | 124-48-1 | MTCA B | 1 | 1 |
| 1,2-Dichloroethane | 107-06-2 | MCL | 1 | 5 |
| 1,1-Dichloroethene | 75-35-4 | MTCA B | 1 | 1 |
| Tetrachloroethene | 127-18-4 | MCL | 1 | 5 |
| 1,1,1-Trichloroethane | 71-55-6 | MCL | 1 | 200 |
| Trichloroethene | 79-01-6 | MCL | 1 | 5 |

Notes: CAS = Chemical Abstract Service
µg/L = Micrograms per liter
MTCA = Washington State Model Toxics Control Act
MCL = Maximum Contaminant Level

(a) Ecology Implementation Memo No. 3 dated 24 November 1993 (Ecology 1993).
(b) Cleanup level established as the higher of the regulatory level or the practical quantitation limit; see Washington Administrative Code 173-340-700(6) and Ecology Implementation Memo No. 3 dated 24 November 1993.

An Action Memorandum was issued by EPA in September 2001, identifying the requirements for remediation activities for OU-2 (EPA 2001). On September 18, 2002, BOC and EPA entered an Administrative Order on Consent (EPA Docket Number CERCLA 10-2002-0052; EPA 2002), addressing the specific design, construction, and operational requirements for a Non-Time-Critical Removal Action for OU-2 to implement the requirements of the Action Memorandum. Locations of the OU-2 treatment and monitoring wells are shown on Figure 1-4.

On April 1, 2002, Messer (operating as The BOC Group) assumed interim responsibility for the operation and maintenance (O&M) of the GWTS for OU-3. On March 1, 2019, Messer acquired certain Linde LLC assets, which maintained Messer's responsibility for the remediation at this location. Therefore, Messer continues with operation of the Boomsnub/Airco Superfund Site.

In October 2002, EPA conducted additional soil characterization activities on the Boomsnub property around the groundwater extraction and treatment system building. The purpose of the work was to identify areas in the shallow soils (15 ft below ground surface or less) with concentrations of chromium above the cleanup levels specified in the ROD. The results of the soil characterization activities were presented in the *Soil Characterization: Groundwater Treatment System Compound* report, finalized in April 2003 (URS Group, Inc. 2003).

In September 2003, Messer began construction of the Non-Time Critical Removal Action at their facility to address the VOC source area (OU-2). The EPA-selected remedial action was a combination of in-well stripping (IWS) and soil vapor extraction (SVE) systems to remove VOCs from both the groundwater and soil beneath the Messer gases plant. The systems became operational in February 2004. The SVE system was operated to treat the vadose zone soil in OU-2 until 2008, when it was turned off with EPA approval. The IWS system was operated to treat groundwater in OU-2 until August 2013, when it was turned off with EPA approval. In

2020 the EPA agreed that the IWS and SVE systems could be decommissioned.

The Toe-of-Plume Pilot Study, an in-situ treatment program, was performed in 2006 to treat an area of recalcitrant chromium and TCE contamination near the original toe of the groundwater contaminant plumes. Chromium and TCE concentrations in the pilot study monitoring wells have remained below the cleanup level since that time, indicating that the treatment was effective.

In 2008, an investigation identified another plume of VOC contamination in groundwater north of the Boomsnub/Airco Plume (OU-3 plume), in the area around well AMW-18 (EA 2008). This offsite plume is referred to as the Northern Plume. In May 2011, EPA and Messer performed a joint investigation of the Northern Plume area to get a better understanding of the source, extent, and concentrations of VOCs in the plume (EA 2011). A new monitoring well (AMW-64) was installed in February 2012, at the request of the EPA, to monitor the Northern Plume northwest of well AMW-18 (EA 2012). The Northern Plume continues to be monitored, along with the OU-3 plume, to evaluate potential impacts to the Site, and in accordance with an agreement between Messer and EPA. The EPA does not attribute contamination within the Northern Plume to activities on the Boomsnub or Messer properties. The Work Plan for the 2008 investigation noted that an offsite source of TCE originating from the Permalume property immediately east and upgradient of the Messer gases plant property has impacted monitoring well AMW-8A, which is located at the eastern boundary of the Messer Property and is approximately 700 ft northeast of the Boomsnub/Airco Site TCE Source Area (EA 2008). AMW-8A and the Permalume property are located upgradient of Northern Plume well AMW-18, and the results of the AMW-18 Area Investigation support a finding of the Permalume property as the source of the Northern Plume.

In 2015 the EPA issued an Explanation of Significant Differences, allowing use of in-situ treatment in addition to the ROD-approved remedial action. An in-situ treatment pilot test (Phase I) was conducted in Fall 2018 just downgradient of TCE Source Group wells AMW-2A and MW-1A and upgradient of Intermediate Group wells MW-18D and MW-18E, to determine the effectiveness of proposed treatments on reducing TCE concentrations. The results of the pilot study showed both treatments were effective in reducing the TCE concentrations in nearby wells. Regenesis PlumeStop® was used in the TCE Source Area and PeroxyChem EHC Plus® was used in the Intermediate Wells area.

Full scale in-situ treatment injections (Phase IIA) were conducted in the Fall 2019 using PeroxyChem EHC Plus® in the historically mid-plume area where a lithological trough crosses the plume perpendicularly. Approximately 61,920 pounds of this compound were injected into five permeable reactive zones. Additional injections (Phase IIB) were performed in 2020 and included additional injections further downgradient of the Phase IIA injections using PeroxyChem EHC Plus® in three permeable reactive zones, as well as within the OU-2 area using Regenesis PlumeStop® in five permeable reactive zones. Performance monitoring of Phase IIA and Phase IIB was performed by sample collection in the Spring and Fall 2020 in select downgradient wells and was reported in a separate in-situ treatment report submitted to the EPA in Spring 2021.

## 1.2 PURPOSE

The purpose of this report is to provide an overview of Site activities at OU-2 (TCE source area) and OU-3 (site-wide groundwater) for the reporting period of 1 January through 31 December 2022.

## 1.3 OPERATING OBJECTIVES

The operating objectives for OU-2, identified in the 2001 Action Memorandum (EPA 2001), include the following:

- Remove VOCs from the vadose zone that may be acting as the source to groundwater.
- Remove VOCs from groundwater on the western portion of the Messer property.
- Halt off-property migration of VOCs in groundwater.

The operating objectives for OU-3 are defined in the ROD (EPA 2000). Activities at the Site are designed to meet the following overall objectives:

- Reduce contaminant migration within the alluvial aquifer (expansion of the plumes).
- Continue mass removal activities designed to restore impacted groundwater to Site-specific cleanup levels.
- Reduce contaminant migration into the Troutdale Aquifer by reducing contamination in the alluvial aquifer.

With the implementation and continued operation of remedial measures discussed in this document, these objectives are, and continue to be, met.

## 1.4 ORGANIZATION OF THIS DOCUMENT

This report is organized as follows:

- Section 1 provides the background, purpose, and operating objectives.
- Section 2 summarizes remedial action progress during the reporting period.
- Section 3 provides a discussion of groundwater monitoring results and trends.
- Section 4 summarizes other Site activities conducted during the reporting period.
- Section 5 presents the results of the annual assessment of groundwater monitoring data and provides recommendations, as appropriate, for changes to the well sampling schedule.
- Section 6 summarizes the status of previously recommended activities for 2022 and presents recommendations and planned activities for 2023.

- Section 7 lists the references cited in this document.
- Appendix A – laboratory chain-of-custody documentation for groundwater samples collected during the Summer and Fall 2022 sampling events and the analytical results summary for groundwater samples.
- Appendix B – OU-3 Reports to the City of Vancouver
- Appendix C – field purge and sampling forms for the Summer and Fall 2022 sampling events.
- Appendix D – monthly data quality assurance/quality control summary and groundwater data validation report.
- Appendices E and F – Information on chromium (E) and TCE concentrations (F) in groundwater. The information is presented both by well groupings and by individual wells. Appendices E and F are organized in sections, as follows:
    - Tables reporting chromium and TCE groundwater concentrations for the last five sampling events are provided in Appendices E-1 and F-1, respectively. Only wells sampled during the 2022 reporting period are included in these tables.
    - Graphs showing chromium and TCE concentration trends by well grouping are presented in Appendices E-2 and F-2, respectively. Only wells sampled during the 2022 reporting period are included. These graphs allow a comparison of trends within geographical or hydrogeological groupings. They also allow immediate comparison of concentrations between wells in a grouping and the ability to identify potential outliers.
    - Graphs showing chromium and TCE concentrations over time for individual wells are presented in Appendices E-3 and F-3, respectively. Only wells sampled during the 2022 reporting period are included.
- Appendix G – includes supporting information for the closure monitoring assessment, including a list of wells excluded from closure monitoring, and tables showing the results of the remediation monitoring analysis and attainment monitoring analysis for each COC.
- Appendix H – includes a discussion on the Northern Plume and associated tables and figures. The Northern Plume continues to be monitored, to evaluate potential impacts to the Site and treatment system.
- Appendix I – includes the approved variance with Ecology and additional decommissioning documentation for the decommissioning of Troutdale monitoring well MW-34.

# 2. REMEDIAL ACTION PROGRESS

This section provides a summary of OU-3 system operations, system performance for the 2022 reporting period, and plume monitoring conducted from July 1 to December 31, 2022. A summary of OU-3 system operations and system performance during the previous reporting period (January through June 2022) was presented in the Semi-Annual Groundwater Monitoring Report (EA 2022a). The GWTS was shut off on January 3, 2021, therefore no influent and effluent samples were collected during the 2022 reporting period.

## 2.1 SYSTEM OPERATIONS

Due to system shutdown, there are no data recorded from January through December 2022 for the following: Pumping rates, additional monitoring information, influent and effluent removal rates, discharged treated groundwater from the infiltration gallery, system performance and availability, and mass removal.

## 2.2 MEETINGS

During 2022, most meetings were conducted remotely on a videoconference platform.

- **February 11, 2022 –** Attendees: Kevin Svitana and Philipp Sieber (Messer); Brandon Perkins, Jonathan Williams, and Tim Maley (EPA); Jonathan Reeve (EA). Reviewed semi-annual sampling and closure monitoring progress, discussed status of PacTrust Corporate Park construction, reviewed status of submitted reports, discussed Chromium in Soil Memorandum, and discussed planned site activities for 2022.
- **April 29, 2022** – Annual meeting. Attendees: Kevin Svitana and Philipp Sieber (Messer); Brandon Perkins, Jonathan Williams, and Tim Maley (EPA); Jonathan Reeve (EA). Reviewed performance and monitoring results from 2021, discussed in-situ injections updates and plume status, reviewed GWTS mothballed status and monitoring, summarized northern plume activities and PacTrust Corporate Park, discussed planned site activities remaining for 2022.
- **July 22, 2022** – Quarterly meeting with EPA. Attendees: Nancy Van Dyke and Philipp Sieber (Messer); Brandon Perkins, Jonathan Williams, and Tim Maley (EPA); Jonathan Reeve (EA). Provided quarterly update on site status to EPA, discussed Northern Plume Reimbursement, damage to monitoring well AMW-17, closure monitoring progress, monitoring well MW-34 decommissioning, and the July motor vehicle crash into the Intermediate Wellhouse.
- **October 7, 2022** – In-person meeting at the Boomsnub site for the EPA's 2023 Five Year Review site visit. Attendees: Philipp Sieber (Messer); Brandon Perkins, Jonathan Williams, and Tim Maley (EPA); Hagai Nassau (Skeo); Jonathan Reeve and Rick Read (EA). Toured the Boomsnub property, the Messer Vancouver Gases Plant, PacTrust Corporate Park (at this site met with Matt Oyen and Ryan McGuire of PacTrust), Luke Jensen Park, the Intermediate Wellhouse, and the Church of God area. Discussed site

progress and answered in-person interview questions from Hagai Nassau of Skeo at the Boomsnub site office in a post-walk conference.

- **October 18, 2022** – Quarterly meeting with EPA. Attendees: Nancy Van Dyke and Philipp Sieber (Messer); Brandon Perkins and Tim Maley (EPA); Jonathan Reeve (EA). Provided quarterly update on site progress to EPA, discussed recent conversations with the Department of Ecology Southwest Regional Office concerning monitoring well AMW-17. Discussed the potential chromium investigation cost-sharing agreement being prepared by Messer, the Five-Year Review, the intermediate wellhouse, and a variance request submitted to the Department of Ecology concerning field conditions encountered during the decommissioning of monitoring well MW-34 at the PacTrust Corporate Park.
- **December 1, 2022** – Meeting with EPA to coordinate legal, logistical, and technical approach to addressing damage to monitoring well AMW-17. Attendees: Nancy Van Dyke, Philipp Sieber, and Richard Lingg (Messer); Brandon Perkins, Tim Maley, and Stephanie Ebright (EPA); Jonathan Reeve and Camille Warren (EA).

## 2.3 DELIVERABLES

The following deliverables were submitted between January and December 2022.

- **January 7, 2022** – Notification letters for the Winter 2022 sampling event were mailed to the property owners.
- **January 10, 2022** – Winter 2022 Quality Assurance and Sampling Plan (QASP) Addendum (EA 2022b) was submitted to EPA.
- **March 28, 2022** – Spring 2022 QASP Addendum (EA 2022c) was submitted to EPA.
- **April 1, 2022** – 2021 Annual Status Report (EA 2022d) was submitted to the EPA.
- **April 14, 2022** – January through March 2022 Self-Monitoring Report was submitted to the City.
- **April 15, 2022** – Notification letters for the Spring 2022 sampling event were mailed to the property owners.
- **February 24, 2022** – 2021 Dangerous Waste Report was submitted to Ecology.
- **February 28, 2022** – In-Situ Treatment of Areas of Residual Contamination Phase II Report, revision 2 (EA 2022e) regarding the Phase II in-situ event performed on Clark County property was submitted to EPA.
- **June 30, 2022** – Summer 2022 QASP Addendum (EA 2022f) was submitted to EPA.
- **July 11, 2022** – Notification letters for the Summer 2022 sampling event were mailed to the property owners.
- **August 25, 2022** – Semi-Annual Groundwater Monitoring Report, January – June 2022 (EA 2022a) was submitted to EPA.
- **October 3, 2022** – Fall 2022 QASP Addendum (EA 2022g) was submitted to EPA.

- **October 14, 2022** – Notification letters for the Fall 2022 sampling event were mailed to the property owners.
- **October 28, 2022** – August through October 2022 Self-Monitoring Report was submitted to the City.
- **December 31, 2022** – October through December 2022 Self-Monitoring Report was submitted to the City.

The following deliverables are anticipated for submittal during the next reporting period (January through December 2023):

- **January 26, 2023** – October through December 2022 Self-Monitoring Report to be submitted to the City.
- **March 1, 2023** – Dangerous Waste Report to be submitted to Ecology.
- **April 1, 2023** – 2022 Annual Status Report to be submitted to EPA (per approval from EPA).
- **April 17, 2023** – Spring 2023 QASP Addendum to be submitted to EPA.
- **May 1, 2023** – Notification letters for the Spring 2023 sampling event to be mailed to the property owners.
- **May 1, 2023** – January through March 2023 Self-Monitoring Report to be submitted to the City.
- **June 1, 2023** – Technical Memorandum covering the Intermediate Wellhouse Decommissioning to be submitted to EPA.
- **July 31, 2023** – April through June 2023 Self-Monitoring Report to be submitted to the City.
- **August 19, 2023** – Semiannual Report, January – June 2023 to be submitted to EPA.
- **September 16, 2023** – Fall 2023 QASP Addendum to be submitted to EPA.
- **October 16, 2023** – Notification letters for the Fall 2023 sampling event to be mailed to the property owners.
- **October 29, 2023** – July through September 2023 Self-Monitoring Report to be submitted to the City.

## 2.4 FIELD EVENTS

The following are field events that occurred during the year, excluding routine O&M tasks:

- **January 22-27, 2022** – Winter groundwater sampling event.
- **April 25-28, 2022** – Spring groundwater sampling event.
- **July 25-26, 2022** – Summer groundwater sampling event.

- **July 27, 2022** – Decommissioning of monitoring well MW-34.
- **October 7, 2022** – Five-Year Review site visit.
- **October 31 - November 11, 2022** – Fall groundwater sampling event.

The following field events are anticipated to occur during the next reporting period (January through December 2023):

- **May 15-19, 2023** – Spring groundwater sampling event.
- **October 16-20, 2023** – Fall groundwater sampling event.

## 2.5 PROBLEMS ENCOUNTERED

No problems were encountered with the mothballed GWTS or the remedial monitoring network during the July through December 2022 reporting period. As discussed in the Semi-Annual Groundwater Monitoring Report, January—June 2022 (EA 2022a), two monitoring well access issues were encountered during both the winter 2022 event and spring 2022 sampling event.

- During the winter 2022 sampling event, monitoring well AMW-21 could not be located because it was buried and monitoring well MW-34 could not be gauged or sampled because it was covered by vehicles.

- During the spring 2022 sampling event, Northern Plume well AMW-17 was not gauged or sampled due to recent earthwork on the property obscuring the location of the monitoring well. Likewise, monitoring well MW-34, on the PacTrust Corporate Park property, was not gauged and sampled during the spring sampling event due to construction activities around the well location.

The following problems were encountered after June 2022:

- On Saturday July 9$^{th}$, 2022, a fatal single vehicle accident occurred when a pickup truck left the NE 78$^{th}$ St. roadway and crashed into the groundwater treatment system Intermediate Wellhouse located on the Church of God property. EA and Messer formulated a plan to decommission the wellhouse equipment and restore the site.

- During the fall 2022 sampling event, monitoring well AMW-12A was found to be dry and could not be sampled. The well contained bentonite residue which suggests bentonite might have been pushed into the well pack and screen due to in situ injection treatments. The well will need to be redeveloped or rehabilitated.

These monitoring well issues are discussed further in Section 4.2. Well Maintenance and Decommissioning Activities.

# 3. GROUNDWATER MONITORING ACTIVITIES, RESULTS, AND TRENDS

This section presents the concentration trends observed in groundwater since 1995 with a focus on data collected during the calendar year. Sampling activities for Summer and Fall 2022 were conducted in accordance with the EPA-approved Site-specific QASP (EA 2019) and the EPA-approved QASP Addendums for the Summer 2022 (EA 2022f) and Fall 2022 (EA 2022g) Semi-annual Sampling Events. These documents are referred to as the Site QASP and the Summer and Fall 2022 QASP Addendums, respectively. Wells sampled during the summer and fall events and their corresponding analytical results are shown on Figures 3-1 through 3-4. Figures for winter and spring events were previously reported in the 2022 Semi Annual Report (EA 2022a). Data tables and analysis of trends presented in this section span all of 2022 and thus include evaluation of winter and spring data in the overall 2022 evaluation.

## 3.1 FIELD METHODS

This section provides a discussion of methods used for field data collection activities.

### 3.1.1 Extraction Well Sampling

No extraction wells were active during the Summer and Fall 2022.

### 3.1.2 Monitoring Well Sampling

Groundwater samples from monitoring wells were collected using passive diffusion bag (PDB) samplers or via dedicated or non-dedicated pumps. Extraction wells previously sampled by extraction pump operation were converted to monitoring wells for non-dedicated pump or PDB sampling.

For wells sampled using PDB samplers, the PDBs were deployed at least 14 days in advance of sample collection. Measurement of field parameters is not required when sampling from PDB samplers, as agreed on by EPA (EA 2019). PDB samplers are used to sample wells that require only analysis of VOCs, and the samples were submitted for laboratory analysis of VOCs only. No biofilms were observed on PDB samplers.

For monitoring wells sampled via a dedicated pump (stationed permanently in the well) or a non-dedicated pump, the flow rate was adjusted to 0.5 liter per minute or less prior to measuring field water quality parameters and collecting samples. The field parameters measured included pH, specific conductivity, temperature, dissolved oxygen, turbidity, and oxidation-reduction potential. For wells that ran dry during water quality stabilization (micropurging) or during sampling due to low groundwater levels, the monitoring well was allowed to sit for approximately 24 hours and the first recharge water was collected via submersible pump or bailer for analytical sampling.

### 3.1.3 Water Level Gauging Program

A round of water level measurements was obtained from accessible monitoring and extraction wells during the Summer 2022 and Fall 2022 sampling events. The water levels were measured to the nearest 0.01 ft relative to the top of the well casing using an electronic water level indicator. Water level measurements for the Winter and Spring 2022 sampling events were reported in the Semi-Annual Groundwater Monitoring Report, January through June 2022 (EA 2022a). A summary of the water level data for Summer and Fall 2022 is provided in Table 3-1 and groundwater contours are presented on Figures 3-5 and 3-6.

## 3.2 WELL GROUPINGS

To facilitate analysis of contaminant concentrations across the Site, the wells are grouped by aquifer and geographical location and are presented on Figure 3-7, and wells within each grouping are summarized in Table 3-2. All wells except those identified as Troutdale Aquifer wells are screened within or slightly below the alluvial aquifer.

### 3.2.1 Alluvial Aquifer Wells

#### 3.2.1.1 Upgradient Wells

The Upgradient wells are located near the upgradient (eastern) site boundary (Figure 3-7). One upgradient well, AMW-8A, is in the closure plan and was sampled in Fall 2022.

#### 3.2.1.2 TCE Source Wells

The TCE Source wells are located on the western half of the Messer property (Figure 3-7), near the historical TCE-impacted soil. The closure plan includes 18 source wells, AMW-1A, AMW-1B, AMW-1C, AMW-2A, AMW-2B, AMW-3A, AMW-4A, AMW-12A, AMW-13A, AMW-19A, AMW-26, AMW-52A, AMW-53A, AMW-54A, AMW-56A, MW-1A, MW-1B, and MW-1C. A source removal system was previously operated in this area. The source removal system consisted of an SVE system that ran from 2004 to 2008 and an IWS system that ran from 2004 to 2013. The TCE Source Wells are typically sampled for VOCs only, as part of the OU-2 monitoring program, as these wells are upgradient of the chromium source area. Sampling frequency of select wells (AMW-1A, AMW-2A, AMW-12A, AMS-53A, and MW-1A) located in this area was reduced to semi-annual in 2022, after semi-annual sampling in 2021 to monitor effectiveness of the in-situ remediation.

#### 3.2.1.3 Proximal Wells

The Proximal wells are located west of the maintenance building (former machine shop) on the Boomsnub property and east of NE St. Johns Road (Figure 3-7). The closure plan includes 25 proximal wells, AMW-58, MW-2A, MW-2B, MW-2C, MW-3A, MW-3B, MW-3C, MW-4A, MW-4B, MW-4BShed, MW-4C, MW-6A, MW-6B, MW-6C, MW-6D, MW-7B, MW-7C, MW-8B, MW-9B, MW-9C, MW-10B, MW-10C, MW-12C, MW-13C, and PW-1B. These wells are proximal to the chromium source. Monitoring frequency of seven wells (MW-3A, MW-4A,

MW-4B, MW-4C, MW-6A, MW-6B, and MW-9B) was reduced to semi-annual in 2022 after quarterly monitoring in 2021.

#### 3.2.1.4 Intermediate Wells

The Intermediate wells are located west of NE St. Johns Road, north and south of NE 78th Street (Figure 3-7). The closure plan includes 12 intermediate wells, AMW-59, AMW-60, CPU-14, MW-14C, MW-14E, MW-15E, MW-18D, MW-18E, MW-19D, MW-20D, MW-40, and PZ-39. These wells are located towards the middle of the VOC and Chromium plumes, in between the proximal and Church of God groupings. Sampling frequency of select wells (AMW-59, MW-14E, MW-14C, MW-20D, MW-38, and PZ-39) was reduced to semi-annual in 2022 after quarterly monitoring in 2021.

#### 3.2.1.5 Church of God Wells

The Church of God wells are located north of NE 78th Street between the west side of the Clark County sports field complex and the western Church of God property line (Figure 3-7). The closure plan includes 9 Church of God wells, AMW-27, AMW-61, CPU-12, CPU-13, MW-22D, MW-25D, MW-26D, MW-27D, and MW-49.

### 3.2.2 Troutdale Aquifer Wells

The Troutdale Aquifer serves as a municipal water supply for the City and Clark County. The closure plan includes VOC analysis of 3 Troutdale Aquifer wells, AMW-24, MW-33, and the private Bennett well. No Troutdale well has had an exceedance above the chromium MCL since 2006, and after a decade of annual sampling with chromium results below the MCL, chromium sampling ceased in 2018.

## 3.3 CONTAMINANT CONCENTRATIONS AND TRENDS

### 3.3.1 Overview

The following subsections describe trends for each well grouping. The extent of impacted groundwater in the alluvial aquifer, as determined from groundwater sampling data obtained in 1995, Summer 2022 and in Fall 2022, is presented on Figure 3-8 for chromium and on Figure 3-9 for TCE. These figures illustrate that groundwater remedial actions have been effective in mass removal and in reducing the footprints of both the chromium and TCE plumes. Figure 3-9 shows TCE from the Northern Plume and TCE from the OU-3 plume in different shades. Prior to in-situ injections in 2019, the mid-plume area featured an area of continuous exceedance of the MCL between St. Johns Road and NE 78th Street (EA 2020b). Figure 3-9 shows that in 2022 the same area between St. Johns Road and NE 78th Street has TCE concentrations mostly below the MCL, illustrating that in-situ injections have been effective at accelerating TCE mass removal in areas of recalcitrant contamination.

Chromium and TCE concentrations in groundwater during sampling in 2022 are presented in Appendices E-1 and F-1, respectively. Wells with 2022 groundwater sampling results exceeding

the Site cleanup levels of 80 µg/L for chromium and 5 µg/L for TCE are highlighted red on Figures 3-10 and 3-11, respectively.

### 3.3.2 Alluvial Aquifer Wells – TCE and Chromium

#### 3.3.2.1 TCE Source Area Wells

During the Summer 2022 sampling event, no wells in the TCE Source Area were sampled for TCE due to switching to semi-annual sampling frequency. 17 wells were sampled for TCE during the Fall 2022 sampling event.

*TCE*

During the 2022 reporting period, TCE concentrations remained greater than the 5 µg/L cleanup level in four groundwater wells. The following table presents the results from the last four sampling events for comparison.

**TCE Source Area Well TCE Concentrations, in µg/L**

| Well | Winter 2022 | Spring 2022 | Summer 2022 | Fall 2022 |
|---|---|---|---|---|
| AMW-1A | **5.1** | -- | -- | 3.8 |
| AMW-1B | 0.23 J | 0.18 J | -- | 0.14 J |
| AMW-1C | 0.14 J | < 0.50 U | -- | < 0.50 U |
| AMW-2A | **7.2** | -- | -- | **47** |
| AMW-2B | 0.28 J | 0.14 J | -- | 0.14 J |
| AMW-3A | 0.53 | -- | -- | 0.78 |
| AMW-4A | < 0.50 U | < 0.50 U | -- | < 0.50 U |
| AMW-12A | **9.1** | -- | -- | -- |
| AMW-13A | 0.37 J | 0.12 J | -- | < 0.50 U |
| AMW-19A | 0.71 | 1.5 | -- | 2.3 |
| AMW-26 | 1.5 | 1.5 | -- | 1.6 |
| AMW-52A | < 0.50 U | < 0.50 U | -- | < 0.50 U |
| AMW-53A | **9.1** | -- | -- | **7.7** |
| AMW-56A | -- | -- | -- | 3.5 |
| MW-1A | 0.52 | 0.45 J | -- | 0.13 J |
| MW-1B | < 0.50 U | -- | -- | < 0.50 U |
| MW-1C | < 0.50 U | < 0.50 U | -- | < 0.50 U |

Note:
J Estimated concentration
Results shown in **blue bold** exceed the established cleanup level of 5 µg/L
-- Not Analyzed

Since the IWS system was turned off in August 2013, groundwater samples from the TCE Source Area have been collected to monitor for changes/rebound in VOC concentrations.

During the reporting period, the TCE concentrations in wells AMW-1A, AMW-12A, and AMW-53A remain greater than the cleanup level, however are either stable or decreasing in concentration. TCE concentrations in monitoring well AMW-2A increased in Fall 2022 from 7.2 µg/L to 47 µg/L, however concentrations have fluctuated around the Fall 2022 concentration since 2008. AMW-12A has been unable to be sampled since Spring 2022 due to no water or recharge

from possible bentonite in the screened interval. Historical TCE concentrations in wells in this area tend to fluctuate (Appendix F).

#### 3.3.2.2 Proximal Wells

The Proximal Wells are proximal to the chromium source area. In 2022, 22 wells in this area were sampled for chromium and 24 wells were sampled for TCE.

*Chromium*

During the 2022 reporting period, chromium concentrations were greater than the 80 µg/L cleanup level in groundwater samples collected from 6 of the 22 wells sampled for chromium in Summer and Fall, as presented in the following table.

**Proximal Well Chromium Concentrations, in µg/L**

| Well | Winter 2022 | Spring 2022 | Summer 2022 | Fall 2022 |
|---|---|---|---|---|
| MW-2A | -- | -- | -- | 71 |
| MW-2B | -- | 4.39 | -- | 3.0 J |
| MW-3A | -- | **144** | -- | **152** |
| MW-3B | 4.97 | 6.88 | -- | 4.9 J |
| MW-3C | 5.22 | 5.91 | -- | 6.3 J |
| MW-4A | -- | **517** | -- | **455** |
| MW-4B | -- | **211** | -- | **319** |
| MW-4BSHED | 67.7 | **139** | **137** | **101** |
| MW-4C | -- | 44.9 | -- | 35.5 |
| MW-6A | 5.85 | 3.33 | 6.2 J | 13.8 |
| MW-6B | -- | 57.8 | -- | 28 |
| MW-6C | 5.45 | 5.69 | -- | 4.1 J |
| MW-6D | 1.46 | 0.92 | -- | 4.2 J |
| MW-7B | -- | -- | -- | 11.6 |
| MW-7C | 11.5 | 3.58 | -- | 3.8 J |
| MW-8B | 1.91 | 1.87 | -- | < 8.4 U |
| MW-9B | -- | 10.1 | -- | 8.2 J |
| MW-10B | 60.7 | 63 | -- | 63.3 |
| MW-10C | -- | **299** | -- | **169** |
| MW-12C | 1.18 | 1.51 | -- | 2.8 J |
| MW-13C | 34.6 | -- | -- | 46.8 |
| PW-1B | 71.4 | **131** | -- | 47.7 |

Note:
J Estimated concentration
Results shown in **blue bold** exceed the established cleanup level of 5 µg/L
Results shown with beige highlight are for dissolved chromium rather than total
-- Not Analyzed

Proximal wells MW-3A, MW-4A, MW-4B, MW-4BSHED, MW-10C, and PW-1B had concentrations greater than the 80 µg/L cleanup level in 2022. Groundwater samples from wells MW-4A and MW-4B continue to exhibit some of the highest concentrations of chromium in groundwater at the Site and consistently remain above the cleanup level. However, concentration fluctuations are typical in these wells and have generally had a decreasing trend in chromium

concentrations (Appendix E-2). Results from the 2022 sampling events were within the normal range of fluctuations (Appendix E-1). Well MW-2A had an elevated concentration in Fall 2021, but the concentration dropped below cleanup levels in 2022. Well MW-10C increased back above the cleanup level in Spring and Fall 2022 sampling events. Well MW-4C contained chromium concentrations less than cleanup levels in all sampling events in 2022. Well MW-10B had concentrations greater than the cleanup level in Fall 2021 but concentrations were less than the cleanup level in 2022. Additional semi-annual monitoring of chromium concentrations in the proximal well group will continue to monitor for changes in the geometry or concentrations of the residual chromium plume.

The GWTS will remain in a dormant, but ready-to-operate, state (i.e., mothballed) for the duration of the attainment monitoring period. While chromium trends in the proximal well field showed that the GWTS was ineffective at further reducing chromium concentrations, mothballing of the system will provide an additional option for treatment, should monitoring show expansion of the chromium plume after shutdown. When attainment monitoring has concluded in the proximal well field, the GWTS building, and air stripper pad will be removed as part of treatment system decommissioning and chromium-contaminated soil that exists beneath impervious surfaces of the GWTS will be excavated.

*TCE*

During the 2022 reporting period, TCE concentrations were greater than the 5 µg/L cleanup level in groundwater samples collected from 3 of the 24 wells sampled for TCE, as presented in the following table.

**Proximal Well TCE Concentrations, in µg/L**

| Well | Winter 2022 | Spring 2022 | Summer 2022 | Fall 2022 |
|---|---|---|---|---|
| AMW-58 | < 0.50 U | < 0.50 U | -- | < 0.50 U |
| MW-2A | 0.45 J | -- | -- | 0.32 J |
| MW-2B | -- | 1.4 | -- | 1.2 |
| MW-2C | 0.38 J | -- | -- | 0.27 J |
| MW-3B | 1.4 | 1.6 | -- | 3.7 |
| MW-3C | 1.4 | 1.7 | -- | 1.4 |
| MW-4A | 1.8 | 2.2 | -- | 1.9 |
| MW-4B | 2.9 | 2.4 | -- | 3.1 |
| MW4BSHED | 2.0 | 2.2 | 2.3 | 2.1 |
| MW-4C | 1.1 | 1.2 | -- | 0.99 |
| MW-6A | < 0.50 U | < 0.50 U | -- | < 0.50 U |
| MW-6B | **16** | **49** | **19** | **11** |
| MW-6C | 1.1 | 1.8 | -- | 0.77 |
| MW-6D | 2.2 | 0.97 | -- | 0.32 J |
| MW-7B | 2.4 | 2.9 | 2.3 | 2.1 |
| MW-7C | 0.35 J | 0.28 J | -- | 0.21 J |
| MW-8B | 1.3 | 2.2 | -- | 1.7 |
| MW-9B | 1.4 | 1.8 | -- | 1.5 |
| MW-9C | 0.85 | 2.5 | 0.97 | -- |
| MW-10B | 2.5 | 3.1 | 2.9 | 3.0 |
| MW-10C | 3.4 | 4.3 | -- | **8.1** |
| MW-12C | **33** | **49** | -- | 2.3 |

| | | | | |
|---|---|---|---|---|
| MW-13C | 1.6 | -- | -- | 0.94 |
| PW-1B | 3.2 | 0.45 J | -- | 2.7 |

Notes:
J Estimated concentration
Results shown in **blue bold** exceed the established cleanup level of 5 µg/L
-- Not Analyzed

The TCE concentrations in well MW-6B exceeded the cleanup level in all 2022 samples, the TCE concentrations in well MW-12C exceeded the cleanup level in all sampling events except Fall 2022. The TCE concentration in well MW-10C increased above cleanup levels in Fall 2022 and will be monitored for any increasing trends. Historically, TCE concentrations in groundwater samples from this area have been on a decreasing trend (Appendix F-2).

#### *3.3.2.2.1 Enhanced GWTS Chromium Monitoring*

In accordance with the recommendations in the 2020 Annual Report (EA 2021) and the technical memorandum dated September 23, 2020 (EA 2020), in 2022 enhanced chromium monitoring was collected on a quarterly basis at select wells around the GWTS to specifically monitor for changes in the groundwater chromium plume located on the Boomsnub property after the shutdown of the GWTS on January 3, 2021. In 2022, this monitoring was reduced to semi-annually with the exception of MW-6A which was sampled quarterly. The following table shows the chromium results from that enhanced monitoring effort.

**GWTS Enhanced Monitoring Wells Chromium Concentrations, in µg/L**

| Well | Pre-shutdown (year) | Winter 2021 | Spring 2021 | Summer 2021 | Fall 2021 | Winter 2022 | Spring 2022 | Summer 2022 | Fall 2022 |
|---|---|---|---|---|---|---|---|---|---|
| MW-3A | **105 (2019)** | **131** | **140** | **113** | **129** | -- | **144** | -- | **152** |
| MW-4A | **556 (2020)** | **263** | **380** | **890** | **589** | -- | **517** | -- | **455** |
| MW-4B | **318 (2020)** | **87.1** | **107** | **204** | **124** | -- | **211** | -- | **319** |
| MW-4C | 68.7 (2019) | 65.0 | **97.2** | 52.2 | 45.4 | -- | 44.9 | -- | 35.5 |
| MW-6A | **149 (2020)** | 15.9 | 11.1 | 37.9 | 68.1 | 5.85 | 3.33 | 6.2 J | 13.8 |
| MW-6B | 14.9 (2020) | 38.5 | 70.8 | 33.1 | 35.4 | -- | 57.8 | -- | 28.0 |
| MW-9B | 3.6 J (2008) | 13.6 | 5.69 | 18.3 | 12.1 | -- | 10.1 | -- | 8.2 J |

Notes:
-- Not Analyzed
Results shown in **blue bold** exceed the established cleanup level of 80 µg/L.

As the above table shows, wells MW-3A, MW-4A, and MW-4B continued to have elevated chromium concentrations above the cleanup level but have not shown a substantial increase since the shutdown of the groundwater treatment system in January 2021 (Appendix E-2). Well MW-6B continued to have elevated concentrations compared to pre-shutdown concentrations, but concentrations have remained below the cleanup level and do not show an upward trend. All wells show considerable fluctuation in concentrations during seasonal water table fluctuations, which is anticipated based upon previously observed fluctuations in chromium concentrations in the Proximal Well set.

### 3.3.2.3 Intermediate Wells

In 2022, 10 Intermediate Wells were sampled for chromium and 12 Intermediate Wells were sampled for TCE. The intermediate wells were in the vicinity of in-situ groundwater treatments using PeroxyChem EHC® Plus that was completed in Fall 2018 to help address residual contamination. The MW-18 cluster is downgradient of pilot injections conducted in 2018; AMW-59, MW-14, and MW-19 are downgradient or in the vicinity of Phase IIA injections conducted in October 2019; and MW-38, MW-20D, and PZ-39 are downgradient or in the vicinity of Phase IIB injections conducted in May 2020. MW-40 is also downgradient of Phase IIB injections but is located farther downgradient from a treatment zone than the other wells noted.

*Chromium*

During the 2022 reporting period, chromium concentrations were above the 80 µg/L cleanup level in groundwater samples collected from 6 of 10 wells sampled, as presented in the following table.

**Intermediate Well Chromium Concentrations, in µg/L**

| Well | Winter 2022 | Spring 2022 | Summer 2022 | Fall 2022 |
|---|---|---|---|---|
| CPU-14 | -- | **90.5** | 9.1 | -- |
| MW-14C | **89.1** | -- | -- | 67.8 |
| MW-14E | **146** | -- | -- | **207** |
| MW-15E | -- | 3.53 | -- | 2.4 J |
| MW-18D | -- | 3.26 | -- | **139** |
| MW-18E | -- | 1.62 | -- | < 8.4 U |
| MW-19D | 10.5 | -- | 9.6 | 6.2 J |
| MW-20D | 74.5 | -- | **144** | **137** |
| MW-40 | -- | -- | -- | **127** |
| PZ-39 | -- | -- | 4.9 J | -- |

Notes:
J Estimated concentration
Results shown in **blue bold** exceed the established cleanup level of 5 µg/L
-- Not Analyzed

Chromium concentrations exceeded the cleanup level in wells CPU-14, MW-14C, MW-14E, MW-18D, MW-20D, and MW-40 in 2022. Chromium concentrations in well MW-40 were greater than the cleanup level in Fall 2020 for the first time since 2011 and remained greater than the cleanup level in 2022. Well MW-18E was sampled in 2019 for the first time since 2011 to evaluate the effectiveness of the Phase I in-situ treatment injections conducted just upgradient of this well. Chromium concentrations in Well 18E are less than cleanup levels. Fluctuations of chromium concentrations in all the intermediate group wells are likely related to the effects of treatment, as well as hydraulic changes that occurred after pumping from wells in the Intermediate Well Group was shut off prior to in-situ treatment injections. MW-18D was shut off in 2018, and MW-14C, MW-14E, MW-19D, and MW-20D were shut off in 2019. The chromium trend in MW-19D appears to show that increases and fluctuations of chromium concentrations occurring after in-situ treatment injections are transient and the fluctuations diminish with time. The concentrations observed in prior year's sampling events are provided in Appendix E, Table E-1.

*TCE*

TCE concentrations were greater than the 5 µg/L groundwater cleanup level in 4 of the 12 wells sampled in this area, as presented in the following table.

**OU-3 Intermediate Well TCE Concentrations, in µg/L**

| Well | Winter 2022 | Spring 2022 | Summer 2022 | Fall 2022 |
|---|---|---|---|---|
| AMW-59 | < 0.50 U | -- | < 0.50 U | < 0.50 U |
| AMW-60 | 0.44 J | -- | 0.40 J | 0.31 J |
| CPU-14 | 4.7 | 3.3 | 2.1 | 0.51 |
| MW-14C | 3.1 | -- | -- | 4.2 |
| MW-14E | **18** | -- | -- | **19** |
| MW-15E | -- | **10** | 1.2 | 1.6 |
| MW-18D | -- | 2.8 | -- | 4.0 |
| MW-18E | -- | 0.94 | -- | 0.41 J |
| MW-19D | 0.21 J | -- | 1.2 | 3.7 |
| MW-20D | **8.3** | -- | **12** | **11** |
| MW-40 | -- | 0.42 J | -- | 0.59 |
| PZ-39 | **41** | -- | **45** | **28** |

Note:
J Estimated concentration
Results shown in **blue bold** exceed the established cleanup level of 5 µg/L
-- Not Analyzed

TCE concentrations exceeded the cleanup level in intermediate wells MW-14E, MW-15E, MW-20D, and PZ-39 in 2022. TCE concentrations in well CPU-14 have been fluctuating around the cleanup level since 2010. TCE concentrations in wells MW-18D and MW-18E dropped below the cleanup level for the first time in Spring 2019 and remained below during the 2022 reporting period. TCE concentrations in well MW-19D dropped below cleanup levels in 2022 for the first time since before Fall 2020 whereas TCE concentrations in MW-15E increased in Spring 2022 and subsequent sampling events are consistent with previous events for the intermediate area.

An in-situ treatment Phase I reductive dechlorination pilot test with activated carbon was conducted in Fall 2018 upgradient of this group of wells and was effective in reducing the TCE concentrations. Historically, TCE concentrations in groundwater samples from wells in this area (not impacted by the Northern Plume) have been on a decreasing trend (Appendix F).

### 3.3.2.4 Church of God Wells

The Church of God wells are located north of NE 78$^{th}$ Street between the west side of the Clark County sports field complex and the western Church of God property line. Three wells were sampled in this area in 2022.

*Chromium*

During the 2022 reporting period, chromium concentrations were greater than the 80 µg/L cleanup level in groundwater in 2 of the 3 wells, as shown in the following table.

**Church of God Well Chromium Concentrations, in µg/L**

| Well | Winter 2022 | Spring 2022 | Summer 2022 | Fall 2022 |
|---|---|---|---|---|
| AMW-27 | -- | -- | **114** | -- |
| AMW-61 | -- | -- | -- | 27.1 |
| MW-22D | 72.5 | -- | **85.4** | **86.6** |

Note:
J Estimated concentration
Results shown in **blue bold** exceed the established cleanup level of 5 µg/L
-- Not Analyzed

The chromium concentration in MW-22D and AMW-27 both increased above the cleanup level for the first time since Fall 2006 and Winter 2011, respectively. Chromium concentrations in both wells are significantly lower than historic concentration levels (Appendix E, Table E-2). Both MW-22D and AMW-27 are former extraction wells, with MW-22D turned off in late 2020 and AMW-27 turned off in 2013. Chromium concentrations at MW-22D rose steadily since it (and adjacent extraction well MW-21D) was turned off in 2020, appearing to plateau just above the MCL in 2022. AMW-27 appeared to have some fluctuation in chromium concentrations in 2013 when the pump was turned off but then it was placed in "On-Hold" status and not sampled again until 2021. In 2021 the chromium concentration measured was greater than concentrations measured in 2013 but below the MCL, in 2022 the chromium concentration was above the MCL. Both increases are presumed to be rebound effects resulting from turning off the groundwater extraction pumps and changing the local water table, and both locations are proposed for semi-annual monitoring in 2023 to monitor if chromium concentrations begin reducing (MW-22D) or continue increasing (AMW-27).

*TCE*

During the 2022 reporting period, TCE concentrations in groundwater were greater than the 5 µg/L cleanup level in 1 of the 4 wells sampled, as presented in the following table.

**Church of God Well TCE Concentrations, in µg/L**

| Well | Winter 2022 | Spring 2022 | Summer 2022 | Fall 2022 |
|---|---|---|---|---|
| AMW27 | 1.7 | -- | -- | -- |
| AMW-61 | -- | -- | -- | 4.7 |
| CPU-12 | -- | 2.2 | -- | -- |
| MW-22D | **11** | -- | **9.5** | **8.4** |

Note:
J Estimated concentration
Results shown in **blue bold** exceed the established cleanup level of 5 µg/L
-- Not Analyzed

Historically, TCE concentrations in samples collected from wells in this area have been on an overall decreasing trend (Appendix F). TCE concentrations in well AMW-61, which is screened in the silty zone at the bottom of the alluvial aquifer, generally have fluctuated, around or above the cleanup level since Fall 2013. TCE concentrations exceeded the cleanup level in Well MW-22D; however, TCE concentrations are significantly lower than historic concentration levels (Appendix F, Table F-2). Similar to chromium concentrations observed at MW-22D, the increase in TCE concentrations above the MCL occurred after the extraction pump removal in 2020. In 2021 TCE concentrations rose above the MCL, and in 2022 the TCE concentrations showed a

declining trend that is below the high concentration observed in 2021 but still above the MCL. As with chromium, this is presumed to be a rebound effect associated with changing the local water table when the extraction pump was turned off. The reduction in TCE observed in 2022 is an encouraging development, but further semi-annual monitoring is warranted to determine if the rise in TCE concentration above the MCL is transient or persistent.

### 3.3.3 Troutdale Aquifer Wells – TCE and Chromium

Groundwater samples for VOC analysis were collected from three Troutdale Aquifer wells, including the Bennett private well, during the 2022 reporting period. No Troutdale wells were sampled for chromium during the 2022 reporting period.

*TCE*

Concentrations of TCE were above the 5 µg/L cleanup level in 1 of the 3 wells sampled during the 2022, as presented in the following table.

**Troutdale Aquifer Well TCE Concentrations, in µg/L**

| Well | Winter 2022 | Spring 2022 | Summer 2022 | Fall 2022 |
|---|---|---|---|---|
| AMW-24 | **5.2** | -- | 4.9 | 4.3 |
| BENNETT | -- | 0.75 | -- | 1.9 |
| MW-33 | < 0.50 U | -- | 1.9 | -- |

Note:
J Estimated concentration
Results shown in **blue bold** exceed the established cleanup level of 5 µg/L
-- Not Analyzed

TCE concentrations in well AMW-24 marginally exceeded the cleanup level in Winter 2022 and have been fluctuating around the cleanup level since 2021. The TCE concentrations in the Bennett private well have historically fluctuated around the cleanup level but has remained less than the cleanup level since Spring 2016 (Appendix F-1). The TCE concentration in Troutdale well MW-33 dropped below the cleanup level in Fall 2018 for the first time since monitoring began in Spring 1998 and have remained below the cleanup level.

### 3.3.4 Other Detected VOCs

TCE is a primary COC for the site but is not the only VOC present. Routinely detected other VOCs include: tetrachloroethene; trichlorofluoromethane (CFC-11); 1,1,1-trichloroethane; bromodichloromethane; and TCE daughter products 1,1-dichloroethene (DCE) and cis-1,2-DCE. Results for these compounds for samples collected during the 2022 quarterly sampling events, in relation to Site cleanup levels, are summarized in Table 3-3. Results for the Winter and Spring quarterly sampling events are discussed in the Semi-Annual Groundwater Monitoring Report (EA 2022a) and are presented in Table 3-3 for reference. Concentrations of 1,1-DCE exceeded the cleanup level of 1 µg/L in two Intermediate Wells (AMW-60 and PZ-39). Cis-1,2-DCE was detected exceeding the cleanup level of 70 µg/L in one intermediate well (PZ-39); levels in wells AMW-24, AMW-59, MW-18D and MW-19D have increased since 2019. Cis-1,2-DCE is a

product of reductive de-chlorination from the in-situ groundwater treatments. No other VOCs exceeded the cleanup levels during the July through December reporting period.

Well AMW-60 had concentrations of 1,1-DCE above the cleanup level, whereas TCE concentrations in this well were below the cleanup level. Many of the other VOC detections coincide with TCE exceedances; however, low level non-TCE detections were reported in several wells that have TCE concentrations below the cleanup level (Tables 3-3).

### 3.3.5 In-Situ Injection Performance Monitoring

As described in Section 1.1, three rounds of injections for in-situ treatment were performed in 2018, 2019, and 2020. Injections were conducted in two Areas of Concern (AOC). AOC-1 is in the TCE Source Areas, where residual contamination is observed in TCE Source Area Wells. AOC-2 is located around the intermediate wells, where residual contamination is observed in the Intermediate Plume Wells. Initial performance monitoring samples to assess the effectiveness of the injections were collected from select wells downgradient of Phase IIB injections in Fall 2020, concurrent with O&M fall sample collection. A full report of in-situ treatments and conclusions was provided to the EPA separately and submitted in May 2021 (EA 2021e).

The In-Situ Phase II Report (EA 2021e) recommended additional performance monitoring to determine the effectiveness of in-situ treatments. Additional performance monitoring recommendations for 2022 were described in the 2021 Annual Report (EA 2022d) and were conducted as part of the Winter, Spring, Summer, and Fall 2022 quarterly sampling events. Updated versions of the performance monitoring data tables first presented in the In-Situ Phase II Report are provided here as Tables 3-4 and 3-5. Additional observations afforded by the extended dataset presented in Tables 3-4 and 3-5, beyond those already stated in the In-Situ Phase II Report, are presented below.

#### 3.3.5.1 AOC-1

*Well Locations Showing Improvement*
***MW-1A*** – TCE concentrations in well MW-1A remained well below the cleanup level, near the detection limit, from Winter 2022 through Fall 2022.

***AMW-1A*** – While the post-treatment TCE concentration had rebounded above the cleanup level in 2021 to a high of 15 µg/L of TCE in the fall of 2021, (with total molar concentrations of chlorinated solvents still less than pre-injection molar concentrations) in 2022 TCE concentrations fell to near and then below the MCL.

*Well Locations in Need of Further Investigation*
***AMW-2A*** – Despite an initial reduction in TCE concentration and molar concentration of CVOCs observed in Winter 2021, the subsequent sampling events in 2021 and 2022 have seen concentrations of TCE exceed the baseline pre-sampling event and return to the recent historical range of concentrations. Cis-1,2-DCE continues to be observed at low concentrations indicating the presence of biotic degradation processes, however the biotic degradation process does not appear to have a meaningful effect on long-term TCE concentration reductions. With the

additional data gathered in 2022, it now appears that a sample collected in the winter may have lower TCE concentrations than samples collected at other times of the year, but those reductions are seasonal dips rather than indicative of a downward trend.

***AMW-12A*** – In the sampling events that have occurred since the In-Situ Phase II Report, TCE concentrations and molar concentrations of CVOCs continued to decline through 2021. Continued detections of methane in winter 2022 indicate that biotic processes including remains active, however a small increase in TCE concentration and total CVOC molar concentration occurred in winter of 2022. Unfortunately, the well screen was observed to be fouled during the Fall 2022 sampling event so a sample could not be collected as planned.

#### 3.3.5.2 AOC-2

*Well Locations Showing Improvement*
***MW-14C*** – TCE concentrations remained below the cleanup level for all of 2022. Ethane concentrations fell below detection limits in 2022 and methane concentrations increased have stayed near the high observed in Fall 2021.

***MW-19D*** – Concentrations of TCE in well MW-19D fluctuated considerably following injections for almost two years but began stabilizing in in summer 2021 below pre-injection levels and have remained below the MCL for all of 2022.

***MW-18D –*** Concentrations of TCE remain below the cleanup level for all of 2022. The concentration of the breakdown product cis-1,2-DCE decreased in 2022. This monitoring well is no longer sampled for attenuation parameters (Table 3-5) due to successful completion of remediation monitoring.

***MW-18E*** – Concentrations of TCE remain below the cleanup level and near the detection limit for all of 2022. Cis-1,2-DCE and vinyl chloride concentrations remained lower in 2022 while trans-1,2-DCE concentration continued increasing slightly. This monitoring well is no longer sampled for attenuation parameters (Table 3-5) due to successful completion of remediation monitoring.

***MW-38*** – Reductions in TCE concentrations stalled in Winter 2021 and by Fall 2021 rebounded to approximately the pre-injection level. MW-38 was administratively moved by the EPA to Northern Plume Monitoring in October 2020. Given the additional offsite source of TCE that influences this well, an evaluation of in-situ performance at this location is complicated by external variables; however, detections of ethane, ethylene, and methane in Winter 2021, as well as reductions in TCE that were observed in the two quarters following the injection event, show that Row 2 injections exerted a beneficial effect on this portion of the Northern Plume. In 2022, TCE concentrations again fell to winter 2021 levels.

***AMW-59*** – TCE concentrations initially fluctuated at this well, decreasing to near the detection limit in Fall 2021, and no TCE was detected in 2022. As anticipated in the In-Situ Phase II Treatment Report, concentrations of daughter products cis-1,2-DCE and trans-1,2-DCE began to

decrease in Fall 2021 and were near detection limits in 2022. The breakdown end products ethane and ethylene, as well as methane, were at the highest concentrations in Summer 2022.

*Well Locations in Need of Further Investigation*

***PZ-39 –*** The In-Situ Phase II Report noted that additional time would be needed to observe an effect at this monitoring well due to its location in relation to NE 78$^{th}$ Street. No decrease in TCE concentrations was observed in 2021, however, cis-1,2-DCE increased from 0.51 µg/L to 8 µg/L over the four quarters of monitoring in 2021, then increased to 89 µg/L in Winter 2022, indicating that the breakdown of TCE began. In Winter 2022 the breakdown products ethylene and methane appeared, but then fell below detection limits in Summer 2022. A TCE concentration reduction below the pre-injection level was observed for the first time in Fall 2022.

***MW-14E*** – While TCE concentrations remain below pre-treatment concentrations, sampling through 2022 continues to show that TCE concentrations have plateaued at approximately 2 to 3 times the cleanup level. Measurable methane was routinely observed near the detection limit through Fall 2021, However in winter 2022 the methane concentration increased considerably to 290 µg/L. This was not accompanied by increases in ethane, ethylene, or breakdown CVOCs, all of which remain near or below the detection limit.

***MW-20D*** – Reductions in TCE concentrations through Fall 2022 stalled, hovering around the Spring 2021 TCE concentration but above the cleanup level. Ethane and ethylene decreased to below detection limits by Summer 2021. Methane was produced at significant concentrations while CVOCs were being reduced in the Spring and Summer 2021 but fell below detection limits in Fall 2021 and remained below detection limits during all 2022 sampling events. The arrival of dissolved iron in MW-20D in Fall 2021 suggested groundwater transport of that metal from the Row 1 permeable reactive zone, however dissolved iron concentrations subsequently fell to near the detection limit in 2022 and further reductions in TCE concentrations were not made in 2022.

# 4. OTHER ACTIVITIES

## 4.1 EASEMENT AGREEMENTS AND RESTRICTIVE COVENANTS

EA, on behalf of Messer, has pursued easement agreements and restrictive covenants for non-Messer owned properties, as required by Sections 25 and 26 of the CD (EPA 2007). Properties which include Site infrastructure but for which Messer has been unable to negotiate easement agreements include the following:

**Easement Agreements Needed**

| Property Owner | Parcel Number | Reason Agreement Needed |
|---|---|---|
| Clark County | 144505-000 and various un-numbered | Wells, vaults, pipelines |
| Gaither Family II LLC | 144492-000 | Well CPU-12 |
| Holtgrieve Estate | 144718-000 | Wells, vaults, pipelines |
| Xylem LLC | 099630-000 | Well MW-33 |

Further progress toward gaining easement agreements and restrictive covenants from non-responsive property owners is pending EPA assistance. Information on the location of these properties was shared with the EPA in a May 28, 2020, presentation. The lack of easement agreements on the properties listed above did not hinder Messer's ability to conduct site work on the affected properties in 2022.

## 4.2 WELL MAINTENANCE AND DECOMMISSIONING ACTIVITIES

Periodic well maintenance or decommissioning of monitoring wells is needed to ensure existing wells and water resources are protected. This section summarizes these activities during 2022.

- **PacTrust Corporate Park** - All remediation system modifications at the PacTrust Corporate Park were finished in 2022. This includes finishing vault tops to a smooth surface at slab grade and decommissioning Troutdale monitoring well MW-34. MW-34 was decommissioned with approval of the EPA to allow for construction of a stormwater detention pond. During decommissioning efforts, subsurface conditions encountered in the field required a change in decommissioning method which required a variance with Ecology. Appendix I contains the approved variance, including further detail on field conditions and the switch in decommissioning method, as well as other decommissioning documentation.

- **Northern Plume Well AMW-17** – This well could not be located during the spring 2022 sampling event due to recent earthwork obscuring the well location. The property is owned by a private citizen, and an access agreement is in place to ensure access to installed wells for the purpose of remediation and monitoring. EA discussed the issue with the property owner and attempted to locate the missing well with a metal detector, but AMW-17 could not be located. EA plans to work with the property owner to find the well in 2023, and either rehabilitate or decommission this well depending on its condition.

## 4.3 SYSTEM DECOMMISSIONING ACTIVITIES

The system decommissioning will be required after the "mothballed" phase is complete. However, decommissioning of the Intermediate Wellhouse on the Church of God property was approved after a single vehicle crash destroyed the wellhouse in July 2022. On July 12, EA contacted the Clark Public Utilities (CPU) to disconnect the overhead power source. The wellhouse door was repaired and the building was secured on July 15. CPU did not disconnect the overhead power until February 22, 2023, so the wellhouse decommissioning will be reported in the 2023 Semi-Annual Groundwater Monitoring Report.

## 4.4 SUSTAINABILITY PRACTICES

Messer and EA have a commitment to sustainable practices. In the office and in the field, attempts are made to reduce, reuse, and recycle whenever possible. Messer and EA have strived to reduce printing by increasing the use of digital deliveries in lieu of hard copies. In addition, the following monitoring and O&M activities are in place:

- Using PDBs or dedicated pumps for groundwater sampling wherever possible to eliminate the use of disposable tubing and decontamination solutions.

With the shutoff of the GWTS, electricity usage for the site was reduced by approximately two thirds in 2022 compared to 2020.

## 4.5 PREVIOUS REPORTS

Due to the duration of time that has passed since initial publishing, Messer now considers the Draft Preliminary Close Out Report approved by the EPA and closed to further revision. This report was submitted to the EPA on 30 September 2011.

# 5. ANNUAL ASSESSMENT OF GROUNDWATER SAMPLING

This section summarizes the annual assessment of the groundwater sampling results and sampling frequency for the Site. The purpose of this assessment is to determine if any changes should be made to the well monitoring schedule. To this end, the assessment includes two primary tasks: (1) evaluation of the status of wells included in the Closure Monitoring Program, specifically with regards to progress toward completion of remediation and attainment monitoring; and (2) evaluation of recommended changes to the well sampling frequencies.

## 5.1 EVALUATION OF CLOSURE MONITORING WELLS

The procedures used to evaluate groundwater monitoring data for wells included in the Closure Monitoring Program are based on the Site closure requirements described in the Closure Plan, Revision 3 for the Site (EA 2018), which incorporates EPA suggestions and recent EPA guidance, as discussed below.

As described in the Closure Plan, site closure will occur when the concentrations of all Site COCs in groundwater monitoring and extraction wells included in the Closure Monitoring Program have reached the Site-specific cleanup levels, as defined in the ROD. The following EPA guidance documents were used to develop the procedures in the Closure Plan to determine when the groundwater cleanup levels have been achieved:

- *Recommended Approach for Evaluating Completion of Groundwater Restoration Remedial Actions at a Groundwater Monitoring Well* (EPA 2014)
- *Guidance for Evaluating Completion of Groundwater Restoration Remedial Actions* (EPA 2013).

Site closure will occur in two phases: (1) remediation monitoring will be performed to determine when remediation is complete (Section 5.1.1); and (2) attainment monitoring will be performed to confirm COC concentrations are expected to remain below the cleanup levels in the future (Section 5.1.2). The Site will be closed once all Closure Monitoring Program wells have reached attainment for all COCs.

Table 5-1 lists the wells included in the Closure Monitoring Program for the Site, as presented in the Closure Plan (EA 2018). Wells not required to be a part of closure monitoring include wells that have never had COC concentrations greater than cleanup levels, as well as wells that are impacted by the Northern Plume; these are listed in Appendix G-1.

The sections below present the results of annual screening to evaluate whether VOCs and/or chromium concentrations in groundwater from Closure Monitoring Program wells at the Site have met the requirements for remediation monitoring completion and/or attainment monitoring completion. This annual screening for all VOCs and chromium forms the basis for the 2023 sampling program and is supplemented by semi-annual tracking of TCE and chromium status presented in QASP Addenda.

### 5.1.1 Remediation Monitoring Phase

The remediation monitoring phase refers to the phase of the remedy where remedial activities are being implemented to reach groundwater cleanup levels. With the shutdown of the GWTS on January 3, 2021, no areas were under active remediation and steady-state groundwater conditions returned to all locations approximately one month after the shutoff date.

The most recent four data points from each Closure Monitoring Program well were evaluated to assess whether remediation monitoring is complete for each COC in each well, in accordance with the Closure Plan (EA 2018a) and EPA guidance (EPA 2014). Remediation monitoring is considered complete for wells where all COCs have been either non-detect or reported at levels below the cleanup levels for the most recent four consecutive sampling events. Wells meeting these criteria may be considered for decreased sampling frequency until ready to enter the attainment monitoring phase.

If certain COCs meet their cleanup levels during four consecutive sampling events in a given well, but other COCs are reported at concentrations above cleanup levels during one or more of the four sampling events, then remediation monitoring is considered complete only for the COCs that have been below cleanup levels for four events. A decision may be made to remove the COCs that are below the cleanup levels from the monitoring program for wells fitting this scenario.

Factors used in evaluating the status of the closure monitoring wells are presented in Table 5-1. In the table, wells are presented by well groupings to demonstrate what is happening in specific areas of the plume. Columns titled “Remediation Monitoring Phase Complete?” show the results of the analysis based on the most recent four data points for TCE, all VOCs, and chromium. Columns titled “Never Exceeded Cleanup Level?” indicate wells where no exceedance has been reported for VOCs or chromium. Generally, COCs that have never exceeded cleanup levels in a well are excluded from the Closure Monitoring Program.

Summary data are provided in Table 5-1 for TCE and chromium, the primary COCs at the Site. However, as indicated in the table, for a few wells, remediation monitoring is incomplete due to other VOCs reported at concentrations exceeding cleanup levels. Data for the other Site COCs are included in Appendix G-2.

Closure Monitoring Program wells that are currently undergoing remediation monitoring and wells for which remediation monitoring is complete are shown on Table 5-1 and Figures 5-1 and 5-2 for VOCs and chromium, respectively.

Per the Closure Plan, more than four data points may be required to document the completion of remediation monitoring in some cases, if statistical analysis is required to evaluate a mixture of COC concentrations above and below the cleanup levels from recent sampling events. However, statistical analysis was not performed as part of this annual assessment. Rather, wells with any exceedances of the cleanup level over the last four sampling events were considered, for the purposes of this assessment, to require additional remediation monitoring.

Figures 5-3 through 5-8 show the progress each well in the Closure Monitoring Program has made through the remediation monitoring phase for TCE and chromium as of the Fall 2022 sampling event. As remediation monitoring has four events, each event a COC stays below the cleanup level counts as 2 out of 8 steps on the vertical axis. When the bar reaches the top (8/8) remediation monitoring for that monitoring well is complete.

### 5.1.2 Attainment Monitoring Phase

The attainment monitoring phase is intended to confirm that COC concentrations will remain at or below the cleanup levels in the future. In accordance with EPA guidance, the attainment monitoring phase for each well will not begin until after the remediation monitoring phase is complete for the well, and the groundwater in the vicinity is no longer impacted by active remediation.

With the shutdown of the GWTS on January 3, 2021, attainment monitoring could begin during the Spring 2021 sampling event for wells previously impacted by extraction and infiltration and could begin during Summer 2021 for monitoring wells downgradient of in-situ treatment, if remediation monitoring was complete, as one year had passed since the last in-situ treatments.

Table 5-1 summarizes which of the closure monitoring wells/COCs currently meet the requirements for the initiation of attainment monitoring: (1) remediation monitoring is complete and (2) no active remediation is occurring in the vicinity.

Cleanup attainment will be measured using eight data points, in accordance with EPA guidance (EPA 2014). As with remediation monitoring, the attainment monitoring phase evaluation is conducted separately for each COC at each well. If the eight consecutive attainment monitoring results are either non-detect or below the cleanup level for one or more COCs in a given well, then attainment monitoring will be considered complete for that well/COC(s).

Table 5-1 provides a list of wells in the closure monitoring program, and for wells that have reached attainment monitoring, the status of that monitoring is summarized, based on an evaluation of VOC and chromium concentrations reported from the last eight sampling events. This evaluation indicates that 23 wells meet the requirements for attainment monitoring for both VOCs and chromium; 21 wells meet the requirements for attainment monitoring for VOCs only (chromium has been excluded from closure monitoring). Attainment monitoring is complete for 8 wells (6 wells that were being monitored for both VOCs and chromium and 2 wells that were being monitored for VOCs only). Closure Monitoring Program wells that are currently undergoing attainment monitoring and wells for which attainment monitoring is complete are shown on Table 5-1 and Figures 5-1 and 5-2 for VOCs and chromium, respectively.

Similar to remediation monitoring, statistical analysis may be used to assess completion of attainment monitoring; however, no statistical analyses were conducted for this report. Figures 5-3 through 5-8 show the progress each well in the Closure Monitoring Program has made through the attainment monitoring phase for TCE and chromium as of the Fall 2022 sampling event. As attainment monitoring has eight events, each event a COC stays below the cleanup level counts as 1 out of 8 steps on the vertical axis in Figures 5-3 through 5-8. When the

bar reaches the top (8/8), attainment monitoring for that monitoring well is complete. Per the Closure Plan (EA 2018) a statistical analysis is required for each monitoring location to verify concentrations will not increase after attainment monitoring is complete, this evaluation will occur for all monitoring wells in a well group when attainment monitoring is complete for all wells in the well group.

## 5.2 EVALUATION OF SAMPLING FREQUENCY

As part of the annual assessment, the current sampling frequency for each well is evaluated and, if appropriate, revised. When proposing a revised sampling frequency for a well, the following factors are considered: the current sampling frequency and, for closure monitoring wells, whether remediation monitoring and/or attainment monitoring is complete for VOCs and/or chromium. These factors are summarized in Tables 5-1 and 5-2. Additionally, a review of graphs of historical TCE and chromium concentrations in each well sampled during 2022 (presented in Appendices E and F) was performed during the evaluation of recommended sampling frequencies for 2023. Adjustments are made to sampling frequency in sampling events based upon results of previous sampling events and frequency may be adjusted in the QASP Addenda from the recommendations of this report based upon collected data.

Recommended sampling frequencies for 2023 are summarized in Table 5-2 and illustrated in Figure 5-9. Factors that may yield recommended changes in sampling frequency for Closure Monitoring Program wells include the following:

- Wells for which attainment monitoring is complete and for which sampling is not required for other purposes are designated as “no further sampling”, as no additional sampling of these wells is recommended.

- Wells within active areas of in-situ remediation may have increased monitoring frequency to monitor the effectiveness of the remediation.

- In accordance with the recommendations of the Closure Plan (EA 2018), wells in the first 4 events of the 8-event attainment monitoring phase should be sampled quarterly, while wells in the last 4 events of the 8-event attainment monitoring phase should be sampled semi-annually. Given the balance of individual well progress through the attainment monitoring phase, Messer plans on moving to semi-annual sampling in 2023 for all wells that were formerly sampled quarterly.

Semi-annual monitoring for VOCs will be conducted in upgradient well AMW-8A. Semi-annual monitoring for VOCs will be performed in source area wells AMW-1A, AMW-1B, AMW-1C, AMW-2A, AMW-2B, AMW-3A, AMW-4A, AMW-12A, AMW-13A, AMW-19A, AMW-26, AMW-52A, AMW-53A, MW-1A, MW1B, and MW-1C. A monitoring frequency of every 5 year for VOCs will continue in source wells AMW-54A and AMW-56A.

Semi-annual monitoring for VOCs will be performed in proximal area wells AMW-58, MW-2A, MW-7B, and MW-9C. Semi-annual monitoring for chromium will be conducted in proximal well MW-3A; annual monitoring for chromium will be performed in proximal wells MW-2A

and MW-7B. Semi-annual monitoring for VOCs and chromium will be conducted in proximal wells MW-2B, MW-2C, MW-3B, MW-3C, MW-4A, MW-4B, MW-4BSHED, MW-4C, MW-6A, MW-6B, MW-6C, MW-6D, MW-7C, MW-8B, MW-9B, MW-10B, MW-10C, MW-12C, MW-13C, and PW-1B.

Semi-annual monitoring for VOCs and chromium will be performed in intermediate wells CPU-14, MW-14C, MW-14E, MW-15E, MW-18D, MW-18E, MW-19D, MW-20D, and MW-40. Semi-annual monitoring of VOCs will be conducted in intermediate wells AMW-59, and PZ-39. Intermediate well AMW-60 will be monitored semi-annually for 1,1-DCE. In addition, intermediate wells AMW-59, MW-14C, MW-14E, MW-19D, MW-20D, and PZ-39 will be monitored semiannually for in-situ performance parameters.

Semi-annual monitoring will continue in the Church of God wells AMW-27 (Cr) and MW-22D (TCE and Cr). Annual monitoring of AMW-61 will continue for VOCs and Cr. No further sampling is recommended for CPU-12 since attainment monitoring was completed in 2022.

Semi-annual monitoring of the Troutdale MW-33 well and private well (Bennett) will continue for VOCs. Annual VOC monitoring will continue in Troutdale well AMW-24.

Changes in sampling frequency are not recommended for Northern Plume wells. Five Northern Plume wells are monitored semiannually for VOCs, and one additional well (AMW-23) is sampled annually for VOCs to monitor the approach of the Northern Plume.

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# 6. RECOMMENDATIONS AND PLANNED ACTIVITIES

The following sections summarize the status of activities recommended for 2022, as well as recommendations and planned activities for 2023.

## 6.1 STATUS OF PREVIOUS RECOMMENDATIONS 2022

To meet the operating objectives for OU-2 and OU-3, planned activities for 2022 were recommended in the 2021 Annual Status report (EA 2021d). The status of those planned activities is summarized below:

- **Well Sampling** – Wells were sampled based upon the recommendations of the 2021 Annual Report, with consideration given to analytical results from subsequent sampling events.
- **Easement Agreements and Restrictive Covenants** – EA continues to work with the EPA as necessary to obtain the required agreements with non-responsive property owners. EA will continue efforts to obtain agreements as opportunities and need arise.
- **PacTrust Corporate Park** – A design to incorporate the remediation system in an operational-ready state and access the monitoring wells for continued sampling was prepared in 2021 in cooperation with the property owner, PacTrust Development. This real estate development was in progress of being built in Fall 2022, and the remedial system modification design was implemented in 2022, concurrently with building foundations construction. Additionally, MW-34 was decommissioned in July 2022 when the detention pond dried out.
- **Northern Plume** – EA continues to work with EPA to develop a strategy for closure of OU-3 wells being impacted by the Northern Plume.

## 6.2 RECOMMENDATIONS AND PLANNED ACTIVITIES FOR 2023

The GWTS will remain in a state of readiness, should regular monitoring of chromium concentrations around the treatment system building in 2023 indicate migration of chromium in response to which the EPA may elect to reactivate the system. If the system remains unused, it will be decommissioned when the wells in the network that it services have concluded attainment monitoring. As discussed in Section 3.3.2.2.1, chromium monitoring conducted through Fall 2022 has so far not indicated a significant change in chromium plume size or concentration.

In 2021, Messer recommended additional monitoring for chromium in monitoring wells located around the GWTS post-shutdown. The wells that Messer recommends for monitoring for the duration of the GWTS mothball period are MW-3A, MW-4A, MW-4B, MW-4C, MW-6A, MW-6B, and MW-9B. Chromium concentrations in monitoring wells adjacent to the GWTS (such as MW-6A) have not been positively impacted by the GWTS for a period approaching 15 years (EA 2020). The GWTS will need to be removed and the contaminated residual soil excavated to achieve chromium cleanup levels in the affected monitoring wells in the vicinity of the GWTS.

Additional monitoring in this area will identify any change to the residual chromium plume concentration or configuration in the period between GWTS shutdown and final soil excavation. The aforementioned wells were sampled quarterly in 2021, and reduced to semi-annual during 2022, per the recommendations of the September 23, 2020 Memorandum (EA 2020) and the 2021 Annual Report (EA 2022d). Enhanced chromium monitoring around the GWTS in 2022 shows an upward trend at MW-4B, but no evidence of migration of the residual chromium plume.

EPA and Messer are preparing a scope of work to conduct additional chromium investigations of OU-1 soil (the Boomsnub source area) during 2023. Soil borings will be advanced in the area to determine the extent of future remedial activities.

Messer plans on sampling on a semi-annual basis in 2023. With the GWTS shutdown having occurred in January 2021, Messer commenced attainment monitoring phase on a quarterly basis, as described in the Closure Plan (EA 2018). Based on the closure plan, the second set of four attainment monitoring events (events five through eight), will be sampled on a semi-annual basis. Given the balance of individual well progress through the attainment monitoring phase, Messer plans on moving to semi-annual sampling in 2023. Semi-annual QASP Addenda will precede 2023 sampling events.

### 6.2.1 In-Situ Treatment Recommendations

As described in the 2015 Explanation of Significant Differences (EPA 2015), in-situ treatment is an effective and approved alternative method for addressing the remaining residual mass. As described in a technical memorandum dated 23 September 2020 (EA 2020), in-situ treatment of remaining “hot spots” is planned as the means of addressing residual TCE contamination in the mid-plume and source areas. Specific recommendations for each monitoring location are discussed below.

#### 6.2.1.1 AOC-1

In-situ treatment performance monitoring in AOC-1 has shown mixed results in the seven quarters of sampling since it was addressed in the In-Situ Phase II Report (EA 2021). First MW-1A and now AMW-1A appear to be successfully remediated, and meaningful reductions in TCE concentrations AMW-12A have occurred. MW-1A is successfully remediated with stable concentrations below the MCL and Messer recommends:

- Continued attainment monitoring sampling on a semi-annual basis.

AMW-1A had decreasing molar concentrations of CVOCs and TCE concentrations near the cleanup level until a spike in concentration during the Fall 2021 sampling event. Further performance monitoring was therefore recommended at AMW-1A and continued during 2022. Those additional sampling efforts show that the Fall 2021 spike in concentration was temporary and remediation efforts at AMW-1A are beginning to successfully reduce TCE concentrations below the MCL. For AMW-1A Messer recommends:

- Continued remediation monitoring on a semi-annual basis.

AMW-2A is located in a difficult to treat location, with considerable infrastructure upgradient of the location. This well is marginally addressed by the north end of Row 14, located in an accessible area further upgradient. It is possible that with the shutdown of the GWTS and subsequent cessation of infiltration gallery groundwater recharge, the groundwater direction shifted in the vicinity of AMW-2A that soluble injectate from Row 14 moved away from AMW-2A instead of towards it. AMW-2A concentrations in 2022 were stable and above the MCL. In 2023, Messer recommends:

- Further monitoring of AMW-2A, and
- Consideration for if and how recalcitrant contamination can be further addressed in this difficult to access area.

AMW-12A was trending in the right direction at the end of 2021 but then increased slightly in Winter 2022. A fouled well screen prevented sampling in Fall 2022. Messer recommends:

- Rehabilitation of the well, and
- Continued performance monitoring with natural attenuation parameters on a semi-annual basis.

#### 6.2.1.2 AOC-2

For performance monitoring wells located downgradient of Phase IIB treatment rows injected in Spring 2020, transit distances are longer from each row to each performance monitoring well, and the subsurface lithology is also siltier in the Luke Jensen Park area, resulting in slower groundwater velocities. As a result, concentrations are expected to take longer to decrease. Additional monitoring was recommended for MW-20D, and PZ-39 in 2022 to monitor potential trends towards the cleanup level via active degradation. Despite allowing additional time for low-velocity groundwater transit, meaningful reductions in TCE concentrations at these two wells were not observed in 2022. For MW-20D and PZ-39, Messer recommends:

- Continued sampling semi-annually in 2023, and

- Treatment evaluation. While additional time might eventually show TCE reductions from upgradient treatment rows, consideration of the potential benefit of further injections in these two areas will be given during the evaluation of additional treatments for other site hot spots.

MW-38 had reducing TCE concentrations in 2022. For MW-38, Messer recommends:

- Continued sampling on a semi-annual basis as part of the Northern Plume instead of in-situ treatment performance monitoring.

For MW-19D, TCE concentrations dropped below cleanup levels, however, markers of reductive dechlorination continue to increase, indicating continued biotic degradation. For MW-19D Messer recommends:

- Continued sampling on a semi-annual basis. If TCE concentrations remain below the MCL in Spring 2023, remediation monitoring will be complete, and Messer recommends discontinuing monitoring of natural attenuation parameters mid-year.

For wells MW-18D, MW-18E, and MW-14C, TCE concentrations are stable below the MCL and Messer recommends:

- Continued semi-annual sampling without natural attenuation parameters for attainment monitoring.

In monitoring well AMW-59, TCE concentration had fluctuated above the cleanup level but in 2022 concentrations dropped  well below the cleanup level with good indicators of reductive dechlorination. Given that two years has passed since the injection event, Messer recommends:

- Continued attainment monitoring on a semi-annual basis. Remediation monitoring is now complete, and discontinuation of natural attenuation parameters is recommended for 2023.

At location MW-14E, three years have now passed since the in-situ treatment was injected and the TCE concentrations have plateaued with no indicators of active degradation processes observed. For these reasons, additional treatment appears necessary to successfully drive TCE concentrations below the cleanup level at MW-14E. Messer recommends:

- Evaluation of treatment scenarios at this location, with the potential for additional injection treatments. This location has posed a challenge to properly address due to its location immediately downgradient of NE St. Johns Road.

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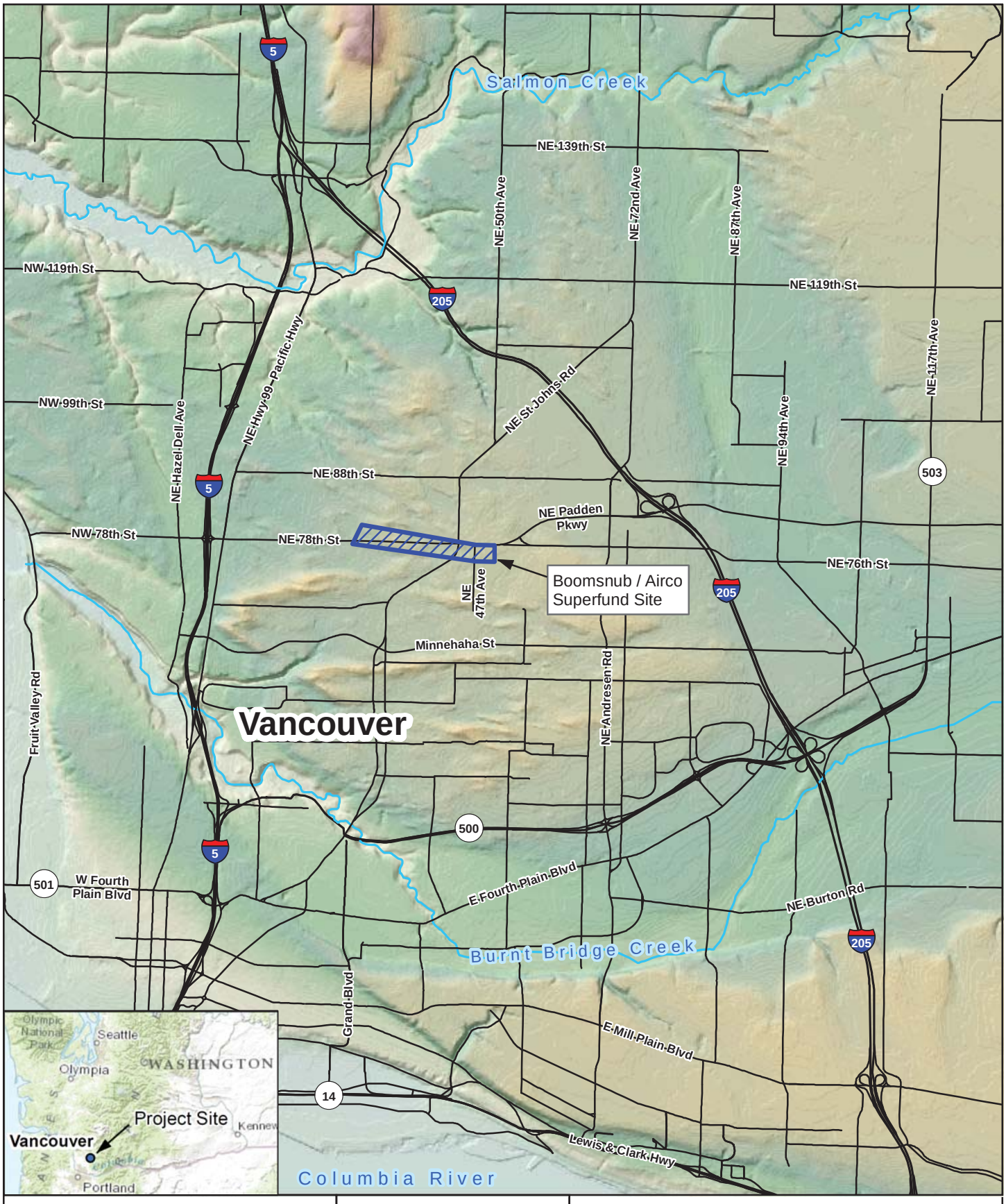
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# Figures

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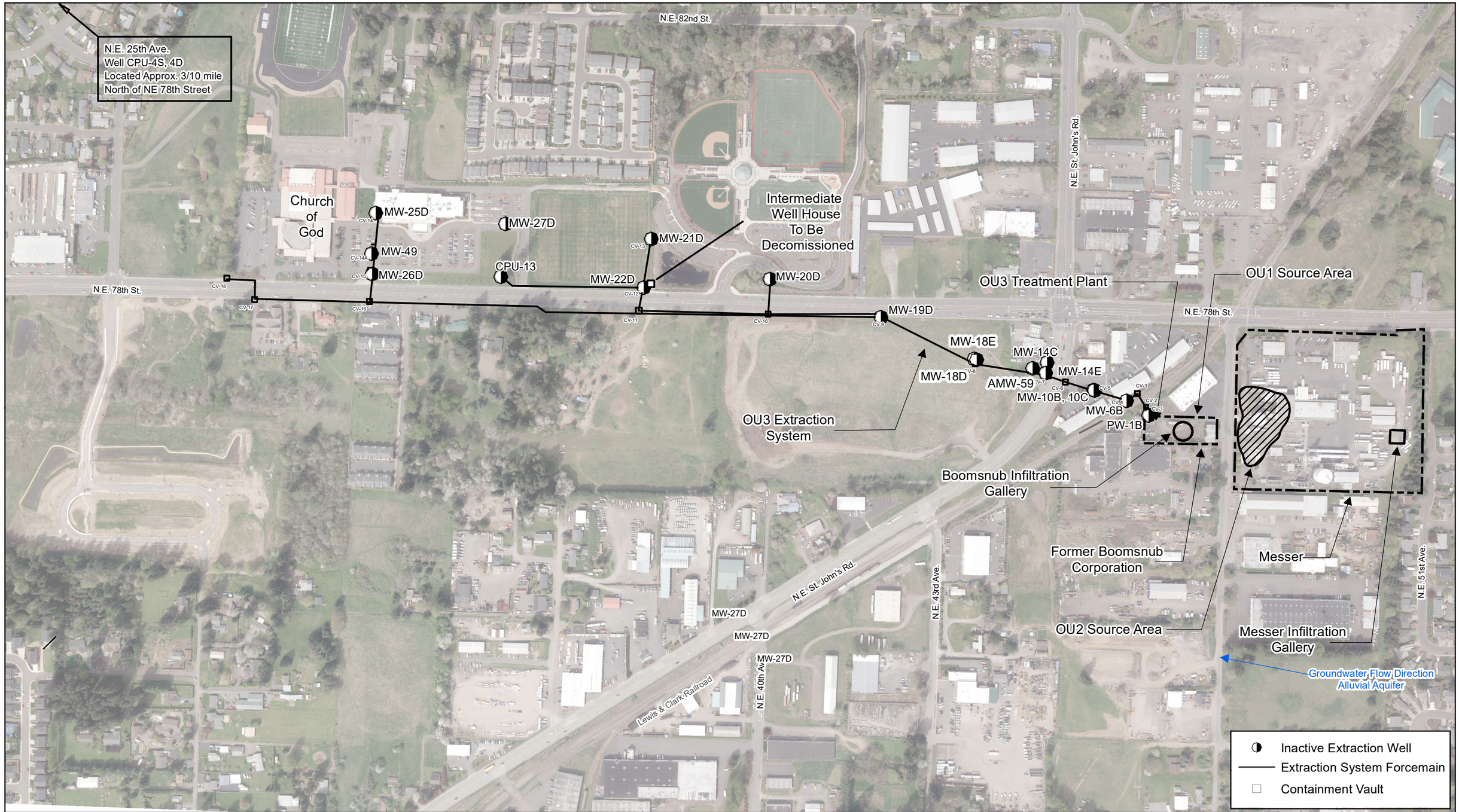
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FIGURE 1-1
SITE LOCATION MAP

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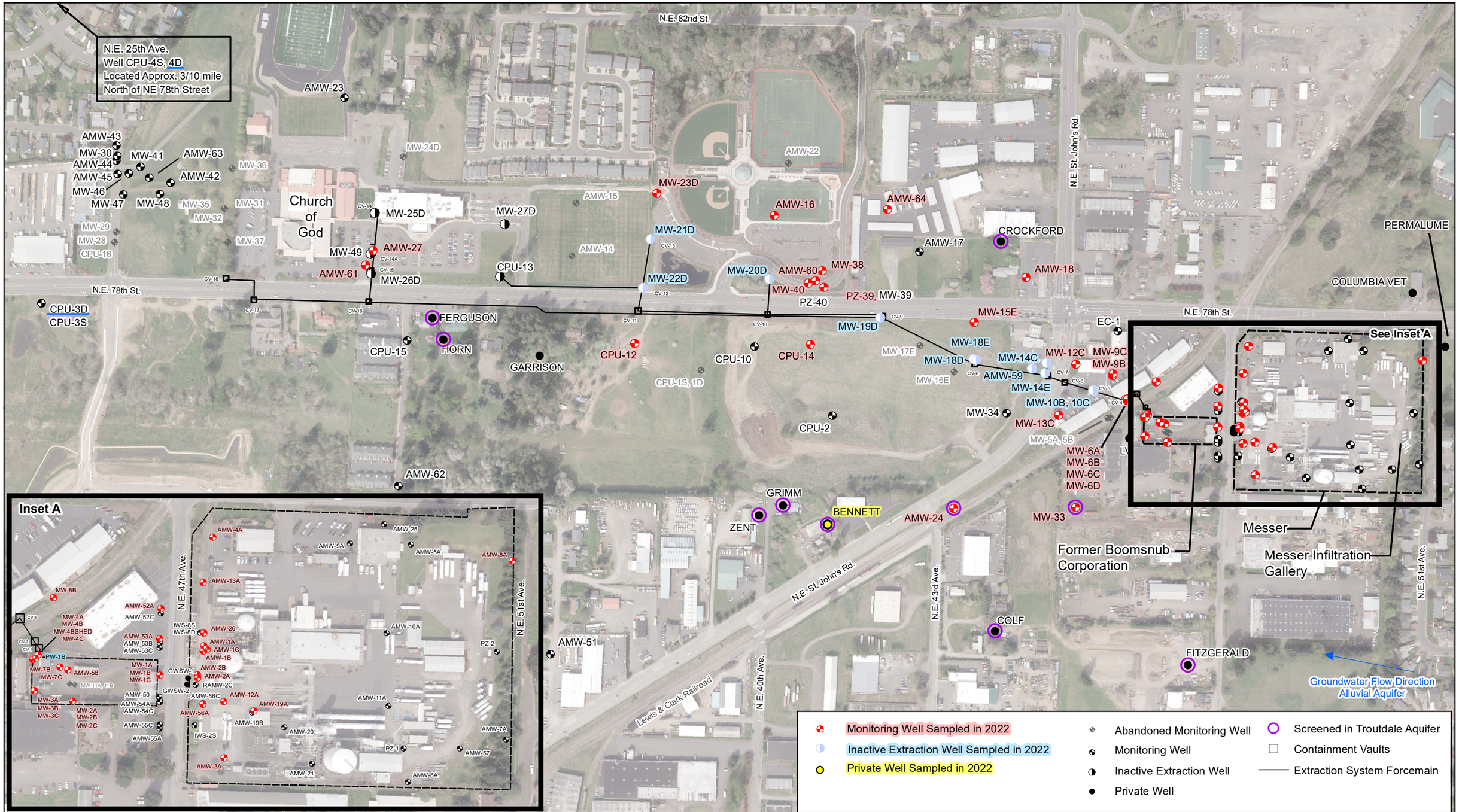
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FIGURE 1-2
OPERABLE UNITS AND TREATMENT SYSTEM
2022




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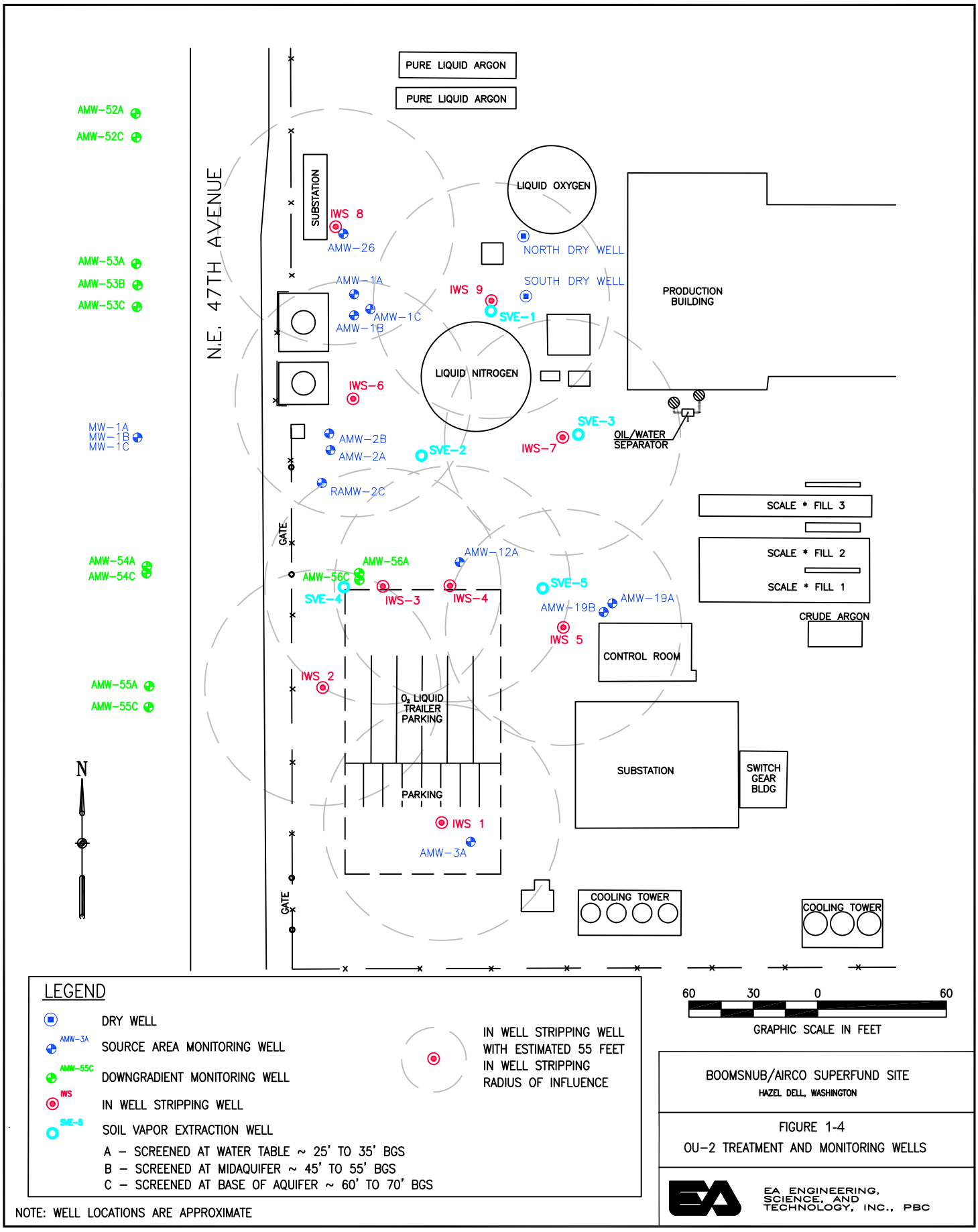
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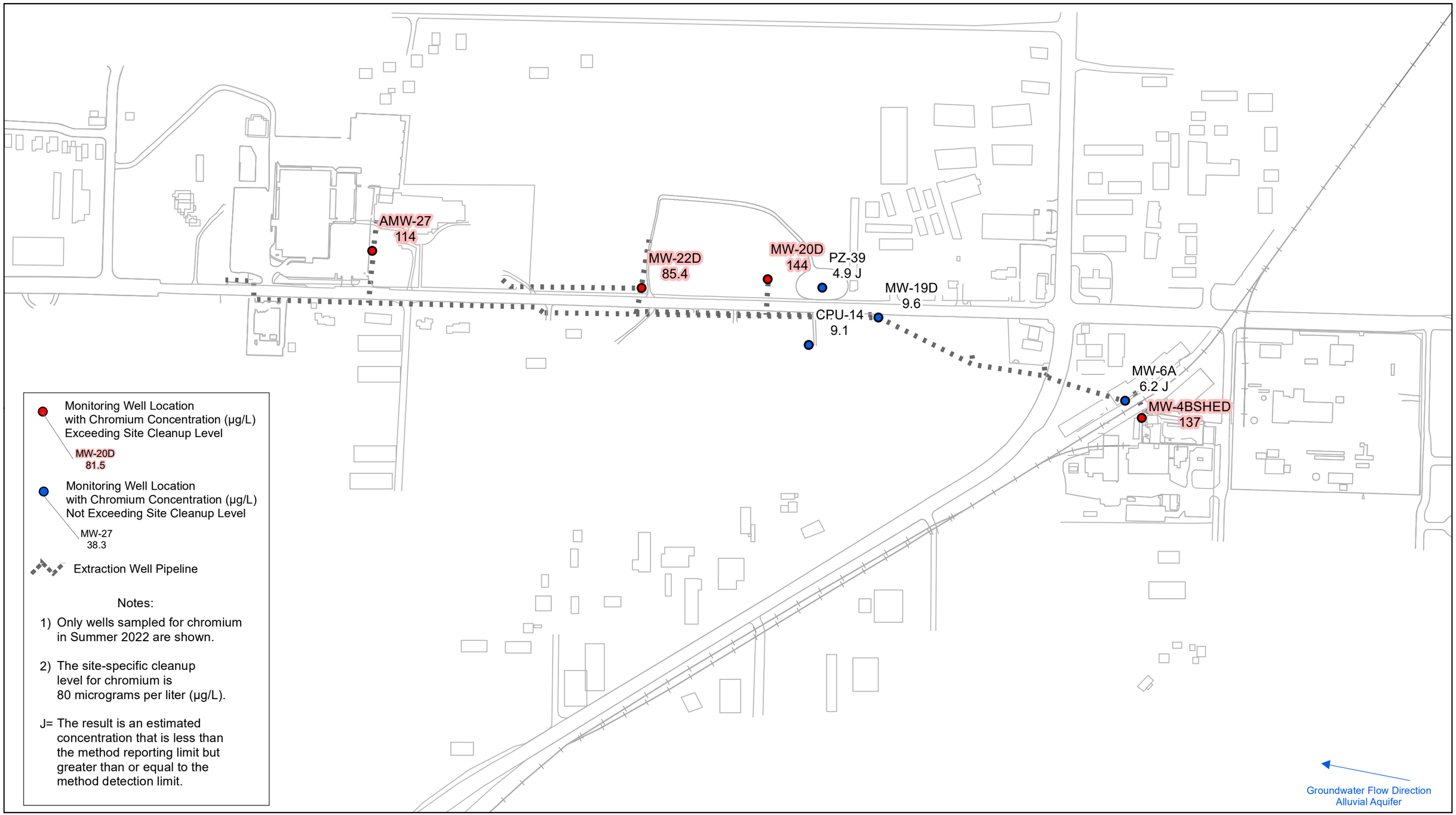
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FIGURE 1-3
MONITORING AND EXTRACTION WELL NETWORK


PURE LIQUID ARGON
PURE LIQUID ARGON
AMW-52A
AMW-52C
N.E. 47TH AVENUE
SUBSTATION
IWS 8
AMW-26
LIQUID OXYGEN
NORTH DRY WELL
AMW-53A
AMW-53B
AMW-53C
AMW-1A
AMW-1C
AMW-1B
IWS 9
SVE-1
SOUTH DRY WELL
PRODUCTION BUILDING
LIQUID NITROGEN
IWS-6
MW-1A
MW-1B
MW-1C
AMW-2B
AMW-2A
SVE-2
SVE-3
IWS-7
OIL/WATER SEPARATOR
RAMW-2C
SCALE * FILL 3
SCALE * FILL 2
SCALE * FILL 1
CRUDE ARGON
GATE
AMW-54A
AMW-54C
AMW-56A
AMW-56C
AMW-12A
SVE-4
IWS-3
IWS-4
SVE-5
AMW-19B
AMW-19A
IWS 5
CONTROL ROOM
AMW-55A
AMW-55C
IWS 2
O2 LIQUID TRAILER PARKING
PARKING
SUBSTATION
SWITCH GEAR BLDG
IWS 1
AMW-3A
GATE
COOLING TOWER
COOLING TOWER
N
LEGEND
DRY WELL
AMW-3A
SOURCE AREA MONITORING WELL
AMW-55C
DOWNGRADIENT MONITORING WELL
IWS
IN WELL STRIPPING WELL
SVE-5
SOIL VAPOR EXTRACTION WELL
A – SCREENED AT WATER TABLE ~ 25' TO 35' BGS
B – SCREENED AT MIDAQUIFER ~ 45' TO 55' BGS
C – SCREENED AT BASE OF AQUIFER ~ 60' TO 70' BGS
IN WELL STRIPPING WELL WITH ESTIMATED 55 FEET IN WELL STRIPPING RADIUS OF INFLUENCE
NOTE: WELL LOCATIONS ARE APPROXIMATE
60 30 0 60
GRAPHIC SCALE IN FEET
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FIGURE 1-4
OU-2 TREATMENT AND MONITORING WELLS
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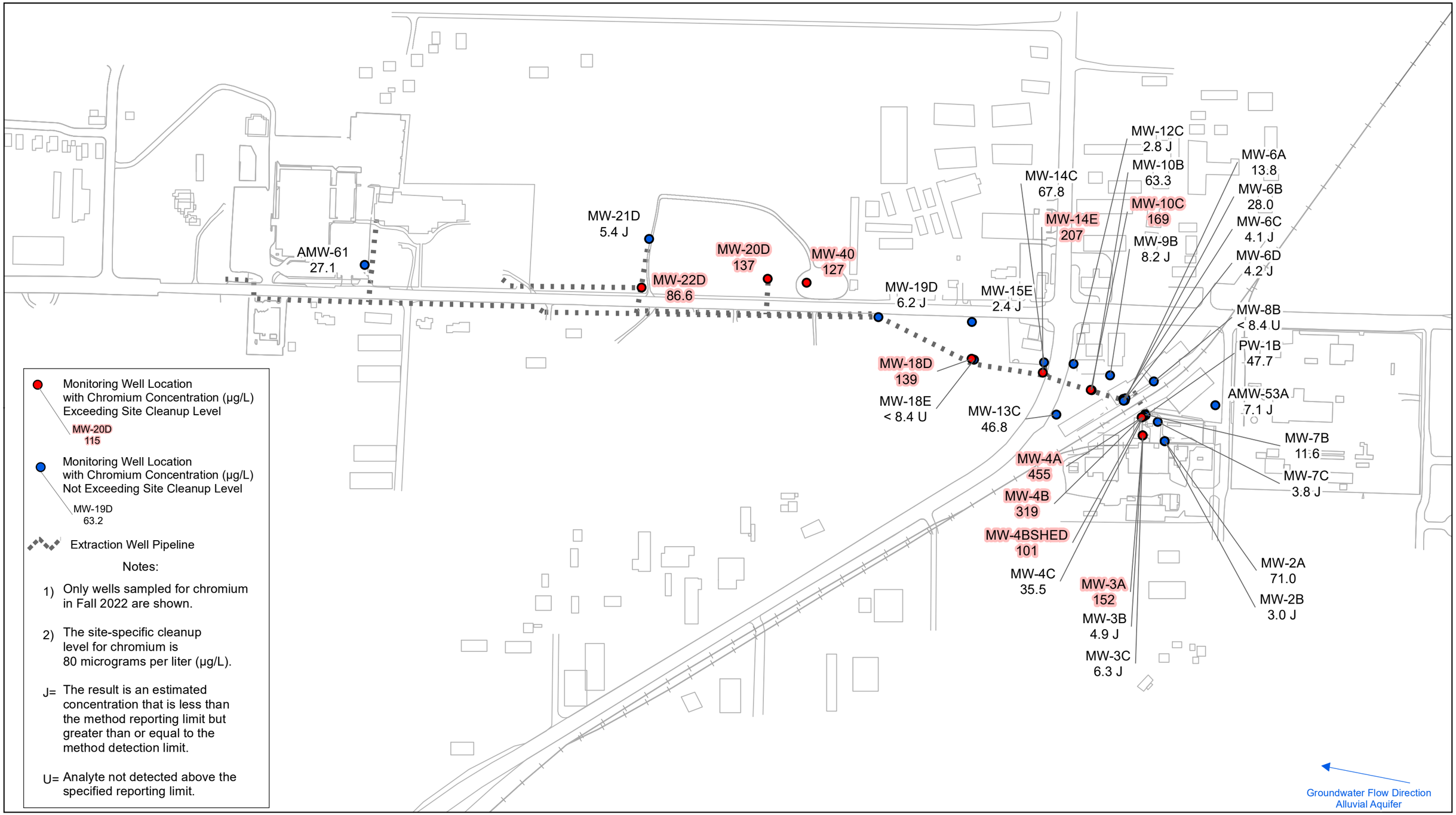
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FIGURE 3-1
CHROMIUM SAMPLING RESULTS,
SUMMER 2022




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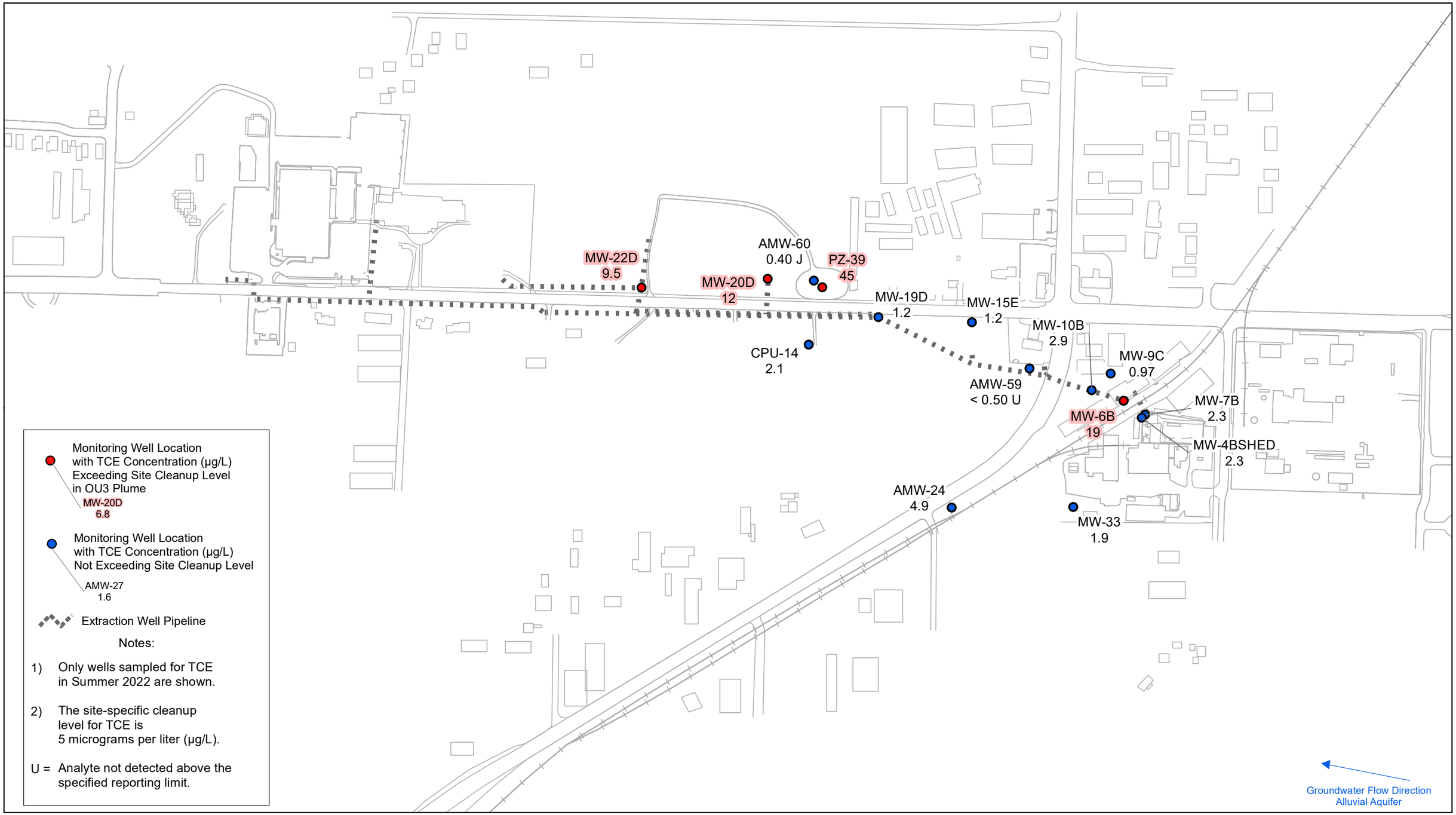
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FIGURE 3-2
CHROMIUM SAMPLING RESULTS,
FALL 2022

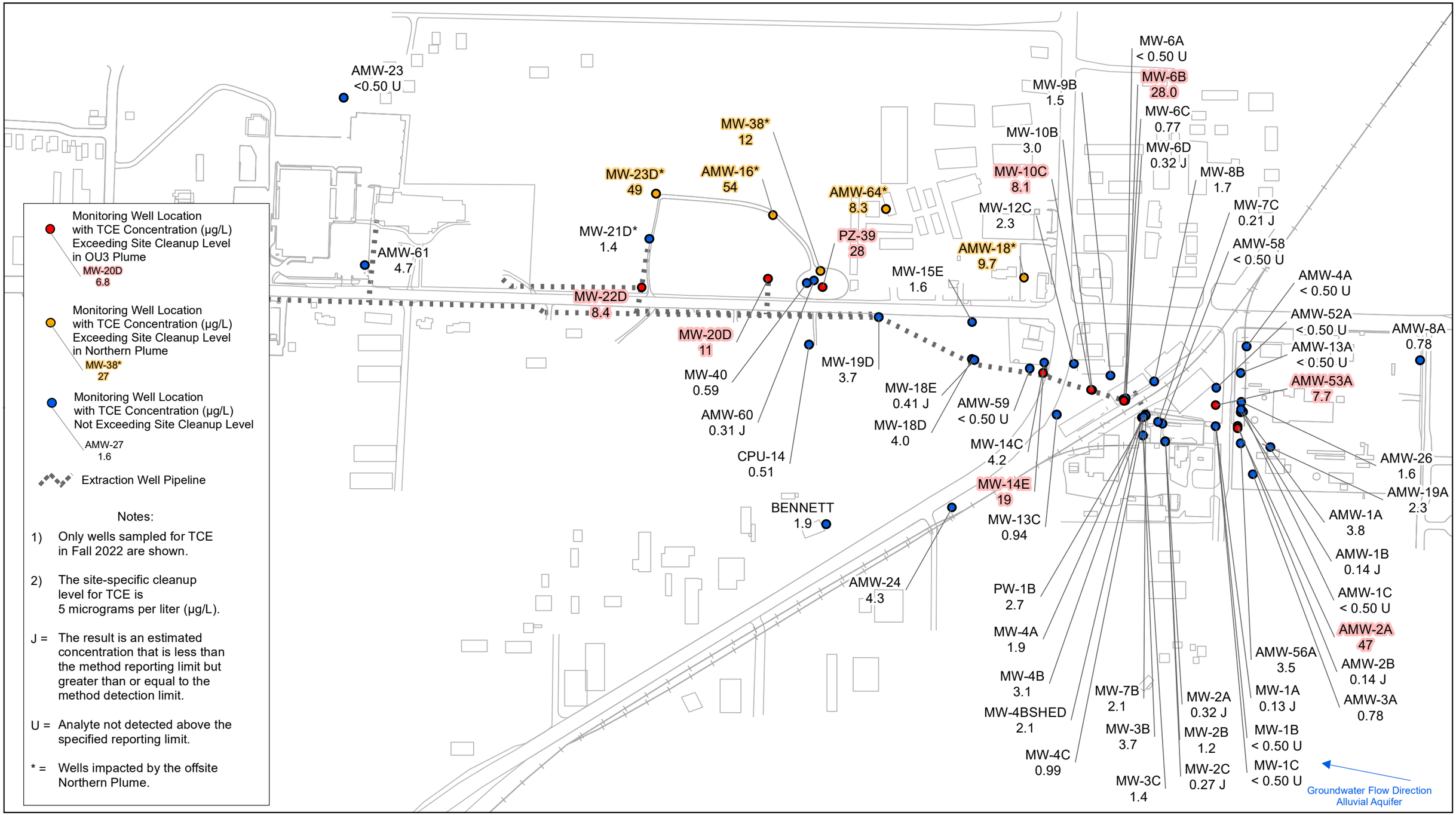



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FIGURE 3-3
TRICHLOROETHENE SAMPLING RESULTS, SUMMER 2022




Monitoring Well Location with TCE Concentration (µg/L) Exceeding Site Cleanup Level in OU3 Plume
MW-20D
6.8

Monitoring Well Location with TCE Concentration (µg/L) Exceeding Site Cleanup Level in Northern Plume
MW-38*
27

Monitoring Well Location with TCE Concentration (µg/L) Not Exceeding Site Cleanup Level
AMW-27
1.6

Extraction Well Pipeline

Notes:

1) Only wells sampled for TCE in Fall 2022 are shown.

2) The site-specific cleanup level for TCE is 5 micrograms per liter (µg/L).

J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.

U = Analyte not detected above the specified reporting limit.

* = Wells impacted by the offsite Northern Plume.

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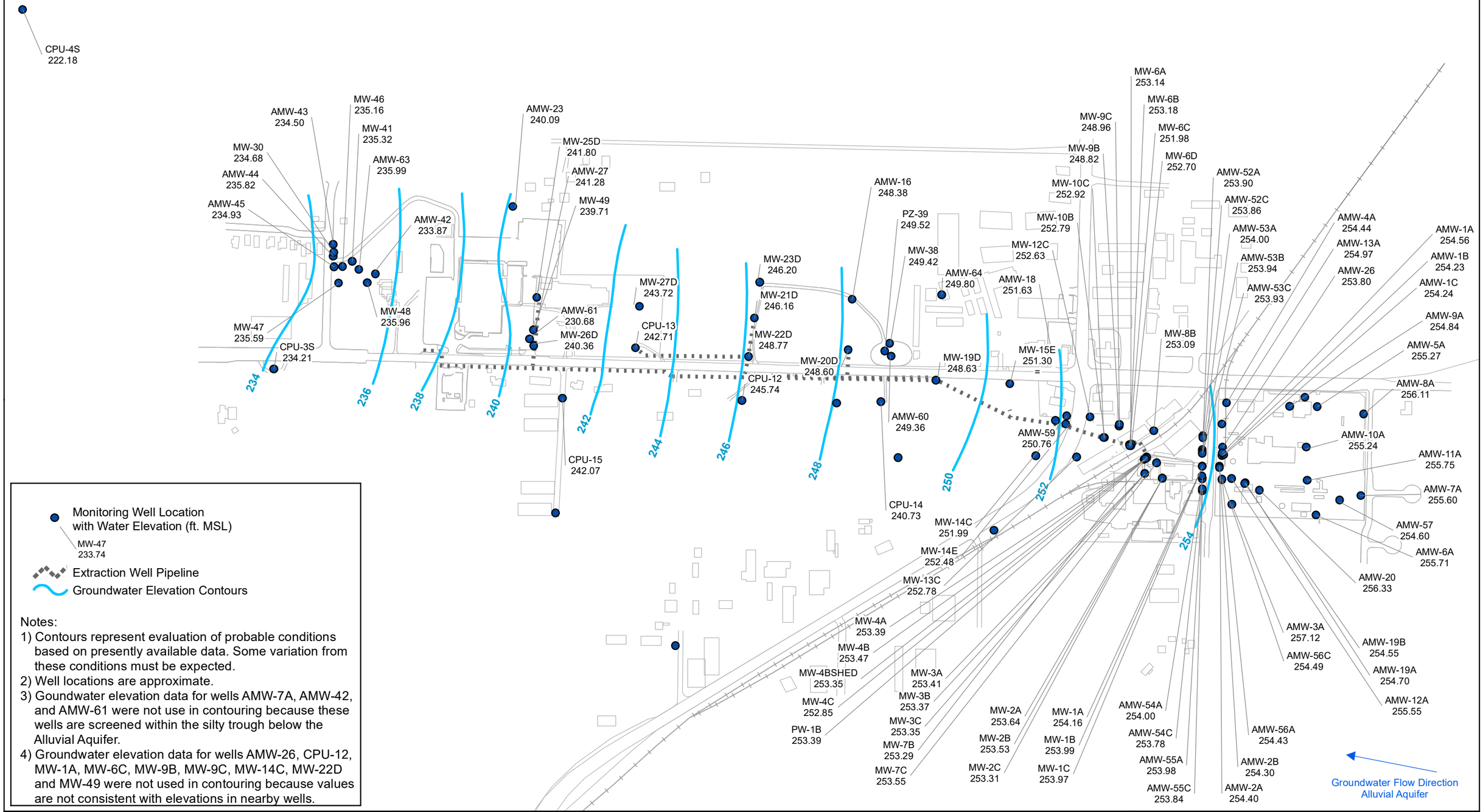
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FIGURE 3-4
TRICHLOROETHENE SAMPLING RESULTS, FALL 2022




Monitoring Well Location
with Water Elevation (ft. MSL)

MW-47
233.74

Extraction Well Pipeline

Groundwater Elevation Contours

Notes:

1) Contours represent evaluation of probable conditions based on presently available data. Some variation from these conditions must be expected.
2) Well locations are approximate.
3) Groundwater elevation data for wells AMW-7A, AMW-42, and AMW-61 were not use in contouring because these wells are screened within the silty trough below the Alluvial Aquifer.
4) Groundwater elevation data for wells AMW-26, CPU-12, MW-1A, MW-6C, MW-9B, MW-9C, MW-14C, MW-22D and MW-49 were not used in contouring because values are not consistent with elevations in nearby wells.

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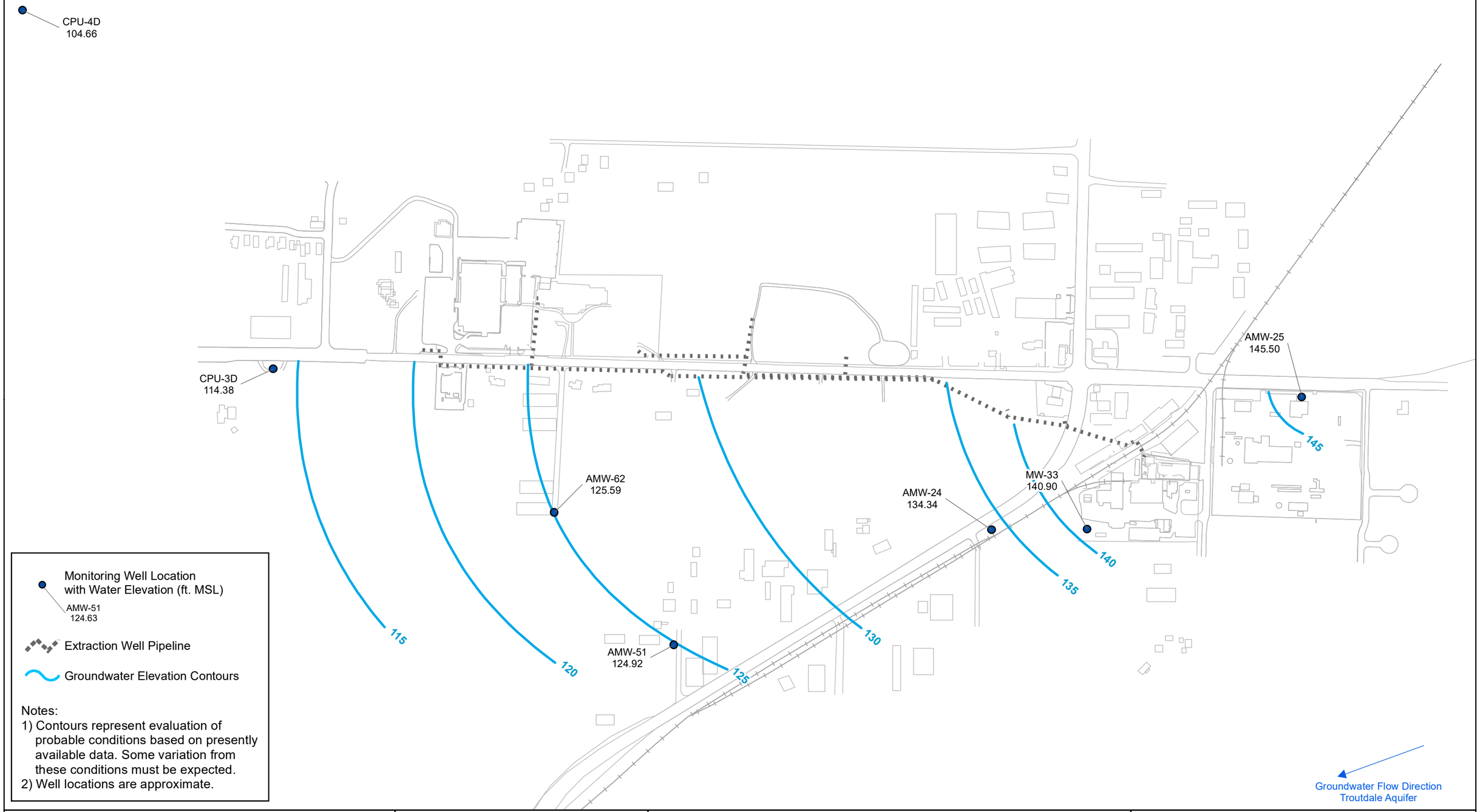
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FIGURE 3-5
ALLUVIAL AQUIFER GROUNDWATER CONTOURS
FALL 2022



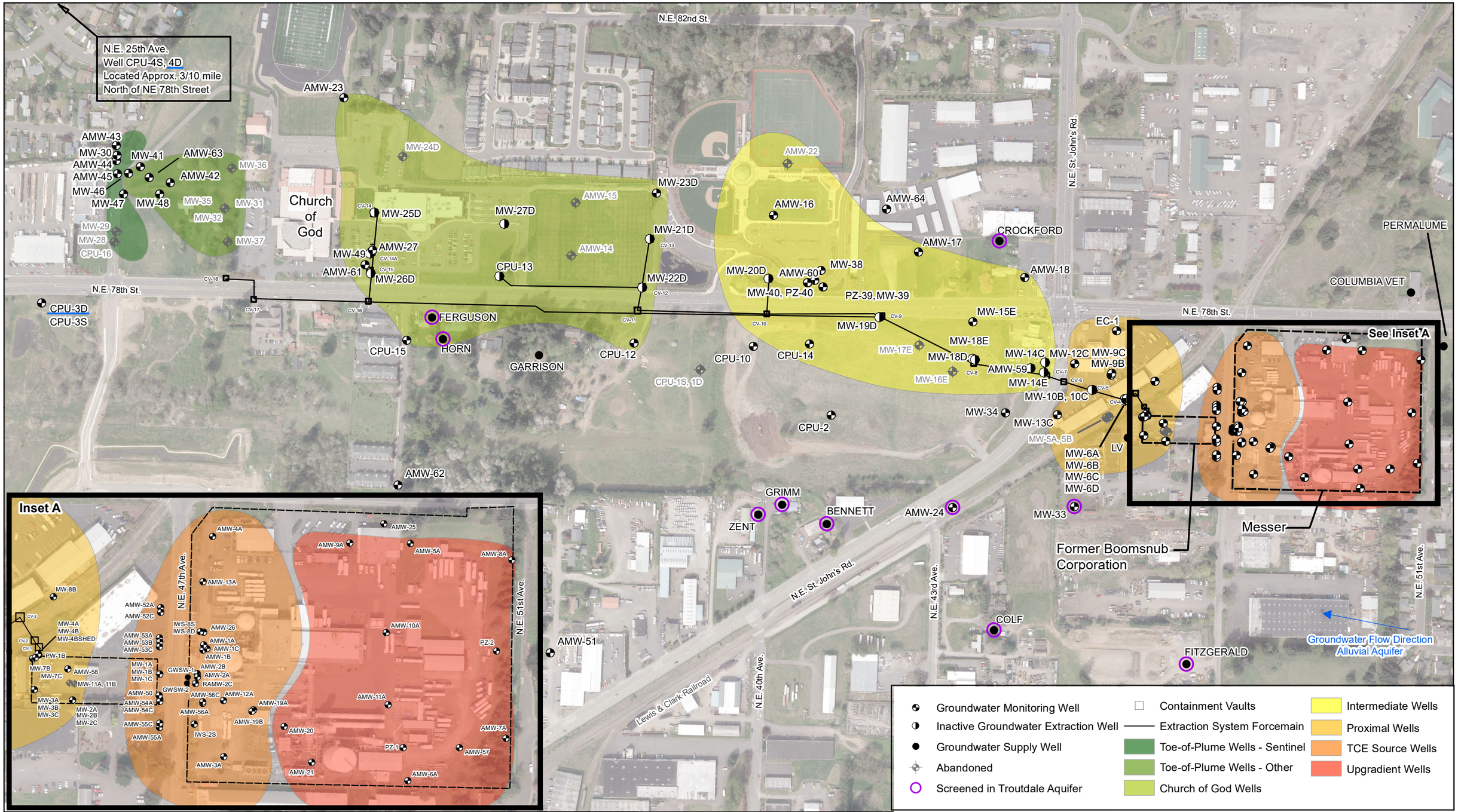

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FIGURE 3-6
TROUTDALE AQUIFER GROUNDWATER CONTOURS
FALL 2022




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FIGURE 3-7
EXTRACTION AND MONITORING WELL GROUPINGS

1995

Groundwater Flow Direction
Alluvial Aquifer

2022

Extraction Well Pipeline

**Chromium Concentration Contours**

- 80 - 250 µg/L
- 250 - 500 µg/L
- 500 - 1,500 µg/L
- 1,500 - 5,000 µg/L
- 5,000 - 10,000 µg/L
- 10,000 - 20,000 µg/L
- >20,000 µg/L

Note:
Contours represent evaluation of probable conditions based on presently available data. Some variations from these conditions must be expected. 2022 contours based on all results throughout the monitoring period.

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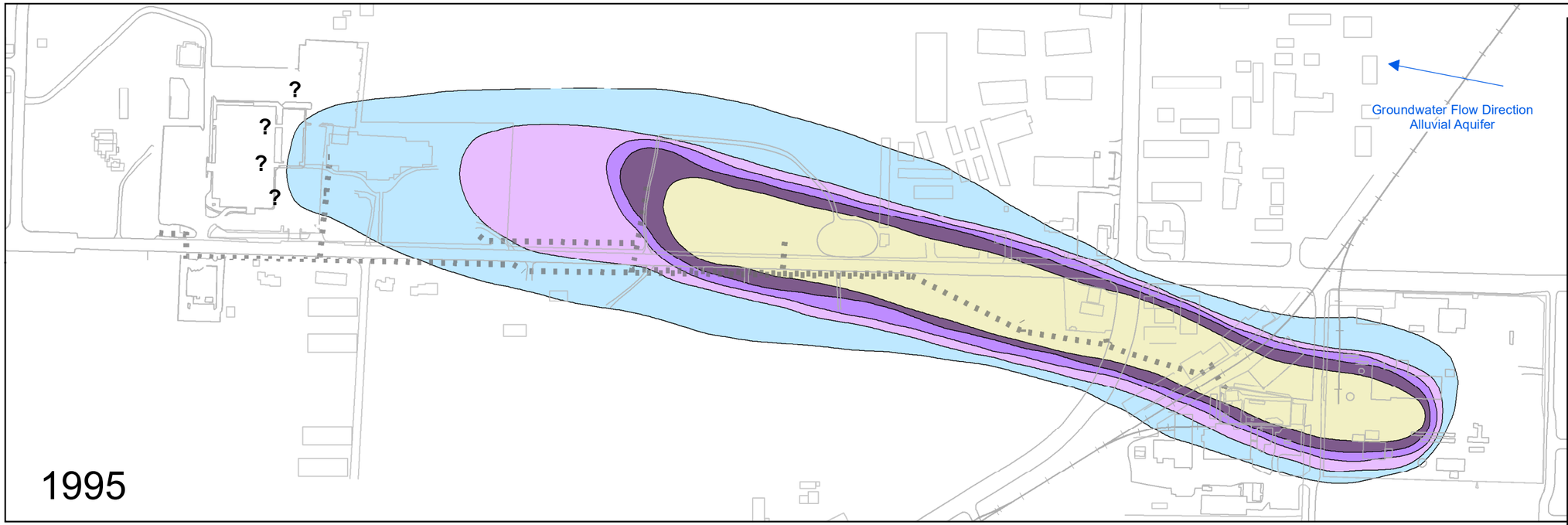
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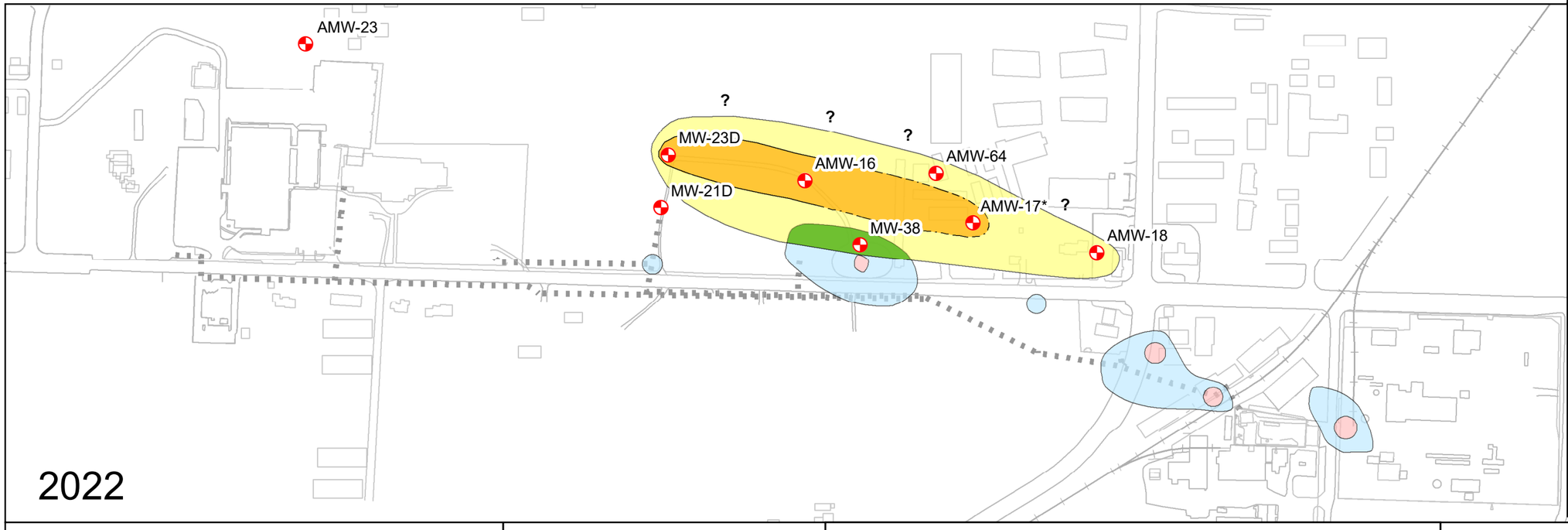
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FIGURE 3-8
CHROMIUM PLUME COMPARISON
1995 VS. 2022




Extraction Well Pipeline

**TCE Concentration Contours**

**Boomsnub/Airco OU-3 Plume**

- 5 - 25 µg/L
- 25 - 100 µg/L
- 100 - 500 µg/L
- 500 - 1,000 µg/L
- 1,000 - 2,000 µg/L
- >2,000 µg/L

Wells Impacted by the Northern Plume

Plume Overlap Area

<additional values>

**SHAPE_Length**

- Contour line
- AMW-17 inferred contour

**Northern Plume**

- 25 - 100 µg/L
- 5 - 25 µg/L

Notes:

? = Plume boundary is not clearly delineated.

Contours represent evaluation of probable conditions based on presently available data. Some variations from these conditions must be expected. 2022 contours based on all results throughout the monitoring period.

*AMW-17 unable to be located in 2022 monitoring period, it is assumed concentrations at the location remain similar to historic data and contour is inferred

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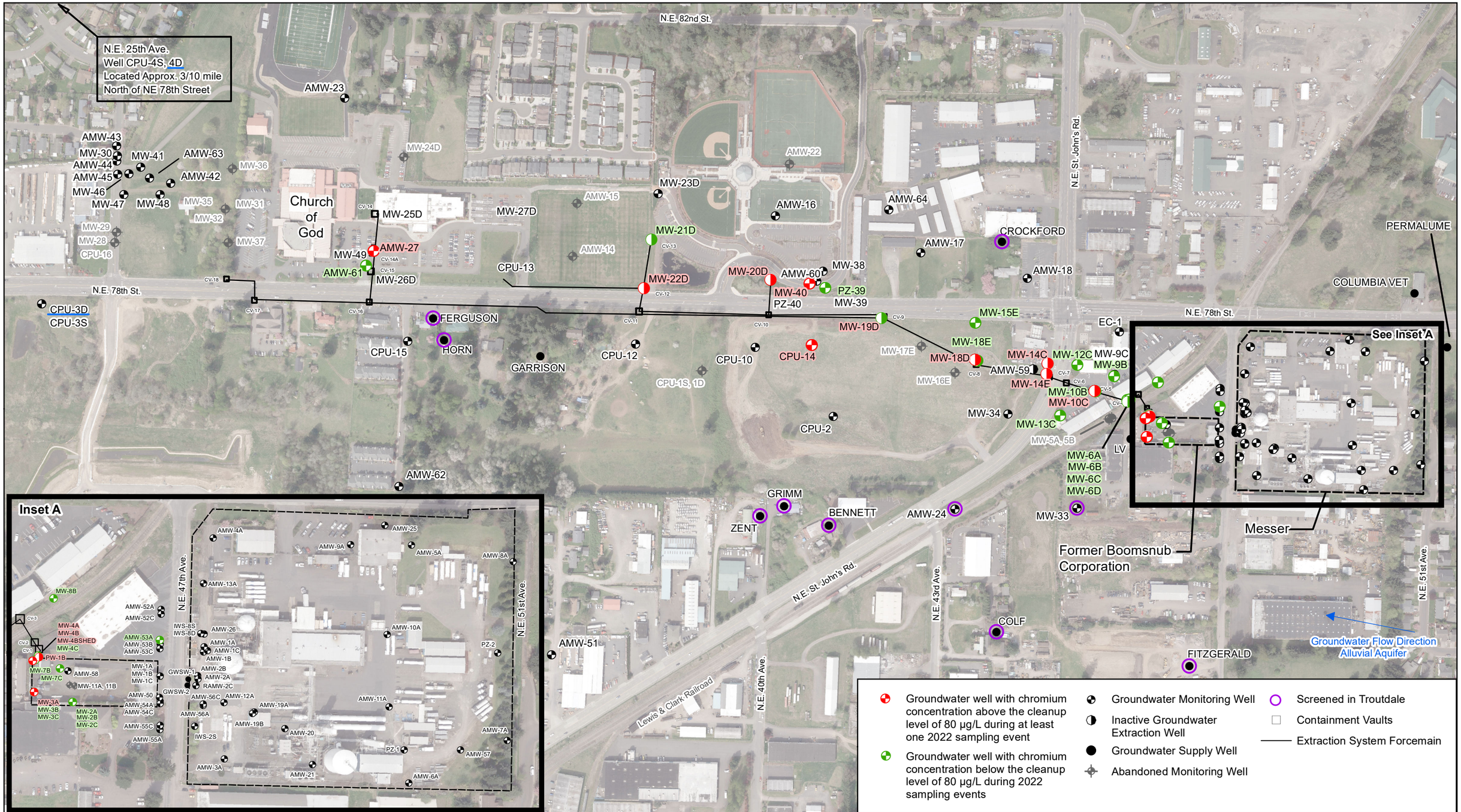
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FIGURE 3-9
TRICHLOROETHENE PLUME COMPARISON
1995 VS. 2022




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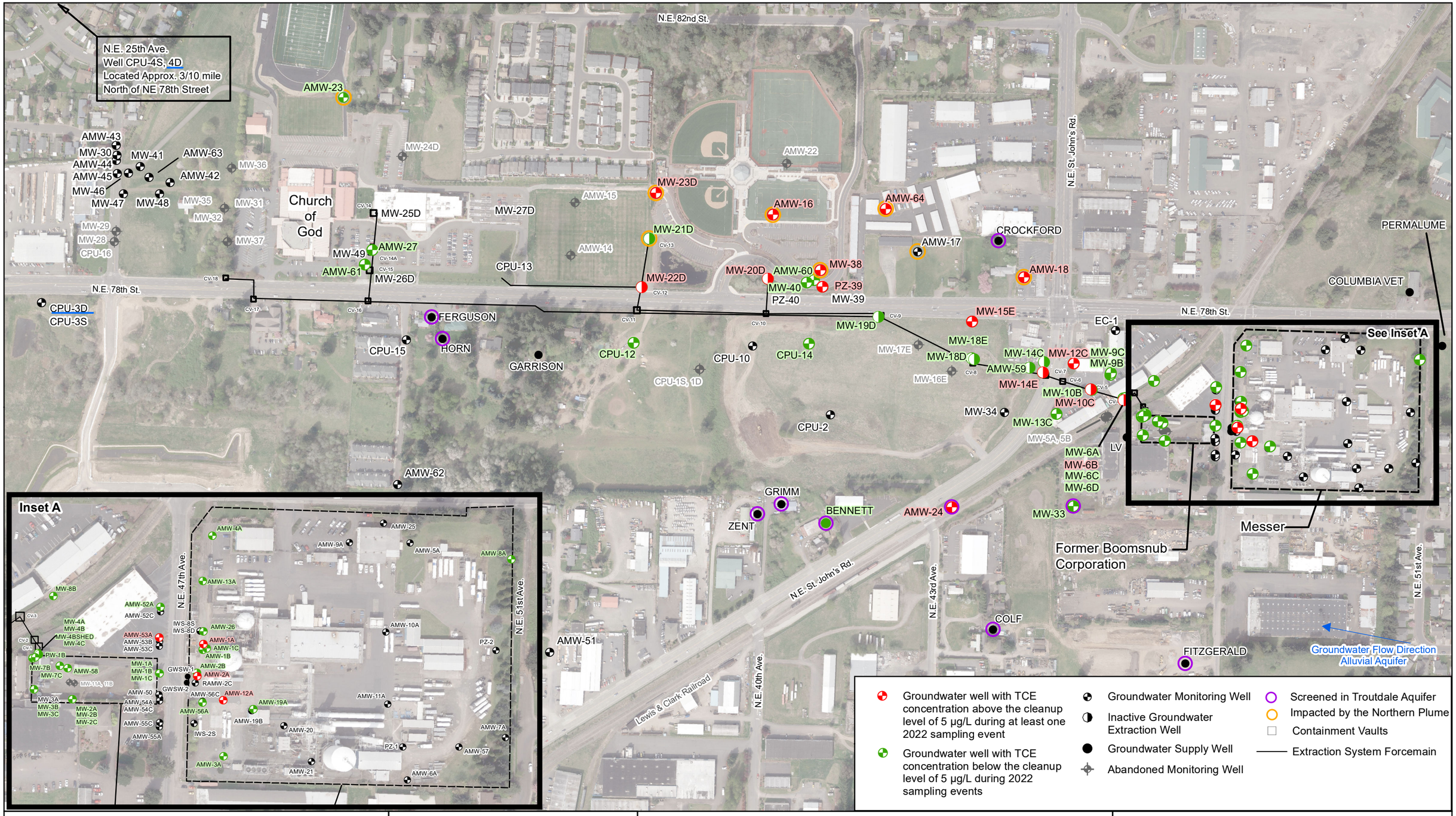
Feet
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N

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FIGURE 3-10
WELLS WITH CHROMIUM CONCENTRATIONS ABOVE THE CLEANUP LEVEL IN 2022




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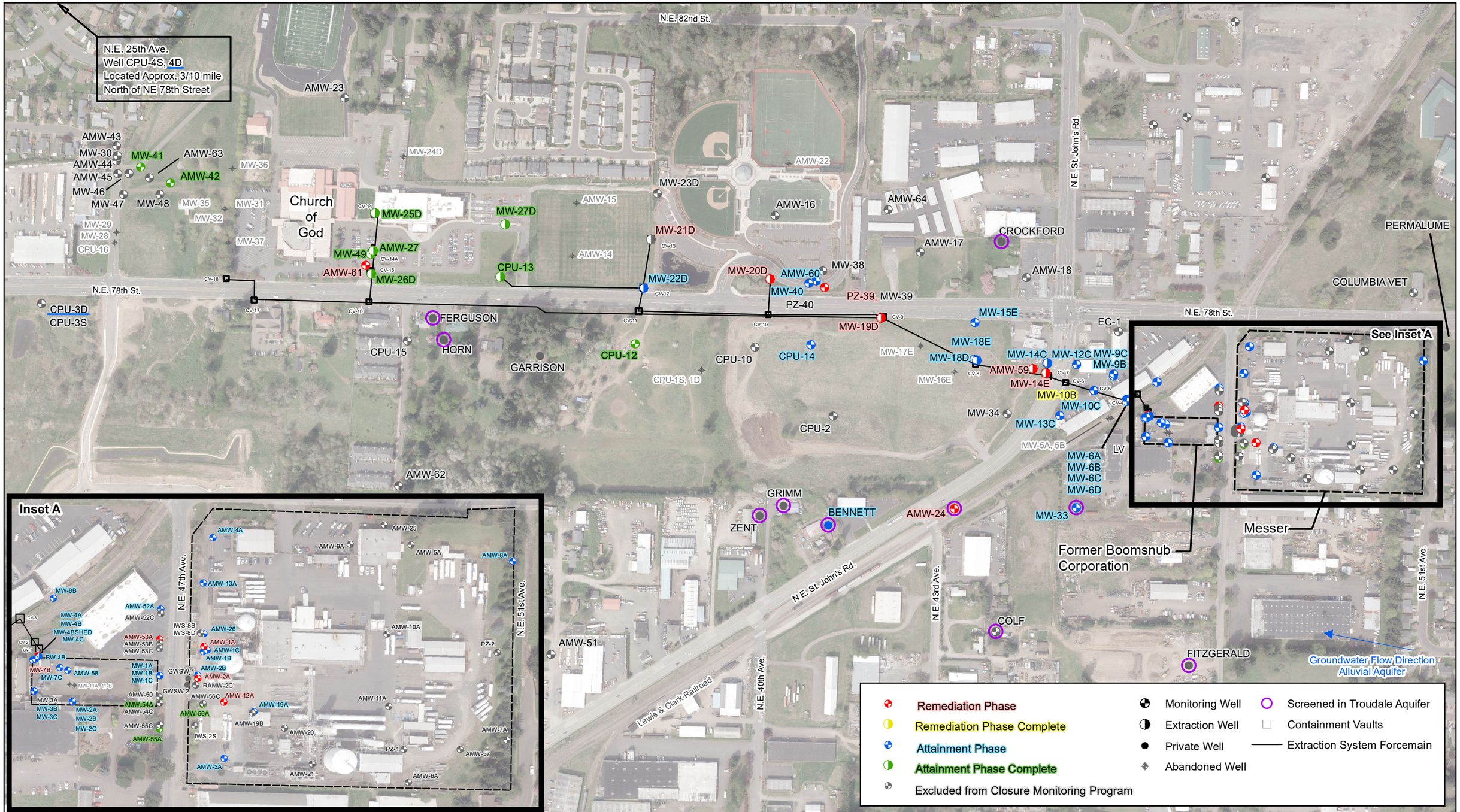
Feet
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FIGURE 3-11
WELLS WITH TCE CONCENTRATIONS ABOVE THE CLEANUP LEVEL IN 2022

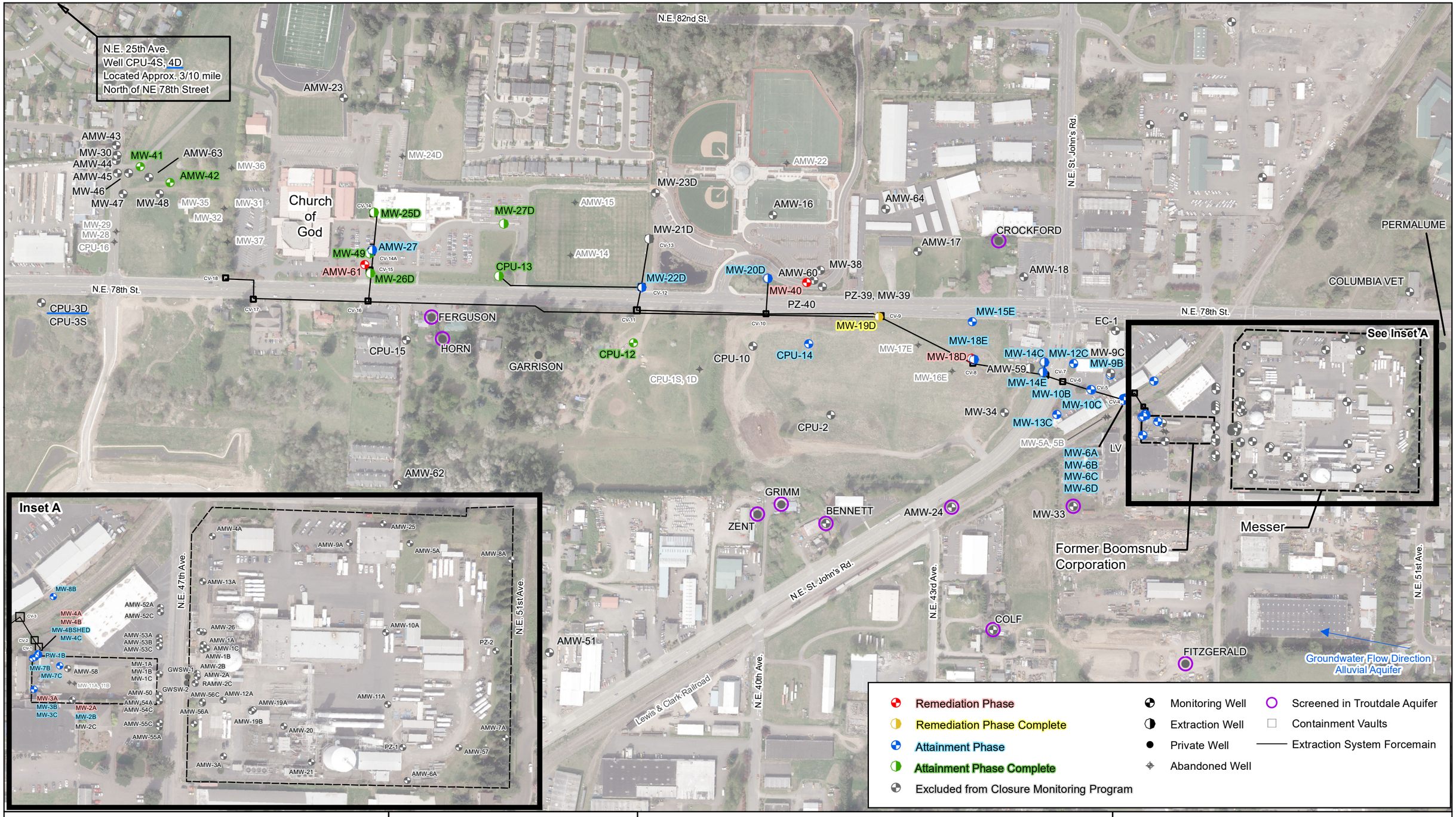



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FIGURE 5-1
STATUS OF CLOSURE MONITORING PROGRAM
VOLATILE ORGANIC COMPOUNDS




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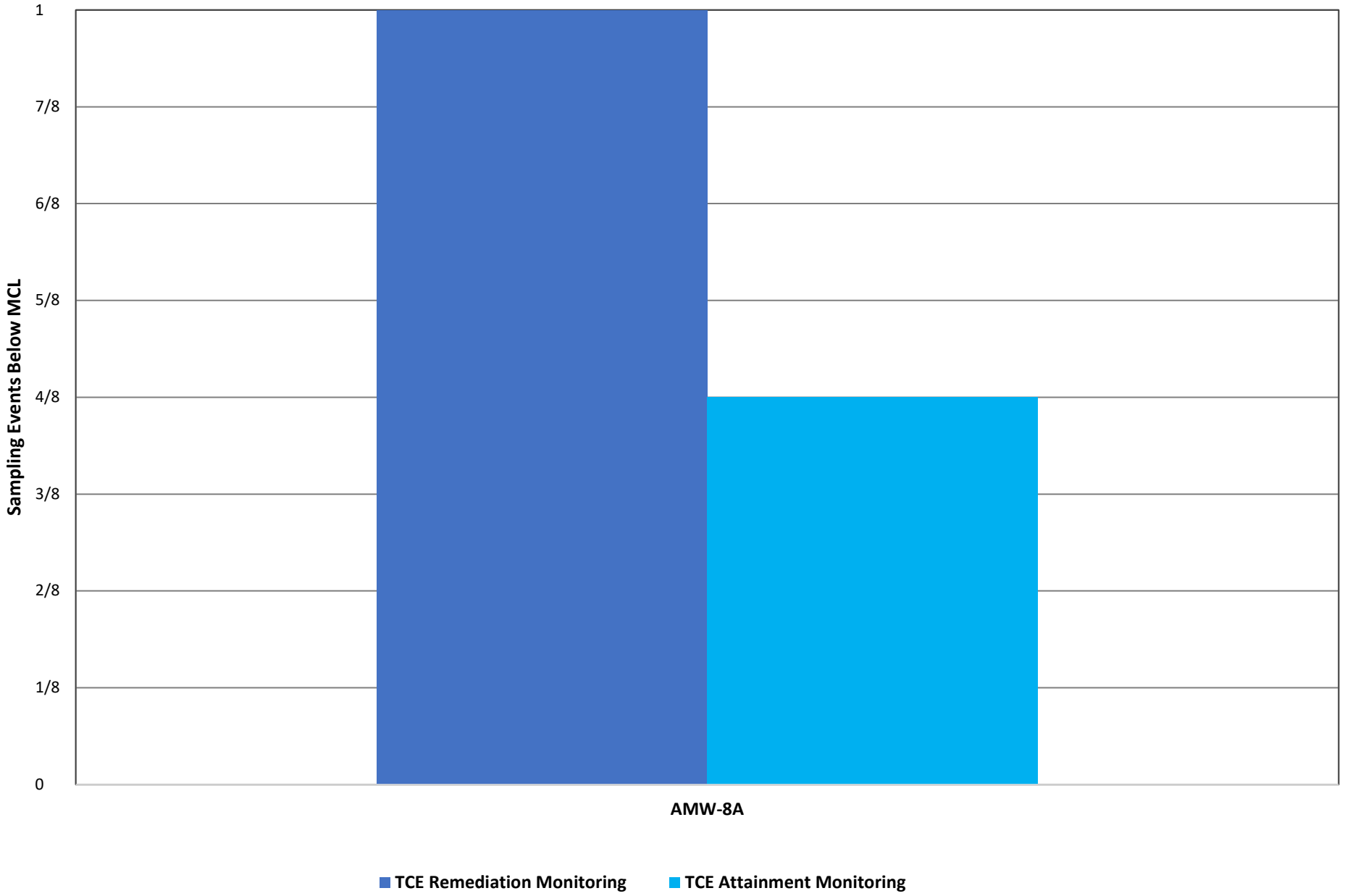
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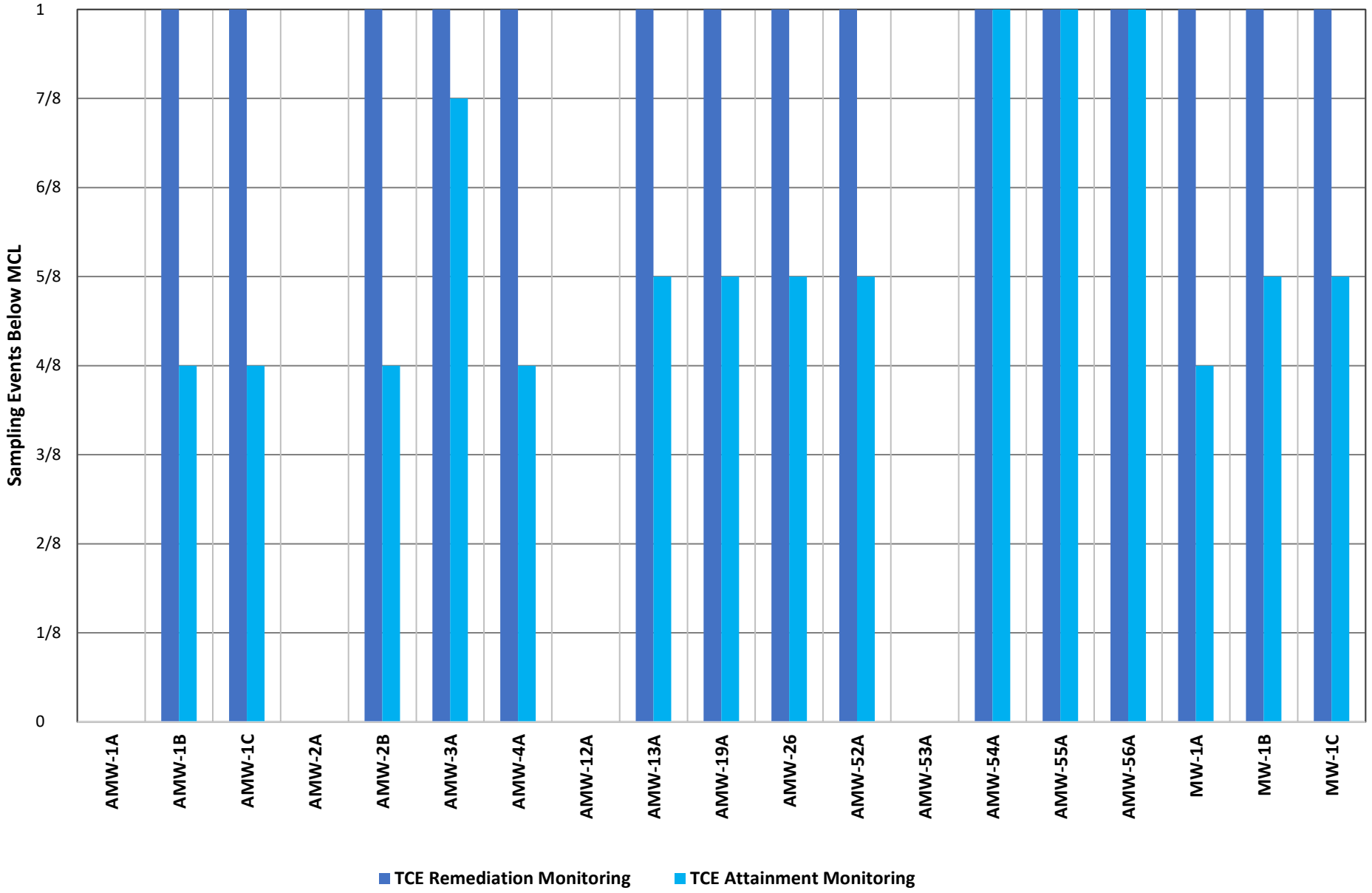
FIGURE 5-2
STATUS OF CLOSURE MONITORING PROGRAM
CHROMIUM

Figure 5-3 - Upgradient Wells Closure Monitoring Progress - Fall 2022



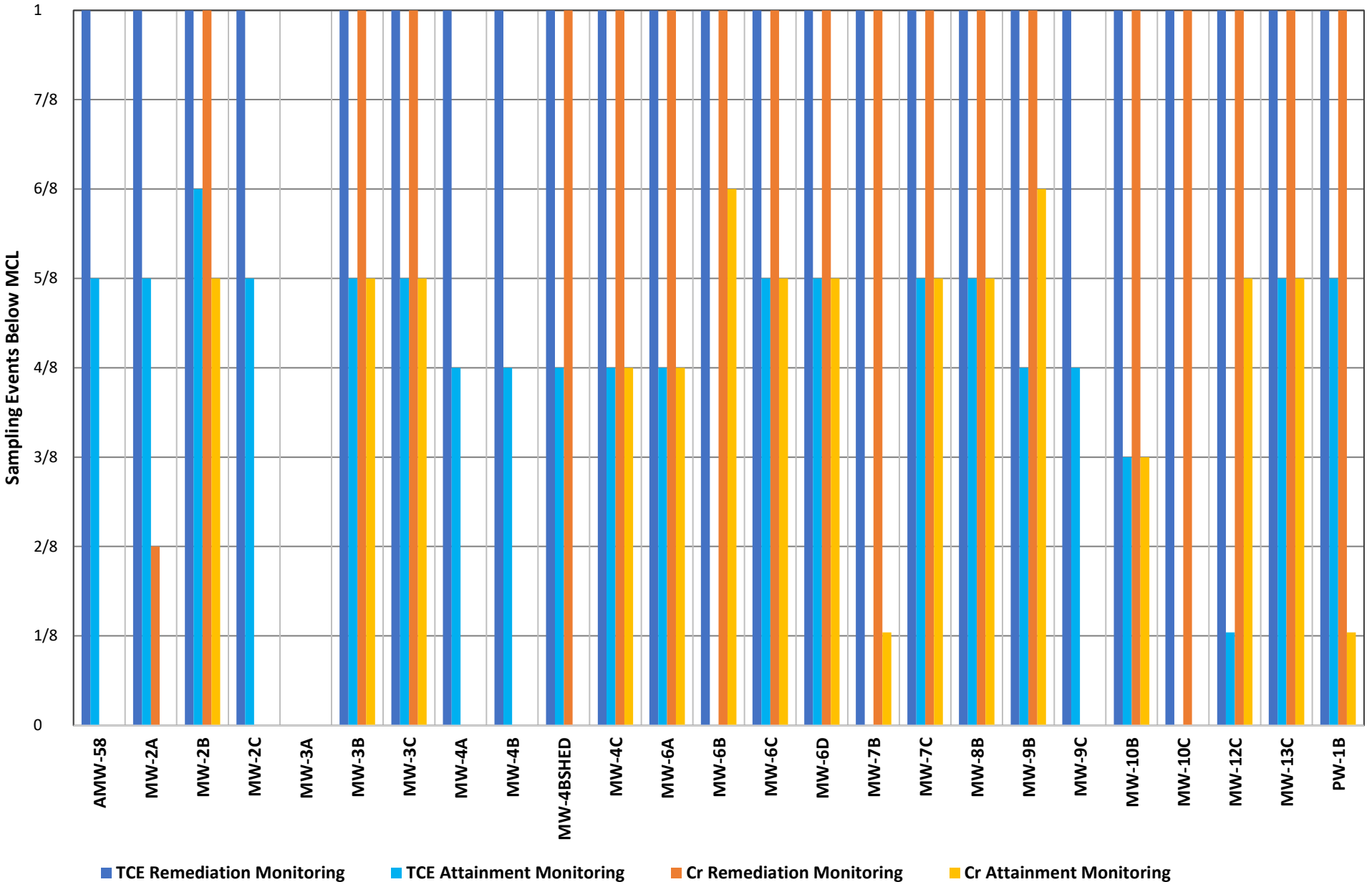

Note: Chromium monitoring not applicable for all Upgradient Wells.

Figure 5-4 - TCE Source Area Wells Closure Monitoring Progress - Fall 2022



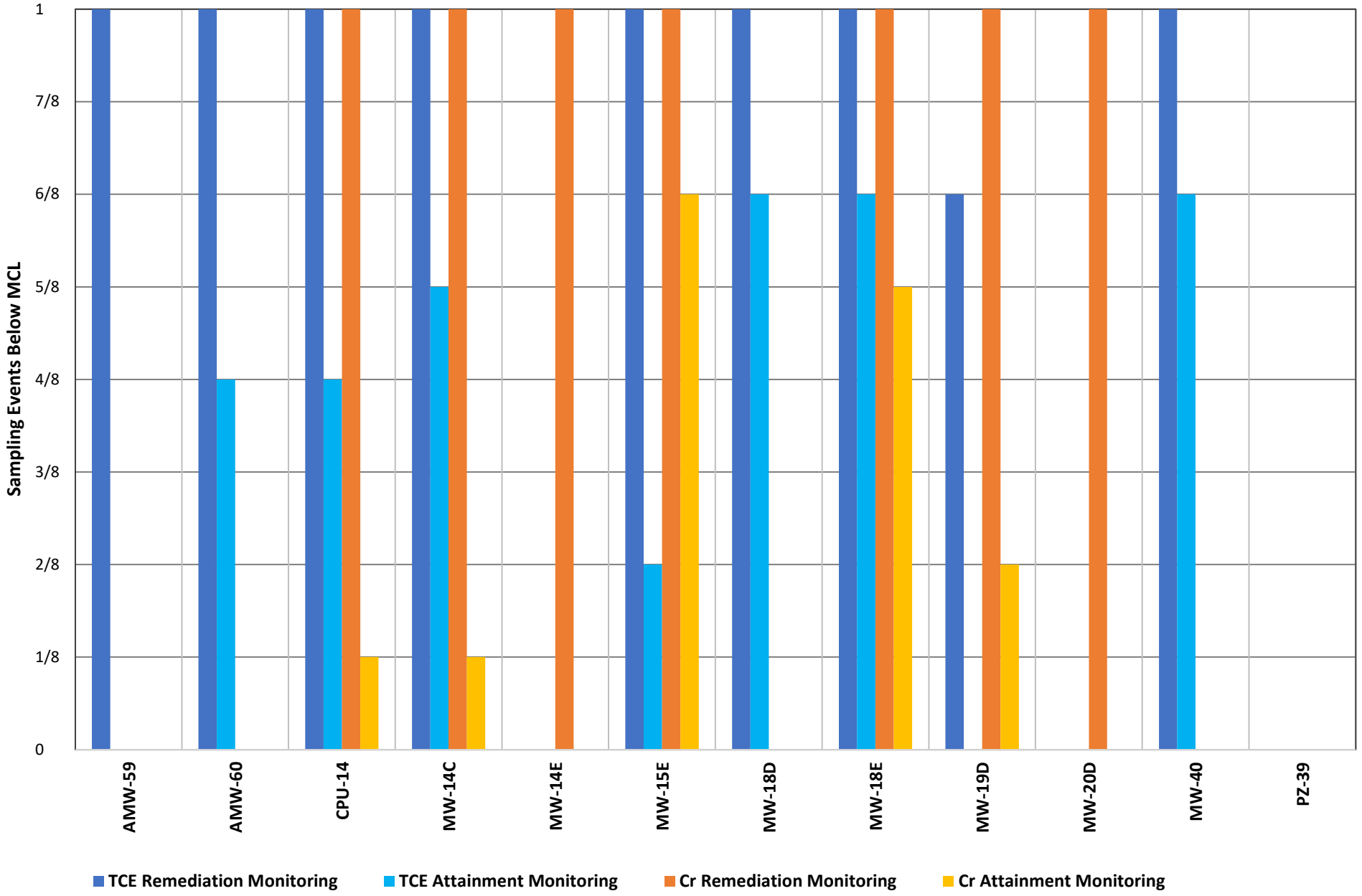

Note: Chromium monitoring not applicable for all TCE Source Area Wells.

Figure 5-5 - Proximal Wells Closure Monitoring Progress - Fall 2022




Note: Chromium monitoring not applicable for AMW-58, MW-2C, and MW-9C. TCE monitoring not applicable for MW-3A.

Figure 5-6 - Intermediate Wells Closure Monitoring Progress - Fall 2022




Note: Chromium monitoring not applicable for AMW-59, AMW-60, and PZ-39

Figure 5-7 - Church of God Wells Closure Monitoring Progress - Fall 2022

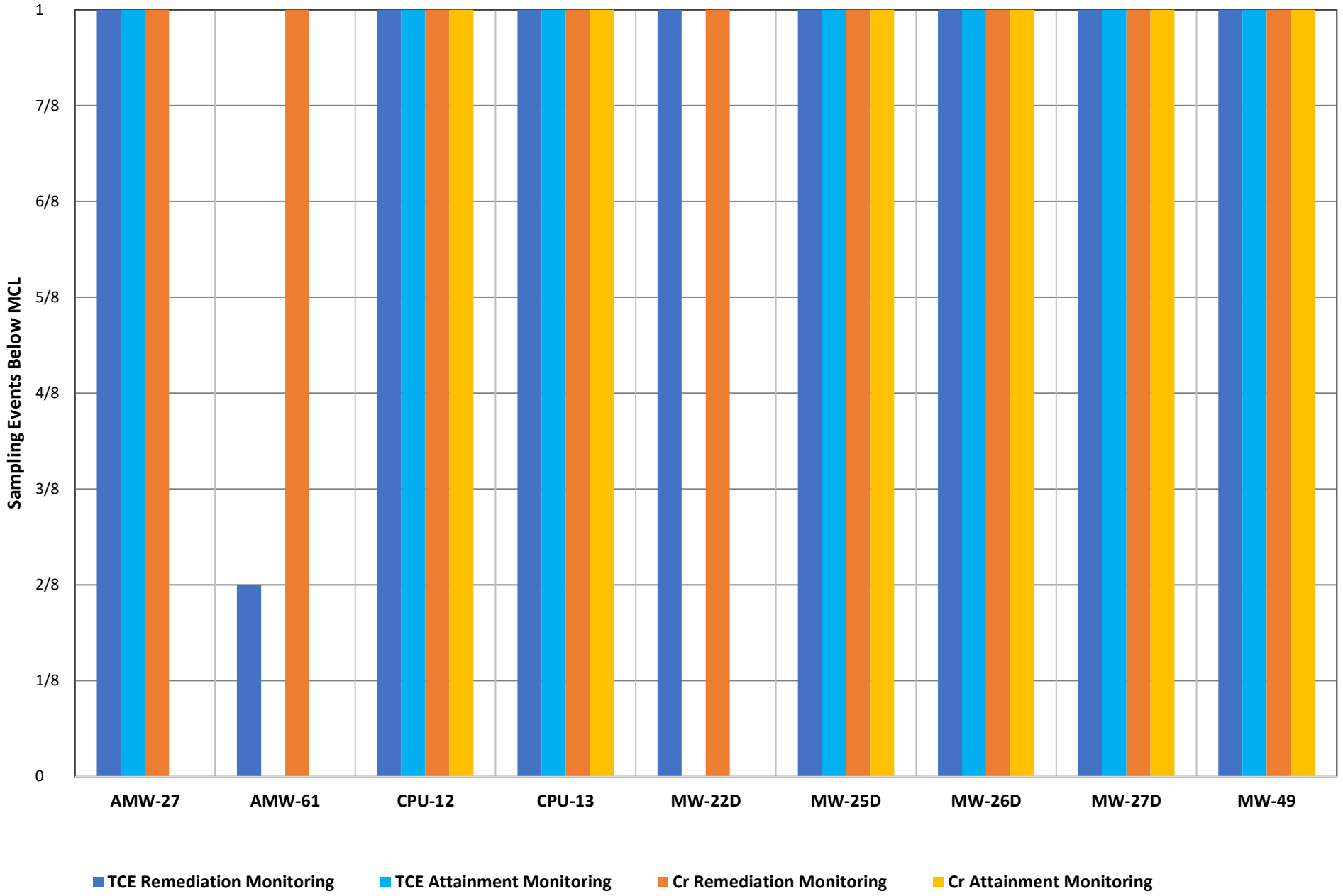
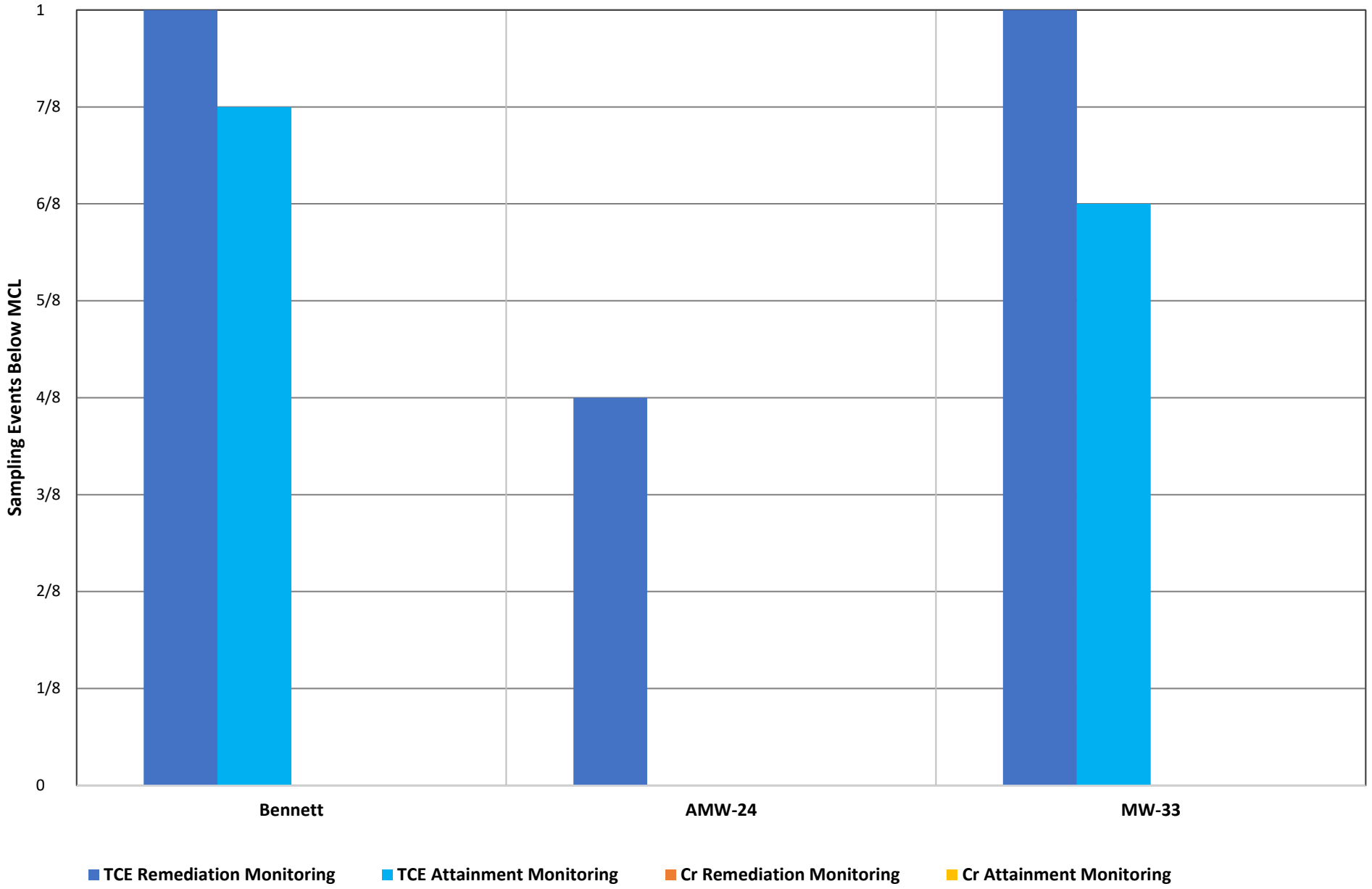
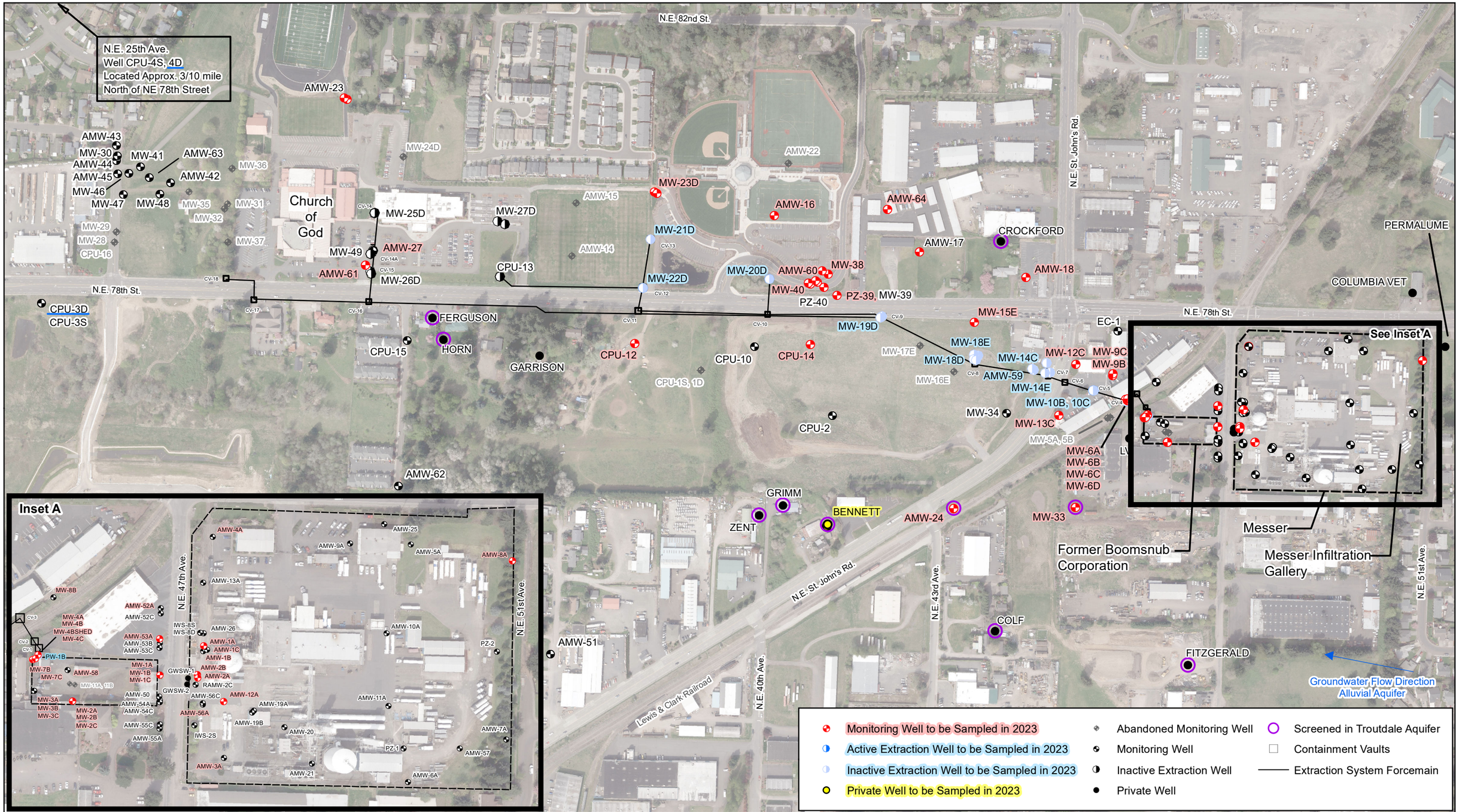


Figure 5-8 - Troutdale Wells Closure Monitoring Progress - Fall 2022




Note: Chromium monitoring not applicable for all Troutdale Wells.




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FIGURE 5-9
WELLS TO BE SAMPLED IN 2023

# Tables

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## Table 3-1. Summary of Water Level Gauging Data and Groundwater Surface Elevations—2022

| Well ID | Well Type | Measurement Date | Total Depth (ft btoc) | Top of Screen (ft btoc) | Bottom of Screen (ft btoc) | Screen Length (ft) | TOC Elevation (ft MSL) | Depth to Water (ft btoc) | Groundwater Surface Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| AMW-1A | M | 1/27/2022 | 34.83 | 24.56 | 34.56 | 10 | 284.09 | 29.92 | 254.17 |
| AMW-1A | M | 4/29/2022 | 34.83 | 24.56 | 34.56 | 10 | 284.09 | 28.44 | 255.65 |
| AMW-1A | M | 7/29/2022 | 34.83 | 24.56 | 34.56 | 10 | 284.09 | 28.49 | 255.60 |
| AMW-1A | M | 11/1/2022 | 34.83 | 24.56 | 34.56 | 10 | 284.09 | 29.53 | 254.56 |
| AMW-1B | M | 1/27/2022 | 56.49 | 46.49 | 56.49 | 10 | 284.11 | 29.25 | 254.86 |
| AMW-1B | M | 4/29/2022 | 56.49 | 46.49 | 56.49 | 10 | 284.11 | 28.29 | 255.82 |
| AMW-1B | M | 7/29/2022 | 56.49 | 46.49 | 56.49 | 10 | 284.11 | 28.34 | 255.77 |
| AMW-1B | M | 11/1/2022 | 56.49 | 46.49 | 56.49 | 10 | 284.11 | 29.88 | 254.23 |
| AMW-1C | M | 1/27/2022 | 79.00 | 69 | 79 | 10 | 284.06 | 29.28 | 254.78 |
| AMW-1C | M | 4/29/2022 | 79.00 | 69 | 79 | 10 | 284.06 | 28.34 | 255.72 |
| AMW-1C | M | 7/29/2022 | 79.00 | 69 | 79 | 10 | 284.06 | 28.39 | 255.67 |
| AMW-1C | M | 11/1/2022 | 79.00 | 69 | 79 | 10 | 284.06 | 29.82 | 254.24 |
| AMW-2A | M | 1/27/2022 | 34.51 | 24.51 | 34.51 | 10 | 284.03 | 29.02 | 255.01 |
| AMW-2A | M | 4/29/2022 | 34.51 | 24.51 | 34.51 | 10 | 284.03 | 28.23 | 255.80 |
| AMW-2A | M | 7/29/2022 | 34.51 | 24.51 | 34.51 | 10 | 284.03 | 28.28 | 255.75 |
| AMW-2A | M | 11/1/2022 | 34.51 | 24.51 | 34.51 | 10 | 284.03 | 29.63 | 254.40 |
| AMW-2B | M | 1/27/2022 | 59.00 | 47 | 57 | 10 | 284.11 | 29.30 | 254.81 |
| AMW-2B | M | 4/29/2022 | 59.00 | 47 | 57 | 10 | 284.11 | 28.33 | 255.78 |
| AMW-2B | M | 7/29/2022 | 59.00 | 47 | 57 | 10 | 284.11 | 28.38 | 255.73 |
| AMW-2B | M | 11/1/2022 | 59.00 | 47 | 57 | 10 | 284.11 | 29.81 | 254.30 |
| AMW-3A | M | 1/27/2022 | 34.00 | 24.5 | 34.5 | 10 | 283.92 | 28.65 | 255.27 |
| AMW-3A | M | 4/29/2022 | 34.00 | 24.5 | 34.5 | 10 | 283.92 | 26.29 | 257.63 |
| AMW-3A | M | 7/29/2022 | 34.00 | 24.5 | 34.5 | 10 | 283.92 | 26.34 | 257.58 |
| AMW-3A | M | 11/1/2022 | 34.00 | 24.5 | 34.5 | 10 | 283.92 | 26.80 | 257.12 |
| AMW-4A | M | 1/27/2022 | 34.20 | 23.9 | 33.9 | 10 | 283.74 | 29.01 | 254.73 |
| AMW-4A | M | 4/29/2022 | 34.20 | 23.9 | 33.9 | 10 | 283.74 | 27.97 | 255.77 |
| AMW-4A | M | 7/29/2022 | 34.20 | 23.9 | 33.9 | 10 | 283.74 | 28.02 | 255.72 |
| AMW-4A | M | 11/1/2022 | 34.20 | 23.9 | 33.9 | 10 | 283.74 | 29.30 | 254.44 |
| AMW-5A | M | 1/27/2022 | 34.60 | 24.5 | 34.5 | 10 | 284.14 | 29.32 | 254.82 |
| AMW-5A | M | 4/29/2022 | 34.60 | 24.5 | 34.5 | 10 | 284.14 | 27.48 | 256.66 |
| AMW-5A | M | 7/29/2022 | 34.60 | 24.5 | 34.5 | 10 | 284.14 | 27.53 | 256.61 |
| AMW-5A | M | 11/4/2022 | 34.60 | 24.5 | 34.5 | 10 | 284.14 | 28.87 | 255.27 |
| AMW-6A | M/D | 1/27/2022 | 33.87 | 24 | 34 | 10 | 284.56 | 29.65 | 254.91 |
| AMW-6A | M/D | 4/29/2022 | 33.87 | 24 | 34 | 10 | 284.56 | 27.33 | 257.23 |
| AMW-6A | M/D | 7/29/2022 | 33.87 | 24 | 34 | 10 | 284.56 | 27.38 | 257.18 |
| AMW-6A | M/D | 11/4/2022 | 33.87 | 24 | 34 | 10 | 284.56 | 28.85 | 255.71 |
| AMW-7A | M/D | 1/27/2022 | 34.09 | 24.25 | 34.25 | 10 | 285.02 | 29.45 | 255.57 |
| AMW-7A | M/D | 4/29/2022 | 34.09 | 24.25 | 34.25 | 10 | 285.02 | 28.00 | 257.02 |
| AMW-7A | M/D | 7/29/2022 | 34.09 | 24.25 | 34.25 | 10 | 285.02 | 28.05 | 256.97 |
| AMW-7A | M/D | 11/4/2022 | 34.09 | 24.25 | 34.25 | 10 | 285.02 | 29.42 | 255.60 |
| AMW-8A | M | 1/27/2022 | 34.50 | 24.5 | 34.5 | 10 | 285.49 | 28.90 | 256.59 |
| AMW-8A | M | 4/29/2022 | 34.50 | 24.5 | 34.5 | 10 | 285.49 | 27.99 | 257.50 |
| AMW-8A | M | 7/29/2022 | 34.50 | 24.5 | 34.5 | 10 | 285.49 | 28.05 | 257.44 |
| AMW-8A | M | 11/1/2022 | 34.50 | 24.5 | 34.5 | 10 | 285.49 | 29.38 | 256.11 |
| AMW-9A | M | 1/27/2022 | 34.50 | 24.5 | 34.5 | 10 | 283.92 | 29.53 | 254.39 |
| AMW-9A | M | 4/29/2022 | 34.50 | 24.5 | 34.5 | 10 | 283.92 | 27.64 | 256.28 |
| AMW-9A | M | 7/29/2022 | 34.50 | 24.5 | 34.5 | 10 | 283.92 | 27.74 | 256.18 |
| AMW-9A | M | 11/4/2022 | 34.50 | 24.5 | 34.5 | 10 | 283.92 | 29.08 | 254.84 |
| AMW-10A | M/D | 1/27/2022 | 31.50 | 21 | 31 | 10 | 284.01 | 29.23 | 254.78 |
| AMW-10A | M/D | 4/29/2022 | 31.50 | 21 | 31 | 10 | 284.01 | 27.38 | 256.63 |
| AMW-10A | M/D | 7/29/2022 | 31.50 | 21 | 31 | 10 | 284.01 | 27.43 | 256.58 |
| AMW-10A | M/D | 11/4/2022 | 31.50 | 21 | 31 | 10 | 284.01 | 28.77 | 255.24 |
| AMW-11A | M/D | 1/27/2022 | 33.84 | 23.5 | 33.5 | 10 | 283.21 | 28.25 | 254.96 |
| AMW-11A | M/D | 4/29/2022 | 33.84 | 23.5 | 33.5 | 10 | 283.21 | 26.07 | 257.14 |
| AMW-11A | M/D | 7/29/2022 | 33.84 | 23.5 | 33.5 | 10 | 283.21 | 26.12 | 257.09 |
| AMW-11A | M/D | 11/4/2022 | 33.84 | 23.5 | 33.5 | 10 | 283.21 | 27.46 | 255.75 |
| AMW-12A | M | 1/27/2022 | 34.55 | 24.35 | 34.35 | 10 | 283.74 | 28.55 | 255.19 |
| AMW-12A | M | 4/29/2022 | 34.55 | 24.35 | 34.35 | 10 | 283.74 | 27.89 | 255.85 |
| AMW-12A | M | 7/29/2022 | 34.55 | 24.35 | 34.35 | 10 | 283.74 | 27.94 | 255.80 |
| AMW-12A | M | 11/4/2022 | 34.55 | 24.35 | 34.35 | 10 | 283.74 | 28.19 | 255.55 |
| AMW-13A | M | 1/27/2022 | 34.30 | 23.8 | 33.8 | 10 | 283.88 | 28.34 | 255.54 |
| AMW-13A | M | 4/29/2022 | 34.30 | 23.8 | 33.8 | 10 | 283.88 | 27.39 | 256.49 |
| AMW-13A | M | 7/29/2022 | 34.30 | 23.8 | 33.8 | 10 | 283.88 | 27.44 | 256.44 |
| AMW-13A | M | 11/1/2022 | 34.30 | 23.8 | 33.8 | 10 | 283.88 | 28.91 | 254.97 |
| AMW-16 | M | 1/27/2022 | 91.28 | 81.13 | 91.13 | 10 | 266.11 | 16.83 | 249.28 |
| AMW-16 | M | 4/29/2022 | 91.28 | 81.13 | 91.13 | 10 | 266.11 | 16.83 | 249.28 |
| AMW-16 | M | 7/29/2022 | 91.28 | 81.13 | 91.13 | 10 | 266.11 | 16.20 | 249.91 |
| AMW-16 | M | 11/2/2022 | 91.28 | 81.13 | 91.13 | 10 | 266.11 | 17.73 | 248.38 |
| AMW-17 | M/D | 1/27/2022 | 90.38 | 81 | 91 | 10 | 260.42 | 11.34 | 248.98 |
| AMW-18 | M | 1/27/2022 | 103.65 | 92.65 | 102.65 | 10 | 278.8 | 28.63 | 250.17 |

## Table 3-1. Summary of Water Level Gauging Data and Groundwater Surface Elevations—2022

| Well ID | Well Type | Measurement Date | Total Depth (ft btoc) | Top of Screen (ft btoc) | Bottom of Screen (ft btoc) | Screen Length (ft) | TOC Elevation (ft MSL) | Depth to Water (ft btoc) | Groundwater Surface Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| AMW-18 | M | 4/29/2022 | 103.65 | 92.65 | 102.65 | 10 | 278.8 | 28.00 | 250.80 |
| AMW-18 | M | 7/29/2022 | 103.65 | 92.65 | 102.65 | 10 | 278.8 | 28.55 | 250.25 |
| AMW-18 | M | 11/2/2022 | 103.65 | 92.65 | 102.65 | 10 | 278.8 | 27.17 | 251.63 |
| AMW-19A | M | 1/27/2022 | 35.25 | 25 | 35 | 10 | 283.94 | 28.75 | 255.19 |
| AMW-19A | M | 4/29/2022 | 35.25 | 25 | 35 | 10 | 283.94 | 27.82 | 256.12 |
| AMW-19A | M | 7/29/2022 | 35.25 | 25 | 35 | 10 | 283.94 | 27.87 | 256.07 |
| AMW-19A | M | 11/1/2022 | 35.25 | 25 | 35 | 10 | 283.94 | 29.24 | 254.70 |
| AMW-19B | M | 1/27/2022 | 54.50 | 44.5 | 54.5 | 10 | 283.97 | 28.92 | 255.05 |
| AMW-19B | M | 4/29/2022 | 54.50 | 44.5 | 54.5 | 10 | 283.97 | 28.92 | 255.05 |
| AMW-19B | M | 7/29/2022 | 54.50 | 44.5 | 54.5 | 10 | 283.97 | 28.04 | 255.93 |
| AMW-19B | M | 11/4/2022 | 54.50 | 44.5 | 54.5 | 10 | 283.97 | 29.42 | 254.55 |
| AMW-20 | M | 1/27/2022 | 85.00 | 25 | 35 | 10 | 283.69 | 27.78 | 255.91 |
| AMW-20 | M | 4/29/2022 | 85.00 | 25 | 35 | 10 | 283.69 | 26.85 | 256.84 |
| AMW-20 | M | 7/29/2022 | 85.00 | 25 | 35 | 10 | 283.69 | 26.90 | 256.79 |
| AMW-20 | M | 11/4/2022 | 85.00 | 25 | 35 | 10 | 283.69 | 27.36 | 256.33 |
| AMW-23 | M | 1/27/2022 | 85.00 | 75 | 85 | 10 | 278.26 | 38.52 | 239.74 |
| AMW-23 | M | 4/29/2022 | 85.00 | 75 | 85 | 10 | 278.26 | 36.05 | 242.21 |
| AMW-23 | M | 7/29/2022 | 85.00 | 75 | 85 | 10 | 278.26 | 36.10 | 242.16 |
| AMW-23 | M | 11/4/2022 | 85.00 | 75 | 85 | 10 | 278.26 | 38.17 | 240.09 |
| AMW-24 | M/D | 1/27/2022 | 200.00 | 190 | 200 | 10 | 264.72 | 131.58 | 133.14 |
| AMW-24 | M/D | 4/29/2022 | 200.00 | 190 | 200 | 10 | 264.72 | 129.77 | 134.95 |
| AMW-24 | M/D | 7/29/2022 | 200.00 | 190 | 200 | 10 | 264.72 | 129.07 | 135.65 |
| AMW-24 | M/D | 11/2/2022 | 200.00 | 190 | 200 | 10 | 264.72 | 130.38 | 134.34 |
| AMW-25 | M/D | 1/27/2022 | 225.00 | 215 | 225 | 10 | 282.94 | 139.22 | 143.72 |
| AMW-25 | M/D | 4/29/2022 | 225.00 | 215 | 225 | 10 | 282.94 | 136.83 | 146.11 |
| AMW-25 | M/D | 7/29/2022 | 225.00 | 215 | 225 | 10 | 282.94 | 137.21 | 145.73 |
| AMW-25 | M/D | 11/4/2022 | 225.00 | 215 | 225 | 10 | 282.94 | 137.44 | 145.50 |
| AMW-26 | M/D | 1/27/2022 | 34.50 | 24.2 | 34.2 | 10 | 283.02 | 28.64 | 254.38 |
| AMW-26 | M/D | 4/29/2022 | 34.50 | 24.2 | 34.2 | 10 | 283.02 | 27.73 | 255.29 |
| AMW-26 | M/D | 7/29/2022 | 34.50 | 24.2 | 34.2 | 10 | 283.02 | 27.78 | 255.24 |
| AMW-26 | M/D | 11/1/2022 | 34.50 | 24.2 | 34.2 | 10 | 283.02 | 29.22 | 253.80 |
| AMW-27 | M | 1/27/2022 | 88.00 | 78 | 88 | 10 | 272.6 | 30.96 | 241.64 |
| AMW-27 | M | 4/29/2022 | 88.00 | 78 | 88 | 10 | 272.6 | 29.29 | 243.31 |
| AMW-27 | M | 7/29/2022 | 88.00 | 78 | 88 | 10 | 272.6 | 30.03 | 242.57 |
| AMW-27 | M | 11/4/2022 | 88.00 | 78 | 88 | 10 | 272.6 | 31.32 | 241.28 |
| AMW-42 | E | 1/27/2022 | 99.50 | 84.2 | 99.2 | 15 | 255.88 | 27.07 | 230.34 |
| AMW-42 | E | 4/29/2022 | 99.50 | 84.2 | 99.2 | 15 | 255.88 | 22.82 | 234.59 |
| AMW-42 | E | 7/29/2022 | 99.50 | 84.2 | 99.2 | 15 | 255.88 | 22.87 | 234.54 |
| AMW-42 | E | 11/4/2022 | 99.50 | 84.2 | 99.2 | 15 | 255.88 | 23.54 | 233.87 |
| AMW-43 | M/D | 1/27/2022 | 85.00 | 72 | 85 | 13 | 247.71 | 15.23 | 232.48 |
| AMW-43 | M/D | 4/29/2022 | 85.00 | 72 | 85 | 13 | 247.71 | 11.22 | 236.49 |
| AMW-43 | M/D | 7/29/2022 | 85.00 | 72 | 85 | 13 | 247.71 | 11.27 | 236.44 |
| AMW-43 | M/D | 11/4/2022 | 85.00 | 72 | 85 | 13 | 247.71 | 13.21 | 234.50 |
| AMW-44 | M/D | 1/27/2022 | 81.00 | 71 | 81 | 10 | 247.82 | 14.18 | 233.64 |
| AMW-44 | M/D | 4/29/2022 | 81.00 | 71 | 81 | 10 | 247.82 | 9.99 | 237.83 |
| AMW-44 | M/D | 7/29/2022 | 81.00 | 71 | 81 | 10 | 247.82 | 10.04 | 237.78 |
| AMW-44 | M/D | 11/4/2022 | 81.00 | 71 | 81 | 10 | 247.82 | 12.00 | 235.82 |
| AMW-45 | M/D | 1/27/2022 | 77.00 | 67 | 77 | 10 | 244.87 | 12.06 | 232.81 |
| AMW-45 | M/D | 4/29/2022 | 77.00 | 67 | 77 | 10 | 244.87 | 7.94 | 236.93 |
| AMW-45 | M/D | 7/29/2022 | 77.00 | 67 | 77 | 10 | 244.87 | 7.99 | 236.88 |
| AMW-45 | M/D | 11/4/2022 | 77.00 | 67 | 77 | 10 | 244.87 | 9.94 | 234.93 |
| AMW-50 | M/D | 1/27/2022 | 195.19 | 185.19 | 195.19 | 10 | 282.78 | 133.23 | 149.55 |
| AMW-50 | M/D | 4/29/2022 | 195.19 | 185.19 | 195.19 | 10 | 282.78 | 140.13 | 142.65 |
| AMW-50 | M/D | 7/29/2022 | 195.19 | 185.19 | 195.19 | 10 | 282.78 | 139.75 | 143.03 |
| AMW-50 | M/D | 11/4/2022 | 195.19 | 185.19 | 195.19 | 10 | 282.78 | 140.74 | 142.04 |
| AMW-51 | M/D | 1/27/2022 | 195.70 | 185.7 | 195.7 | 10 | 258.44 | 132.18 | 126.26 |
| AMW-51 | M/D | 4/29/2022 | 195.70 | 185.7 | 195.7 | 10 | 258.44 | 132.91 | 125.53 |
| AMW-51 | M/D | 7/29/2022 | 195.70 | 185.7 | 195.7 | 10 | 258.44 | 132.95 | 125.49 |
| AMW-51 | M/D | 11/4/2022 | 195.70 | 185.7 | 195.7 | 10 | 258.44 | 133.52 | 124.92 |
| AMW-52A | M | 1/27/2022 | 34.55 | 24.55 | 34.55 | 10 | 280.4 | 25.84 | 254.56 |
| AMW-52A | M | 4/29/2022 | 34.55 | 24.55 | 34.55 | 10 | 280.4 | 24.91 | 255.49 |
| AMW-52A | M | 7/29/2022 | 34.55 | 24.55 | 34.55 | 10 | 280.4 | 24.96 | 255.44 |
| AMW-52A | M | 11/2/2022 | 34.55 | 24.55 | 34.55 | 10 | 280.4 | 26.50 | 253.90 |
| AMW-52C | M | 1/27/2022 | 73.63 | 63.63 | 73.63 | 10 | 280.38 | 25.71 | 254.67 |
| AMW-52C | M | 4/29/2022 | 73.63 | 63.63 | 73.63 | 10 | 280.38 | 24.93 | 255.45 |
| AMW-52C | M | 7/29/2022 | 73.63 | 63.63 | 73.63 | 10 | 280.38 | 24.94 | 255.44 |
| AMW-52C | M | 11/4/2022 | 73.63 | 63.63 | 73.63 | 10 | 280.38 | 26.52 | 253.86 |
| AMW-53A | M | 1/27/2022 | 32.63 | 22.33 | 32.33 | 10 | 281.05 | 26.43 | 254.62 |
| AMW-53A | M | 4/29/2022 | 32.63 | 22.33 | 32.33 | 10 | 281.05 | 25.48 | 255.57 |
| AMW-53A | M | 7/29/2022 | 32.63 | 22.33 | 32.33 | 10 | 281.05 | 25.50 | 255.55 |

## Table 3-1. Summary of Water Level Gauging Data and Groundwater Surface Elevations—2022

| Well ID | Well Type | Measurement Date | Total Depth (ft btoc) | Top of Screen (ft btoc) | Bottom of Screen (ft btoc) | Screen Length (ft) | TOC Elevation (ft MSL) | Depth to Water (ft btoc) | Groundwater Surface Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| AMW-53A | M | 11/3/2022 | 32.63 | 22.33 | 32.33 | 10 | 281.05 | 27.05 | 254.00 |
| AMW-53B | M | 1/27/2022 | 54.55 | 44.55 | 54.55 | 10 | 281.2 | 26.55 | 254.65 |
| AMW-53B | M | 4/29/2022 | 54.55 | 44.55 | 54.55 | 10 | 281.2 | 25.64 | 255.56 |
| AMW-53B | M | 7/29/2022 | 54.55 | 44.55 | 54.55 | 10 | 281.2 | 25.71 | 255.49 |
| AMW-53B | M | 11/4/2022 | 54.55 | 44.55 | 54.55 | 10 | 281.2 | 27.26 | 253.94 |
| AMW-53C | M | 1/27/2022 | 74.21 | 64.21 | 74.21 | 10 | 281.41 | 27.11 | 254.30 |
| AMW-53C | M | 4/29/2022 | 74.21 | 64.21 | 74.21 | 10 | 281.41 | 25.85 | 255.56 |
| AMW-53C | M | 7/29/2022 | 74.21 | 64.21 | 74.21 | 10 | 281.41 | 25.90 | 255.51 |
| AMW-53C | M | 11/4/2022 | 74.21 | 64.21 | 74.21 | 10 | 281.41 | 27.48 | 253.93 |
| AMW-54A | M | 1/27/2022 | 34.30 | 24.3 | 34.3 | 10 | 283.31 | 28.33 | 254.98 |
| AMW-54A | M | 4/29/2022 | 34.30 | 24.3 | 34.3 | 10 | 283.31 | 27.61 | 255.70 |
| AMW-54A | M | 7/29/2022 | 34.30 | 24.3 | 34.3 | 10 | 283.31 | 27.71 | 255.60 |
| AMW-54A | M | 11/4/2022 | 34.30 | 24.3 | 34.3 | 10 | 283.31 | 29.31 | 254.00 |
| AMW-54C | M | 1/27/2022 | 74.74 | 64.74 | 74.74 | 10 | 283.12 | 28.23 | 254.89 |
| AMW-54C | M | 4/29/2022 | 74.74 | 64.74 | 74.74 | 10 | 283.12 | 27.64 | 255.48 |
| AMW-54C | M | 7/29/2022 | 74.74 | 64.74 | 74.74 | 10 | 283.12 | 27.69 | 255.43 |
| AMW-54C | M | 11/4/2022 | 74.74 | 64.74 | 74.74 | 10 | 283.12 | 29.34 | 253.78 |
| AMW-55A | M | 1/27/2022 | 30.83 | 20.83 | 30.83 | 10 | 282.11 | 26.10 | 256.01 |
| AMW-55A | M | 4/29/2022 | 30.83 | 20.83 | 30.83 | 10 | 282.11 | 26.43 | 255.68 |
| AMW-55A | M | 7/29/2022 | 30.83 | 20.83 | 30.83 | 10 | 282.11 | 26.48 | 255.63 |
| AMW-55A | M | 11/4/2022 | 30.83 | 20.83 | 30.83 | 10 | 282.11 | 28.13 | 253.98 |
| AMW-55C | M | 1/27/2022 | 68.45 | 58.45 | 68.45 | 10 | 282.71 | 26.85 | 255.86 |
| AMW-55C | M | 4/29/2022 | 68.45 | 58.45 | 68.45 | 10 | 282.71 | 27.17 | 255.54 |
| AMW-55C | M | 7/29/2022 | 68.45 | 58.45 | 68.45 | 10 | 282.71 | 27.22 | 255.49 |
| AMW-55C | M | 11/4/2022 | 68.45 | 58.45 | 68.45 | 10 | 282.71 | 28.87 | 253.84 |
| AMW-56A | M | 1/27/2022 | 35.24 | 25.24 | 35.24 | 10 | 283.67 | 19.06 | 264.61 |
| AMW-56A | M | 4/29/2022 | 35.24 | 25.24 | 35.24 | 10 | 283.67 | 27.61 | 256.06 |
| AMW-56A | M | 7/29/2022 | 35.24 | 25.24 | 35.24 | 10 | 283.67 | 27.71 | 255.96 |
| AMW-56A | M | 11/1/2022 | 35.24 | 25.24 | 35.24 | 10 | 283.67 | 29.24 | 254.43 |
| AMW-56C | M | 1/27/2022 | 67.40 | 57.4 | 67.4 | 10 | 283.67 | 29.10 | 254.57 |
| AMW-56C | M | 4/29/2022 | 67.40 | 57.4 | 67.4 | 10 | 283.67 | 27.67 | 256.00 |
| AMW-56C | M | 7/29/2022 | 67.40 | 57.4 | 67.4 | 10 | 283.67 | 27.74 | 255.93 |
| AMW-56C | M | 11/4/2022 | 67.40 | 57.4 | 67.4 | 10 | 283.67 | 29.18 | 254.49 |
| AMW-57 | M | 1/27/2022 | 75.38 | 70.08 | 75.08 | 5 | 285.68 | 31.09 | 254.59 |
| AMW-57 | M | 4/29/2022 | 75.38 | 70.08 | 75.08 | 5 | 285.68 | 29.85 | 255.83 |
| AMW-57 | M | 7/29/2022 | 75.38 | 70.08 | 75.08 | 5 | 285.68 | 29.90 | 255.78 |
| AMW-57 | M | 11/4/2022 | 75.38 | 70.08 | 75.08 | 5 | 285.68 | 31.08 | 254.60 |
| AMW-58 | M | 1/27/2022 | 114.73 | 109.43 | 114.43 | 5 | 280.08 | 60.01 | 220.07 |
| AMW-58 | M | 4/29/2022 | 114.73 | 109.43 | 114.43 | 5 | 280.08 | 59.05 | 221.03 |
| AMW-58 | M | 7/29/2022 | 114.73 | 109.43 | 114.43 | 5 | 280.08 | 58.78 | 221.30 |
| AMW-58 | M | 10/31/2022 | 114.73 | 109.43 | 114.43 | 5 | 280.08 | 60.17 | 219.91 |
| AMW-59 | M/D | 1/27/2022 | 140.04 | 134.74 | 139.74 | 5 | 269.37 | 18.11 | 251.26 |
| AMW-59 | M/D | 4/29/2022 | 140.04 | 134.74 | 139.74 | 5 | 269.37 | 17.29 | 252.08 |
| AMW-59 | M/D | 7/29/2022 | 140.04 | 134.74 | 139.74 | 5 | 269.37 | 17.42 | 251.95 |
| AMW-59 | M/D | 11/3/2022 | 140.04 | 134.74 | 139.74 | 5 | 269.37 | 18.61 | 250.76 |
| AMW-60 | M | 1/27/2022 | 109.50 | 104.2 | 109.2 | 5 | 266.45 | 16.39 | 250.06 |
| AMW-60 | M | 4/29/2022 | 109.50 | 104.2 | 109.2 | 5 | 266.45 | 16.57 | 249.88 |
| AMW-60 | M | 7/29/2022 | 109.50 | 104.2 | 109.2 | 5 | 266.45 | 16.62 | 249.83 |
| AMW-60 | M | 11/2/2022 | 109.50 | 104.2 | 109.2 | 5 | 266.45 | 17.09 | 249.36 |
| AMW-61 | M | 1/27/2022 | 97.16 | 91.86 | 96.86 | 5 | 273.78 | 46.70 | 227.08 |
| AMW-61 | M | 4/29/2022 | 97.16 | 91.86 | 96.86 | 5 | 273.78 | 45.84 | 227.94 |
| AMW-61 | M | 7/29/2022 | 97.16 | 91.86 | 96.86 | 5 | 273.78 | 45.93 | 227.85 |
| AMW-61 | M | 11/3/2022 | 97.16 | 91.86 | 96.86 | 5 | 273.78 | 43.10 | 230.68 |
| AMW-62 | M/D | 1/27/2022 | 196.03 | 185.73 | 195.73 | 10 | 258.66 | 134.21 | 124.45 |
| AMW-62 | M/D | 4/29/2022 | 196.03 | 185.73 | 195.73 | 10 | 258.66 | 132.74 | 125.92 |
| AMW-62 | M/D | 7/29/2022 | 196.03 | 185.73 | 195.73 | 10 | 258.66 | 132.90 | 125.76 |
| AMW-62 | M/D | 11/4/2022 | 196.03 | 185.73 | 195.73 | 10 | 258.66 | 133.07 | 125.59 |
| AMW-63 | M | 1/27/2022 | 86.43 | 76.13 | 86.13 | 10 | 257.42 | 25.65 | 231.77 |
| AMW-63 | M | 4/29/2022 | 86.43 | 76.13 | 86.13 | 10 | 257.42 | 19.54 | 237.88 |
| AMW-63 | M | 7/29/2022 | 86.43 | 76.13 | 86.13 | 10 | 257.42 | 19.58 | 237.84 |
| AMW-63 | M | 11/4/2022 | 86.43 | 76.13 | 86.13 | 10 | 257.42 | 21.43 | 235.99 |
| AMW-64 | M | 4/29/2022 | 98.70 | 88.4 | 98.4 | 10 | 266.13 | 15.10 | 251.03 |
| AMW-64 | M | 7/29/2022 | 98.70 | 88.4 | 98.4 | 10 | 266.13 | 15.16 | 250.97 |
| AMW-64 | M | 11/2/2022 | 98.70 | 88.4 | 98.4 | 10 | 266.13 | 16.33 | 249.80 |
| CPU-3S | M | 1/27/2022 | 72.72 | 65.72 | 70.72 | 5 | 246.77 | 13.89 | 232.88 |
| CPU-3S | M | 4/29/2022 | 72.72 | 65.72 | 70.72 | 5 | 246.77 | 10.36 | 236.41 |
| CPU-3S | M | 7/29/2022 | 72.72 | 65.72 | 70.72 | 5 | 246.77 | 10.42 | 236.35 |
| CPU-3S | M | 11/4/2022 | 72.72 | 65.72 | 70.72 | 5 | 246.77 | 12.56 | 234.21 |
| CPU-3D | M/D | 1/27/2022 | 219.38 | 212.38 | 217.38 | 5 | 246.77 | 132.87 | 113.90 |
| CPU-3D | M/D | 4/29/2022 | 219.38 | 212.38 | 217.38 | 5 | 246.77 | 131.27 | 115.50 |

## Table 3-1. Summary of Water Level Gauging Data and Groundwater Surface Elevations—2022

| Well ID | Well Type | Measurement Date | Total Depth (ft btoc) | Top of Screen (ft btoc) | Bottom of Screen (ft btoc) | Screen Length (ft) | TOC Elevation (ft MSL) | Depth to Water (ft btoc) | Groundwater Surface Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| CPU-3D | M/D | 7/29/2022 | 219.38 | 212.38 | 217.38 | 5 | 246.77 | 131.65 | 115.12 |
| CPU-3D | M/D | 11/4/2022 | 219.38 | 212.38 | 217.38 | 5 | 246.77 | 132.39 | 114.38 |
| CPU-4S | M | 1/27/2022 | 69.30 | 62.3 | 67.3 | 5 | 234.1 | 14.00 | 220.10 |
| CPU-4S | M | 4/29/2022 | 69.30 | 62.3 | 67.3 | 5 | 234.1 | 10.00 | 224.10 |
| CPU-4S | M | 7/29/2022 | 69.30 | 62.3 | 67.3 | 5 | 234.1 | 10.07 | 224.03 |
| CPU-4S | M | 11/4/2022 | 69.30 | 62.3 | 67.3 | 5 | 234.1 | 11.92 | 222.18 |
| CPU-4D | M | 1/27/2022 | 210.00 | 203 | 208 | 5 | 234.05 | 130.50 | 103.55 |
| CPU-4D | M | 4/29/2022 | 210.00 | 203 | 208 | 5 | 234.05 | 128.50 | 105.55 |
| CPU-4D | M | 7/29/2022 | 210.00 | 203 | 208 | 5 | 234.05 | 128.88 | 105.17 |
| CPU-4D | M | 11/4/2022 | 210.00 | 203 | 208 | 5 | 234.05 | 129.39 | 104.66 |
| CPU-12 | M | 1/27/2022 | 72.20 | 61.12 | 71.12 | 10 | 275.23 | 29.95 | 245.28 |
| CPU-12 | M | 4/29/2022 | 72.20 | 61.12 | 71.12 | 10 | 275.23 | 28.40 | 246.83 |
| CPU-12 | M | 7/29/2022 | 72.20 | 61.12 | 71.12 | 10 | 275.23 | 28.46 | 246.77 |
| CPU-12 | M | 11/4/2022 | 72.20 | 61.12 | 71.12 | 10 | 275.23 | 29.49 | 245.74 |
| CPU-13 | E | 1/27/2022 | 82.70 | 71.7 | 81.7 | 10 | 278.99 | 36.16 | 242.83 |
| CPU-13 | E | 4/29/2022 | 82.70 | 71.7 | 81.7 | 10 | 278.99 | 34.17 | 244.82 |
| CPU-13 | E | 7/29/2022 | 82.70 | 71.7 | 81.7 | 10 | 278.99 | 34.22 | 244.77 |
| CPU-13 | E | 11/4/2022 | 82.70 | 71.7 | 81.7 | 10 | 278.99 | 36.28 | 242.71 |
| CPU-14 | M | 1/27/2022 | 71.43 | 60.43 | 70.43 | 10 | 257.56 | 16.83 | 240.73 |
| CPU-14 | M | 4/29/2022 | 71.43 | 60.43 | 70.43 | 10 | 257.56 | 12.52 | 245.04 |
| CPU-14 | M | 11/3/2022 | 71.43 | 60.43 | 70.43 | 10 | 257.56 | 16.83 | 240.73 |
| CPU-15 | M | 1/27/2022 | 89.49 | 78.49 | 88.49 | 10 | 275.87 | 35.63 | 240.24 |
| CPU-15 | M | 4/29/2022 | 89.49 | 78.49 | 88.49 | 10 | 275.87 | 32.30 | 243.57 |
| CPU-15 | M | 7/29/2022 | 89.49 | 78.49 | 88.49 | 10 | 275.87 | 32.34 | 243.53 |
| CPU-15 | M | 11/4/2022 | 89.49 | 78.49 | 88.49 | 10 | 275.87 | 33.80 | 242.07 |
| MW-1A | M | 1/27/2022 | 38.56 | 28.27 | 38.27 | 10 | 285.49 | 30.82 | 254.67 |
| MW-1A | M | 4/29/2022 | 38.56 | 28.27 | 38.27 | 10 | 285.49 | 29.84 | 255.65 |
| MW-1A | M | 7/29/2022 | 38.56 | 28.27 | 38.27 | 10 | 285.49 | 29.91 | 255.58 |
| MW-1A | M | 10/31/2022 | 38.56 | 28.27 | 38.27 | 10 | 285.49 | 31.33 | 254.16 |
| MW-1B | M | 1/27/2022 | 59.79 | 54.49 | 59.49 | 5 | 285.47 | 30.81 | 254.66 |
| MW-1B | M | 4/29/2022 | 59.79 | 54.49 | 59.49 | 5 | 285.47 | 29.89 | 255.58 |
| MW-1B | M | 7/29/2022 | 59.79 | 54.49 | 59.49 | 5 | 285.47 | 29.91 | 255.56 |
| MW-1B | M | 10/31/2022 | 59.79 | 54.49 | 59.49 | 5 | 285.47 | 31.48 | 253.99 |
| MW-1C | M | 1/27/2022 | 77.44 | 72.14 | 77.14 | 5 | 285.45 | 30.83 | 254.62 |
| MW-1C | M | 4/29/2022 | 77.44 | 72.14 | 77.14 | 5 | 285.45 | 29.91 | 255.54 |
| MW-1C | M | 7/29/2022 | 77.44 | 72.14 | 77.14 | 5 | 285.45 | 29.93 | 255.52 |
| MW-1C | M | 10/31/2022 | 77.44 | 72.14 | 77.14 | 5 | 285.45 | 31.48 | 253.97 |
| MW-2A | M | 1/27/2022 | 37.39 | 32.09 | 37.09 | 5 | 282.57 | 28.11 | 254.46 |
| MW-2A | M | 4/29/2022 | 37.39 | 32.09 | 37.09 | 5 | 282.57 | 27.23 | 255.34 |
| MW-2A | M | 7/29/2022 | 37.39 | 32.09 | 37.09 | 5 | 282.57 | 27.50 | 255.07 |
| MW-2A | M | 10/31/2022 | 37.39 | 32.09 | 37.09 | 5 | 282.57 | 28.93 | 253.64 |
| MW-2B | M | 1/27/2022 | 57.94 | 52.64 | 57.64 | 5 | 282.49 | 28.16 | 254.33 |
| MW-2B | M | 4/29/2022 | 57.94 | 52.64 | 57.64 | 5 | 282.49 | 27.29 | 255.20 |
| MW-2B | M | 7/29/2022 | 57.94 | 52.64 | 57.64 | 5 | 282.49 | 27.46 | 255.03 |
| MW-2B | M | 10/31/2022 | 57.94 | 52.64 | 57.64 | 5 | 282.49 | 28.96 | 253.53 |
| MW-2C | M | 1/27/2022 | 86.94 | 81.64 | 86.64 | 5 | 282.43 | 20.33 | 262.10 |
| MW-2C | M | 4/29/2022 | 86.94 | 81.64 | 86.64 | 5 | 282.43 | 27.42 | 255.01 |
| MW-2C | M | 7/29/2022 | 86.94 | 81.64 | 86.64 | 5 | 282.43 | 27.66 | 254.77 |
| MW-2C | M | 10/31/2022 | 86.94 | 81.64 | 86.64 | 5 | 282.43 | 29.12 | 253.31 |
| MW-3A | M | 1/27/2022 | 32.70 | 22.3 | 32.3 | 10 | 280.21 | 26.96 | 253.25 |
| MW-3A | M | 4/29/2022 | 32.70 | 22.3 | 32.3 | 10 | 280.21 | 25.15 | 255.06 |
| MW-3A | M | 7/29/2022 | 32.67 | 22.3 | 32.3 | 10 | 280.21 | 25.39 | 254.82 |
| MW-3A | M | 10/31/2022 | 32.67 | 22.3 | 32.3 | 10 | 280.21 | 26.80 | 253.41 |
| MW-3B | M | 1/27/2022 | 56.69 | 51.39 | 56.39 | 5 | 280.33 | 26.21 | 254.12 |
| MW-3B | M | 4/29/2022 | 56.69 | 51.39 | 56.39 | 5 | 280.33 | 25.30 | 255.03 |
| MW-3B | M | 7/29/2022 | 56.69 | 51.39 | 56.39 | 5 | 280.33 | 25.61 | 254.72 |
| MW-3B | M | 10/31/2022 | 56.69 | 51.39 | 56.39 | 5 | 280.33 | 26.96 | 253.37 |
| MW-3C | M | 1/27/2022 | 83.69 | 78.39 | 83.39 | 5 | 280.35 | 26.20 | 254.15 |
| MW-3C | M | 4/29/2022 | 83.69 | 78.39 | 83.39 | 5 | 280.35 | 25.40 | 254.95 |
| MW-3C | M | 7/29/2022 | 83.69 | 78.39 | 83.39 | 5 | 280.35 | 25.69 | 254.66 |
| MW-3C | M | 10/31/2022 | 83.69 | 78.39 | 83.39 | 5 | 280.35 | 27.00 | 253.35 |
| MW-4A | M | 1/27/2022 | 37.70 | 26.8 | 36.8 | 10 | 280.3 | 26.15 | 254.15 |
| MW-4A | M | 4/29/2022 | 37.70 | 26.8 | 36.8 | 10 | 280.3 | 25.40 | 254.90 |
| MW-4A | M | 7/29/2022 | 37.69 | 26.8 | 36.8 | 10 | 280.3 | 25.52 | 254.78 |
| MW-4A | M | 10/31/2022 | 37.69 | 26.8 | 36.8 | 10 | 280.3 | 26.91 | 253.39 |
| MW-4B | M | 1/27/2022 | 44.80 | 39.7 | 44.7 | 5 | 280.15 | 26.04 | 254.11 |
| MW-4B | M | 4/29/2022 | 44.80 | 39.7 | 44.7 | 5 | 280.15 | 25.25 | 254.90 |
| MW-4B | M | 7/29/2022 | 44.77 | 39.7 | 44.7 | 5 | 280.15 | 25.39 | 254.76 |
| MW-4B | M | 10/31/2022 | 44.77 | 39.7 | 44.7 | 5 | 280.15 | 26.68 | 253.47 |
| MW-4BSHED | M | 1/27/2022 | 58.20 | 52.9 | 57.9 | 5 | 280.47 | 26.84 | 253.63 |

## Table 3-1. Summary of Water Level Gauging Data and Groundwater Surface Elevations—2022

| Well ID | Well Type | Measurement Date | Total Depth (ft btoc) | Top of Screen (ft btoc) | Bottom of Screen (ft btoc) | Screen Length (ft) | TOC Elevation (ft MSL) | Depth to Water (ft btoc) | Groundwater Surface Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| MW-4BSHED | M | 4/29/2022 | 58.20 | 52.9 | 57.9 | 5 | 280.47 | 25.56 | 254.91 |
| MW-4BSHED | M | 7/29/2022 | 58.20 | 52.9 | 57.9 | 5 | 280.47 | 25.63 | 254.84 |
| MW-4BSHED | M | 10/31/2022 | 58.20 | 52.9 | 57.9 | 5 | 280.47 | 27.12 | 253.35 |
| MW-4C | M | 1/27/2022 | 80.00 | 74.7 | 79.7 | 5 | 279.9 | 26.00 | 253.90 |
| MW-4C | M | 4/29/2022 | 80.00 | 74.7 | 79.7 | 5 | 279.9 | 25.30 | 254.60 |
| MW-4C | M | 7/29/2022 | 80.00 | 74.7 | 79.7 | 5 | 279.9 | 25.37 | 254.53 |
| MW-4C | M | 10/31/2022 | 80.00 | 74.7 | 79.7 | 5 | 279.9 | 27.05 | 252.85 |
| MW-6A | M | 1/27/2022 | 31.50 | 18.25 | 28.25 | 10 | 278.77 | 24.91 | 253.86 |
| MW-6A | M | 4/29/2022 | 31.50 | 18.25 | 28.25 | 10 | 278.77 | 23.98 | 254.79 |
| MW-6A | M | 7/29/2022 | 31.50 | 18.25 | 28.25 | 10 | 278.77 | 24.11 | 254.66 |
| MW-6A | M | 11/1/2022 | 31.50 | 18.25 | 28.25 | 10 | 278.77 | 25.63 | 253.14 |
| MW-6B | E | 1/27/2022 | 59.00 | 45.75 | 55.75 | 10 | 273.32 | 19.69 | 253.63 |
| MW-6B | E | 4/29/2022 | 59.00 | 45.75 | 55.75 | 10 | 273.32 | 18.70 | 254.62 |
| MW-6B | E | 7/29/2022 | 59.00 | 45.75 | 55.75 | 10 | 273.32 | 18.81 | 254.51 |
| MW-6B | E | 11/1/2022 | 59.00 | 45.75 | 55.75 | 10 | 273.32 | 20.14 | 253.18 |
| MW-6C | M | 1/27/2022 | 84.80 | 71.55 | 81.55 | 10 | 278.65 | 25.07 | 253.58 |
| MW-6C | M | 4/29/2022 | 84.80 | 71.55 | 81.55 | 10 | 278.65 | 24.18 | 254.47 |
| MW-6C | M | 7/29/2022 | 84.80 | 71.55 | 81.55 | 10 | 278.65 | 24.29 | 254.36 |
| MW-6C | M | 11/1/2022 | 84.80 | 71.55 | 81.55 | 10 | 278.65 | 26.67 | 251.98 |
| MW-6D | M | 1/27/2022 | 113.70 | 100.45 | 110.45 | 10 | 278.9 | 25.58 | 253.32 |
| MW-6D | M | 4/29/2022 | 113.70 | 100.45 | 110.45 | 10 | 278.9 | 24.40 | 254.50 |
| MW-6D | M | 7/29/2022 | 113.70 | 100.45 | 110.45 | 10 | 278.9 | 24.50 | 254.40 |
| MW-6D | M | 11/1/2022 | 113.70 | 100.45 | 110.45 | 10 | 278.9 | 26.20 | 252.70 |
| MW-7B | M | 1/27/2022 | 57.70 | 47 | 57 | 10 | 280.02 | 25.94 | 254.08 |
| MW-7B | M | 4/29/2022 | 57.70 | 47 | 57 | 10 | 280.02 | 25.07 | 254.95 |
| MW-7B | M | 7/29/2022 | 57.70 | 47 | 57 | 10 | 280.02 | 21.81 | 258.21 |
| MW-7B | M | 10/31/2022 | 57.70 | 47 | 57 | 10 | 280.02 | 26.73 | 253.29 |
| MW-7C | M | 1/27/2022 | 80.50 | 69 | 79 | 10 | 279.94 | 25.74 | 254.20 |
| MW-7C | M | 4/29/2022 | 80.50 | 69 | 79 | 10 | 279.94 | 25.02 | 254.92 |
| MW-7C | M | 7/29/2022 | 80.50 | 69 | 79 | 10 | 279.94 | 25.11 | 254.83 |
| MW-7C | M | 11/2/2022 | 80.50 | 69 | 79 | 10 | 279.94 | 26.39 | 253.55 |
| MW-8B | M | 1/27/2022 | 60.00 | 46.9 | 56.9 | 10 | 280.7 | 26.78 | 253.92 |
| MW-8B | M | 4/29/2022 | 60.00 | 46.9 | 56.9 | 10 | 280.7 | 25.83 | 254.87 |
| MW-8B | M | 7/29/2022 | 60.00 | 46.9 | 56.9 | 10 | 280.7 | 25.92 | 254.78 |
| MW-8B | M | 11/2/2022 | 60.00 | 46.9 | 56.9 | 10 | 280.7 | 27.61 | 253.09 |
| MW-9B | M | 1/27/2022 | 58.00 | 44.9 | 54.9 | 10 | 275.42 | 21.93 | 253.49 |
| MW-9B | M | 4/29/2022 | 58.00 | 44.9 | 54.9 | 10 | 275.42 | 21.24 | 254.18 |
| MW-9B | M | 7/29/2022 | 58.00 | 44.9 | 54.9 | 10 | 275.42 | 21.23 | 254.19 |
| MW-9B | M | 11/1/2022 | 58.00 | 44.9 | 54.9 | 10 | 275.42 | 26.60 | 248.82 |
| MW-9C | M | 4/29/2022 | 76.50 | 65 | 75 | 10 | 275.44 | 21.06 | 254.38 |
| MW-9C | M | 7/29/2022 | 76.50 | 65 | 75 | 10 | 275.44 | 21.18 | 254.26 |
| MW-9C | M | 11/4/2022 | 76.50 | 65 | 75 | 10 | 275.44 | 26.48 | 248.96 |
| MW-10B | E | 1/27/2022 | 61.50 | 48 | 58 | 10 | 273.24 | 19.93 | 253.31 |
| MW-10B | E | 4/29/2022 | 61.50 | 48 | 58 | 10 | 273.24 | 19.40 | 253.84 |
| MW-10B | E | 7/29/2022 | 61.50 | 48 | 58 | 10 | 273.24 | 19.19 | 254.05 |
| MW-10B | E | 11/1/2022 | 61.50 | 48 | 58 | 10 | 273.24 | 20.45 | 252.79 |
| MW-10C | E | 1/27/2022 | 81.50 | 70 | 80 | 10 | 273.25 | 19.90 | 253.35 |
| MW-10C | E | 4/29/2022 | 81.50 | 70 | 80 | 10 | 273.25 | 18.89 | 254.36 |
| MW-10C | E | 7/29/2022 | 81.50 | 70 | 80 | 10 | 273.25 | 19.18 | 254.07 |
| MW-10C | E | 11/1/2022 | 81.50 | 70 | 80 | 10 | 273.25 | 20.33 | 252.92 |
| MW-12C | M | 1/27/2022 | 82.71 | 71.2 | 81.2 | 10 | 274.31 | 21.03 | 253.28 |
| MW-12C | M | 4/29/2022 | 82.71 | 71.2 | 81.2 | 10 | 274.31 | 20.26 | 254.05 |
| MW-12C | M | 7/29/2022 | 82.71 | 71.2 | 81.2 | 10 | 274.31 | 20.48 | 253.83 |
| MW-12C | M | 11/2/2022 | 82.71 | 71.2 | 81.2 | 10 | 274.31 | 21.68 | 252.63 |
| MW-13C | M | 1/27/2022 | 76.53 | 65.03 | 75.03 | 10 | 271.97 | 19.18 | 252.79 |
| MW-13C | M | 4/29/2022 | 76.53 | 65.03 | 75.03 | 10 | 271.97 | 17.92 | 254.05 |
| MW-13C | M | 7/29/2022 | 76.53 | 65.03 | 75.03 | 10 | 271.97 | 18.25 | 253.72 |
| MW-13C | M | 11/2/2022 | 76.53 | 65.03 | 75.03 | 10 | 271.97 | 19.19 | 252.78 |
| MW-14C | E | 1/27/2022 | 81.50 | 70 | 80 | 10 | 271.22 | 18.18 | 253.04 |
| MW-14C | E | 4/29/2022 | 81.50 | 70 | 80 | 10 | 271.22 | 17.38 | 253.84 |
| MW-14C | E | 7/29/2022 | 81.50 | 70 | 80 | 10 | 271.22 | 17.42 | 253.80 |
| MW-14C | E | 11/3/2022 | 81.50 | 70 | 80 | 10 | 271.22 | 18.74 | 252.48 |
| MW-14E | E | 1/27/2022 | 126.00 | 115 | 125 | 10 | 268.95 | 16.38 | 252.57 |
| MW-14E | E | 4/29/2022 | 126.00 | 115 | 125 | 10 | 268.95 | 15.60 | 253.35 |
| MW-14E | E | 7/29/2022 | 126.00 | 115 | 125 | 10 | 268.95 | 15.65 | 253.30 |
| MW-14E | E | 11/3/2022 | 126.00 | 115 | 125 | 10 | 268.95 | 16.96 | 251.99 |
| MW-15E | M | 1/27/2022 | 107.23 | 96.22 | 106.22 | 10 | 265.73 | 16.34 | 249.39 |
| MW-15E | M | 4/29/2022 | 107.23 | 96.22 | 106.22 | 10 | 265.73 | 13.00 | 252.73 |
| MW-15E | M | 7/29/2022 | 107.23 | 96.22 | 106.22 | 10 | 265.73 | 13.17 | 252.56 |
| MW-15E | M | 11/3/2022 | 107.23 | 96.22 | 106.22 | 10 | 265.73 | 14.43 | 251.30 |

## Table 3-1. Summary of Water Level Gauging Data and Groundwater Surface Elevations—2022

| Well ID | Well Type | Measurement Date | Total Depth (ft btoc) | Top of Screen (ft btoc) | Bottom of Screen (ft btoc) | Screen Length (ft) | TOC Elevation (ft MSL) | Depth to Water (ft btoc) | Groundwater Surface Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| MW-18D | E | 1/27/2022 | 94.40 | 73.4 | 93.4 | 20 | 262.74 | 9.62 | 253.12 |
| MW-18D | E | 4/29/2022 | 94.40 | 73.4 | 93.4 | 20 | 262.74 | 8.44 | 254.30 |
| MW-18E | M | 1/27/2022 | 123.57 | 112.69 | 122.69 | 10 | 261.77 | 10.45 | 251.32 |
| MW-18E | M | 4/29/2022 | 123.57 | 112.69 | 122.69 | 10 | 261.77 | 9.10 | 252.67 |
| MW-19D | E | 1/27/2022 | 82.20 | 76.2 | 91.2 | 15 | 257.98 | 8.65 | 249.33 |
| MW-19D | E | 4/29/2022 | 82.20 | 76.2 | 91.2 | 15 | 257.98 | 7.82 | 250.16 |
| MW-19D | E | 7/29/2022 | 82.20 | 76.2 | 91.2 | 15 | 257.98 | 8.15 | 249.83 |
| MW-19D | E | 11/3/2022 | 82.20 | 76.2 | 91.2 | 15 | 257.98 | 9.35 | 248.63 |
| MW-20D | E | 1/27/2022 | 87.00 | 76 | 86 | 10 | 269.43 | 20.13 | 249.30 |
| MW-20D | E | 4/29/2022 | 87.00 | 76 | 86 | 10 | 269.43 | 19.37 | 250.06 |
| MW-20D | E | 7/29/2022 | 87.00 | 76 | 86 | 10 | 269.43 | 19.47 | 249.96 |
| MW-20D | E | 11/3/2022 | 87.00 | 76 | 86 | 10 | 269.43 | 20.83 | 248.60 |
| MW-21D | E | 1/27/2022 | 67.00 | 64.4 | 74.4 | 10 | 265.98 | 16.33 | 249.65 |
| MW-21D | E | 4/29/2022 | 67.00 | 64.4 | 74.4 | 10 | 265.98 | 17.03 | 248.95 |
| MW-21D | E | 7/29/2022 | 67.00 | 64.4 | 74.4 | 10 | 265.98 | 17.09 | 248.89 |
| MW-21D | E | 11/2/2022 | 67.00 | 64.4 | 74.4 | 10 | 265.98 | 19.82 | 246.16 |
| MW-22D | E | 1/27/2022 | 65.20 | 54 | 64 | 10 | 269.02 | 19.48 | 249.54 |
| MW-22D | E | 4/29/2022 | 65.20 | 54 | 64 | 10 | 269.02 | 18.59 | 250.43 |
| MW-22D | E | 7/29/2022 | 65.20 | 54 | 64 | 10 | 269.02 | 18.69 | 250.33 |
| MW-22D | E | 11/2/2022 | 65.20 | 54 | 64 | 10 | 269.02 | 20.25 | 248.77 |
| MW-23D | M | 1/27/2022 | 88.10 | 71.86 | 86.86 | 15 | 265.33 | 18.29 | 247.04 |
| MW-23D | M | 4/29/2022 | 88.10 | 71.86 | 86.86 | 15 | 265.33 | 17.58 | 247.75 |
| MW-23D | M | 7/29/2022 | 88.10 | 71.86 | 86.86 | 15 | 265.33 | 17.63 | 247.70 |
| MW-23D | M | 11/2/2022 | 88.10 | 71.86 | 86.86 | 15 | 265.33 | 19.13 | 246.20 |
| MW-25D | E | 1/27/2022 | 79.05 | 67.85 | 77.85 | 10 | 272.13 | 30.13 | 242.00 |
| MW-25D | E | 4/29/2022 | 79.05 | 67.85 | 77.85 | 10 | 272.13 | 28.52 | 243.61 |
| MW-25D | E | 7/29/2022 | 79.05 | 67.85 | 77.85 | 10 | 272.13 | 28.57 | 243.56 |
| MW-25D | E | 11/4/2022 | 79.05 | 67.85 | 77.85 | 10 | 272.13 | 30.33 | 241.80 |
| MW-26D | E | 1/27/2022 | 94.20 | 83 | 93 | 10 | 272.86 | 32.00 | 240.86 |
| MW-26D | E | 4/29/2022 | 94.20 | 83 | 93 | 10 | 272.86 | 30.49 | 242.37 |
| MW-26D | E | 7/29/2022 | 94.20 | 83 | 93 | 10 | 272.86 | 30.55 | 242.31 |
| MW-26D | E | 11/4/2022 | 94.20 | 83 | 93 | 10 | 272.86 | 32.50 | 240.36 |
| MW-27D | M | 1/27/2022 | 71.20 | 65.07 | 75.07 | 10 | 273.23 | 30.10 | 243.13 |
| MW-27D | M | 4/29/2022 | 71.20 | 65.07 | 75.07 | 10 | 273.23 | 27.49 | 245.74 |
| MW-27D | M | 7/29/2022 | 71.20 | 65.07 | 75.07 | 10 | 273.23 | 27.53 | 245.70 |
| MW-27D | M | 11/4/2022 | 71.20 | 65.07 | 75.07 | 10 | 273.23 | 29.51 | 243.72 |
| MW-30 | M/D | 1/27/2022 | 63.00 | 51 | 61 | 10 | 246.75 | 14.18 | 232.57 |
| MW-30 | M/D | 4/29/2022 | 63.00 | 51 | 61 | 10 | 246.75 | 10.10 | 236.65 |
| MW-30 | M/D | 7/29/2022 | 63.00 | 51 | 61 | 10 | 246.75 | 10.15 | 236.60 |
| MW-30 | M/D | 11/4/2022 | 63.00 | 51 | 61 | 10 | 246.75 | 12.07 | 234.68 |
| MW-33 | M/D | 1/27/2022 | 215.00 | 205 | 215 | 10 | 272.55 | 133.43 | 139.12 |
| MW-33 | M/D | 4/29/2022 | 215.00 | 205 | 215 | 10 | 272.55 | 131.04 | 141.51 |
| MW-33 | M/D | 7/29/2022 | 215.00 | 205 | 215 | 10 | 272.55 | 191.30 | 81.25 |
| MW-33 | M/D | 11/4/2022 | 215.00 | 205 | 215 | 10 | 272.55 | 131.65 | 140.90 |
| MW-38 | M | 1/27/2022 | 81.90 | 76.92 | 81.92 | 5 | 263.92 | 13.85 | 250.07 |
| MW-38 | M | 4/29/2022 | 81.90 | 76.92 | 81.92 | 5 | 263.92 | 12.95 | 250.97 |
| MW-38 | M | 7/29/2022 | 81.90 | 76.92 | 81.92 | 5 | 263.92 | 13.00 | 250.92 |
| MW-38 | M | 11/2/2022 | 81.90 | 76.92 | 81.92 | 5 | 263.92 | 14.50 | 249.42 |
| MW-41 | E/M | 1/27/2022 | 81.70 | 71.7 | 81.7 | 10 | 253.08 | 22.00 | 232.94 |
| MW-41 | E/M | 4/29/2022 | 81.70 | 71.7 | 81.7 | 10 | 253.08 | 17.66 | 237.28 |
| MW-41 | E/M | 7/29/2022 | 81.70 | 71.7 | 81.7 | 10 | 253.08 | 17.70 | 237.24 |
| MW-41 | E/M | 11/4/2022 | 81.70 | 71.7 | 81.7 | 10 | 253.08 | 19.62 | 235.32 |
| MW-46 | E/M | 1/27/2022 | 80.30 | 70 | 80 | 10 | 247.79 | 12.95 | 235.92 |
| MW-46 | E/M | 4/29/2022 | 80.30 | 70 | 80 | 10 | 247.79 | 11.75 | 237.12 |
| MW-46 | E/M | 7/29/2022 | 80.30 | 70 | 80 | 10 | 247.79 | 11.80 | 237.07 |
| MW-46 | E/M | 11/4/2022 | 80.30 | 70 | 80 | 10 | 247.79 | 13.71 | 235.16 |
| MW-47 | M/D | 1/27/2022 | 83.00 | 72.7 | 82.7 | 10 | 246.39 | 12.40 | 233.99 |
| MW-47 | M/D | 4/29/2022 | 83.00 | 72.7 | 82.7 | 10 | 246.39 | 8.79 | 237.60 |
| MW-47 | M/D | 7/29/2022 | 83.00 | 72.7 | 82.7 | 10 | 246.39 | 8.84 | 237.55 |
| MW-47 | M/D | 11/4/2022 | 83.00 | 72.7 | 82.7 | 10 | 246.39 | 10.80 | 235.59 |
| MW-48 | E | 1/27/2022 | 86.50 | 76.2 | 86.2 | 10 | 248.82 | 18.44 | 233.71 |
| MW-48 | E | 4/29/2022 | 86.50 | 76.2 | 86.2 | 10 | 248.82 | 14.08 | 238.07 |
| MW-48 | E | 7/29/2022 | 86.50 | 76.2 | 86.2 | 10 | 248.82 | 14.14 | 238.01 |
| MW-48 | E | 11/4/2022 | 86.50 | 76.2 | 86.2 | 10 | 248.82 | 16.19 | 235.96 |
| MW-49 | E | 1/27/2022 | 81.50 | 71.2 | 81.2 | 10 | 271.68 | 30.47 | 241.21 |
| MW-49 | E | 4/29/2022 | 81.50 | 71.2 | 81.2 | 10 | 271.68 | 29.96 | 241.72 |
| MW-49 | E | 7/29/2022 | 81.50 | 71.2 | 81.2 | 10 | 271.68 | 30.00 | 241.68 |
| MW-49 | E | 11/4/2022 | 81.50 | 71.2 | 81.2 | 10 | 271.68 | 31.97 | 239.71 |
| PW-1B | E | 1/27/2022 | 58.00 | 48 | 58 | 10 | 276.56 | 22.48 | 254.08 |
| PW-1B | E | 4/29/2022 | 58.00 | 48 | 58 | 10 | 276.56 | 21.69 | 254.87 |

## Table 3-1. Summary of Water Level Gauging Data and Groundwater Surface Elevations—2022

| Well ID | Well Type | Measurement Date | Total Depth (ft btoc) | Top of Screen (ft btoc) | Bottom of Screen (ft btoc) | Screen Length (ft) | TOC Elevation (ft MSL) | Depth to Water (ft btoc) | Groundwater Surface Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|---|
| PW-1B | E | 7/29/2022 | 58.00 | 48 | 58 | 10 | 276.56 | 21.74 | 254.82 |
| PW-1B | E | 10/31/2022 | 58.00 | 48 | 58 | 10 | 276.56 | 23.17 | 253.39 |
| PZ-1 | PZ | 1/27/2022 | 38.79 | 23.79 | 38.79 | 15 | 284.15 | 28.98 | 255.17 |
| PZ-1 | PZ | 4/29/2022 | 38.79 | 23.79 | 38.79 | 15 | 284.15 | 26.81 | 257.34 |
| PZ-1 | PZ | 7/29/2022 | 38.79 | 23.79 | 38.79 | 15 | 284.15 | 26.86 | 257.29 |
| PZ-1 | PZ | 11/4/2022 | 38.79 | 23.79 | 38.79 | 15 | 284.15 | 28.33 | 255.82 |
| PZ-2 | PZ | 1/27/2022 | 42.97 | 27.97 | 42.97 | 15 | 286.54 | 31.13 | 255.41 |
| PZ-2 | PZ | 4/29/2022 | 42.97 | 27.97 | 42.97 | 15 | 286.54 | 27.44 | 259.10 |
| PZ-2 | PZ | 7/29/2022 | 42.97 | 27.97 | 42.97 | 15 | 286.54 | 27.49 | 259.05 |
| PZ-2 | PZ | 11/4/2022 | 42.97 | 27.97 | 42.97 | 15 | 286.54 | 28.76 | 257.78 |
| PZ-39 | M | 1/27/2022 | 91.20 | 89.2 | 91.2 | 2 | 265.41 | 15.29 | 250.12 |
| PZ-39 | M | 4/29/2022 | 91.20 | 89.2 | 91.2 | 2 | 265.41 | 14.39 | 251.02 |
| PZ-39 | M | 7/29/2022 | 91.20 | 89.2 | 91.2 | 2 | 265.41 | 14.68 | 250.73 |
| PZ-39 | M | 11/3/2022 | 91.20 | 89.2 | 91.2 | 2 | 265.41 | 15.89 | 249.52 |

Notes:

Groundwater surface elevation is determined by subtracting the depth to water from the top-of-casing elevation.

| | | |
|---|---|---|
| btoc | = | Below top of casing |
| E | = | Extraction well |
| E/M | = | Extraction well (inactive) with pump pulled; sampled using monitoring well techniques |
| E/O | = | Extraction well with pump turned off |
| ft | = | Feet |
| M | = | Monitoring well |
| M/D | = | Monitoring well with dedicated pump |
| MSL | = | Mean sea level |
| NA | = | Not applicable |
| NM | = | Not measured |
| PZ | = | Piezometer |
| TOC | = | Top of casing |

## Table 3-2. Extraction and Monitoring Well Groupings

| Well Group | AMW Wells | | MW Wells | | Other Wells |
|---|---|---|---|---|---|
| Upgradient | AMW-6A<br>AMW-7A<br>**AMW-8A**<br>AMW-10A<br>AMW-11A | | | | |
| TCE Source (OU-2) | **AMW-1A**<br>**AMW-2A**<br>AMW-3A<br>**AMW-4A**<br>**AMW-12A** | AM-19A<br>AMW-26<br>**AMW-53A**<br>AMW-54A<br>AMW-56A | **MW-1A**<br>**MW-1B** | | |
| Proximal | | | **MW-2A**<br>**MW-2B**<br>**MW-3A**<br>MW-3C<br>**MW-4A**<br>**MW-4B**<br>**MW-4BSHED**<br>**MW-4C**<br>**MW-6A**<br>**MW-6B** | MW-6C<br>MW-6D<br>**MW-7B**<br>**MW-9B**<br>**MW-9C**<br>**MW-10B**<br>**MW-10C**<br>MW-12C<br>**MW-13C** | **PW-1B** |
| Intermediate | **AMW-59**<br>**AMW-60** | | **MW-14C**<br>**MW-14E**<br>**MW-15E**<br>**MW-18D**<br>**MW-18E** | **MW-19D**<br>**MW-20D**<br>**MW-40** | **CPU-14**<br>**PZ-39** |
| Northern Plume | **AMW-16**<br>**AMW-17**<br>**AMW-18** | **AMW-23**<br>**AMW-64** | **MW-23D**<br>**MW-38** | **MW-21D** | |
| Church of God | **AMW-27**<br>**AMW-61** | | | **MW-22D** | **CPU-12** |
| Toe of Plume | AMW-63<br>AMW-44 | | MW-41 | | |
| Troutdale Aquifer | **AMW-24** | | **MW-33** | | **Bennett** |

Notes:

- Wells shown in **bold** and shaded were sampled during the 2022 Reporting year.
- Only wells being sampled as part of the current monitoring plan (EA 2018a) are listed on this table (and does not include wells where sampling is on hold).
- Northern Plume wells include those currently impacted by the off-site Northern Plume.
- AMW wells were installed by Messer LLC.
- MW wells were installed by the U.S. Environmental Protection Agency or Washington Department of Ecology.
- CPU wells were installed by Clark Public Utilities.

**Table 3-3. Summary of Chromium and Selected VOC concentrations in Groundwater Samples - 2022**

| Well Group | Well | Sampling Event | Chromium | TCE | PCE | CFC-11 | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | BDCM |
|---|---|---|---|---|---|---|---|---|---|---|
| Church of God Wells | AMW-27 | January 2022 | NA | 1.7 | 0.44 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-27 | July 2022 | **114** | NA | NA | NA | NA | NA | NA | NA |
| | AMW-61 | Fall 2022 | 27.1 | 4.7 | 1.5 | < 0.50 U | < 0.50 U | 0.13 J | < 0.50 U | < 0.50 U |
| | CPU-12 | Spring 2022 | NA | 2.2 | < 0.50 U | < 0.50 U | 0.090 J | 0.080 J | < 0.50 U | < 0.50 U |
| | MW-22D | January 2022 | 72.5 | **11** | 4.0 | 0.18 J | < 0.50 U | 0.53 | 0.12 J | < 0.50 U |
| | MW-22D | July 2022 | **85.4** | **9.5** | 4.0 | 0.18 J | < 0.50 U | 0.29 J | 0.17 J | < 0.50 U |
| | MW-22D | Fall 2022 | **86.6** | **8.4** | 3.2 | 0.14 J | < 0.50 U | 0.35 J | 0.090 J | < 0.50 U |
| Intermediate Plume Wells | AMW-59 | January 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-59 | July 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | 0.13 J | < 0.50 U |
| | AMW-59 | Fall 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | 0.31 J | < 0.50 U |
| | AMW-60 | January 2022 | NA | 0.44 J | < 0.50 U | < 0.50 U | < 0.50 U | **5.0** | 0.77 | < 0.50 U |
| | AMW-60 | July 2022 | NA | 0.40 J | < 0.50 U | < 0.50 U | < 0.50 U | **6.3** | 0.68 | < 0.50 U |
| | AMW-60 | Fall 2022 | NA | 0.31 J | < 0.50 U | < 0.50 U | < 0.50 U | **4.8** | 0.70 | < 0.50 U |
| | CPU-14 | January 2022 | NA | 4.7 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | CPU-14 | Spring 2022 | **90.5** | 3.3 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | CPU-14 | July 2022 | 9.1 | 2.1 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | CPU-14 | Fall 2022 | NA | 0.51 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-14C | January 2022 | **89.1** | 3.1 | 0.78 | 0.13 J | 0.14 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-14C | Fall 2022 | 67.8 | 4.2 | 0.55 | 0.22 J | 0.090 J | < 0.50 U | 0.080 J | < 0.50 U |
| | MW-14E | January 2022 | **146** | **18** | 2.5 | < 0.50 U | 0.12 J | 0.19 J | 0.41 J | < 0.50 U |
| | MW-14E | Fall 2022 | **207** | **19** | 3.0 | < 0.50 U | 0.11 J | 0.090 J | 0.47 J | < 0.50 U |
| | MW-15E | Spring 2022 | 3.53 | **10** | < 0.50 U | 0.36 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-15E | July 2022 | NA | 1.2 | 0.30 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-15E | Fall 2022 | 2.4 J | 1.6 | 0.22 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-18D | Spring 2022 | 3.26 | 2.8 | 0.26 J | < 0.50 U | < 0.50 U | < 0.50 U | 0.12 J | < 0.50 U |
| | MW-18D | Fall 2022 | **139** | 4.0 | 0.57 | < 0.50 U | 0.14 J | 0.10 J | < 0.50 U | 0.24 J |
| | MW-18E | Spring 2022 | 1.62 | 0.94 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | 0.56 | < 0.50 U |
| | MW-18E | Fall 2022 | < 8.4 U | 0.41 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | 0.22 J | < 0.50 U |
| | MW-19D | January 2022 | 10.5 | 0.21 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-19D | July 2022 | 9.6 | 1.2 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | 0.10 J | < 0.50 U |
| | MW-19D | Fall 2022 | 6.2 J | 3.7 | 0.50 | < 0.50 U | < 0.50 U | < 0.50 U | 0.97 | < 0.50 U |
| | MW-20D | January 2022 | 74.5 | **8.3** | 1.1 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-20D | July 2022 | **144** | **12** | 1.2 | 0.16 J | 0.10 J | 0.15 J | < 0.50 U | < 0.50 U |
| | MW-20D | Fall 2022 | **137** | **11** | 1.1 | 0.13 J | 0.10 J | 0.16 J | < 0.50 U | < 0.50 U |
| | MW-40 | Spring 2022 | NA | 0.42 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | 0.29 J |
| | MW-40 | Fall 2022 | **127** | 0.59 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | 0.16 J |
| | PZ-39 | January 2022 | NA | **41** | 0.38 J | 16 | 0.84 | **5.3** | **89 E** | < 0.50 U |
| | PZ-39 | July 2022 | 4.9 J | **45** | 0.50 | 1.0 | 0.41 J | **1.4** | 0.31 J | < 0.50 U |
| | PZ-39 | Fall 2022 | NA | **28** | 0.55 | 0.86 | 0.39 J | 0.87 | 0.90 | < 0.50 U |
| Northern Plume Well | MW-21D | Spring 2022 | NA | 0.77 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-21D | Fall 2022 | 5.4 J | 1.4 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | 0.14 J | < 0.50 U |
| | MW-38 | Spring 2022 | NA | **17** | 0.74 | 0.15 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-38 | Fall 2022 | NA | **12** | 0.57 | 0.22 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-16 | Spring 2022 | NA | **46** | < 0.50 U | < 0.50 U | 0.25 J | 0.28 J | 0.090 J | < 0.50 U |
| | AMW-16 | Fall 2022 | NA | **54** | 0.11 J | < 0.50 U | 0.24 J | 0.26 J | < 0.50 U | < 0.50 U |
| | AMW-18 | Spring 2022 | NA | **13** | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-18 | Fall 2022 | NA | **9.7** | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-23 | Fall 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-64 | Spring 2022 | NA | **8.5** | < 0.50 U | < 0.50 U | 0.080 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-64 | Fall 2022 | NA | **8.3** | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-23D | Spring 2022 | NA | **71** | < 0.50 U | < 0.50 U | 0.44 J | **1.5** | 0.36 J | < 0.50 U |
| | MW-23D | Fall 2022 | NA | **49** | < 0.50 U | < 0.50 U | 0.24 J | **1.4** | 0.49 J | < 0.50 U |

**Table 3-3. Summary of Chromium and Selected VOC concentrations in Groundwater Samples - 2022**

| Well Group | Well | Sampling Event | Chromium | TCE | PCE | CFC-11 | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | BDCM |
|---|---|---|---|---|---|---|---|---|---|---|
| Proximal Source Wells | AMW-58 | January 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-58 | Spring 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-58 | Fall 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-10B | January 2022 | 60.7 | 2.5 | 0.65 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-10B | Spring 2022 | 63.0 | 3.1 | 0.65 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-10B | July 2022 | NA | 2.9 | 0.69 | 0.16 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-10B | Fall 2022 | 63.3 | 3.0 | 0.56 | 0.93 | 0.10 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-10C | January 2022 | NA | 3.4 | 0.48 J | 0.72 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-10C | Spring 2022 | **299** | 4.3 | 0.60 | 0.39 J | 0.11 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-10C | Fall 2022 | **169** | **8.1** | 0.42 J | 3.1 | 0.40 J | 0.10 J | 0.22 J | < 0.50 U |
| | MW-12C | January 2022 | 1.18 | **33** | 0.32 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-12C | Spring 2022 | 1.51 | **49** | 0.37 J | 0.12 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-12C | Fall 2022 | 2.8 J | 2.3 | 0.29 J | 0.13 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-13C | January 2022 | 34.6 | 1.6 | 0.80 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-13C | Fall 2022 | 46.8 | 0.94 | 0.43 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-2A | January 2022 | NA | 0.45 J | 0.27 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-2A | Fall 2022 | 71.0 | 0.32 J | 0.15 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-2B | Spring 2022 | 4.39 | 1.4 | 0.39 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-2B | Fall 2022 | 3.0 J | 1.2 | 0.23 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-2C | January 2022 | NA | 0.38 J | 0.11 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-2C | Fall 2022 | NA | 0.27 J | 0.10 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-3A | Spring 2022 | **144** | NA | NA | NA | NA | NA | NA | NA |
| | MW-3A | Fall 2022 | **152** | NA | NA | NA | NA | NA | NA | NA |
| | MW-3B | January 2022 | 4.97 | 1.4 | 0.34 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-3B | Spring 2022 | 6.88 | 1.6 | 0.43 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-3B | Fall 2022 | 4.9 J | 3.7 | 0.16 J | 0.19 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-3C | January 2022 | 5.22 | 1.4 | 0.41 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-3C | Spring 2022 | 5.91 | 1.7 | 0.31 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-3C | Fall 2022 | 6.3 J | 1.4 | 0.31 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4A | January 2022 | NA | 1.8 | 0.43 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4A | Spring 2022 | **517** | 2.2 | 0.58 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4A | Fall 2022 | **455** | 1.9 | 0.45 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4B | January 2022 | NA | 2.9 | 0.74 | 0.13 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4B | Spring 2022 | **211** | 2.4 | 0.64 | 0.13 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4B | Fall 2022 | **319** | 3.1 | 0.46 J | 0.20 J | 0.090 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4BSHED | January 2022 | 67.7 | 2.0 | 0.56 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4BSHED | Spring 2022 | **139** | 2.2 | 0.32 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4BSHED | July 2022 | **137** | 2.3 | 0.66 | 0.12 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4BSHED | Fall 2022 | **101** | 2.1 | 0.19 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4C | January 2022 | NA | 1.1 | 0.26 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4C | Spring 2022 | 44.9 | 1.2 | 0.25 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-4C | Fall 2022 | 35.5 | 0.99 | 0.18 J | < 0.50 U | < 0.50 U | < 0.50 U | 0.080 J | < 0.50 U |
| | MW-6A | January 2022 | 5.85 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-6A | Spring 2022 | 3.33 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-6A | July 2022 | 6.2 J | NA | NA | NA | NA | NA | NA | NA |
| | MW-6A | Fall 2022 | 13.8 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | 0.24 J | < 0.50 U |
| | MW-6B | January 2022 | NA | **16** | 0.29 J | 4.4 | 0.63 | < 0.50 U | 0.31 J | < 0.50 U |
| | MW-6B | Spring 2022 | 57.8 | **49** | 0.58 | 10 | 1.3 | 0.35 J | 0.62 | < 0.50 U |
| | MW-6B | July 2022 | NA | **19** | 0.51 | 2.1 | 0.28 J | < 0.50 U | 0.11 J | < 0.50 U |
| | MW-6B | Fall 2022 | 28.0 | **11** | 0.32 J | 0.81 | 0.14 J | < 0.50 U | 0.22 J | < 0.50 U |
| | MW-6C | January 2022 | 5.45 | 1.1 | < 0.50 U | 0.26 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-6C | Spring 2022 | 5.69 | 1.8 | 0.20 J | 0.54 | 0.080 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-6C | Fall 2022 | 4.1 J | 0.77 | 0.14 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-6D | January 2022 | 1.46 | 2.2 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-6D | Spring 2022 | 0.92 | 0.97 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-6D | Fall 2022 | 4.2 J | 0.32 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-7B | January 2022 | NA | 2.4 | 0.58 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-7B | Spring 2022 | NA | 2.9 | 0.63 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-7B | July 2022 | NA | 2.3 | 0.67 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-7B | Fall 2022 | 11.6 | 2.1 | 0.46 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-7C | January 2022 | 11.5 | 0.35 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-7C | Spring 2022 | 3.58 | 0.28 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-7C | Fall 2022 | 3.8 J | 0.21 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-8B | January 2022 | 1.91 | 1.3 | 0.66 | 13 | 0.37 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-8B | Spring 2022 | 1.87 | 2.2 | 0.72 | 15 | 0.38 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-8B | Fall 2022 | < 8.4 U | 1.7 | 0.47 J | 14 | 0.46 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-9B | January 2022 | NA | 1.4 | 0.77 | 8.4 | 0.26 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-9B | Spring 2022 | 10.1 | 1.8 | 0.68 | 14 | 0.45 J | < 0.50 U | 0.10 J | < 0.50 U |
| | MW-9B | Fall 2022 | 8.2 J | 1.5 | 0.45 J | 15 | 0.55 | < 0.50 U | 0.16 J | < 0.50 U |
| | MW-9C | January 2022 | NA | 0.85 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-9C | Spring 2022 | NA | 2.5 | 0.21 J | 0.14 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-9C | July 2022 | NA | 0.97 | 0.21 J | 0.14 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | PW-1B | January 2022 | 71.4 | 3.2 | 0.63 | 0.12 J | 0.10 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | PW-1B | Spring 2022 | **131** | 0.45 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | PW-1B | Fall 2022 | 47.7 | 2.7 | 0.49 J | 0.19 J | 0.090 J | < 0.50 U | < 0.50 U | < 0.50 U |

**Table 3-3. Summary of Chromium and Selected VOC concentrations in Groundwater Samples - 2022**

| Well Group | Well | Sampling Event | Chromium | TCE | PCE | CFC-11 | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | BDCM |
|---|---|---|---|---|---|---|---|---|---|---|
| TCE Source Wells | AMW-12A | January 2022 | NA | **9.1** | 0.41 J | 1.1 | 0.46 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-13A | January 2022 | NA | 0.37 J | < 0.50 U | 1.5 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-13A | Spring 2022 | NA | 0.12 J | < 0.50 U | 0.99 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-13A | Fall 2022 | NA | < 0.50 U | < 0.50 U | 0.54 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-19A | January 2022 | NA | 0.71 | 0.16 J | 0.78 | 0.090 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-19A | Spring 2022 | NA | 1.5 | 0.34 J | 2.2 | 0.14 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-19A | Fall 2022 | NA | 2.3 | 0.36 J | 4.0 | 0.21 J | < 0.50 U | < 0.50 U | 0.12 J |
| | AMW-1A | January 2022 | NA | **5.1** | 0.17 J | 10 | 0.71 | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-1A | Fall 2022 | NA | 3.8 | < 0.50 U | 11 | 0.61 | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-1B | January 2022 | NA | 0.23 J | < 0.50 U | 0.13 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-1B | Spring 2022 | NA | 0.18 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-1B | Fall 2022 | NA | 0.14 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-1C | January 2022 | NA | 0.14 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-1C | Spring 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-1C | Fall 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-26 | January 2022 | NA | 1.5 | < 0.50 U | 8.7 | 0.31 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-26 | Spring 2022 | NA | 1.5 | < 0.50 U | 13 | 0.29 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-26 | Fall 2022 | NA | 1.6 | 0.11 J | 12 | 0.38 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-2A | January 2022 | NA | **7.2** | 0.98 | 0.64 | 0.33 J | < 0.50 U | 0.30 J | < 0.50 U |
| | AMW-2A | Fall 2022 | NA | **47** | 0.53 | 5.2 | 1.5 | 0.090 J | 1.2 | < 0.50 U |
| | AMW-2B | January 2022 | NA | 0.28 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-2B | Spring 2022 | NA | 0.14 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-2B | Fall 2022 | NA | 0.14 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-3A | January 2022 | NA | 0.53 | 0.27 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-3A | Fall 2022 | NA | 0.78 | 0.37 J | 0.18 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-4A | January 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-4A | Spring 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-4A | Fall 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-52A | January 2022 | NA | < 0.50 U | 0.13 J | 1.2 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-52A | Spring 2022 | NA | < 0.50 U | < 0.50 U | 1.2 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-52A | Fall 2022 | NA | < 0.50 U | < 0.50 U | 0.63 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-53A | January 2022 | NA | **9.1** | 0.57 | 7.6 | 1.2 | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-53A | Fall 2022 | 7.1 J | **7.7** | 0.37 J | 6.2 | 0.78 | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-56A | Fall 2022 | NA | 3.5 | 0.47 J | 3.2 | 0.38 J | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-1A | January 2022 | NA | 0.52 | < 0.50 U | 0.17 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-1A | Spring 2022 | NA | 0.45 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-1A | Fall 2022 | NA | 0.13 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-1B | January 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-1B | Fall 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-1C | January 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-1C | Spring 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-1C | Fall 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| TCE Upgradient Wells (On BOC Property) | AMW-8A | January 2022 | NA | 0.25 J | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-8A | Spring 2022 | NA | 0.61 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | AMW-8A | Fall 2022 | NA | 0.78 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| Troutdale Wells | AMW-24 | January 2022 | NA | **5.2** | < 0.50 U | < 0.50 U | 0.080 J | 0.51 | 1.1 | < 0.50 U |
| | AMW-24 | July 2022 | NA | 4.9 | < 0.50 U | < 0.50 U | < 0.50 U | 0.49 J | 0.85 | < 0.50 U |
| | AMW-24 | Fall 2022 | NA | 4.3 | < 0.50 U | < 0.50 U | < 0.50 U | 0.45 J | 0.94 | < 0.50 U |
| | Bennett | Spring 2022 | NA | 0.75 | < 0.50 U | < 0.50 U | < 0.50 U | 0.090 J | 0.18 J | < 0.50 U |
| | Bennett | Fall 2022 | NA | 1.9 | < 0.50 U | < 0.50 U | < 0.50 U | 0.19 J | 0.43 J | < 0.50 U |
| | MW-33 | January 2022 | NA | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| | MW-33 | July 2022 | NA | 1.9 | < 0.50 U | < 0.50 U | < 0.50 U | 0.21 J | 0.36 J | < 0.50 U |
| Cleanup or Guidance Level | | | 80 | 5 | 5 | 2,400 | 200 | 1 | 70 | 1 |

NOTES:

Only commonly detected VOCs are included in this table

Results are in micrograms per liter (µg/L).

Results in **blue bold** exceed the established cleanup or guidance level for the compound.

Results with beige highlight are for dissolved chromium rather than total.

The concentrations listed in the table are the maximum of the primary and duplicate samples (as applicable).

1,1,1-TCA = 1,1,1-Tricholoroethane

1,1-DCE = 1,1-Dichloroethene

1,2-DCA = 1,2-Dichloroethane

BDCM = Bromodichloromethane

CDBM = Dibromochloromethane

CFC-11 = Trichlorofluoromethane

Cis-1,2-DCE = cis-1,2-Dichloroethene

DBCP = 1,2-Dibromo-3-chloropropane

E = The result is an estimated concentration because the value exceeded the instrument calibration range.

Freon 10 = Tetrachloromethane

HCBD = Hexachlorobutadiene

J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.

NA = The sample was not analyzed for the specified compound.

PCE = Tetrachloroethene

TCE = Trichloroethene

U = Analyte not detected above the specified reporting limit.

* = Filtered sample, unfiltered sample result 398 (µg/L).

## Table 3-4 Phase II In-Situ Injection Performance Monitoring

| Area | Performance Well Location | Upgradient Treatment Row # | Sample Date | Pre- or Post Injection Event | Primary Parameters | | Field Parameters | | Breakdown Products | | | Concentration (ug/L) | | | | Molar Concentration (µM) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | TCE (µg/L) | Cr (µg/L) | DO (mg/L) | ORP (mV) | Cis-DCE (µg/L) | Trans-DCE (µg/L) | Vinyl Chloride (µg/L) | TCE (µg/L) | Cis-DCE (µg/L) | Trans-DCE (µg/L) | Vinyl Chloride (µg/L) | TCE (µM) | Cis-DCE (µM) | Trans-DCE (µM) | Vinyl Chloride (µM) | Total | Change from Baseline Event |
| AOC-1 | MW-1A | 11 | Oct-19 | Pre | 15 | -- | -- | -- | 0.50 U | 0.50 U | 0.50 U | 15 | -- | -- | -- | 0.11 | -- | -- | -- | 0.115 | |
| | | | Apr-20 | | 4.8 | -- | -- | -- | 0.50 U | 0.50 U | 0.50 U | 4.8 | -- | -- | -- | 0.04 | -- | -- | -- | 0.037 | |
| | | | Oct-20 | Post | NS | -- | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Feb-21 | | 0.41 J | -- | 50 | 301 | 0.50 U | 0.50 U | 0.50 U | 0.41 | -- | -- | -- | 0.00 | -- | -- | -- | 0.003 | -97% |
| | | | Apr-21 | | 0.24 J | -- | | | 0.50 U | 0.50 U | 0.50 U | 0.24 | -- | -- | -- | 0.00 | -- | -- | -- | 0.002 | -98% |
| | | | Jul-21 | | 0.44 J | -- | | | 0.50 U | 0.50 U | 0.50 U | 0.44 | -- | -- | -- | 0.00 | -- | -- | -- | 0.003 | -97% |
| | | | Oct-21 | | 0.32 J | -- | 4.79 | 279.1 | 0.50 U | 0.50 U | 0.50 U | 0.32 | -- | -- | -- | 0.00 | -- | -- | -- | 0.002 | -98% |
| | | | Jan-22 | | 0.52 | -- | 4.5 | 16.6 | < 0.50 U | < 0.50 U | < 0.50 U | 0.52 | -- | -- | -- | 0.00 | -- | -- | -- | 0.004 | -97% |
| | | | Apr-22 | | 0.45 J | -- | 3.03 | 166.4 | < 0.50 U | < 0.50 U | < 0.50 U | 0.45 | -- | -- | -- | 0.00 | -- | -- | -- | 0.003 | -97% |
| | | | Oct-22 | | 0.13 J | -- | 4.05 | 186.5 | < 0.50 U | < 0.50 U | < 0.50 U | 0.13 | -- | -- | -- | 0.00 | -- | -- | -- | 0.001 | -99% |
| | AMW-1A | 13 | Oct-19 | Pre | 21 | -- | -- | -- | 0.23 J | 0.50 U | 0.50 U | 21 | 0.23 | -- | -- | 0.16 | 0.002 | -- | -- | 0.163 | |
| | | | Apr-20 | | 9.2 | -- | -- | -- | 0.13 J | 0.50 U | 0.50 U | 9.2 | 0.13 | -- | -- | 0.07 | 0.001 | -- | -- | 0.072 | |
| | | | Oct-20 | Post | DRY | -- | DRY | DRY | DRY | DRY | DRY | | -- | -- | -- | | -- | -- | -- | NS | DRY |
| | | | Feb-21 | | 4.8 | -- | 11.64 | 252.7 | 12 | 0.50 U | 0.50 U | 4.8 | 12 | -- | -- | 0.04 | 0.124 | -- | -- | 0.160 | -1% |
| | | | Apr-21 | | 6.2 | -- | 5.04 | 121.3 | 0.5 U | 0.5 U | 0.5 U | 6.2 | -- | -- | -- | 0.05 | -- | -- | -- | 0.047 | -71% |
| | | | Jul-21 | | 5.3 | -- | | | 0.5 U | 0.5 U | 0.5 U | 5.3 | -- | -- | -- | 0.04 | -- | -- | -- | 0.040 | -75% |
| | | | Oct-21 | | 15 | -- | 3.86 | 187.6 | 0.21 J | 0.5 U | 0.5 U | 15 | 0.21 | -- | -- | 0.11 | 0.002 | -- | -- | 0.117 | -28% |
| | | | Jan-22 | | 5.1 | -- | 9.24 | 120.3 | < 0.50 U | < 0.50 U | < 0.50 U | 5.1 | -- | -- | -- | 0.04 | -- | -- | -- | 0.039 | -76% |
| | | | Nov-22 | | 3.8 | -- | 15.16 | 0.006 | < 0.50 U | < 0.50 U | < 0.50 U | 3.8 | -- | -- | -- | 0.03 | -- | -- | -- | 0.029 | -82% |
| | AMW-2A | 14 | Oct-19 | Pre | 12 J | -- | -- | -- | 0.080 J | 0.50 U | 0.50 U | 12.00 | 0.08 | -- | -- | 0.09 | 0.001 | -- | -- | 0.092 | |
| | | | Apr-20 | | 37 | -- | -- | -- | 0.54 | 0.50 U | 0.50 U | 37 | 0.54 | -- | -- | 0.28 | 0.006 | -- | -- | 0.288 | |
| | | | Oct-20 | Post | DRY | -- | DRY | DRY | DRY | DRY | DRY | -- | -- | -- | -- | -- | -- | -- | -- | NS | DRY |
| | | | Feb-21 | | 6.3 | -- | 9.18 | 233.4 | 0.23 J | 0.50 U | 0.50 U | 6.3 | 0.23 | -- | -- | 0.05 | 0.002 | -- | -- | 0.050 | -45% |
| | | | Apr-21 | | 54 | -- | | | 0.47 J | 0.50 U | 0.50 U | 54 | 0.47 | -- | -- | 0.41 | 0.005 | -- | -- | 0.417 | 351% |
| | | | Jul-21 | | 52 | -- | | | 0.61 | 0.50 U | 0.50 U | 52 | 0.61 | -- | -- | 0.40 | 0.006 | -- | -- | 0.403 | 336% |
| | | | Oct-21 | | 47 | -- | 3 | 301.8 | 0.38 J | 0.50 U | 0.50 U | 47 | 0.38 | -- | -- | 0.41 | 0.004 | -- | -- | 0.416 | 350% |
| | | | Jan-22 | | 7.2 | -- | 4.5 | 47.2 | 0.30 J | < 0.50 U | < 0.50 U | 7.2 | 0.3 | -- | -- | 0.05 | 0.003 | -- | -- | 0.058 | -37% |
| | | | Nov-22 | | 47 | -- | 11.46 | 309.3 | 1.2 | < 0.50 U | < 0.50 U | 47 | 1.2 | -- | -- | 0.36 | 0.012 | -- | -- | 0.371 | 302% |
| | AMW-12A | 14 | Oct-19 | Pre | 21 | -- | -- | -- | 0.15 J | 0.50 U | 0.50 U | 21 | 0.15 | 0.15 | -- | 0.16 | 0.002 | 0.00 | -- | 0.163 | |
| | | | Apr-20 | | 20 | -- | -- | -- | 0.17 J | 0.50 U | 0.50 U | 20 | 0.17 | -- | -- | 0.15 | 0.002 | -- | -- | 0.154 | |
| | | | Oct-20 | Post | 12 | 8.4 U | 8.34 | 120.7 | 0.15 J | 0.50 U | 0.50 U | 12 | 0.15 | -- | -- | 0.09 | 0.002 | -- | -- | 0.093 | -43% |
| | | | Feb-21 | | 11 | -- | 7.32 | 96.7 | 0.090 J | 0.50 U | 0.50 U | 11 | 0.09 | -- | -- | 0.08 | 0.001 | -- | -- | 0.085 | -48% |
| | | | Apr-21 | | 12 | 0.9 U | -- | -- | 0.18 J | 0.50 U | 0.50 U | 12 | 0.18 | -- | -- | 0.09 | 0.002 | -- | -- | 0.093 | -43% |
| | | | Jul-21 | | 6.6 | -- | 5.5 | 90.6 | 0.16 J | 0.50 U | 0.50 U | 6.6 | 0.16 | -- | -- | 0.05 | 0.002 | -- | -- | 0.052 | -68% |
| | | | Oct-21 | | 5.6 | -- | 3.74 | 158.6 | 0.5 U | 0.50 U | 0.50 U | 5.6 | -- | -- | -- | 0.04 | -- | -- | -- | 0.043 | -74% |
| | | | Jan-22 | | 9.1 | -- | 2.99 | -17.1 | < 0.50 U | < 0.50 U | < 0.50 U | 9.1 | -- | -- | -- | 0.07 | -- | -- | -- | 0.069 | -57% |
| | | | Nov-22 | | DRY | -- | DRY | DRY | DRY | DRY | DRY | -- | -- | -- | -- | -- | -- | -- | -- | NS | DRY |
| AOC-2 | MW-20D | 1 | Apr-20 | Pre | 17 | -- | 4.93 | 110.3 | 0.21 J | 0.50 U | 0.50 U | 17 | 0.21 | -- | -- | 0.13 | 0.002 | -- | -- | 0.132 | |
| | | | Oct-20 | Post | 12 | 59.9 | 1.57 | 95.1 | 0.50 U | 0.50 U | 0.50 U | 12 | -- | -- | -- | 0.09 | -- | -- | -- | 0.092 | -31% |
| | | | Feb-21 | | 6.9 | 79.2 | 1.02 | 162.0 | 0.50 U | 0.50 U | 0.50 U | 6.9 | -- | -- | -- | 0.05 | -- | -- | -- | 0.053 | -60% |
| | | | Apr-21 | | 11 | 86.4 | 0.25 | 111.3 | 0.1 J | 0.50 U | 0.50 U | 11 | 0.10 | -- | -- | 0.08 | 0.001 | -- | -- | 0.085 | -36% |
| | | | Jul-21 | | 6.8 | 81.5 | 0.36 | 114.1 | 0.50 U | 0.50 U | 0.50 U | 6.8 | -- | -- | -- | 0.05 | -- | -- | -- | 0.052 | -61% |
| | | | Oct-21 | | 9.4 | 115 | 0.88 | 45.5 | 0.50 U | 0.50 U | 0.50 U | 9.4 | -- | -- | -- | 0.07 | -- | -- | -- | 0.072 | -46% |
| | | | Jan-22 | | 8.3 | 74.5 | 1.18 | 86.8 | < 0.50 U | < 0.50 U | < 0.50 U | 8.3 | -- | -- | -- | 0.06 | -- | -- | -- | 0.063 | -52% |
| | | | Jul-22 | | 12 | 144 | 0.44 | 79.4 | < 0.50 U | < 0.50 U | < 0.50 U | 12 | -- | -- | -- | 0.09 | -- | -- | -- | 0.092 | -31% |
| | | | Nov-22 | | 11 | 137 | -0.13 | 43.6 | < 0.50 U | < 0.50 U | < 0.50 U | 11 | -- | -- | -- | 0.08 | -- | -- | -- | 0.084 | -36% |
| | MW-38 | 2 | Oct-19 | Pre | 28 | -- | -- | -- | 0.50 U | 0.50 U | 0.50 U | 28 | -- | -- | -- | 0.21 | -- | -- | -- | 0.214 | |
| | | | Oct-20 | Post | 12 | 4.7 J | 0.96 | 150.6 | 0.50 U | 0.50 U | 0.50 UJ | 12 | -- | -- | -- | 0.09 | -- | -- | -- | 0.092 | -57% |
| | | | Feb-21 | | 14 | -- | 1.30 | 191.3 | 0.50 U | 0.50 U | 0.50 U | 14 | -- | -- | -- | 0.11 | -- | -- | -- | 0.107 | -50% |
| | | | Apr-21 | | 22 | -- | | | 0.50 U | 0.50 U | 0.50 U | 22 | -- | -- | -- | 0.17 | -- | -- | -- | 0.168 | -21% |
| | | | Jul-21 | | 27 | -- | | | 0.50 U | 0.50 U | 0.50 U | 27 | -- | -- | -- | 0.21 | -- | -- | -- | 0.206 | -4% |
| | | | Oct-21 | | 25 | -- | | | 0.50 U | 0.50 U | 0.50 U | 25 | -- | -- | -- | 0.19 | -- | -- | -- | 0.191 | -11% |
| | | | Apr-22 | | 17 | -- | | | < 0.50 U | < 0.50 U | < 0.50 U | 17 | -- | -- | -- | 0.13 | -- | -- | -- | 0.130 | -39% |
| | | | Nov-22 | | 12 | -- | | | < 0.50 U | < 0.50 U | < 0.50 U | 12 | -- | -- | -- | 0.09 | -- | -- | -- | 0.092 | -57% |
| | PZ-39 | 2 | Oct-19 | Pre | 33 | -- | -- | -- | 0.58 | 0.50 U | 0.50 U | 33 | 0.58 | -- | -- | 0.25 | 0.006 | -- | -- | 0.258 | |
| | | | Oct-20 | Post | 42 | 3.2 J | 1.26 | 107.2 | 0.57 | 0.50 U | 0.50 U | 42 | 0.57 | -- | -- | 0.32 | 0.006 | -- | -- | 0.326 | 27% |
| | | | Feb-21 | | 36 | 15.0 | 0.90 | 331.1 | 0.51 | 0.50 U | 0.50 U | 36 | 0.51 | -- | -- | 0.27 | 0.01 | -- | -- | 0.280 | 9% |
| | | | Apr-21 | | 39 | 6.5 | 0.03 | 90.5 | 1.8 | 0.50 U | 0.50 U | 39 | 1.8 | -- | -- | 0.30 | 0.02 | -- | -- | 0.316 | 23% |
| | | | Jul-21 | | 42 | 7.8 | 0.14 | -101.3 | 5.6 | 0.50 U | 0.50 U | 42 | 5.6 | -- | -- | 0.32 | 0.06 | -- | -- | 0.378 | 47% |
| | | | Oct-21 | | 37 | -- | 0.48 | -89.4 | 8 | 0.50 U | 0.50 U | 37 | 8 | -- | -- | 0.28 | 0.082 | -- | -- | 0.365 | 42% |
| | | | Jan-22 | | 41 | -- | 0.03 | -38.1 | 89 E | < 0.50 U | < 0.50 U | 41 | 89 | -- | -- | 0.31 | 0.918 | -- | -- | 1.231 | 377% |
| | | | Jul-22 | | 45 | 4.9 J | 0.37 | 60.8 | 0.31 J | < 0.50 U | < 0.50 U | 45 | 0.31 | -- | -- | 0.34 | 0.003 | -- | -- | 0.347 | 34% |
| | | | Nov-22 | | 28 | -- | 1.56 | -26.3 | 0.9 | < 0.50 U | < 0.50 U | 28 | 0.9 | -- | -- | 0.21 | 0.009 | -- | -- | 0.223 | -14% |
| | MW-19D | 3 | Oct-19 | Pre | 15 | 87.5 | 3.44 | 128.5 | 0.15 J | 0.50 U | 0.50 U | 15 | 0.15 | -- | -- | 0.11 | 0.002 | -- | -- | 0.116 | |
| | | | Jan-20 | Post | 3.5 | 119 | 1.44 | 128.9 | 0.50 U | 0.50 U | 0.50 U | 3.5 | -- | -- | -- | 0.03 | -- | -- | -- | 0.027 | -77% |
| | | | Apr-20 | | 4.3 | 171 | 1.05 | 145.3 | 0.50 U | 0.50 U | 0.50 U | 4.3 | -- | -- | -- | 0.03 | -- | -- | -- | 0.033 | -72% |
| | | | Oct-20 | | 45 | 38.4 | 0.39 | -173.7 | 3.5 | 1.1 | 0.50 U | 45 | 3.5 | 1.1 | -- | 0.34 | 0.036 | 0.01 | -- | 0.391 | 237% |
| | | | Feb-21 | | 7.7 | 122 | 0.81 | 281.8 | 1.7 | 0.21 J | 0.50 U | 7.7 | 1.7 | 0.21 | -- | 0.06 | 0.018 | 0.00 | -- | 0.078 | -32% |
| | | | Apr-21 | | 9.2 | 59.6 | 0.01 | 40 | 4.3 | 0.29 J | 0.50 U | 9.2 | 4.3 | 0.29 | -- | 0.07 | 0.044 | 0.00 | -- | 0.118 | 1% |
| | | | Jul-21 | | 6 | 66.1 | 0.07 | -17.2 | 6.8 | 0.1 J | 0.50 U | 6 | 6.8 | 0.1 | -- | 0.05 | 0.070 | 0.00 | -- | 0.117 | 1% |
| | | | Oct-21 | | 7.4 | 63.2 | 0.43 | 8.5 | 1.1 | 0.5 U | 0.50 U | 7.4 | 1.1 | -- | -- | 0.06 | 0.011 | -- | -- | 0.068 | -42% |
| | | | Jan-22 | | 0.21 J | 10.5 | 7.96 | 99.3 | < 0.50 U | < 0.50 U | < 0.50 U | 0.21 | -- | -- | -- | 0.00 | -- | -- | -- | 0.002 | -99% |
| | | | Jul-22 | | 1.2 | 9.6 | 0.38 | 90.8 | 0.10 J | < 0.50 U | < 0.50 U | 1.2 | 0.1 | -- | -- | 0.01 | 0.001 | -- | -- | 0.010 | -91% |
| | | | Nov-22 | | 3.7 | 6.2 J | 1.51 | 88.3 | 0.97 | < 0.50 U | 0.42 J | 3.7 | 0.97 | -- | 0.42 | 0.03 | 0.010 | -- | 0.01 | 0.045 | -61% |
| | MW-18D | 6 | Oct-18 | Pre | 49 | 127 | 3.2 | 155.8 | 0.070 J | 0.50 U | 0.50 U | 49 | 0.07 | -- | -- | 0.37 | 0.001 | -- | -- | 0.375 | |
| | | | Apr-19 | Post | 2.2 | 65.6 | -- | -- | 0.5 U | 0.5 U | 0.5 U | 2.2 | -- | -- | -- | 0.02 | -- | -- | -- | 0.017 | -96% |
| | | | Oct-19 | | 2.9 | 74.2 | 0.11 | 86.9 | 0.52 | 0.50 U | 0.50 U | 2.9 | 0.52 | -- | -- | 0.02 | 0.005 | -- | -- | 0.027 | -93% |
| | | | Jan-20 | | 4.8 | 47.9 | 0.02 | 81.7 | 2.4 | 0.50 U | 0.50 U | 4.8 | 2.4 | -- | -- | 0.04 | 0.025 | -- | -- | 0.061 | -84% |
| | | | Apr-20 | | 3 | 89.8 | 0.65 | 93.4 | 1.2 | 0.50 U | 0.50 U | 3 | 1.2 | -- | -- | 0.02 | 0.012 | -- | -- | 0.035 | -91% |
| | | | Oct-20 | | 3.1 | 15.8 | 0.4 | 14.7 | 2.1 | 0.50 U | 0.50 U | 3.1 | 2.1 | -- | -- | 0.02 | 0.022 | -- | -- | 0.045 | -88% |
| | | | Feb-21 | | 3.4 | 25.7 | 0.83 | 25.8 | 3.8 | 0.50 U | 0.50 U | 3.4 | 3.8 | -- | -- | 0.03 | 0.039 | -- | -- | 0.065 | -83% |
| | | | Apr-21 | | 3.5 | 158 | 0.007 | 1.9 | 4 | 0.50 U | 0.50 U | 3.5 | 4 | -- | -- | 0.03 | 0.041 | -- | -- | 0.068 | -82% |
| | | | Jul-21 | | 3.6 | 177 | 0.01 | 9.4 | 6.9 | 0.50 U | 0.09 J | 3.6 | 6.9 | -- | 0.09 | 0.03 | 0.071 | -- | -- | 0.099 | -74% |
| | | | Oct-21 | | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Apr-22 | | 2.8 | 3.26 | 0.67 | 23.9 | 0.12 J | < 0.50 U | < 0.50 U | 2.8 | 0.12 | -- | -- | 0.02 | 0.001 | -- | -- | 0.023 | -94% |
| | | | Nov-22 | | 4 | 139 | 0.05 | 27 | < 0.50 U | < 0.50 U | < 0.50 U | 4 | -- | -- | -- | 0.03 | -- | -- | -- | 0.031 | -92% |
| | MW-18E | 6 | Oct-18 | Pre | 150 | -- | 0.01 | -162.1 | 31 | 0.84 | 0.56 | 150 | 31 | 0.84 | 0.56 | 1.15 | 0.320 | 0.01 | 0.01 | 1.482 | |
| | | | Apr-19 | Post | 1.8 | 11.2 | -- | -- | 11 | 0.09 J | 2.1 | 1.8 | 11 | 0.09 | 2.1 | 0.01 | 0.113 | 0.00 | 0.03 | 0.162 | -89% |
| | | | Oct-19 | | 0.7 | 69.2 | 0.13 | -168.2 | 3.8 | 0.50 U | 2.2 | 0.7 | 3.8 | -- | 2.2 | 0.01 | 0.039 | -- | 0.04 | 0.080 | -95% |
| | | | Apr-20 | | 0.25 J | 8.4 U | 0.42 | -102.1 | 1.3 | 0.50 U | 1.7 | 0.25 | 1.3 | -- | 1.7 | 0.00 | 0.013 | -- | 0.03 | 0.043 | -97% |
| | | | Oct-20 | | 0.24 J | 2.9 J | 0.32 | -127.8 | 0.5 | 0.18 J | 1.1 | 0.24 | 0.5 | 0.18 | 1.1 | 0.00 | 0.005 | 0.00 | 0.02 | 0.026 | -98% |
| | | | Feb-21 | | 0.22 J | 8.4 U | 0.85 | -127.8 | 0.74 | 0.47 J | 1.5 | 0.22 | 0.74 | 0.47 | 1.5 | 0.00 | 0.008 | 0.00 | 0.02 | 0.038 | -97% |
| | | | Apr-21 | | 0.5 J | -- | -- | -- | 0.69 | 1.4 | 0.91 | 0.50 | 0.69 | 1.4 | 0.91 | 0.00 | 0.007 | 0.01 | 0.01 | 0.040 | -97% |
| | | | Jul-21 | | 0.4 J | -- | 1.09 | 47.4 | 0.32 J | 1.7 | 0.43 J | 0.40 | 0.32 | 1.7 | 0.43 | 0.00 | 0.003 | 0.02 | 0.01 | 0.031 | -98% |
| | | | Oct-21 | | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Apr-22 | | 0.94 | 1.62 | 0.48 | 77.2 | 0.56 | 2.4 | 0.67 | 0.94 | 0.56 | 2.4 | 0.67 | 0.01 | 0.006 | 0.02 | 0.01 | 0.048 | -97% |
| | | | Nov-22 | | 0.41 J | < 8.4 U | 0.21 | -165.3 | 0.22 J | 1.9 | 0.68 | 0.41 | 0.22 | 1.9 | 0.68 | 0.00 | 0.002 | 0.02 | 0.01 | 0.036 | -98% |
| | AMW-59 | 8 | Oct-19 | Pre | 45 | -- | -- | -- | 4.2 | 0.68 | 0.12 J | 45 | 4.2 | 0.68 | 0.12 | 0.34 | 0.043 | 0.01 | 0.00 | 0.396 | |
| | | | Jan-20 | Post | 41 | 70.9 | 0.01 | -97.8 | 6.8 | 0.47 J | 0.27 J | 41 | 6.8 | 0.47 | 0.27 | 0.31 | 0.070 | 0.00 | 0.00 | 0.392 | -1% |
| | | | Apr-20 | | 14 | 100 | 0.46 | 41.8 | 12 | 0.40 J | 0.52 | 14 | 12 | 0.40 | 0.52 | 0.11 | 0.124 | 0.00 | 0.01 | 0.243 | -39% |
| | | | Oct-20 | | 3.1 | 18.2 | 1.28 | -114.5 | 23 | 0.41 J | 1.9 | 3.1 | 23 | 0.41 | 1.9 | 0.02 | 0.237 | 0.00 | 0.03 | 0.295 | -25% |
| | | | Feb-21 | | 16 | 11.6 | 0.73 | 223.6 | 18 | 0.7 | 5.7 | 16 | 18 | 0.7 | 5.7 | 0.12 | 0.186 | 0.01 | 0.09 | 0.406 | 3% |
| | | | Apr-21 | | 6 | 12.2 | 0.01 | 148.9 | 11 | 0.52 | 5.7 | 6 | 11 | 0.52 | 5.7 | 0.05 | 0.113 | 0.01 | 0.09 | 0.256 | -35% |
| | | | Jul-21 | | 9.3 | 11.1 | 0.02 | -196.8 | 17 | 0.74 | 3.5 | 9.3 | 17 | 0.74 | 3.5 | 0.07 | 0.175 | 0.01 | 0.06 | 0.310 | -22% |
| | | | Oct-21 | | 0.4 J | -- | -- | -- | 5.7 | 0.46 J | 4.7 | 0.4 | 5.7 | 0.46 | 4.7 | 0.00 | 0.059 | 0.00 | 0.08 | 0.142 | -64% |
| | | | Jan-22 | | < 0.50 U | -- | 0.05 | -134.6 | < 0.50 U | 0.44 J | < 0.50 U | -- | -- | 0.44 | -- | -- | -- | 0.00 | -- | 0.005 | -99% |
| | | | Jul-22 | | < 0.50 U | -- | 0.36 | -91.4 | 0.13 J | 0.31 J | < 0.50 U | -- | 0.13 | 0.31 | -- | -- | 0.001 | 0.00 | -- | 0.005 | -99% |
| | | | Nov-22 | | < 0.50 U | -- | 1.6 | -166.2 | 0.31 J | < 0.50 U | < 0.50 U | -- | 0.31 | -- | -- | -- | 0.003 | -- | -- | 0.003 | -99% |
| | MW-14C | 8 | Oct-19 | Pre | 5.9 | 48.1 | 7.45 | 164.1 | 0.50 U | 0.50 U | 0.50 U | 5.9 | -- | -- | -- | 0.05 | -- | -- | -- | 0.045 | |
| | | | Jan-20 | Post | 3.9 | 62.9 | 3.31 | 14.14 | 0.50 U | 0.50 U | 0.50 U | 3.9 | -- | -- | -- | 0.03 | -- | -- | -- | 0.030 | -34% |
| | | | Apr-20 | | 2.6 | 73.8 | 3.01 | 54.4 | 0.16 J | 0.50 U | 0.50 U | 2.6 | 0.16 | -- | -- | 0.02 | 0.002 | -- | -- | 0.021 | -52% |
| | | | Oct-20 | | 2.4 | 10.2 | 1.33 | 70.7 | 0.50 U | 0.50 U | 0.50 U | 2.4 | -- | -- | -- | 0.02 | -- | -- | -- | 0.018 | -59% |
| | | | Feb-21 | | 2.9 | 74.6 | 1.55 | 398.3 | 0.50 U | 0.50 U | 0.50 U | 2.9 | -- | -- | -- | 0.02 | -- | -- | -- | 0.022 | -51% |
| | | | Apr-21 | | 2.8 | 84.1 | 0.13 | 98.2 | 0.08 J | 0.50 U | 0.50 U | 2.8 | 0.08 | -- | -- | 0.02 | 0.001 | -- | -- | 0.022 | -51% |
| | | | Jul-21 | | 2.8 | -- | 0.09 | 56.6 | 0.50 U | 0.50 U | 0.50 U | 2.8 | -- | -- | -- | 0.02 | -- | -- | -- | 0.021 | -53% |
| | | | Oct-21 | | 2.5 | 37.7 | 1.46 | 95.5 | 0.50 U | 0.50 U | 0.50 U | 2.5 | -- | -- | -- | 0.02 | -- | -- | -- | 0.019 | -58% |
| | | | Jan-22 | | 3.1 | 89.1 | 0.06 | 46.8 | < 0.50 U | < 0.50 U | < 0.50 U | 3.1 | -- | -- | -- | 0.02 | -- | -- | -- | 0.024 | -47% |
| | | | Nov-22 | | 4.2 | 67.8 | 1.43 | 27.1 | 0.080 J | < 0.50 U | < 0.50 U | 4.2 | 0.08 | -- | -- | 0.03 | 0.001 | -- | -- | 0.033 | -27% |
| | MW-14E | 8 | Oct-19 | Pre | 39 | 27.5 | 5.8 | 136.8 | 2 | 0.30 J | 0.50 U | 39 | 2 | 0.30 | -- | 0.30 | 0.021 | 0.00 | -- | 0.321 | |
| | | | Jan-20 | Post | 6.7 | 38.1 | 0.83 | 139.2 | 0.070 J | 0.50 U | 0.50 U | 6.7 | 0.07 | -- | -- | 0.05 | 0.001 | -- | -- | 0.052 | -84% |
| | | | Apr-20 | | 9.6 | 54.4 | 0.8 | 55.3 | 0.15 J | 0.50 U | 0.50 U | 9.6 | 0.15 | -- | -- | 0.07 | 0.002 | -- | -- | 0.075 | -77% |
| | | | Oct-20 | | 9.2 | 173 | 6.13 | 90.4 | 0.14 J | 0.50 U | 0.50 U | 9.2 | 0.14 | -- | -- | 0.07 | 0.001 | -- | -- | 0.072 | -78% |
| | | | Feb-21 | | 10 | 166 | 6.07 | 417.7 | 0.24 J | 0.50 U | 0.50 U | 10 | 0.24 | -- | -- | 0.08 | 0.002 | -- | -- | 0.079 | -75% |
| | | | Apr-21 | | 8.4 | 234 | 0.13 | 98.2 | 0.2 J | 0.50 U | 0.50 U | 8.4 | 0.2 | -- | -- | 0.06 | 0.002 | -- | -- | 0.066 | -79% |
| | | | Jul-21 | | 12 | 176 | 0.56 | 82.9 | 0.14 J | 0.50 U | 0.50 U | 12 | 0.14 | -- | -- | 0.09 | 0.001 | -- | -- | 0.093 | -71% |
| | | | Oct-21 | | 19 | 192 | 4.19 | 28.25 | 0.58 | 0.50 U | 0.50 U | 19 | 0.58 | -- | -- | 0.15 | 0.006 | -- | -- | 0.151 | -53% |
| | | | Jan-22 | | 18 | 146 | 0.04 | 84 | 0.41 J | < 0.50 U | < 0.50 U | 18 | 0.41 | -- | -- | 0.14 | 0.004 | -- | -- | 0.142 | -56% |
| | | | Nov-22 | | 19 | 207 | 6.01 | 89.7 | 0.47 J | < 0.50 U | < 0.50 U | 19 | 0.47 | -- | -- | 0.15 | 0.005 | -- | -- | 0.150 | -53% |

Notes:
mg/L = Milligram(s) per liter
µg/L = Microgram(s) per liter
AOC = Area of concern
NA = Not applicable
NS = Not sampled due to field conditions
U = not Detected
J = Result estimated
* = result identified by laboratory as an outlier
TCE = trichloroethene
Cr = chromium

## Table 3-5 Phase II In-Situ Injection Performance Monitoring, Secondary Parameters

| Area | Performance Well Location | Upgradient Treatment Row # | Sample Date | Pre- or Post Injection Event | Secondary Parameters | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Ethane (µg/L) | Ethylene (µg/L) | Methane (µg/L) | TOC (mg/L) | DOC (mg/L) | COD (mg/L) | As (µg/L) | Fe (µg/L) | Diss. Fe (µg/L) | Mg (µg/L) | Mn (µg/L) | Acetic Acid (mg/L) | Butyric Acid (mg/L) | DL-Lactic Acid (mg/L) | Propionic Acid (mg/L) | Pyruvic Acid (mg/L) | Nitrate (mg/L) | Sulfate (mg/L) | Chloride (mg/L) | Alkalinity (mg/L) |
| AOC-1 | AMW-12A | 14 | Oct-19 | Pre | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Apr-20 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Oct-20 | Post | 0.60 U | 1.0 U | 1.3 U | 0.79 | 1.18 | 65 | 21 U | -- | 416 | 6730 | 25.7 | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 1.08 | 11 | 5.51 | -- |
| | | | Feb-21 | | 0.6 | 1 | 10 | 1.1 | 1.09 | 10 U | 21 U | 740 | -- | 2240 | 32.7 | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 0.26 | 2.97 | 3.98 | -- |
| | | | Apr-21 | | < 0.60 U | < 1.0 U | < 1.3 U | 1 | 0.6 | < 10 U | < 21 U | -- | -- | 3570 | 8.8 | 0.77 J | < 2.0 U | < 1.0 U | < 1.0 U | < 0.50 U | 0.79 | 5 | 6.33 | -- |
| | | | Jul-21 | | < 0.60 U | < 1.0 U | 33 | 0.8 | 0.7 | 6 J | < 21 U | -- | 224 | 9630 | 427 | -- | -- | -- | -- | -- | 0.95 | 6.51 | 7.16 | -- |
| | | | Oct-21 | | < 2 U | < 1 U | 1.7 | -- | 3 | < 10 U | < 21 U | -- | -- | 2950 | 0.5 J | -- | -- | -- | -- | -- | 0.86 | 6.14 | -- | -- |
| | | | Jan-22 | | < 2 U | < 1 U | 1.4 | -- | 2 | < 10 U | < 21 U | -- | -- | 5600 | 19.4 | -- | -- | -- | -- | -- | 0.49 | 3.83 | -- | -- |
| | | | Nov-22 | | DRY | DRY | DRY | -- | DRY | DRY | DRY | -- | -- | DRY | DRY | -- | -- | -- | -- | -- | DRY | DRY | -- | -- |
| AOC-2 | MW-20D | 1 | Apr-20 | Pre | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Oct-20 | Post | 0.60 U | 1.0 U | 1.3 U | 0.21 J | 0.55 | 4 J | -- | -- | 25 J | -- | -- | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 1.61 | 17.3 | 4.42 | -- |
| | | | Feb-21 | | 0.6 | 1 | 2.8 | 0.96 | 1.37 | 10 U | 21 U | 953 | 26 J | 15300 | 214 | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 1.42 | 16.5 | 4.4 | -- |
| | | | Apr-21 | | 0.83 | < 1.0 U | 180 | 0.9 | 0.45 J | < 10 U | 5 J | -- | -- | 16300 | 346 | 0.75 J | < 2.0 U | < 1.0 U | < 1.0 U | < 0.50 U | 1.05 | 16.4 | 4.35 | -- |
| | | | Jul-21 | | < 0.60 U | < 1.0 U | 38 | 0.5 | 0.5 | < 10 U | 6 J | -- | 25 J | 14400 | 105 | -- | -- | -- | -- | -- | 1.75 | 14.4 | 4.12 | -- |
| | | | Oct-21 | | < 2 U | < 1 U | < 1 U | -- | 0.8 | < 10 U | < 21 U | -- | 380 | 14900 | 185 | -- | -- | -- | -- | -- | 1.48 | 18.2 | -- | -- |
| | | | Jan-22 | | < 2 U | < 1 U | < 1 U | -- | 1.1 | < 10 U | < 21 U | -- | 9 J | 15300 | 386 | -- | -- | -- | -- | -- | 1.23 | 17.8 | -- | -- |
| | | | Jul-22 | | < 4 U | < 4 U | < 2 U | -- | 0.5 | 25 | 11 J | -- | 14 J | 15700 | 450 | -- | -- | -- | -- | -- | 2.06 | 15 | -- | -- |
| | | | Nov-22 | | < 7.5 U | < 6.1 U | < 2.3 U | -- | 0.11 J | < 10 U | < 21 U | -- | -- | 14500 | 665 | -- | -- | -- | -- | -- | 2.46 | 13 | -- | -- |
| | PZ-39 | 2 | Oct-19 | Pre | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Oct-20 | Post | 0.60 U | 0.36 | 0.73 | 0.56 | 0.71 | 10 U | -- | -- | 14 J | -- | -- | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 1.5 | 18.1 | 4.44 | -- |
| | | | Feb-21 | | 0.6 | 0.29 | 1.2 | -- | -- | -- | 5 J | 1120 | 172 | 19400 | 84.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Apr-21 | | < 0.60 U | < 1.0 U | 1 | 0.9 | 0.48 J | < 10 U | 8 J | -- | -- | 19600 | 95.3 | 0.80 J | < 2.0 U | < 1.0 U | < 1.0 U | < 0.50 U | 1.68 | 18.3 | 4.7 | -- |
| | | | Jul-21 | | < 0.60 U | 0.4 | 2 | 0.8 | 0.7 | < 10 U | < 21 U | -- | 23 J | 19600 | 94 | -- | -- | -- | -- | -- | 1.49 | 18.7 | 4.88 | -- |
| | | | Oct-21 | | < 2 U | 1.2 | < 1 U | -- | 0.8 | 5 J | < 21 U | -- | 33 J | 19200 | 63.4 | -- | -- | -- | -- | -- | 1.84 | 19.4 | -- | -- |
| | | | Jan-22 | | < 2 U | 13 | 8 | -- | 8.8 | 28 | < 21 U | -- | 488 | 14500 | 100 | -- | -- | -- | -- | -- | < 0.10 U | 13.5 | -- | -- |
| | | | Jul-22 | | < 4 U | < 4 U | < 2 U | -- | 0.8 | 40 | 15 J | -- | < 21 U | 19000 | 86.3 | -- | -- | -- | -- | -- | 1.51 | 24.7 | -- | -- |
| | | | Nov-22 | | < 7.5 U | < 6.1 U | < 2.3 U | -- | 0.20 J | < 10 U | < 21 U | -- | -- | 17900 | 55.2 | -- | -- | -- | -- | -- | 1.79 | 25.6 | -- | -- |
| | MW-19D | 3 | Oct-19 | Pre | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Jan-20 | Post | 0.60 U | 1.0 U | 1.3 U | 0.86 | 0.34 J | 14 | 6 J | -- | -- | 12200 | 2930 | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 2.65 | 3.39 | 5.45 | 96 |
| | | | Apr-20 | | 0.60 U | 1.0 U | 1.3 U | 1.08 | 0.86 | 10 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2.84 | 12.5 | 5.42 | 123 |
| | | | Oct-20 | | 4 | 2.2 | 1200 | 68.4 | 69.9 | 166 | 29 | 5510 | 3750 | 25300 | 3450 | 91 | 32 | 1.0 U | 11 | 0.50 U | 1.25 | 9.73 | 6.51 | -- |
| | | | Feb-21 | | 3.1 | 0.35 | 1500 | 9.4 | 7.62 | 23 | 11 J | 1630 | 59 | 19600 | 1900 | 20 | 2.0 U | 1.0 U | 2.2 | 0.50 U | 1.4 | 12.2 | 5.57 | -- |
| | | | Apr-21 | | 3.2 | 1.3 | 1700 | 20.5 | 20.7 | 49 | 10 J | -- | -- | 29500 | 2080 | 45 | < 2.0 U | < 1.0 U | < 1.0 U | < 0.50 U | 1.6 | 11.5 | 5.74 | -- |
| | | | Jul-21 | | 5.6 | 0.59 | 2900 | 10.2 | 12.2 | 27 | < 21 U | -- | 1140 | 25100 | 1560 | -- | -- | -- | -- | -- | 1.14 | 11 | 5.99 | -- |
| | | | Oct-21 | | 9 | 1.1 | 8500 | -- | 1.1 | 4 J | < 21 U | -- | 301 | 19800 | 1560 | -- | -- | -- | -- | -- | 0.93 | 12.7 | -- | -- |
| | | | Jan-22 | | < 2 U | < 1 U | < 1 U | -- | 0.9 | < 10 U | < 21 U | -- | 13 J | 4340 | 38.7 | -- | -- | -- | -- | -- | 7.5 | 6.46 | -- | -- |
| | | | Jul-22 | | NS | NS | NS | -- | NS | NS | NS | -- | -- | NS | NS | -- | -- | -- | -- | -- | NS | NS | -- | -- |
| | | | Nov-22 | | < 7.5 U | < 6.1 U | 2000 | -- | 0.30 J | < 10 U | < 21 U | -- | -- | 4040 | 79 | -- | -- | -- | -- | -- | 0.91 | 14.5 | -- | -- |
| | AMW-59 | 8 | Oct-19 | Pre | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Jan-20 | Post | 0.96 | 1 | 290 | 479 | 435 | 1200 | 21 U | -- | -- | 36600 | 2670 | 170 | 52 | 520 | 19 | 3.4 | 0.10 U | 18.5 | 18.9 | 196 |
| | | | Apr-20 | | 2.1 | 2.3 | 9500 | 677 | 668 | 4570 | -- | -- | -- | -- | -- | 710 | 520 | 5.0 U | 140 | 2.5 U | 0.10 U | 0.40 U | 21.2 | 475 |
| | | | Oct-20 | | 2.1 | 1.4 | 12000 | 15.5 | 10.6 | 101 | 21 U | 40200 | 39000 | 32600 | 1900 | 3.4 | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 0.10 U | 2.27 | 18 | -- |
| | | | Feb-21 | | 1.8 | 2 | 5700 | 5.43 | 4.89 | 20 | 21 U | 22800 | 20400 | 30800 | 1710 | 4.6 | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 0.10 U | 4.75 | 16.5 | -- |
| | | | Apr-21 | | 2.4 | 3.4 | 5200 | 7.9 | 6.3 | 34 | < 21 U | -- | -- | 32400 | 1820 | 10 | < 2.0 U | < 1.0 U | < 1.0 U | < 0.50 U | 0.05 J | 2.32 | 16.3 | -- |
| | | | Jul-21 | | 2.3 | 3.1 | 4600 | 7.1 | 7.2 | 22 | < 21 U | -- | 5070 | 30900 | 1700 | -- | -- | -- | -- | -- | < 0.10 U | 4.69 | 14.7 | -- |
| | | | Oct-21 | | 4 | 7.1 | 12000 | -- | 3.8 | 18 | < 21 U | -- | 7200 | 32100 | 1690 | -- | -- | -- | -- | -- | 0.07 J | 1.3 | -- | -- |
| | | | Jan-22 | | 13 | < 1 U | 13000 | -- | 3 | < 10 U | < 21 U | -- | -- | 30900 | 1670 | -- | -- | -- | -- | -- | < 0.10 U | 0.22 J | -- | -- |
| | | | Jul-22 | | NS | NS | NS | -- | NS | NS | NS | -- | -- | NS | NS | -- | -- | -- | -- | -- | NS | NS | -- | -- |
| | | | Nov-22 | | < 7.5 U | < 6.1 U | 2140 | -- | 0.8 | 5 J | < 21 U | -- | -- | 30300 | 1660 | -- | -- | -- | -- | -- | < 0.10 U | 0.42 | -- | -- |
| | | | Oct-19 | Pre | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Jan-20 | | 0.60 U | 1.0 U | 1.0 J | 0.12 J | 0.21 J | 10 U | 21 U | -- | -- | 10500 | 155 | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 4.51 | 18.6 | 6.8 | 80 |

## Table 3-5 Phase II In-Situ Injection Performance Monitoring, Secondary Parameters

| Area | Performance Well Location | Upgradient Treatment Row # | Sample Date | Pre- or Post Injection Event | Secondary Parameters | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Ethane (µg/L) | Ethylene (µg/L) | Methane (µg/L) | TOC (mg/L) | DOC (mg/L) | COD (mg/L) | As (µg/L) | Fe (µg/L) | Diss. Fe (µg/L) | Mg (µg/L) | Mn (µg/L) | Acetic Acid (mg/L) | Butyric Acid (mg/L) | DL-Lactic Acid (mg/L) | Propionic Acid (mg/L) | Pyruvic Acid (mg/L) | Nitrate (mg/L) | Sulfate (mg/L) | Chloride (mg/L) | Alkalinity (mg/L) |
| | MW-14C | 8 | Apr-20 | Post | 0.60 U | 1.0 U | 4.4 | 0.62 | 0.57 | 9 J | -- | -- | -- | -- | -- | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 4.29 | 34.2 | 8 | 71 |
| | | | Oct-20 | | 1.4 | 1.0 U | 750 | 0.50 U | 0.84 | 51 | 21 U | -- | 14 J | 10100 | 305 | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 4.34 | 19 | 7.01 | -- |
| | | | Feb-21 | | 0.88 | 1 | 670 | 1.07 | 1.07 | 10 U | 21 U | 262 | 22 J | 10300 | 372 | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 4.08 | 30.7 | 8.02 | -- |
| | | | Apr-21 | | 0.22 | < 1.0 U | 140 | 0.5 | 0.36 J | 4 J | < 21 U | -- | -- | 9590 | 138 | 0.60 J | < 2.0 U | < 1.0 U | < 1.0 U | < 0.50 U | 3.7 | 24.8 | 7.52 | -- |
| | | | Jul-21 | | 0.51 | < 1.0 U | 390 | 0.5 | 0.6 | 5 J | < 21 U | -- | 36 J | 9650 | 169 | -- | -- | -- | -- | -- | 3.23 | 22.1 | 7.62 | -- |
| | | | Oct-21 | | 2 | < 1 U | 1600 | -- | 0.7 | < 10 U | < 21 U | -- | 12 J | 9190 | 99.6 | -- | -- | -- | -- | -- | 3.2 | 20.6 | -- | -- |
| | | | Jan-22 | | < 2 U | < 1 U | 1400 | -- | 1.1 | < 10 U | < 21 U | -- | -- | 9110 | 156 | -- | -- | -- | -- | -- | 3.08 | 20.5 | -- | -- |
| | | | Nov-22 | | < 7.5 U | < 6.1 U | 133 | -- | 0.24 J | < 10 U | < 21 U | -- | -- | 7780 | 157 | -- | -- | -- | -- | -- | 3.18 | 27 | -- | -- |
| | MW-14E | 8 | Oct-19 | Pre | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Jan-20 | Post | 0.60 U | 1.0 U | 0.57 J | 0.44 J | 0.93 | 10 U | 21 U | -- | -- | 14200 | 1030 | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 1.61 | 13 | 4.07 | 141 |
| | | | Apr-20 | | 0.60 U | 1.0 U | 1.5 | 0.47 J | 0.51 | 5 J | -- | -- | -- | -- | -- | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 1.55 | 11.5 | 3.96 | 140 |
| | | | Oct-20 | | 0.60 U | 1.0 U | 2.8 | 0.16 J | 0.7 | 4 J | 21 U | -- | 57 | 10900 | 353 | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 2.5 | 31.1 | 5.33 | -- |
| | | | Feb-21 | | 0.6 | 1 | 0.75 | 0.59 | 0.93 | 10 U | 21 U | 553 | 22 J | 10400 | 2500 | 1.0 U | 2.0 U | 1.0 U | 1.0 U | 0.50 U | 2.56 | 31.7 | 5.71 | -- |
| | | | Oct-21 | | < 2 U | < 1 U | 2.1 | -- | 0.5 | < 10 U | < 21 U | -- | 7250 | 10500 | 21 | -- | -- | -- | -- | -- | 2.21 | 32.4 | -- | -- |
| | | | Jan-22 | | < 2 U | < 1 U | 290 | -- | 0.8 | < 10 U | < 21 U | -- | -- | 10300 | 65.8 | -- | -- | -- | -- | -- | 1.74 | 28.8 | -- | -- |
| | | | Nov-22 | | < 7.5 U | < 6.1 U | 23.1 | -- | 0.09 J | < 10 U | < 21 U | -- | -- | 9340 | 145 | -- | -- | -- | -- | -- | 2.66 | 29 | -- | -- |

Notes:
mg/L = Milligram(s) per liter
µg/L = Microgram(s) per liter
AOC = Area of concern
NA = Not applicable
NS = Not sampled per QASP Addenda
DOC = Dissolved Organic Carbon
MNA = Monitored Natural Attenuation
"--" = not measured
J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.
U = Analyte not detected above the specified reporting limit.

## TABLE 5-1. WELL CLOSURE MONITORING PROGRAM EVALUATION

| Well Name | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Remediation Phase Complete for VOCs? | # Consecutive Samples < Cleanup Goal[a] | | Never Exceeded Cleanup Level for VOCs? | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Remediation Monitoring Phase Complete for Chromium? | # Consecutive Samples < Cleanup Goal[a] | | Never Exceeded Cleanup Level for Cr? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Remediation Monitoring | Attainment Monitoring | | | | | | | Remediation Monitoring | Attainment Monitoring | |
| **Upgradient Wells** | | | | | | | | | | | | | | | | |
| AMW-8A | 10/2022 | 0.25 J | 0.78 | 0.78 | YES | 4 | 4 | | NA | NA | NA | NA | NA | NA | NA | |
| **TCE Source Wells** | | | | | | | | | | | | | | | | |
| AMW-1A | 10/2022 | 4.8 | **15** | 3.8 | NO | 1 | NA | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-1B | 10/2022 | 0.15 J | 0.23 J | 0.14 J | YES | 4 | 4 | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-1C | 10/2022 | U | U | U | YES | 4 | 4 | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-2A | 10/2022 | **6.3** | **54** | **47** | NO | 0 | NA | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-2B | 10/2022 | 0.23 J | 0.28 J | 0.14 J | YES | 4 | 4 | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-3A | 10/2022 | 0.53 | 0.80 | 0.78 | YES | 4 | 7 | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-4A | 10/2022 | U | U | U | YES | 4 | 4 | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-12A | 01/2022 | **5.6** | **12** | **9.1** | NO | 0 | NA | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-13A | 10/2022 | U | 0.37 J | U | YES | 4 | 5 | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-19A | 10/2022 | 0.7 | 2.3 | 2.3 | YES | 4 | 5 | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-26 | 10/2022 | 1.5 | 2.9 | 1.6 | YES | 4 | 5 | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-52A | 10/2021 | U | U | U | YES | 4 | 5 | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-53A | 10/2021 | **7.7** | **28** | **7.7** | NO | 0 | NA | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-54A | 10/2017 | 1.8 | 3 | 2.1 | YES | 4 | 8 | | NA | NA | NA | NA | NA | NA | NA | |
| AMW-56A | 10/2022 | 3.5 | 3.5 | 3.5 | YES | 4 | 8 | | NA | NA | NA | NA | NA | NA | NA | |
| MW-1A | 10/2022 | 0.13 J | 0.52 | 0.13 J | YES | 4 | 4 | | NA | NA | NA | NA | NA | NA | NA | |
| MW-1B | 10/2022 | U | U | U | YES | 4 | 5 | | NA | NA | NA | NA | NA | NA | NA | |
| MW-1C | 10/2022 | U | 0.24 J | U | YES | 4 | 5 | | NA | NA | NA | NA | NA | NA | NA | |

# TABLE 5-1. WELL CLOSURE MONITORING PROGRAM EVALUATION

| Well Name | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Remediation Phase Complete for VOCs? | # Consecutive Samples < Cleanup Goal[a] | | Never Exceeded Cleanup Level for VOCs? | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Remediation Monitoring Phase Complete for Chromium? | # Consecutive Samples < Cleanup Goal[a] | | Never Exceeded Cleanup Level for Cr? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Remediation Monitoring | Attainment Monitoring | | | | | | | Remediation Monitoring | Attainment Monitoring | |
| **Proximal Wells** | | | | | | | | | | | | | | | | |
| AMW-58 | 10/2022 | U | U | U | YES | 4 | 5 | | NA | NA | NA | NA | NA | NA | NA | X |
| MW-2A | 10/2022 | 0.76 | 0.94 | 0.32 J | YES | 4 | 5 | | 10/2022 | 71 | **330** | 71 | NO | 1 | NA | |
| MW-2B | 10/2022 | 0.97 | 1.60 | 1.20 | YES | 4 | 6 | | 10/2022 | 3.0 J | 10.5 | 3.0 J | YES | 4 | 5 | |
| MW-2C | 10/2022 | 0.27 J | 0.38 J | 0.27 J | YES | 4 | 5 | | NA | NA | NA | NA | NA | NA | NA | X |
| MW-3A | NA | NA | NA | NA | NA | NA | NA | X | 10/2022 | **113** | **152** | **152** | NO | 0 | NA | |
| MW-3B | 10/2022 | 1.3 | 3.7 | 3.7 | YES | 4 | 5 | | 10/2022 | 4.9 J | 7.16 | 4.9 J | YES | 4 | 5 | |
| MW-3C | 10/2022 | 1.3 | 1.7 | 1.4 | YES | 4 | 5 | | 10/2022 | 5.22 | 31.20 | 6.3 J | YES | 4 | 5 | |
| MW-4A | 10/2022 | 1.8 | 2.2 | 1.9 | YES | 4 | 4 | | 10/2022 | **263** | **890** | **455** | NO | 0 | NA | |
| MW-4B | 10/2022 | 2.4 | 3.1 | 3.1 | YES | 4 | 4 | | 10/2022 | **87.1** | **319** | **319** | NO | 0 | NA | |
| MW-4BShed | 10/2022 | 2.0 | 2.4 | 2.1 | YES | 4 | 4 | | 10/2022 | 67.7 | **139** | **101** | YES | 4 | 0 | |
| MW-4C | 10/2022 | 0.99 | 1.2 | 0.99 | YES | 4 | 4 | | 10/2022 | 35.5 | **97.2** | 35.5 | YES | 4 | 4 | |
| MW-6A | 10/2022 | U | U | U | YES | 4 | 4 | | 10/2022 | 3.33 | 68.1 | 13.8 | YES | 4 | 4 | |
| MW-6B | 10/2022 | **11** | **49** | **11** | YES | 4 | 0 | | 10/2022 | 28 | 70.8 | 28 | YES | 4 | 6 | |
| MW-6C | 10/2022 | 0.47 J | 1.80 | 0.77 | YES | 4 | 5 | | 10/2022 | 4.1 J | 23.8 | 4.1 J | YES | 4 | 5 | |
| MW-6D | 10/2022 | 0.32 J | 2.20 | 0.32 J | YES | 4 | 5 | | 10/2022 | 0.92 | 17.2 | 4.2 J | YES | 4 | 5 | |
| MW-7B | 10/2022 | 2.1 | 2.9 | 2.1 | YES | 4 | 0 | | 10/2022 | 11.6 | 11.6 | 11.6 | YES | 4 | 1 | |
| MW-7C | 10/2022 | 0.21 J | 0.35 J | 0.21 J | YES | 4 | 5 | | 10/2022 | 3.58 | 11.50 | 3.8 J | YES | 4 | 5 | |
| MW-8B | 10/2022 | 1.2 | 2.2 | 1.7 | YES | 4 | 5 | | 10/2022 | 1.87 | 15.1 | U | YES | 4 | 5 | |
| MW-9B | 10/2022 | 1.4 | 1.8 | 1.5 | YES | 4 | 4 | | 10/2022 | 5.69 | 18.3 | 8.2 J | YES | 4 | 6 | |
| MW-9C | 07/2022 | 0.83 | 2.50 | 0.97 | YES | 4 | 4 | | NA | NA | NA | NA | NA | NA | NA | X |
| MW-10B | 10/2022 | 1.4 | 3.1 | 3.0 | **YES** | 4 | 3 | | 10/2022 | 60.7 | **116** | 63.3 | YES | 4 | 3 | |
| MW-10C | 10/2022 | 2.0 | **8.1** | **8.1** | YES | 4 | 0 | | 10/2022 | 74.5 | **238** | **169** | YES | 4 | 0 | |
| MW-12C | 10/2022 | 1.2 | **49** | 2.3 | YES | 4 | 1 | | 10/2022 | 1.18 | 13.8 | 2.8 J | YES | 4 | 5 | |
| MW-13C | 10/2022 | 0.94 | 4.5 | 0.94 | YES | 4 | 5 | | 10/2022 | 34.6 | 46.8 | 46.8 | YES | 4 | 5 | |
| PW-1B | 10/2022 | 0.45 J | 3.2 | 2.7 | YES | 4 | 5 | | 10/2022 | 40.3 | **131** | 47.7 | YES | 4 | 1 | |
| **Intermediate Wells** | | | | | | | | | | | | | | | | |
| AMW-59 | 10/2022 | 0.39 J | **16** | U | **YES** | 4 | 0 | | NA | NA | NA | NA | NA | NA | NA | X |
| AMW-60 | 10/2022 | 0.26 J | 0.44 J | 0.31 J | YES | 4 | 4 | | NA | NA | NA | NA | NA | NA | NA | X |
| CPU-14 | 10/2022 | 0.51 | 4.7 | 0.51 | YES | 4 | 4 | | 10/2022 | 9.1 | **165** | 9.1 | YES | 4 | 1 | |
| MW-14C | 10/2022 | 2.5 | 4.2 | 2.5 | YES | 4 | 5 | | 10/2022 | 37.7 | **89.1** | 67.8 | YES | 4 | 1 | |
| MW-14E | 10/2022 | **8.4** | 19 | 19 | NO | 0 | NA | | 10/2022 | **146** | **234** | **207** | YES | 4 | 0 | |
| MW-15E | 10/2022 | 1.2 | **10** | 1.6 | YES | 4 | 2 | | 10/2022 | 2.4 J | 11.2 | 2.4 J | YES | 4 | 6 | |
| MW-18D | 10/2022 | 2.8 | 4.0 | 4.0 | YES | 4 | 6 | | 10/2022 | 3.26 | **177** | **139** | NO | 0 | NA | |
| MW-18E | 10/2022 | 0.22 J | 0.94 | 0.41 J | YES | 4 | 6 | | 10/2022 | 1.62 | 4.18 | U | YES | 4 | 5 | |
| MW-19D | 10/2022 | 0.21 J | **9.2** | 3.7 | NO | 3 | NA | | 10/2022 | 6.2 J | **122** | 6.2 J | **YES** | 4 | 2 | |
| MW-20D | 10/2022 | **6.8** | **12** | **11** | NO | 0 | NA | | 10/2022 | 74.5 | **144** | **137** | YES | 4 | 0 | |
| MW-40 | 10/2022 | 0.42 J | 0.96 | 0.59 | YES | 4 | 6 | | 10/2022 | **124** | **135** | **127** | NO | 0 | NA | |
| PZ-39 | 10/2022 | **28** | **45** | **28** | NO | 0 | NA | | NA | NA | NA | NA | NA | NA | NA | X |

## TABLE 5-1. WELL CLOSURE MONITORING PROGRAM EVALUATION

| Well Name | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Remediation Phase Complete for VOCs? | # Consecutive Samples < Cleanup Goal[a] | | Never Exceeded Cleanup Level for VOCs? | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Remediation Monitoring Phase Complete for Chromium? | # Consecutive Samples < Cleanup Goal[a] | | Never Exceeded Cleanup Level for Cr? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Remediation Monitoring | Attainment Monitoring | | | | | | | Remediation Monitoring | Attainment Monitoring | |
| **Church of God Wells** | | | | | | | | | | | | | | | | |
| AMW-27 | 01/2022 | 1.6 | 3.5 | 1.7 | YES | 4 | 8 | | 07/2022 | 38.3 | **114** | **114** | YES | 4 | 0 | |
| AMW-61 | 10/2022 | 4.7 | **5.5** | 4.7 | NO | 1 | NA | | 10/2022 | 27.1 | 27.1 | 27.1 | **YES** | 4 | NA | |
| CPU-12 | 02/2022 | 2.2 | 3.0 | 2.2 | **YES** | 4 | **8** | | 10/2022 | 8.59 | 8.59 | 8.59 | YES | 4 | 8 | |
| CPU-13 | NA | NA | NA | NA | YES | 4 | 8 | | NA | NA | NA | NA | YES | 4 | 8 | |
| MW-22D | 10/2022 | 3.1 | **9.5** | **8.4** | YES | 4 | 0 | | 10/2022 | 57.4 | **86.6** | **86.6** | YES | 4 | 0 | |
| MW-25D | NA | NA | NA | NA | YES | 4 | 8 | | NA | NA | NA | NA | YES | 4 | 8 | |
| MW-26D | NA | NA | NA | NA | YES | 4 | 8 | | NA | NA | NA | NA | YES | 4 | 8 | |
| MW-27D | NA | NA | NA | NA | YES | 4 | 8 | | NA | NA | NA | NA | YES | 4 | 8 | |
| MW-49 | NA | NA | NA | NA | YES | 4 | 8 | | NA | NA | NA | NA | YES | 4 | 8 | |
| **Troutdale Wells** | | | | | | | | | | | | | | | | |
| AMW-24 | 10/2022 | 4.3 | **5.2** | 4.3 | NO | 2 | NA | | NA | NA | NA | NA | NA | NA | NA | X |
| MW-33 | 07/2022 | U | 3.0 | 1.9 | YES | 4 | 6 | | NA | NA | NA | NA | NA | NA | NA | X |
| BENNETT | 10/2022 | 0.75 | 2.5 | 1.9 | YES | 4 | 7 | | NA | NA | NA | NA | NA | NA | NA | X |

**NOTES:**

a) The Closure Plan recommends quarterly sampling for events 1-4 of Remediation Monitoring and semiannual sampling for events 5-8 of Attainment Monitoring.

Wells excluded from the Closure Monitoring Program have been removed from this table.

A summary of all 2023 recommended sampling frequencies is provided in Table 5-2.

**Blue bold text** indicates the concentration is above the cleanup goal.

**Bold text** indicates the phase status changed in 2022.

Green shading - indicates wells where the attainment monitoring phase has been completed

Orange shading - indicates wells where the remediation monitoring phase has not been completed.

COC - chemical of concern
NA - Not available
U - non-detect
µg/L - micrograms per liter
Cr - Chromium
TCE - Trichloroethene
VOC - Volatile Organic Compound
X - indicates concetrations never exceeded the cleanup level.
EPA - Environmental Protection Agency

## TABLE 5-2. SUMMARY OF 2023 WELL SAMPLING FREQUENCIES

| Well Name | 2022 Sampling Frequency | | | | Post-2022 Status | | | 2023 Sampling Recommendations | | | | Rationale / Well Info |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Quarterly[a] | Semi-annual | Annual | Every 5 Years[b] | COC | Remediation Monitoring Complete (Y/N)[a] | # of consecutive events under CUL during Attainment Phase[a] | Semi-annual | Annual | Every 5 Years[b] | NFSc | |
| **Upgradient Wells** | | | | | | | | | | | | |
| AMW-8A | VOCs | | | | VOCs | Yes | 4 | VOCs | | | | TCE background well |
| **TCE Source Wells** | | | | | | | | | | | | |
| AMW-1A | | VOCs, DO/ORP | | | VOCs | No | NA | VOCs, DO/ORP | | | | OU-2 well; well cluster. Inlcudes DO/ORP for in-situ monitoring. |
| AMW-1B | VOCs | | | | VOCs | Yes | 4 | VOCs | | | | OU-2 well |
| AMW-1C | VOCs | | | | VOCs | Yes | 4 | VOCs | | | | OU-2 well |
| AMW-2A | | VOCs, DO/ORP | | | VOCs | No | NA | VOCs, DO/ORP | | | | OU-2 well; well cluster. Inlcudes DO/ORP for in-situ monitoring. |
| AMW-2B | VOCs | | | | VOCs | Yes | 4 | VOCs | | | | OU-2 well; well cluster |
| AMW-3A | | VOCs | | | VOCs | Yes | 7 | VOCs | | | | OU-2 well |
| AMW-4A | VOCs | | | | VOCs | Yes | 4 | VOCs | | | | OU-2 well |
| AMW-12A | | VOCs, DO/ORP | | | VOCs | No | NA | VOCs, DO/ORP | | | | OU-2 well; Inlcudes DO/ORP for in-situ monitoring. |
| AMW-13A | VOCs | | | | VOCs | Yes | 5 | VOCs | | | | OU-2 well |
| AMW-19A | VOCs | | | | VOCs | Yes | 5 | VOCs | | | | OU-2 boundary well |
| AMW-26 | VOCs | | | | VOCs | Yes | 5 | VOCs | | | | OU-2 boundary well |
| AMW-52A | VOCs | | | | VOCs | Yes | 5 | VOCs | | | | OU-2 well |
| AMW-53A | | VOCs, DO/ORP | | | VOCs | No | NA | VOCs, DO/ORP | | | | OU-2 well; Inlcudes DO/ORP for in-situ monitoring. |
| AMW-54A | | | | VOCs | VOCs | Yes | 8 | | | VOCs | | OU-2 boundary well; Attainment Monitoring complete. |
| AMW-56A | | | | VOCs | VOCs | Yes | 8 | | | VOCs | | OU-2 boundary well; Attainment Monitoring complete. |
| MW-1A | VOCs, DO/ORP | | | | VOCs | Yes | 4 | VOCs, DO/ORP | | | | OU-2 well; Inlcudes DO/ORP for in-situ monitoring. |
| MW-1B | | VOCs | | | VOCs | Yes | 5 | VOCs | | | | OU-2 well; well cluster |
| MW-1C | VOCs | | | | VOCs | Yes | 5 | VOCs | | | | OU-2 well; well cluster |

## TABLE 5-2. SUMMARY OF 2023 WELL SAMPLING FREQUENCIES

| Well Name | 2022 Sampling Frequency | | | | Post-2022 Status | | | 2023 Sampling Recommendations | | | | Rationale / Well Info |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Quarterly[a] | Semi-annual | Annual | Every 5 Years[b] | COC | Remediation Monitoring Complete (Y/N)[a] | # of consecutive events under CUL during Attainment Phase[a] | Semi-annual | Annual | Every 5 Years[b] | NFSc | |
| **Proximal Wells** | | | | | | | | | | | | |
| AMW-58 | VOCs | | | | VOCs | Yes | 5 | VOCs | | | | Cr never exceeded cleanup level |
| MW-2A | | VOCs | Cr | | VOCs<br>Cr | Yes<br>No | 5<br>NA | VOCs | Cr | | | Well cluster |
| MW-2B | | VOCs, Cr | | | VOCs<br>Cr | Yes | 6<br>5 | VOCs, Cr | | | | Well cluster |
| MW-2C | | VOCs | | | VOCs | Yes | 5 | VOCs | | | | Well cluster; Cr never exceeded cleanup level |
| MW-3A | | Cr | | | Cr | No | NA | Cr | | | | Well cluster; VOCs never exceeded cleanup level. Frequency of Cr monitoring is semiannual to measure impacts of system shut down. |
| MW-3B | VOCs, Cr | | | | VOCs<br>Cr | Yes | 5<br>5 | VOCs, Cr | | | | Well cluster |
| MW-3C | VOCs, Cr | | | | VOCs<br>Cr | Yes | 5<br>5 | VOCs, Cr | | | | Well cluster - not optimal depth |
| MW-4A | VOCs | Cr | | | VOCs<br>Cr | Yes<br>No | 4<br>NA | VOCs, Cr | | | | Well cluster - not optimal depth. Frequency of Cr monitoring is semiannual to measure impacts of system shut down. |
| MW-4B | VOCs | Cr | | | VOCs<br>Cr | Yes<br>No | 4<br>NA | VOCs, Cr | | | | Well cluster - not optimal depth. Frequency of Cr monitoring is semiannual to measure impacts of system shut down. |
| MW-4BSHED | VOCs, Cr | | | | VOCs<br>Cr | Yes | 4<br>0 | VOCs, Cr | | | | Well cluster |
| MW-4C | VOCs | Cr | | | VOCs<br>Cr | Yes | 4<br>4 | VOCs, Cr | | | | Well cluster - not optimal depth. Frequency of Cr monitoring is semiannual to measure impacts of system shut down. |
| MW-6A | VOCs, Cr | | | | VOCs<br>Cr | Yes | 4<br>4 | VOCs, Cr | | | | Well cluster - not optimal depth. Frequency of Cr monitoring is semiannual to measure impacts of system shut down. |
| MW-6B | VOCs | Cr | | | VOCs<br>Cr | Yes | 0<br>6 | VOCs, Cr | | | | Extraction well - inactive;well cluster, previously most impacted. Frequency of Cr monitoring is semiannual to measure impacts of system shut down. |
| MW-6C | VOCs, Cr | | | | VOCs<br>Cr | Yes | 5<br>5 | VOCs, Cr | | | | Well cluster - not optimal depth |
| MW-6D | VOCs, Cr | | | | VOCs<br>Cr | Yes | 5<br>5 | VOCs, Cr | | | | Well cluster - not optimal depth |
| MW-7B | VOCs, Cr | | | | VOCs<br>Cr | No<br>Yes | NA<br>1 | VOCs, Cr | | | | Well cluster - adjacent to MW-4 cluster. |
| MW-7C | VOCs, Cr | | | | VOCs<br>Cr | Yes | 5<br>5 | VOCs, Cr | | | | Well cluster |
| MW-8B | VOCs, Cr | | | | VOCs<br>Cr | Yes | 5<br>5 | VOCs, Cr | | | | |
| MW-9B | VOCs | Cr | | | VOCs | Yes | 4 | VOCs, Cr | | | | Well cluster - previously most TCE impacted. Frequency of Cr monitoring is |

**TABLE 5-2. SUMMARY OF 2023 WELL SAMPLING FREQUENCIES**

| Well Name | 2022 Sampling Frequency | | | | Post-2022 Status | | | 2023 Sampling Recommendations | | | | Rationale / Well Info |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Quarterly[a] | Semi-annual | Annual | Every 5 Years[b] | COC | Remediation Monitoring Complete (Y/N)[a] | # of consecutive events under CUL during Attainment Phase[a] | Semi-annual | Annual | Every 5 Years[b] | NFSc | |
| MW-9B | VOCs | Cr | | | Cr | Yes | 6 | VOCs, Cr | | | | semiannual to measure impacts of system shut down. |

**TABLE 5-2. SUMMARY OF 2023 WELL SAMPLING FREQUENCIES**

| Well Name | 2022 Sampling Frequency | | | | Post-2022 Status | | | 2023 Sampling Recommendations | | | | Rationale / Well Info |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Quarterly[a] | Semi-annual | Annual | Every 5 Years[b] | COC | Remediation Monitoring Complete (Y/N)[a] | # of consecutive events under CUL during Attainment Phase[a] | Semi-annual | Annual | Every 5 Years[b] | NFSc | |
| MW-9C | VOCs | | | | VOCs | Yes | 4 | VOCs | | | | Well cluster - not optimum depth; Cr never exceeded cleanup level |
| MW-10B | VOCs, Cr | | | | VOCs<br>Cr | No<br>Yes | NA<br>3 | VOCs, Cr | | | | Extraction well - inactive (also well cluster). Remediation monitoring completed for VOCs in Winter 2022. |
| MW-10C | VOCs | Cr | | | VOCs<br>Cr | Yes | 0<br>0 | VOCs, Cr | | | | Extraction well - inactive (also well cluster) |
| MW-12C | VOCs, Cr | | | | VOCs<br>Cr | Yes | 1<br>5 | VOCs, Cr | | | | TCE Plume boundar |
| MW-13C | | VOCs, Cr | | | VOCs<br>Cr | Yes | 5<br>5 | VOCs, Cr | | | | TCE Plume boundary |
| PW-1B | VOCs, Cr | | | | VOCs<br>Cr | Yes | 5<br>1 | VOCs, Cr | | | | Extraction well - inactive |
| **Intermediate Wells** | | | | | | | | | | | | |
| AMW-59 | | VOCs, I | | | VOCs | No | NA | VOCs, I | | | | Plume area - silt well. Cr never exceeded cleanup level. Monitored semiannually for in-situ performance including NA parameters. |
| AMW-60 | | VOCs | | | 1,1-DCE | Yes | 4 | VOCs | | | | Silt well, attainment monitoring for 1-1 dichlorethene only, Cr never exceeded cleanup level |
| CPU-14 | VOCs | Cr | | | VOCs<br>Cr | Yes | 4<br>1 | VOCs, Cr | | | | Plume boundary |
| MW-14C | | VOCs, Cr, I | | | VOCs<br>Cr | Yes | 5<br>1 | VOCs, Cr, I | | | | Extraction well - inactive, (also well cluster); NA parameters included for in-situ performance monitoring. |
| MW-14E | | VOCs, Cr, I | | | VOCs<br>Cr | No<br>Yes | NA<br>0 | VOCs, Cr, I | | | | Plume area - silt well. Monitored semiannually for in-situ performance including NA parameters. |
| MW-15E | | VOCs, Cr | | | VOCs<br>Cr | Yes | 2<br>6 | VOCs, Cr | | | | |
| MW-18D | | VOCs, Cr | | | VOCs<br>Cr | Yes<br>No | 6<br>NA | VOCs, Cr | | | | Extraction well - inactive |
| MW-18E | | VOCs, Cr | | | VOCs<br>Cr | Yes | 6<br>5 | VOCs, Cr | | | | |
| MW-19D | | VOCs, Cr, I | | | VOCs<br>Cr | No<br>Yes | NA<br>2 | VOCs, Cr, I | | | | Extraction well - inactive. NA parameters included for in-situ performance monitoring. Remediation monitoring completed for Cr in Winter 2022. |
| MW-20D | | VOCs, Cr, I | | | VOCs<br>Cr | No<br>Yes | NA<br>0 | VOCs, Cr, I | | | | Extraction well - inactive. NA parameters included for in-situ performance monitoring. |
| MW-40 | | VOCs | Cr | | VOCs<br>Cr | Yes<br>No | 6<br>NA | VOCs, Cr | | | | |
| PZ-39 | | VOCs, I | | | VOCs | No | NA | VOCs, I | | | | Cr never exceeded cleanup level. NA parameters included for in-situ performance monitoring. |

## TABLE 5-2. SUMMARY OF 2023 WELL SAMPLING FREQUENCIES

| Well Name | 2022 Sampling Frequency | | | | Post-2022 Status | | | 2023 Sampling Recommendations | | | | Rationale / Well Info |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Quarterly[a] | Semi-annual | Annual | Every 5 Years[b] | COC | Remediation Monitoring Complete (Y/N)[a] | # of consecutive events under CUL during Attainment Phase[a] | Semi-annual | Annual | Every 5 Years[b] | NFSc | |
| **Church of God Wells** | | | | | | | | | | | | |
| AMW-27 | | Cr | | | Cr | Yes | 0 | Cr | | | | Plume area - silt well; attainment monitoring complete for VOCs |
| AMW-61 | | | VOCs, Cr | | VOCs<br>Cr | No | NA<br>NA | | VOCs, Cr | | | Silt well |
| CPU-12 | | | VOCs | | VOCs | Yes | 8 | | | | VOCs | Plume boundary; attainment monitoring previously complete for Cr, completed for VOCs in 2022. |
| MW-22D | | VOCs, Cr | | | VOCs<br>Cr | Yes | 0<br>0 | VOCs, Cr | | | | Inactive extraction well. |
| **Troutdale Wells** | | | | | | | | | | | | |
| AMW-24 | VOCs | | | | VOCs | No | NA | VOCs | | | | Troutdale well - TCE impacted; Cr never exceeded cleanup level |
| MW-33 | | VOCs | | | VOCs | Yes | 7 | VOCs | | | | Troutdale well - TCE impacted; Cr never exceeded cleanup level |
| BENNETT | | VOCs | | | VOCs | Yes | 7 | VOCs | | | | Troutdale well - TCE impacted; Cr never exceeded cleanup level |
| **Northern Plume Wells** | | | | | | | | | | | | |
| AMW-16 | | VOCs | | | VOCs | -- | -- | VOCs | | | | Well impacted by northern Plume and therfore is not evaluated for closure |
| AMW-18 | | VOCs | | | VOCs | -- | -- | VOCs | | | | Well impacted by northern Plume and therfore is not evaluated for closure |
| AMW-23 | | | VOCs | | VOCs | -- | -- | | VOCs | | | Well impacted by northern Plume and therfore is not evaluated for closure |
| AMW-64 | | VOCs | | | VOCs | -- | -- | VOCs | | | | Well impacted by northern Plume and therfore is not evaluated for closure |
| MW-21D | | VOCs | | | VOCs | -- | -- | VOCs | | | | Well impacted by northern Plume and therfore is not evaluated for closure |
| MW-23D | | VOCs | | | VOCs | -- | -- | VOCs | | | | Well impacted by northern Plume and therfore is not evaluated for closure |
| MW-38 | | VOCs | | | VOCs | -- | -- | VOCs | | | | Well impacted by northern Plume and therfore is not evaluated for closure |

**Notes:**

Wells excluded from the Closure Monitoring Program have been removed from this table.

[a] The Closure Plan recommends quarterly sampling for events 1-4 of Remediation Monitoring and semiannual sampling for events 5-8 of Attainment Monitoring.

[b] Every 5 years - these wells were sampled in Fall 2022. AMW-54A will be sampled in Fall 2023.

[c] No Further Sampling - Attainment Monitoring complete for all relevant COCs; no sampling planned for 2023.

CUL = Cleanup Level
Cr = Chromium
VOC = Volatile Organic Compounds
TCE = Trichloroethene
DCE = Dichloroethene

E = Extraction well
E/M = Extraction well with pump pulled; now sampled as a monitoring well
E/M = Extraction well with pump pulled; now sampled as a monitoring well
M = Monitoring well
I = Includes collection of perfomance monitoring parameters for in-situ treatment

# Appendix A

# Chain-of-Custody Documentation and Analytical Results Summary for Groundwater Samples

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# Appendix A

# Chain-of-Custody Documentation and Analytical Results Summary for Groundwater Samples

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# Summer 2022
# Chain-of-Custody Documentation and Analytical Results Summary for Groundwater Samples

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ALS Environmental

# 125132

## CHAIN OF CUSTODY
# 125132

001

SR# R2210846B

COC Set 1 of 1

COC# _____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com



| | |
|---|---|
| Project Name: Boomsnub | Project Number: 1611310 |
| Project Manager: Jonathan Reeve | |
| Company: EA Engineering | |
| Address: 2200 6th Ave, Suite 707, Seattle, WA 98121 | |
| Phone #: (206) 452-5350 | email: jreeve@eaest.com |
| Sampler Signature: Richard Read | Sampler Printed Name: Rick READ |

| CLIENT SAMPLE ID | LABID | SAMPLING Date | Time | Matrix | NUMBER OF CONTAINERS | 48H: 300.0 / NO3 | 14D: 8260C / VOC FP | 14D: RSK 175 / Gasses | 28D: 300.0 / Chloride | 28D: 300.0 / SO4 | 28D: 9060 / TOC D | 28D: 9060 / TOC T | 28D: SM 5220 C / COD T | 180D: 6010C / Metals D | 180D: 6010C / Metals T | 180D: 6020A / Metals D | 180D: 6020A / Metals T | 1 | 2 | 3 | 4 | 5 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. 2230-012 | | 7/26/2022 | 1019 | GW | 16 | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ | ✓ | | ✓ | | | | | | |
| 2. 2230-013 | | 7/26/2022 | 0905 | GW | 13 | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ | ✓ | | | | | | | | |
| 3. 2230-014 | | 7/25/2022 | 1354 | GW | 4 | | ✓ | | | | | | | | | | ✓ | | | | | | |
| 4. 2230-015 | | 7/25/2022 | 1604 | GW | 1 | | | | | | | | | | | | ✓ | | | | | | |
| 5. 2230-016 | | 7/25/2022 | 1315 | GW | 3 | | ✓ | | | | | | | | | | | | | | | | |
| 6. 2230-017 | | 7/25/2022 | 1452 | GW | 3 | | ✓ | | | | | | | | | | | | | | | | |
| 7. 2230-018 | | 7/25/2022 | 1340 | GW | 3 | | ✓ | | | | | | | | | | | | | | | | |
| 8. 2230-002 | | 7/25/2022 | 1249 | GW | 3 | | ✓ | | | | | | | | | | | | | | | | |
| 9. 2230-020 | | 7/25/2022 | 1249 | W | 2 | | ✓ | | | | | | | | | | | | | | | | TRIP BLANK |
| 10. 2230-027 | | 7/26/2022 | 1339 | W | 4 | | ✓ | | | | | | | | | | ✓ | | | | | | |

### Report Requirements

- ___ I. Routine Report: Method Blank, Surrogate, as required
- ___ II. Report Dup., MS, MSD as required
- X III. CLP Like Summary (no raw data)
- ___ IV. Data Validation Report
- X V. EDD

### Invoice Information

P.O.# _____

Bill To: _____

### Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

| Relinquished By: | Received By: | Relinquished By: | Received By: | Relinquished By: | Received By: |
|---|---|---|---|---|---|
| Signature: Richard Read | Signature: M Mulligan | Signature | Signature | Signature | Signature |
| Printed Name: RICK READ | Printed Name: M Mulligan | Printed Name | Printed Name | Printed Name | Printed Name |
| Firm: EA | Firm: ACS | Firm | Firm | Firm | Firm |
| Date/Time: 7/27/22 0940 | Date/Time: 7/27/22 1050 | Date/Time | Date/Time | Date/Time | Date/Time |

ALS Environmental

# 125132

**CHAIN OF CUSTODY**

# 125132

001

SR# K2208490

COC Set 1 of 2

COC#

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www.alsglobal.com



| | |
|---|---|
| Project Name: Boomsnub | Project Number: 1611310 |
| Project Manager: Jonathan Reeve | |
| Company: EA Engineering | |
| Address: 2200 6th Ave, Suite 707, Seattle, WA 98121 | |
| Phone #: (206) 452-5350 | email: jreeve@eaest.com |
| Sampler Signature: Richard Read | Sampler Printed Name: Rick READ |

| CLIENT SAMPLE ID | LABID | SAMPLING Date | SAMPLING Time | Matrix | NUMBER OF CONTAINERS | 48H: 300.0 / NO3 | 14D: 8260C / VOC FP | 14D: RSK 175 / Gases | 28D: 300.0 / Chloride | 28D: 300.0 / SO4 | 28D: 9060 / TOC D | 28D: 9060 / TOC T | 28D: SM 5220 C / COD T | 180D: 6010C / Metals D | 180D: 6010C / Metals T | 180D: 6020A / Metals D | 180D: 6020A / Metals T | 1 | 2 | 3 | 4 | 5 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. 2230-001 | | 7/26/2022 | 1246 | GW | 3 | | ✓ | | | | | | | | | | | | | | | | |
| 2. 2230-003 | | 7/26/2022 | 0819 | GW | 1 | | | | | | | | | | | | ✓ | | | | | | |
| 3. 2230-004 | | 7/26/2022 | 0719 | GW | 4 | | ✓ | | | | | | | | | | ✓ | | | | | | |
| 4. 2230-005 | | 7/26/2022 | 0723 | GW | 4 | | ✓ | | | | | | | | | | ✓ | | | | | | |
| 5. 2230-006 | | 7/25/2022 | 1451 | GW | 3 | | ✓ | | | | | | | | | | | | | | | | |
| 6. 2230-007 | | 7/26/2022 | 0850 | GW | 3 | | ✓ | | | | | | | | | | | | | | | | |
| 7. 2230-008 | | 7/26/2022 | 0855 | GW | 3 | | ✓ | | | | | | | | | | | | | | | | |
| 8. 2230-009 | | 7/26/2022 | 1057 | GW | 12 | | ✓ | | | | | | | | | | ✓ | | | | | | MS/MSD |
| 9. 2230-010 | | 7/25/2022 | 1358 | GW | 3 | | ✓ | | | | | | | | | | | | | | | | |
| 10. 2230-011 | | 7/26/2022 | 1129 | GW | 4 | | ✓ | | | | | | | | | | ✓ | | | | | | |

**Report Requirements**

- ___ I. Routine Report: Method Blank, Surrogate, as required
- ___ II. Report Dup., MS, MSD as required
- X III. CLP Like Summary (no raw data)
- ___ IV. Data Validation Report
- X V. EDD

**Invoice Information**

P.O.#

Bill To:

**Turnaround Requirements**

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other ____ (Circle One)

| Relinquished By: | Received By: | Relinquished By: | Received By: | Relinquished By: | Received By: |
|---|---|---|---|---|---|
| Signature: Richard Read | Signature: M. Mulligan | Signature | Signature | Signature | Signature |
| Printed Name: RICK READ | Printed Name: M Mulligan | Printed Name | Printed Name | Printed Name | Printed Name |
| Firm: EA | Firm: ALS | Firm | Firm | Firm | Firm |
| Date/Time: 7/27/22 0940 | Date/Time: 7/27/22 1050 | Date/Time | Date/Time | Date/Time | Date/Time |

ALS Environmental

# 125132

## CHAIN OF CUSTODY
# 125132

001

SR# K2208490

COC Set 2 of 2

COC#

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www.alsglobal.com



| | |
|---|---|
| Project Name: Boomsnub | Project Number: 1611310 |
| Project Manager: Jonathan Reeve | |
| Company: EA Engineering | |
| Address: 2200 6th Ave. Suite 707, Seattle, WA 98121 | |
| Phone #: (206) 452-5350 | email: jreeve@eaest.com |
| Sampler Signature: Richard Read | Sampler Printed Name: RICK READ |

| CLIENT SAMPLE ID | LABID | SAMPLING Date | Time | Matrix | NUMBER OF CONTAINERS | 48H 300.0 / NO3 | 14D 8260C / VOC FP | 14D RSK 175 / Gases | 28D 300.0 / Chloride | 28D 300.0 / SO4 | 28D 9060 / TOC D | 28D 9060 / TOC T | 28D SM 5220 C / COD T | 180D 6010C / Metals D | 180D 6010C / Metals T | 180D 6020A / Metals D | 180D 6020A / Metals T | 1 | 2 | 3 | 4 | 5 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. 2230-019 | | 7/25/2022 | 1300 | GW | 3 | | ✓ | | | | | | | | | | | | | | | | |
| 2. 2230-021 | | 7/26/2022 | 0719 | W | 2 | | ✓ | | | | | | | | | | | | | | | | TRIP BLANK |
| 3. 2230-026 | | 7/25/2022 | 1637 | W | 4 | | ✓ | | | | | | | | | | ✓ | | | | | | |
| 4. | | | | | | | | | | | | | | | | | | | | | | | |
| 5. | | | | | | | | | | | | | | | | | | | | | | | |
| 6. | | | | | | | | | | | | | | | | | | | | | | | |
| 7. | | | | | | | | | | | | | | | | | | | | | | | |
| 8. | | | | | | | | | | | | | | | | | | | | | | | |
| 9. | | | | | | | | | | | | | | | | | | | | | | | |
| 10. | | | | | | | | | | | | | | | | | | | | | | | |

7/28/2022

### Report Requirements

- ___ I. Routine Report: Method Blank, Surrogate, as required
- ___ II. Report Dup., MS, MSD as required
- X III. CLP Like Summary (no raw data)
- ___ IV. Data Validation Report
- X V. EDD

### Invoice Information

P.O.#

Bill To:

### Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

| Relinquished By: | Received By: | Relinquished By: | Received By: | Relinquished By: | Received By: |
|---|---|---|---|---|---|
| Signature: Richard Read | Signature: M. Mellegard | Signature | Signature | Signature | Signature |
| Printed Name: RICK READ | Printed Name: M. Mellegard | Printed Name | Printed Name | Printed Name | Printed Name |
| Firm: EA | Firm: ES | Firm | Firm | Firm | Firm |
| Date/Time: 7/27/22 0940 | Date/Time: 7/27/22 1040 1050 | Date/Time | Date/Time | Date/Time | Date/Time |

# Groundwater Analysis

Sample Name AMW-24 Sampling Method LOW-FLOW

Sample Date 7/26/2022

Sample Type N

Sample ID 2230-001

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.49 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.85 | | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 4.9 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-27 Sampling Method LOW-FLOW

Sample Date 7/26/2022

Sample Type N

Sample ID 2230-003

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW6010C | CHROMIUM | 114 | | ug/l | 7440-47-3 |

# Groundwater Analysis

Sample Name AMW-59 Sampling Method LOW-FLOW

Sample Date 7/25/2022

Sample Type N

Sample ID 2230-006

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.13 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.31 | J | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-60 Sampling Method PDB

Sample Date 7/26/2022

Sample Type N

Sample ID 2230-007

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 6.2 | | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.15 | J | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.66 | | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.37 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 10 | | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-60-DUP Sampling Method PDB

Sample Date 7/26/2022

Sample Type FD

Sample ID 2230-008

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 6.3 | | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.14 | J | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.68 | | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.40 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 10 | | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name CPU-14 Sampling Method LOW-FLOW

Sample Date 7/26/2022

Sample Type N

Sample ID 2230-009

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW6010C | CHROMIUM | 9.1 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 2.1 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-4SHED Sampling Method LOW-FLOW

Sample Date 7/25/2022

Sample Type N

Sample ID 2230-014

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW6010C | CHROMIUM | 137 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.12 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.66 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 2.3 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-6A Sampling Method LOW-FLOW

Sample Date 7/25/2022

Sample Type N

Sample ID 2230-015

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW6010C | CHROMIUM | 6.2 | J | ug/l | 7440-47-3 |

# Groundwater Analysis

Sample Name MW-6B Sampling Method PDB

Sample Date 7/25/2022

Sample Type N

Sample ID 2230-016

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.28 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 2.1 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.11 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.51 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 19 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-7B Sampling Method PDB

Sample Date 7/25/2022

Sample Type N

Sample ID 2230-017

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.67 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 2.3 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-9C Sampling Method PDB

Sample Date 7/25/2022

Sample Type N

Sample ID 2230-018

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.14 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.21 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.97 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-10B Sampling Method PDB

Sample Date 7/25/2022

Sample Type N

Sample ID 2230-019

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.16 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.69 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 2.9 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-15E Sampling Method PDB

Sample Date 7/25/2022

Sample Type N

Sample ID 2230-010

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.30 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.2 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-19D

Sampling Method LOW-FLOW

Sample Date 7/26/2022

Sample Type N

Sample ID 2230-011

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW6010C | CHROMIUM | 9.6 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.10 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.2 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-20D Sampling Method LOW-FLOW

Sample Date 7/26/2022

Sample Type N

Sample ID 2230-012

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E300.0 | NITRATE AS NITROGEN | 2.06 | | mg/l | 14797-55-8 |
| E300.0 | SULFATE | 15.0 | | mg/l | 14808-79-8 |
| RSK 175 | ETHANE | 4 | U | ug/l | 74-84-0 |
| RSK 175 | ETHYLENE | 4 | U | ug/l | 74-85-1 |
| RSK 175 | METHANE | 2 | U | ug/l | 74-82-8 |
| SM5220C | Chemical Oxygen Demand | 25 | | mg/l | COD |
| SW6010C | ARSENIC | 11 | J | ug/l | 7440-38-2 |
| SW6010C | CALCIUM METAL | 38100 | | ug/l | 7440-70-2 |
| SW6010C | CHROMIUM | 144 | | ug/l | 7440-47-3 |
| SW6010C | IRON | 14 | J | ug/l | 7439-89-6 |
| SW6010C | MAGNESIUM | 15700 | | ug/l | 7439-95-4 |
| SW6010C | MANGANESE | 450 | | ug/l | 7439-96-5 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.10 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.15 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |

# Groundwater Analysis

Sample Name MW-20D Sampling Method LOW-FLOW

Sample Date 7/26/2022

Sample Type N

Sample ID 2230-012

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | CFC-11 | 0.16 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 1.2 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 12 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |
| SW9060 | Dissolved Organic Carbon | 0.50 | | mg/l | DOC |

# Groundwater Analysis

Sample Name MW-22D

Sampling Method LOW-FLOW

Sample Date 7/26/2022

Sample Type N

Sample ID 2230-004

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW6010C | CHROMIUM | 83.9 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.29 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.18 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.17 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 4.0 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 9.5 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-22D-DUP Sampling Method LOW-FLOW

Sample Date 7/26/2022

Sample Type FD

Sample ID 2230-005

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW6010C | CHROMIUM | 85.4 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.28 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.18 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.15 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 3.5 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 8.4 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-33 Sampling Method LOW-FLOW

Sample Date 7/25/2022

Sample Type N

Sample ID 2230-002

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.21 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.36 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.9 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name PZ-39 Sampling Method LOW-FLOW

Sample Date 7/26/2022

Sample Type N

Sample ID 2230-013

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E300.0 | NITRATE AS NITROGEN | 1.51 | | mg/l | 14797-55-8 |
| E300.0 | SULFATE | 24.7 | | mg/l | 14808-79-8 |
| RSK 175 | ETHANE | 4 | U | ug/l | 74-84-0 |
| RSK 175 | ETHYLENE | 4 | U | ug/l | 74-85-1 |
| RSK 175 | METHANE | 2 | U | ug/l | 74-82-8 |
| SM5220C | Chemical Oxygen Demand | 40 | | mg/l | COD |
| SW6010C | ARSENIC | 15 | J | ug/l | 7440-38-2 |
| SW6010C | CALCIUM METAL | 76000 | | ug/l | 7440-70-2 |
| SW6010C | CHROMIUM | 4.9 | J | ug/l | 7440-47-3 |
| SW6010C | IRON | 21 | U | ug/l | 7439-89-6 |
| SW6010C | MAGNESIUM | 19000 | | ug/l | 7439-95-4 |
| SW6010C | MANGANESE | 86.3 | | ug/l | 7439-96-5 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.41 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 1.4 | | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |

# Groundwater Analysis

Sample Name PZ-39

Sample Date 7/26/2022

Sample Type N

Sample ID 2230-013

Sampling Method LOW-FLOW

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | CFC-11 | 1.0 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.31 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 45 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |
| SW9060 | Dissolved Organic Carbon | 0.80 | | mg/l | DOC |

# Groundwater Analysis

Sample Name EQUIPMENT BLANK-01 Sampling Method GRAB

Sample Date 7/25/2022

Sample Type EB

Sample ID 2230-026

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW6010C | CHROMIUM | 7.6 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name EQUIPMENT BLANK-02 Sampling Method GRAB

Sample Date 7/26/2022

Sample Type EB

Sample ID 2230-027

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW6010C | CHROMIUM | 36.6 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name TRIP BLANK-01 Sampling Method GRAB

Sample Date 7/25/2022

Sample Type TB

Sample ID 2230-020

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.12 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name TRIP BLANK-02 Sampling Method GRAB

Sample Date 7/26/2022

Sample Type TB

Sample ID 2230-021

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.10 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Fall 2022
# Chain-of-Custody Documentation and Analytical Results Summary for Groundwater Samples

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# CHAIN OF CUSTODY

22212930

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Mark Harris

COC #

Cooler # 1 of 1

Lab Quote #

Lab Job #:

**Client / Reporting Information**

Company Name: EA Engineering, Science, and Technology, Inc., PBC

Address: 2200 6th Ave., Suite 707

City: Seattle State: WA Zip: 98121

Project Contact: Jonathan Reeve and per contract

Phone #: 206-452-5358

Samplers's Name/Signature: Robert Reed

**Project Information**

Project Name: Boomsnub

Street: 7608 NE 47th Ave

City: Vancouver State: WA

Project #: 1611310

Email: jreeve@eaest.com, skettlewell@eaest.com, asmith@eaest.com, and esullivan@eaest.com

Purchase Order #: 17578 23579

**Analytical Information**

**Matrix Codes**

W - Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

| Lab Sample ID | Sample ID | Collection: Date | Time | Sampled by | Matrix | # of bottles | Number of preserved Bottles: HCl | HNO3 | H2SO4 | NONE | | | | | EPA 8260C/ VOCs | EPA 200.7/ TOTAL CHROMIUM | EPA 200.7/ DISSOLVED CHROMIUM (field filtered) | EPA 6010C/TOTAL METALS (As, Ca, Mg, Mn) | EPA 6010C/DISSOLVED METALS (As, Ca, Mg, Mn) (field filtered) | EPA 300.0/ ANIONS (NO3, SO4) | SM 5310C/ DOC (Field Filtered) | SM5220C/ COD | RSK 175/ DISSOLVED GASES | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2242-073 | 10/31/22 | 1720 | SS | W | 4 | 3 | 1 | | | | | | | X | X | | | | | | | | | | | |
| | 2242-075 | 11/01/22 | 0900 | SS | W | 2 | 2 | | | | | | | | X | | | | | | | | | | | | |
| | 2242-032 | 11/01/22 | 1004 | SS | GW | 4 | 3 | 1 | | | | | | | X | X | | | | | | | | | | | |
| | 2242-033 | 11/01/22 | 1014 | SS | GW | 4 | 3 | 1 | | | | | | | X | X | | | | | | | | | | | |
| | 2242-035 | 11/01/22 | 1110 | SS | GW | 4 | 3 | 1 | | | | | | | X | X | | | | | | | | | | | |
| | 2242-034 | 11/01/22 | 1205 | SS | GW | 4 | 3 | 1 | | | | | | | X | X | | | | | | | | | | | |
| | 2242-074 | 11/01/22 | 1200 | RR | W | 2 | 2 | | | | | | | | X | | | | | | | | | | | | |
| | 2242-052 | 11/01/22 | 1210 | RR | GW | 3 | 3 | | | | | | | | X | | | | | | | | | | | | |
| | 2242-054 | 11/01/22 | 1220 | RR | GW | 3 | 3 | | | | | | | | X | | | | | | | | | | | | |
| | 2242-064 | 11/01/22 | 1238 | RR | GW | 3 | 3 | | | | | | | | X | | | | | | | | | | | | |
| | 2242-065 | 11/01/22 | 1244 | RR | GW | 3 | 3 | | | | | | | | X | | | | | | | | | | | | |

Turnaround Time (Business days): standard

Data Deliverable Information: Per contract

Comments / Remarks: Samples from Site Boomsnub O&M / Project 1611310/ Phase 7
Metals: As, Ca, Mg, Mn
O&M

Sample Custody must be documented below each time samples change possession.

| | Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|---|
| 1 | Robert Reed | 11/2/22 9:45 | [illegible] | 2 | | 2 |
| 3 | Relinquished by: | Date Time: | Received By: 3 | Relinquished By: 4 | Date Time: | Received By: 4 |
| 5 | Relinquished by: | Date Time: | Received By: 5 | On Ice Y / N; Trip Blank Y / N; Labels Match Coc? Y / N | | Cooler Temp. ____ °C |

K2212930

# CHAIN OF CUSTODY

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Mark Harris

COC #

Cooler # 1 of 1

Lab Quote #

Lab Job #:

**Client / Reporting Information**

Company Name: EA Engineering, Science, and Technology, Inc., PBC

Address: 2200 6th Ave., Suite 707

City: Seattle State: WA Zip: 98121

Project Contact: Jonathan Reeve and per contract

Phone #: 206-452-5358

Samplers's Name/Signature: Richard Rood

**Project Information**

Project Name: Boomsnub

Street: 7608 NE 47th Ave

City: Vancouver State: WA

Project #: 1611310

Email: jreeve@eaest.com, skettlewell@eaest.com, asmith@eaest.com, and esullivan@eaest.com

Purchase Order # 17578 23579

**Analytical Information**

**Matrix Codes**

W - Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

| Lab Sample ID | Sample ID | Collection Date | Time | Sampled by | Matrix | # of bottles | Number of preserved Bottles HCl | HNO3 | H2SO4 | NONE | EPA 8260C/ VOCs | EPA 200.7/ TOTAL CHROMIUM | EPA 200.7/ DISSOLVED CHROMIUM (field filtered) | EPA 6010C/TOTAL METALS (As, Ca, Mg, Mn) | EPA 6010C/DISSOLVED METALS (As, Ca, Mg, Mn) (field filtered) | EPA 300.0/ ANIONS (NO3, SO4) | SM 5310C/ DOC (Field Filtered) | SM5220C/ COD | RSK 175/ DISSOLVED GASES | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2242-036 | 11/1/22 | 1254 | RR/SS | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |
| | 2242-056 | 11/1/22 | 1252 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-046 | 11/1/22 | 1305 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-047 | 11/1/22 | 1315 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-048 | 11/1/22 | 1325 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-049 | 11/1/22 | 1335 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-050 | 11/1/22 | 1345 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-051 | 11/1/22 | 1400 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-055 | 11/1/22 | 1410 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-041 | 11/1/22 | 1430 | SS | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |
| | 2242-059 | 11/1/22 | 1535 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |

Turnaround Time (Business days): standard

Data Deliverable Information: Per contract

Comments / Remarks: Samples from Site Boomsnub O&M / Project 1611310/ Phase 7
Metals: As, Ca, Mg, Mn
O&M

Sample Custody must be documented below each time samples change possession.

| | Relinquished by | Date Time | Received By | Relinquished By | Date Time | Received By |
|---|---|---|---|---|---|---|
| 1 | Richard Rood | 11/3/22 9:45 | RMorrow KCS | 11/2/22 1540 | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

On Ice Y / N Trip Blank Y / N Cooler Temp. _____ °C

Labels Match Coc? Y / N

# CHAIN OF CUSTODY

1221937

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Mark Harris

COC # 1 of 2 | Cooler # 1 of 1

Lab Quote # | Lab Job #:

**Client / Reporting Information**

Company Name: EA Engineering, Science, and Technology, Inc., PBC

Address: 2200 6th Ave., Suite 707

City: Seattle | State: WA | Zip: 98121

Project Contact: Jonathan Reeve and per contract

Phone #: 206-452-5358

Samplers's Name/Signature: Richard Read

**Project Information**

Project Name: Boomsnub

Street: 7608 NE 47th Ave

City: Vancouver | State: WA

Project #: 1611310

Email: jreeve@eaest.com, skettlewell@eaest.com, asmith@eaest.com, and esullivan@eaest.com

Purchase Order #: 17578 23579

**Matrix Codes**

W - Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

| Lab Sample ID | Sample ID | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | Number of preserved Bottles HCl | HNO3 | H2SO4 | NONE | EPA 8260C/ VOCs | EPA 200.7/ TOTAL CHROMIUM | EPA 200.7/ DISSOLVED CHROMIUM (field filtered) | EPA 6010C/TOTAL METALS (As, Ca, Mg, Mn) | EPA 6010C/DISSOLVED METALS (As, Ca, Mg, Mn) (field filtered) | EPA 300.0/ ANIONS (NO3, SO4) | SM 5310C/ DOC (Field Filtered) | SM5220C/ COD | RSK 175/ DISSOLVED GASES | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2242-076 | 10/31/22 | 0945 | SS | W | 2 | 2 | | | | X | | | | | | | | | |
| | 2242-023 | 10/31/22 | 1045 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-020 | 10/31/22 | 1108 | SS | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |
| | 2242-021 | 10/31/22 | 1118 | SS | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |
| | 2242-022 | 10/31/22 | 1147 | SS | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |
| | 2242-060 | 10/31/22 | 1151 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-061 | 10/31/22 | 1205 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-062 | 10/31/22 | 1212 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-063 | 10/31/22 | 1220 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |
| | 2242-024 | 10/31/22 | 1232 | SS | GW | 1 | X* | 1 | | | | X | | | | | | | | |
| | 2242-019 | 10/31/22 | 1420 | RR | GW | 3 | 3 | | | | X | | | | | | | | | |

Turnaround Time (Business days): standard

Data Deliverable Information: Per contract

Comments / Remarks: Samples from Site Boomsnub O&M / Project 1611310/ Phase 7
Metals: As, Ca, Mg, Mn
O&M

Sample Custody must be documented below each time samples change possession.

| | Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|---|
| 1 | Richard Read | 11/2/22 9:45 | 1 LMorrow MCS 11/2/22 | 2 | | 2 |
| 3 3 | Relinquished by: | Date Time: | Received By: 3 | Relinquished By: 4 | Date Time: | Received By: 4 |
| 5 5 | Relinquished by: | Date Time: | Received By: 5 | On Ice Y / N; Labels Match Coc? Y / N | Trip Blank Y / N | Cooler Temp. ____ °C |

# CHAIN OF CUSTODY

1/22/2037

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Mark Harris

COC # 2 of 2 | Cooler # 1 of 1

Lab Quote # | Lab Job #:

## Client / Reporting Information

Company Name: EA Engineering, Science, and Technology, Inc., PBC

Address: 2200 6th Ave., Suite 707

City: Seattle State: WA Zip: 98121

Project Contact: Jonathan Reeve and per contract

Phone #: 206-452-5358

Samplers's Name/Signature: Richard Kendall

## Project Information

Project Name: Boomsnub

Street: 7608 NE 47th Ave

City: Vancouver State: WA

Project #: 1611310

Email: jreeve@eaest.com, skettleweli@eaest.com, asmith@eaest.com, and esullivan@eaest.com

Purchase Order #: 17578 23579

## Analytical Information

## Matrix Codes

W - Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

| Lab Sample ID | Sample ID | Collection: Date | Time | Sampled by | Matrix | # of bottles | Preserved: HCl | HNO3 | H2SO4 | NONE | EPA 8260C/ VOCs | EPA 200.7/ TOTAL CHROMIUM | EPA 200.7/ DISSOLVED CHROMIUM (field filtered) | EPA 6010C/TOTAL METALS (As, Ca, Mg, Mn) | EPA 6010C/DISSOLVED METALS (As, Ca, Mg, Mn) (field filtered) | EPA 300.0/ ANIONS (NO3, SO4) | SM 5310C/ DOC (Field Filtered) | SM5220C/ COD | RSK 175/ DISSOLVED GASES | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2242-025 | 10/31/22 | 1425 | SS | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |
| | 2242-026 | 10/31/22 | 1450 | SS | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |
| | 2242-031 | 10/31/22 | 1535 | RR | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |
| | 2242-030 | 10/31/22 | 1540 | SS | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |
| | 2242-045 | 10/31/22 | 1612 | RR | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |
| | 2242-027 | 10/31/22 | 1619 | SS | GW | 5 | 3 | 2 | | | X | X | X | | | | | | | |
| | 2242-028 | 10/31/22 | 1629 | SS | GW | 5 | 3 | 2 | | | X | X | X | | | | | | | |
| | 2242-029 | 10/31/22 | 1656 | SS | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |
| | ~~2242-037~~ | ~~10/31/22~~ | ~~1657~~ | ~~RR~~ | ~~GW~~ | ~~4~~ | | | | | | | | | | | | | | ED |
| | 2242-037 | 10/31/22 | 1657 | RR | GW | 4 | 3 | 1 | | | X | X | | | | | | | | |

Turnaround Time (Business days): standard

Data Deliverable Information: Per contract

Comments / Remarks: Samples from Site Boomsnub O&M / Project 1611310/ Phase 7
Metals: As, Ca, Mg, Mn
O&M

Sample Custody must be documented below each time samples change possession.

| | Relinquished by Sampler | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|---|
| 1 | Richard Kendall | 11/2/22 9:45 | 1 DLA 11/2/22 | 2 | | 2 |
| 3 | Relinquished by: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
| | | | 3 | 4 | | 4 |
| 5 | Relinquished by: | Date Time: | Received By: | On Ice Y / N | Trip Blank Y / N | Cooler Temp. |
| | | | 5 | Labels Match Coc? Y / N | | ____ oC |

K2213048

# CHAIN OF CUSTODY

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Mark Harris

COC # 1 of 2 | Cooler # 1 of 1

Lab Quote # | Lab Job #:

**Client / Reporting Information**

| | |
|---|---|
| Company Name | EA Engineering, Science, and Technology, Inc., PBC |
| Address | 2200 6th Ave., Suite 707 |
| City / State / Zip | Seattle / WA / 98121 |
| Project Contact | Jonathan Reeve and per contract |
| Phone # | 206-452-5358 |
| Samplers's Name/Signature | Richard Reed |

**Project Information**

| | |
|---|---|
| Project Name | Boomsnub |
| Street | 7608 NE 47th Ave |
| City / State | Vancouver / WA |
| Project # | 1611310 |
| Email | jreeve@eaest.com, skettlewell@eaest.com, asmith@eaest.com, and esullivan@eaest.com |
| Purchase Order # | 17578 23579 |

**Analytical Information**

EPA 8260C/ VOCs; EPA 200.7/ TOTAL CHROMIUM; EPA 200.7/ DISSOLVED CHROMIUM (field filtered); EPA 6010C/TOTAL METALS (As, Ca, Mg, Mn); EPA 6010C/DISSOLVED METALS (As, Ca, Mg, Mn) (field filtered); EPA 300.0/ ANIONS (NO3, SO4); SM 5310C/ DOC (Field Filtered); SM5220C/ COD; RSK 175/ DISSOLVED GASES

**Matrix Codes**

W - Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

| Lab Sample ID | Sample ID | Collection Date | Time | Sampled by | Matrix | # of bottles | Number of preserved Bottles: HCl | HNO3 | H2SO4 | NONE | 8260C | 200.7 TOTAL CHROMIUM | 200.7 DISSOLVED CHROMIUM | 6010C TOTAL METALS | 6010C DISSOLVED METALS | 300.0 ANIONS | 5310C DOC | 5220C COD | RSK 175 GASES | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2242-042 | 11/1/22 | 1608 | SS | GW | 4 | 3 | 1 | | | 3 | 1 | | | | | | | | |
| | 2242-040 | 11/1/22 | 1700 | SS | GW | 4 | 3 | 1 | | | 3 | 1 | | | | | | | | |
| | 2242-079 | 11/1/22 | 1722 | SS | W | 4 | 3 | 1 | | | 3 | 1 | | | | | | | | |
| | 2242-078 | 11/2/22 | 0949 | SS | W | 2 | 2 | | | | 2 | | | | | | | | | Trip Blank |
| | 2242-044 | 11/2/22 | 1051 | SS | GW | 4 | 3 | 1 | | | 3 | 1 | | | | | | | | |
| | 2242-043 | 11/2/22 | 1154 | SS | GW | ~~4~~ 12 | ~~3~~ X3 | ~~1~~ X3 | | | 3 | 1 | | | | | | | | MS/MSD |
| | ~~2242-077~~ | ~~11/2/22~~ | ~~1230~~ | ~~SS~~ | ~~W~~ | ~~2~~ | ~~2~~ | | | | 2 | | | | | | | | | ED |
| | 2242-039 | 11/2/22 | 1244 | SS | GW | 4 | 3 | 1 | | | 3 | 1 | | | | | | | | |
| | 2242-038 | 11/2/22 | 1338 | SS | GW | 4 | 3 | 1 | | | 3 | 1 | | | | | | | | |
| | 2242-001 | 11/2/22 | 1345 | RR | GW | 3 | 3 | | | | 3 | | | | | | | | | |
| | 2242-002 | 11/2/22 | 1352 | RR | GW | 3 | 3 | | | | 3 | | | | | | | | | |

Turnaround Time (Business days): standard

Data Deliverable Information: Per contract

Comments / Remarks: Samples from Site Boomsnub O&M / Project 1611310/ Phase 7
Metals: As, Ca, Mg, Mn
O&M

Sample Custody must be documented below each time samples change possession.

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 Richard Reed | 11/4/22 10:30 | 1 | 2 | 11/4/22 1320 | 2 |
| Relinquished by: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
| 3 3 | | 3 | 4 | | 4 |
| Relinquished by: | Date Time: | Received By: | On Ice Y / N | Trip Blank Y / N | Cooler Temp. |
| 5 5 | | 5 | Labels Match Coc? Y / N | | ____ °C |

# CHAIN OF CUSTODY

K2213048

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Mark Harris

COC # 2 of 2 | Cooler # 1 of 1

Lab Quote # | Lab Job #:

**Client / Reporting Information**

Company Name: EA Engineering, Science, and Technology, Inc., PBC

Address: 2200 6th Ave., Suite 707

City: Seattle State: WA Zip: 98121

Project Contact: Jonathan Reeve and per contract

Phone #: 206-452-5358

Samplers's Name/Signature: Robert Reed

**Project Information**

Project Name: Boomsnub

Street: 7608 NE 47th Ave

City: Vancouver State: WA

Project #: 1611310

Email: jreeve@eaest.com, skettlewell@eaest.com, asmith@eaest.com, and esullivan@eaest.com

Purchase Order #: 17578 23579

**Matrix Codes**

W - Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

| Lab Sample ID | Sample ID | Collection Date | Time | Sampled by | Matrix | # of bottles | Number of preserved Bottles HCl | HNO3 | H2SO4 | NONE | | | | | Analytical Information: EPA 8260C/ VOCs | EPA 200.7/ TOTAL CHROMIUM | EPA 200.7/ DISSOLVED CHROMIUM (field filtered) | EPA 6010C/TOTAL METALS (As, Ca, Mg, Mn) | EPA 6010C/DISSOLVED METALS (As, Ca, Mg, Mn) (field filtered) | EPA 300.0/ ANIONS (NO3, SO4) | SM 5310C/ DOC (Field Filtered) | SM5220C/ COD | RSK 175/ DISSOLVED GASES | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2242-007 | 11/2/22 | 1505 | RR | GW | 3 | 3 | | | | | | | | 3 | | | | | | | | | | | |
| | 2242-005 | 11/2/22 | 1528 | SS | GW | 4 | 3 | 1 | | | | | | | 3 | 1 | | | | | | | | | | |
| | 2242-080 | 11/2/22 | 1720 | SS | W | 4 | 3 | 1 | | | | | | | 3 | 1 | | | | | | | | | | |
| | 2242-057 | 11/2/22 | 1750 | RR | GW | 3 | 3 | | | | | | | | 3 | | | | | | | | | | | |
| | 2242-003 | 11/3/22 | 0853 | SS | GW | 3 | 3 | | | | | | | | 3 | | | | | | | | | | | |
| | 2242-008 | 11/3/22 | 1028 | RR | GW | 3 | 3 | | | | | | | | 3 | | | | | | | | | | | |
| | 2242-014 | 11/3/22 | 1140 | RR | GW | 4 | 3 | 1 | | | | | | | 3 | 1 | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |

Turnaround Time (Business days): standard

Data Deliverable Information: Per contract

Comments / Remarks: Samples from Site Boomsnub O&M / Project 1611310/ Phase 7
Metals: As, Ca, Mg, Mn
O&M

Sample Custody must be documented below each time samples change possession.

| | Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|---|
| 1 | Robert Reed | 11/4/22 10:30 | 1 | 2 | 11/4/22 1320 | 2 |
| 3 3 | Relinquished by: | Date Time: | Received By: 3 | Relinquished By: 4 | Date Time: | Received By: 4 |
| 5 5 | Relinquished by: | Date Time: | Received By: 5 | On Ice Y / N; Labels Match Coc? Y / N | Trip Blank Y / N | Cooler Temp. ____ oC |

K22 13052

# CHAIN OF CUSTODY

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Mark Harris

COC # 1 of 1 | Cooler # 1 of 1

Lab Quote # | Lab Job #:

## Client / Reporting Information

Company Name: EA Engineering, Science, and Technology, Inc., PBC

Address: 2200 6th Ave., Suite 707

City: Seattle State: WA Zip: 98121

Project Contact: Jonathan Reeve and per contract

Phone #: 206-452-5358

Samplers's Name/Signature: Richard Rust

## Project Information

Project Name: Boomsnub

Street: 7608 NE 47th Ave

City: Vancouver State: WA

Project #: 1611310

Email: jreeve@eaest.com, skettlewell@eaest.com, asmith@eaest.com, and esullivan@eaest.com

Purchase Order #: 17576 23579

## Matrix Codes

W - Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

| Lab Sample ID | Sample ID | Collection Date | Time | Sampled by | Matrix | # of bottles | Number of preserved Bottles HCl | HNO3 | H2SO4 | NONE | | | | EPA 8260C/ VOCs | EPA 200.7/ TOTAL CHROMIUM | EPA 200.7/ DISSOLVED CHROMIUM (field filtered) | EPA 6010C/TOTAL METALS (As, Ca, Mg, Mn) | EPA 6010C/DISSOLVED METALS (As, Ca, Mg, Mn) (field filtered) | EPA 300.0/ ANIONS (NO3, SO4) | SM 5310C/ DOC (Field Filtered) | SM5220C: COD | RSK 175/ DISSOLVED GASES | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2242-081 | 11/3/22 | 0820 | SS | W | 2 | 2 | | | | | | | 2 | | | | | | | | | | | |
| | 2242-058 | 11/3/22 | 1505 | RR | GW | 12 | 9 | 3 | | | | | | 9 | 3 | | | | | | | | | | |
| | 2242-015 | 11/3/22 | 1540 | SS | GW | 36 | 9 | 3 | 3 | | | | | 9 | 3 | | 3 | 3 | 3 | 3 | 3 | 9 | | | |
| | 2242-012 | 11/3/22 | 1650 | SS | GW | 4 | 3 | 1 | | | | | | 3 | 1 | | | | | | | | | | |
| | 2242-004 | 11/3/22 | 1720 | RR | GW | 4 | 3 | 1 | | | | | | 3 | 1 | | | | | | | | | | |
| | 2242-082 | 11/3/22 | 1730 | SS | W | 4 | 3 | 1 | | | | | | 3 | 1 | | | | | | | | | | |

Turnaround Time (Business days): standard

Data Deliverable Information: Per contract

Comments / Remarks: Samples from Site Boomsnub O&M / Project 1611310/ Phase 7
Metals: As, Ca, Mg, Mn
O&M

Sample Custody must be documented below each time samples change possession.

| | Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|---|
| 1 | Richard Rust | 11/4/22 1030 | 1 | 2 | 11/4/22 1320 | 2 |
| 3 3 | Relinquished by: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
| | | | 3 | 4 | | 4 |
| 5 5 | Relinquished by: | Date Time: | Received By: | On Ice Y / N | Trip Blank Y / N | Cooler Temp. |
| | | | 5 | Labels Match Coc? Y / N | | ____ oC |

# CHAIN OF CUSTODY

K22 B056

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Mark Harris

COC # 1 of 1 | Cooler # 1 of 1

Lab Quote # | Lab Job #:

**Client / Reporting Information**

Company Name: EA Engineering, Science, and Technology, Inc., PBC

Address: 2200 6th Ave., Suite 707

City: Seattle State: WA Zip: 98121

Project Contact: Jonathan Reeve and per contract

Phone #: 206-452-5358

Samplers's Name/Signature: Richard Reed

**Project Information**

Project Name: Boomsnub

Street: 7608 NE 47th Ave

City: Vancouver State: WA

Project # ~~1611310~~ 1611309

Email: jreeve@eaest.com, skettlewell@eaest.com, asmith@eaest.com, and esullivan@eaest.com

Purchase Order # 17578 23579

**Matrix Codes**

W - Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

| Lab Sample ID | Sample ID | Collection Date | Time | Sampled by | Matrix | # of bottles | Number of preserved Bottles HCl | HNO3 | H2SO4 | NONE | EPA 8260C/ VOCs | EPA 200.7/ TOTAL CHROMIUM | EPA 200.7/ DISSOLVED CHROMIUM (field filtered) | EPA 6010C/TOTAL METALS (As, Ca, Mg, Mn) | EPA 6010C/DISSOLVED METALS (As, Ca, Mg, Mn) (field filtered) | EPA 300.0/ ANIONS (NO3, SO4) | SM 5310C/ DOC (Field Filtered) | SM5220C/ COD | RSK 175/ DISSOLVED GASES | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2242-067 | 11/2/22 | 1408 | RR | GW | 3 | 3 | | | | 3 | | | | | | | | | |
| | 2242-069 | 11/2/22 | 1430 | RR | GW | 3 | 3 | | | | 3 | | | | | | | | | |
| | 2242-072 | 11/2/22 | 1448 | RR | GW | 3 | 3 | | | | 3 | | | | | | | | | |
| | 2242-066 | 11/2/22 | 1525 | RR | GW | 3 | 3 | | | | 3 | | | | | | | | | |
| | 2242-071 | 11/2/22 | 1554 | RR | GW | 3 | 3 | | | | 3 | | | | | | | | | |
| | 2242-070 | 11/2/22 | 1400 | | | | | | | | | | | | | | | | | ED |
| | 2242-070 | 11/2/22 | 1626 | SS | GW | 4 | 3 | 1 | | | 3 | 1 | | | | | | | | |
| | 2242-083 | 11/2/22 | 1400 | RR | GW | 3 | 3 | | | | 3 | | | | | | | | | |

Turnaround Time (Business days): standard

Data Deliverable Information: Per contract

Comments / Remarks: Samples from Site Boomsnub O&M / Project 1611310/ Phase 7
Metals: As, Ca, Mg, Mn
O&M

Sample Custody must be documented below each time samples change possession.

| | Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|---|
| 1 | Richard Reed | 11/4/22 1030 | 1 | 2 | 11/4/22 1320 | 2 |
| 3 3 | Relinquished by: | Date Time: | Received By: 3 | Relinquished By: 4 | Date Time: | Received By: 4 |
| 5 5 | Relinquished by: | Date Time: | Received By: 5 | On Ice Y / N; Trip Blank Y / N; Labels Match Coc? Y / N | | Cooler Temp. _____ oC |

# CHAIN OF CUSTODY

K22 13062

Laboratory Information

Address: 1317 South 13th Ave., Kelso, WA 98626

Phone #: 360-577-7222 POC: Mark Harris

COC # 1 of 1 | Cooler # 1 of 1

Lab Quote # | Lab Job #:

## Client / Reporting Information

**Company Name:** EA Engineering, Science, and Technology, Inc., PBC

**Address:** 2200 6th Ave., Suite 707

**City:** Seattle **State:** WA **Zip:** 98121

**Project Contact:** Jonathan Reeve and per contract

**Phone #:** 206-452-5358

**Samplers's Name/Signature:** Richard Reed

## Project Information

**Project Name:** Boomsnub

**Street:** 7608 NE 47th Ave

**City:** Vancouver **State:** WA

**Project #:** 1611310

**Email:** jreeve@eaest.com, skettlewell@eaest.com, asmith@eaest.com, and esullivan@eaest.com

**Purchase Order #:** 17578 23579

## Analytical Information

## Matrix Codes

W - Water
GW - Ground Water
SW - Surface Water
SO - Soil
OI - Oil
WP - Wipe
LIQ - Non-aqueous Liquid
AIR
DW - Drinking Water (Perchlorate Only)

| Lab Sample ID | Sample ID | Collection: Date | Time | Sampled by | Matrix | # of bottles | Number of preserved Bottles: HCl | HNO3 | H2SO4 | NONE | EPA 8260C/ VOCs | EPA 200.7/ TOTAL CHROMIUM | EPA 200.7/ DISSOLVED CHROMIUM (field filtered) | EPA 6010C/TOTAL METALS (As, Ca, Mg, Mn) | EPA 6010C/DISSOLVED METALS (As, Ca, Mg, Mn) (field filtered) | EPA 300.0/ ANIONS (NO3, SO4) | SM 5310C/ DOC (Field Filtered) | SM5220C/ COD | RSK 175/ DISSOLVED GASES | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2242-077 | 11/2/22 | 1230 | ~~RR~~ SS ED | W | 2 | 2 | | | | 2 | | | | | | | | | |
| | 2242-009 | 11/3/22 | 1059 | SS | GW | 12 | 7 | 3 | 1 | 1 | 3 | 1 | | 1 | 1 | 1 | 1 | 1 | 3 | |
| | 2242-010 | 11/3/22 | 1109 | SS | GW | 12 | 7 | 3 | 1 | 1 | 3 | 1 | | 1 | 1 | 1 | 1 | 1 | 3 | |
| | 2242-006 | 11/3/22 | 1009 | SS | GW | 11 ED | 7 | 2 | 1 | 1 | 3 | | | 1 | 1 | 1 | 1 | | 3 | |
| | 2242-011 | 11/3/22 | 1157 | SS | GW | ~~12~~ | 7 | 3 | 1 | 1 | 3 | 1 | | 1 | 1 | 1 | 1 | 1 | 3 | |
| | 2242-013 | 11/3/22 | 1202 | RR | GW | 4 | 3 | 1 | | | 3 | 1 | | 3 ED | | | | | | |
| | 2242-018 | 11/3/22 | 1325 | SS | GW | 11 ED | 7 | 2 | 1 | 1 | 3 | | | 1 | 1 | 1 | 1 | 1 | 3 | |
| | 2242-016 | 11/3/22 | 1328 | RR | GW | 12 | 7 | 3 | 1 | 1 | 3 | 1 | | 1 | 1 | 1 | 1 | 1 | 3 | |
| | 2242-017 | 11/3/22 | 1445 | SS | GW | 4 | 3 | 1 | | | 3 | 1 | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |

**Turnaround Time (Business days):** standard

**Data Deliverable Information:** Per contract

**Comments / Remarks:** Samples from Site Boomsnub O&M / Project 1611310/ Phase 7
Metals: As, Ca, Mg, Mn
O&M

Sample Custody must be documented below each time samples change possession.

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 Richard Reed | 11/4/22 1030 | 1 | 2 | 11/4/22 1320 | 2 |
| **Relinquished by:** | **Date Time:** | **Received By:** | **Relinquished By:** | **Date Time:** | **Received By:** |
| 3 3 | | 3 | 4 | | 4 |
| **Relinquished by:** | **Date Time:** | **Received By:** | **On Ice Y / N** | **Trip Blank Y / N** | **Cooler Temp.** |
| 5 5 | | 5 | **Labels Match Coc? Y / N** | | _____ oC |

ALS Environmental

# CHAIN OF CUSTODY
# 126946

001

SR#_____

COC Set_____of_____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com



K2213733

| | |
|---|---|
| Project Name: Boomsnub | Project Number: 161310.007 |
| Project Manager: Jonathan Reeve | |
| Company: EA Engineering | |
| Address: 2200 6th Ave, Suite 707, Seattle, WA 98121 | |
| Phone #: (206) 452-5350 | email: jreeve@eaest.com |
| Sampler Signature: Richard Read | Sampler Printed Name: RICK READ |

| CLIENT SAMPLE ID | LABID | SAMPLING Date | SAMPLING Time | Matrix | NUMBER OF CONTAINERS | 48H: 300.0 / NO3 | 14D: 8260C / VOC FP | 14D: RSK 175 / Gases | 28D: 300.0 / Chloride | 28D: 300.0 / SO4 | 28D: 9060 / TOC D | 28D: 9060 / TOC T | 28D: SM 5220 C / COD T | 180D: 6010C / Metals D | 180D: 6010C / Metals T | 180D: 6020A / Metals D | 180D: 6020A / Metals T | 1 | 2 | 3 | 4 | 5 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. 2246-068 | | 10/18/22 | 0730 | $H_2O$ | 3 | | X | | | | | | | | | | | | | | | | |
| 2. 2246-080 | | 10/18/22 | 0710 | $H_2O$ | 2 | | X | | | | | | | | | | | | | | | | |
| 3. | | | | | | | | | | | | | | | | | | | | | | | |
| 4. | | | | | | | | | | | | | | | | | | | | | | | |
| 5. | | | | | | | | | | | | | | | | | | | | | | | |
| 6. | | | | | | | | | | | | | | | | | | | | | | | |
| 7. | | | | | | | | | | | | | | | | | | | | | | | |
| 8. | | | | | | | | | | | | | | | | | | | | | | | |
| 9. | | | | | | | | | | | | | | | | | | | | | | | |
| 10. | | | | | | | | | | | | | | | | | | | | | | | |

## Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

X III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

X V. EDD

## Invoice Information

P.O.#_____

Bill To:_____

## Turnaround Requirements

___ 24 hr. ___ 48 hr.

X 5 Day

___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

| Relinquished By: | Received By: | Relinquished By: | Received By: | Relinquished By: | Received By: |
|---|---|---|---|---|---|
| Signature: Richard Read | Signature: Josh McMenamin | Signature | Signature | Signature | Signature |
| Printed Name: RICK READ | Printed Name: ALS | Printed Name | Printed Name | Printed Name | Printed Name |
| Firm: EA | Firm | Firm | Firm | Firm | Firm |
| Date/Time: 11/18/22 0815 | Date/Time: 11-18-22 1400 | Date/Time | Date/Time | Date/Time | Date/Time |

# Groundwater Analysis

Sample Name AMW-1A Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-046

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.61 | | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 11 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 3.8 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-1B Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-047

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.14 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-1C Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-048

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-2A Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-049

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 1.5 | | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.090 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 5.2 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 1.2 | | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.53 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 47 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-2B Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-050

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.14 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-3A Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-051

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.18 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.37 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.78 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-4A Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-052

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-8A Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-064

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.78 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-8A (DUP) Sampling Method PDB

Sample Date 11/1/2022

Sample Type FD

Sample ID 2242-065

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.73 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-13A Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-054

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.54 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-16 Sampling Method PDB

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-066

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.24 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.26 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.11 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 54 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-18 Sampling Method PDB

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-067

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 9.7 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-19A Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-055

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.21 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.12 | J | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 4.0 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.36 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 2.3 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-24 Sampling Method PDB

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-001

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.44 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.83 | | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 4.1 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-24 (DUP) Sampling Method PDB

Sample Date 11/2/2022

Sample Type FD

Sample ID 2242-002

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.45 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.94 | | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 4.3 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-26 Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-056

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.38 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 12 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.11 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.6 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-52A Sampling Method PDB

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-057

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.63 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-53A Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-058

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 7.1 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.78 | | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 6.2 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.37 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 7.7 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-56A Sampling Method PDB

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-059

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.38 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 3.2 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.13 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.47 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 3.5 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-58 Sampling Method PDB

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-019

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-59 Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-006

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E300.0 | NITRATE AS NITROGEN | 0.10 | U | mg/l | 14797-55-8 |
| E300.0 | SULFATE | 0.42 | | mg/l | 14808-79-8 |
| SM5220C | Chemical Oxygen Demand | 5 | J | mg/l | COD |
| SM5310C | Dissolved Organic Carbon | 0.80 | | mg/l | DOC |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | CALCIUM METAL | 93800 | | ug/l | 7440-70-2 |
| SW6010C | CALCIUM METAL | 95100 | | ug/l | 7440-70-2 |
| SW6010C | MAGNESIUM | 30300 | | ug/l | 7439-95-4 |
| SW6010C | MAGNESIUM | 30100 | | ug/l | 7439-95-4 |
| SW6010C | MANGANESE | 1660 | | ug/l | 7439-96-5 |
| SW6010C | MANGANESE | 1680 | | ug/l | 7439-96-5 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |

# Groundwater Analysis

Sample Name AMW-59 Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-006

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.31 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-60 Sampling Method PDB

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-007

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 4.8 | | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.70 | | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.31 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 9.3 | | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-61 Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-004

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 27.1 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.13 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 1.5 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 4.7 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-64 Sampling Method PDB

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-069

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 8.3 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name Bennett
Sampling Method GRAB
Sample Date 11/3/2022
Sample Type N
Sample ID 2242-003

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.19 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.43 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.9 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name CPU-14 Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-008

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.51 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-1A Sampling Method PDB

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-060

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.13 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-1B

Sampling Method PDB

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-061

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-1B (DUP) Sampling Method PDB

Sample Date 10/31/2022

Sample Type FD

Sample ID 2242-062

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-1C

Sampling Method PDB

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-063

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-2A Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-020

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 71.0 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.15 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.26 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-2A (DUP) Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type FD

Sample ID 2242-021

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 68.5 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.15 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.32 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-2B Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-022

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 3.0 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.23 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.2 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-2C

Sampling Method PDB

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-023

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.10 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.27 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-3A Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-024

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 152 | | ug/l | 7440-47-3 |

# Groundwater Analysis

Sample Name MW-3B Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-025

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 4.9 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.19 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.16 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 3.7 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-3C

Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-026

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 6.3 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.31 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.4 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-4A

Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-027

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 456 | | ug/l | 7440-47-3 |
| E200.7 | CHROMIUM | 455 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.44 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.8 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-4A (DUP) Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type FD

Sample ID 2242-028

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 452 | | ug/l | 7440-47-3 |
| E200.7 | CHROMIUM | 444 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.45 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.9 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-4B

Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-029

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 319 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.090 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.20 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.46 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 3.1 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-4BSHED Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-030

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 101 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.19 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 2.1 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-4C

Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-031

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 35.5 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.080 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.18 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.99 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-6A Sampling Method LOW-FLOW

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-032

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 13.8 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.20 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-6A (DUP) Sampling Method LOW-FLOW

Sample Date 11/1/2022

Sample Type FD

Sample ID 2242-033

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 13.1 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.24 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-6B Sampling Method LOW-FLOW

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-034

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 28.0 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.14 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.81 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.22 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.32 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 11 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-6C

Sampling Method LOW-FLOW

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-035

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 4.1 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.14 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.77 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-6D Sampling Method LOW-FLOW

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-036

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 4.2 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.32 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-7B

Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-037

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 11.6 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.46 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 2.1 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-7C Sampling Method LOW-FLOW

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-038

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 3.8 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.21 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-9B Sampling Method LOW-FLOW

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-040

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 8.2 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.55 | | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 15 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.16 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.45 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.5 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-8B Sampling Method LOW-FLOW

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-039

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 8.4 | U | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.46 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 14 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.47 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.7 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-10B Sampling Method LOW-FLOW

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-041

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 63.3 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.10 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.93 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.15 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.56 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 3.0 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-10C Sampling Method LOW-FLOW

Sample Date 11/1/2022

Sample Type N

Sample ID 2242-042

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 169 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.40 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.10 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 3.1 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.22 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.42 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 8.1 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-12C

Sampling Method LOW-FLOW

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-043

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 2.8 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.13 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.29 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 2.3 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-13C Sampling Method LOW-FLOW

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-044

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 46.8 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.43 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.94 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-14C Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-009

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 67.8 | | ug/l | 7440-47-3 |
| E300.0 | NITRATE AS NITROGEN | 3.18 | | mg/l | 14797-55-8 |
| E300.0 | SULFATE | 27.0 | | mg/l | 14808-79-8 |
| SM5220C | Chemical Oxygen Demand | 10 | U | mg/l | COD |
| SM5310C | Dissolved Organic Carbon | 0.24 | J | mg/l | DOC |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | CALCIUM METAL | 19000 | | ug/l | 7440-70-2 |
| SW6010C | CALCIUM METAL | 19200 | | ug/l | 7440-70-2 |
| SW6010C | MAGNESIUM | 7780 | | ug/l | 7439-95-4 |
| SW6010C | MAGNESIUM | 7860 | | ug/l | 7439-95-4 |
| SW6010C | MANGANESE | 151 | | ug/l | 7439-96-5 |
| SW6010C | MANGANESE | 157 | | ug/l | 7439-96-5 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.090 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |

# Groundwater Analysis

Sample Name MW-14C Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-009

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.22 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.080 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.55 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 4.2 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-14C (DUP) Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type FD

Sample ID 2242-010

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 67.7 | | ug/l | 7440-47-3 |
| E300.0 | NITRATE AS NITROGEN | 3.16 | | mg/l | 14797-55-8 |
| E300.0 | SULFATE | 26.7 | | mg/l | 14808-79-8 |
| SM5220C | Chemical Oxygen Demand | 10 | U | mg/l | COD |
| SM5310C | Dissolved Organic Carbon | 0.50 | U | mg/l | DOC |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | CALCIUM METAL | 19000 | | ug/l | 7440-70-2 |
| SW6010C | CALCIUM METAL | 18900 | | ug/l | 7440-70-2 |
| SW6010C | MAGNESIUM | 7790 | | ug/l | 7439-95-4 |
| SW6010C | MAGNESIUM | 7800 | | ug/l | 7439-95-4 |
| SW6010C | MANGANESE | 149 | | ug/l | 7439-96-5 |
| SW6010C | MANGANESE | 146 | | ug/l | 7439-96-5 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.090 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |

# Groundwater Analysis

Sample Name MW-14C (DUP) Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type FD

Sample ID 2242-010

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.21 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.49 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 4.0 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-14E Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-011

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 207 | | ug/l | 7440-47-3 |
| E300.0 | NITRATE AS NITROGEN | 2.66 | | mg/l | 14797-55-8 |
| E300.0 | SULFATE | 29.0 | | mg/l | 14808-79-8 |
| SM5220C | Chemical Oxygen Demand | 10 | U | mg/l | COD |
| SM5310C | Dissolved Organic Carbon | 0.09 | J | mg/l | DOC |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | CALCIUM METAL | 25600 | | ug/l | 7440-70-2 |
| SW6010C | CALCIUM METAL | 25700 | | ug/l | 7440-70-2 |
| SW6010C | MAGNESIUM | 9370 | | ug/l | 7439-95-4 |
| SW6010C | MAGNESIUM | 9340 | | ug/l | 7439-95-4 |
| SW6010C | MANGANESE | 145 | | ug/l | 7439-96-5 |
| SW6010C | MANGANESE | 13.9 | | ug/l | 7439-96-5 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.11 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.090 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |

# Groundwater Analysis

Sample Name MW-14E

Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-011

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.47 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 3.0 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 19 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-15E Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-012

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 2.4 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.22 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.6 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-18D Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-013

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 139 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.14 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.10 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.24 | J | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.57 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 4.0 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-18E Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-014

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 8.4 | U | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.22 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 1.9 | | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.41 | J | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.68 | | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-19D Sampling Method PDB

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-015

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 6.2 | J | ug/l | 7440-47-3 |
| E300.0 | NITRATE AS NITROGEN | 0.91 | | mg/l | 14797-55-8 |
| E300.0 | SULFATE | 14.5 | | mg/l | 14808-79-8 |
| SM5220C | Chemical Oxygen Demand | 10 | U | mg/l | COD |
| SM5310C | Dissolved Organic Carbon | 0.30 | J | mg/l | DOC |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | CALCIUM METAL | 21000 | | ug/l | 7440-70-2 |
| SW6010C | CALCIUM METAL | 35200 | | ug/l | 7440-70-2 |
| SW6010C | MAGNESIUM | 9900 | | ug/l | 7439-95-4 |
| SW6010C | MAGNESIUM | 4040 | | ug/l | 7439-95-4 |
| SW6010C | MANGANESE | 79.0 | | ug/l | 7439-96-5 |
| SW6010C | MANGANESE | 151 | | ug/l | 7439-96-5 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |

# Groundwater Analysis

Sample Name MW-19D Sampling Method PDB

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-015

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.97 | | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 3.7 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.42 | J | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-20D Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-016

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 137 | | ug/l | 7440-47-3 |
| E300.0 | NITRATE AS NITROGEN | 2.46 | | mg/l | 14797-55-8 |
| E300.0 | SULFATE | 13.0 | | mg/l | 14808-79-8 |
| SM5220C | Chemical Oxygen Demand | 10 | U | mg/l | COD |
| SM5310C | Dissolved Organic Carbon | 0.11 | J | mg/l | DOC |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | CALCIUM METAL | 34900 | | ug/l | 7440-70-2 |
| SW6010C | CALCIUM METAL | 35200 | | ug/l | 7440-70-2 |
| SW6010C | MAGNESIUM | 14500 | | ug/l | 7439-95-4 |
| SW6010C | MAGNESIUM | 14100 | | ug/l | 7439-95-4 |
| SW6010C | MANGANESE | 320 | | ug/l | 7439-96-5 |
| SW6010C | MANGANESE | 665 | | ug/l | 7439-96-5 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.10 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.16 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |

# Groundwater Analysis

Sample Name MW-20D Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-016

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.13 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 1.1 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 11 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-21D

Sampling Method LOW-FLOW

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-070

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 5.4 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.14 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 1.4 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-22D Sampling Method LOW-FLOW

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-005

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 86.6 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.35 | J | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.14 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.090 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 3.2 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 8.4 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-23D Sampling Method PDB

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-071

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.24 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 1.4 | | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.49 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 49 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-38 Sampling Method PDB

Sample Date 11/2/2022

Sample Type N

Sample ID 2242-072

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.22 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.57 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 12 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name MW-40 Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-017

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 127 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.16 | J | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.59 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name PW-1B

Sampling Method LOW-FLOW

Sample Date 10/31/2022

Sample Type N

Sample ID 2242-045

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 47.7 | | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.090 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.19 | J | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.49 | J | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 2.7 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name PZ-39 Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-018

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E300.0 | NITRATE AS NITROGEN | 1.79 | | mg/l | 14797-55-8 |
| E300.0 | SULFATE | 25.6 | | mg/l | 14808-79-8 |
| SM5220C | Chemical Oxygen Demand | 10 | U | mg/l | COD |
| SM5310C | Dissolved Organic Carbon | 0.20 | J | mg/l | DOC |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | ARSENIC | 21 | U | ug/l | 7440-38-2 |
| SW6010C | CALCIUM METAL | 76800 | | ug/l | 7440-70-2 |
| SW6010C | CALCIUM METAL | 75400 | | ug/l | 7440-70-2 |
| SW6010C | MAGNESIUM | 17900 | | ug/l | 7439-95-4 |
| SW6010C | MAGNESIUM | 18000 | | ug/l | 7439-95-4 |
| SW6010C | MANGANESE | 47.1 | | ug/l | 7439-96-5 |
| SW6010C | MANGANESE | 55.2 | | ug/l | 7439-96-5 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.39 | J | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.87 | | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |

# Groundwater Analysis

Sample Name PZ-39 Sampling Method LOW-FLOW

Sample Date 11/3/2022

Sample Type N

Sample ID 2242-018

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | CFC-11 | 0.86 | | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.90 | | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.55 | | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 28 | | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name EQUIPMENT BLANK-01 Sampling Method

Sample Date 10/31/2022

Sample Type EB

Sample ID 2242-073

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 8.4 | U | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.25 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.34 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name EQUIPMENT BLANK-02 Sampling Method

Sample Date 11/1/2022

Sample Type EB

Sample ID 2242-079

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 8.4 | U | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.10 | J | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.33 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name EQUIPMENT BLANK-03 Sampling Method

Sample Date 11/2/2022

Sample Type EB

Sample ID 2242-080

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 8.4 | U | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.21 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name EQUIPMENT BLANK-04 Sampling Method

Sample Date 11/3/2022

Sample Type EB

Sample ID 2242-082

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| E200.7 | CHROMIUM | 6.2 | J | ug/l | 7440-47-3 |
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.26 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name TRIP BLANK-01 Sampling Method

Sample Date 10/31/2022

Sample Type TB

Sample ID 2242-076

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.50 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name TRIP BLANK-02 Sampling Method

Sample Date 11/1/2022

Sample Type TB

Sample ID 2242-075

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.44 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name TRIP BLANK-03 Sampling Method

Sample Date 11/1/2022

Sample Type TB

Sample ID 2242-074

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.44 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name TRIP BLANK-04 Sampling Method

Sample Date 11/2/2022

Sample Type TB

Sample ID 2242-078

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.49 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name TRIP BLANK-05 Sampling Method

Sample Date 11/2/2022

Sample Type TB

Sample ID 2242-077

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.38 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name TRIP BLANK-06 Sampling Method

Sample Date 11/2/2022

Sample Type TB

Sample ID 2242-083

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.49 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name TRIP BLANK-07 Sampling Method

Sample Date 11/3/2022

Sample Type TB

Sample ID 2242-081

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CHLORODIBROMOMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DICHLOROMETHANE | 0.55 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name AMW-23 Sampling Method PDB

Sample Date 11/18/2022

Sample Type N

Sample ID 2246-068

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DIBROMOCHLOROMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | DICHLOROMETHANE | 2.0 | U | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Groundwater Analysis

Sample Name EQUIPMENT BLANK-05 Sampling Method

Sample Date 11/18/2022

Sample Type EB

Sample ID 2246-080

| Analytic Method | Analyte | Result | Qualifiers | Unit | Cas Number |
|---|---|---|---|---|---|
| SW8260C | 1,1,1-TRICHLOROETHANE | 0.50 | U | ug/l | 71-55-6 |
| SW8260C | 1,1,2,2-TETRACHLOROETHANE | 0.50 | U | ug/l | 79-34-5 |
| SW8260C | 1,1-DICHLOROETHYLENE | 0.50 | U | ug/l | 75-35-4 |
| SW8260C | 1,2-DIBROMO-3-CHLOROPROPANE | 2.0 | U | ug/l | 96-12-8 |
| SW8260C | 1,2-DICHLOROETHANE | 0.50 | U | ug/l | 107-06-2 |
| SW8260C | BROMODICHLOROMETHANE | 0.50 | U | ug/l | 75-27-4 |
| SW8260C | CARBON TETRACHLORIDE | 0.50 | U | ug/l | 56-23-5 |
| SW8260C | CFC-11 | 0.50 | U | ug/l | 75-69-4 |
| SW8260C | CIS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-59-2 |
| SW8260C | DIBROMOCHLOROMETHANE | 0.50 | U | ug/l | 124-48-1 |
| SW8260C | DICHLOROMETHANE | 0.50 | J | ug/l | 75-09-2 |
| SW8260C | HEXACHLORO-1,3-BUTADIENE | 2.0 | U | ug/l | 87-68-3 |
| SW8260C | TETRACHLOROETHENE | 0.50 | U | ug/l | 127-18-4 |
| SW8260C | TRANS-1,2-DICHLOROETHENE | 0.50 | U | ug/l | 156-60-5 |
| SW8260C | TRICHLOROETHYLENE | 0.50 | U | ug/l | 79-01-6 |
| SW8260C | VINYL CHLORIDE | 0.50 | U | ug/l | 75-01-4 |

# Appendix B

# OU-3 Reports to the City of Vancouver and Supporting Flow Data

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EA Engineering, Science, and Technology, Inc., PBC

2200 Sixth Avenue, Suite 707
Seattle, Washington 98121
Telephone: 206-452-5350
Fax: 206-443-7646
www.eaest.com

14 April 2022
1611310 LN1753

Mr. Nick Imbery
Industrial Pretreatment Coordinator
City of Vancouver
Marine Park Engineering Office
P.O. Box 1995
Vancouver, Washington 98668-1995

Subject: Self-Monitoring Report – 31 March 2022
Boomsnub/Airco Superfund Site
Hazel Dell, Washington

Dear Mr. Imbery:

On behalf of Messer LLC (Messer), we are submitting the Self-Monitoring Report for the Boomsnub/Airco Superfund Site, prepared in accordance with the City of Vancouver Industrial Wastewater Discharge Permit 2019-06. The time period covered includes January through March 2022. However, please note that due to system shut down in January 2021 no data is included in this Self-Monitoring Report.

The system was turned off, drained, and winterized on 3 January 2021 with prior approval from the Environmental Protection Agency (EPA). The Groundwater Treatment System will remain in this "mothballed" state unless the EPA or Messer elects to reactivate the system at a later time.

Please let me know if you have any questions regarding the enclosed information.

Sincerely,

Jonathan Reeve, LHG
Project Manager

JR/lw
cc: Kevin Svitana

Enclosures: City of Vancouver Self-Monitoring Report

*Industrial Wastewater Discharge Monitoring Report*

CITY OF Vancouver WASHINGTON

*Industrial Pretreatment*
*P.O. Box 1995*
*Vancouver, WA 98668*
*Office: 360-487-7130*
*Fax: 360- 487-7139*

**Industry Name:** **Messer (Boomsnub Airco Superfund)** Permit Number: 2019-06
Report Due Date (check one): ■ **April 30** □ July 30 □ October 30 □ January 31
Sample Collection Date: System Off – No Samples Collected

| Parameter | Result | Daily Maximum Limit | Monthly Average | Instantaneous Maximum | Reporting Frequency | Sample Type |
|---|---|---|---|---|---|---|
| **Flow, Daily Max Month #1 - January** | NA** | 230,400 gpd | NA | NA | Quarterly | Recording |
| **Flow, Daily Max Month #2 - NA** | NA | 230,400 gpd | NA | NA | Quarterly | Recording |
| **Flow, Daily Max Month #3 – NA** | NA | 230,400 gpd | NA | NA | Quarterly | Recording |
| **pH, Max** | NA | 5.5 to 10.0 S.U. | NA | NA | Quarterly | Grab |
| **pH, Min** | NA | 5.5 to 10.0 S.U. | NA | NA | Quarterly | Grab |
| **Max/Ave Total Chromium Month #1 - January** | NA | 7.22 mg/l | NA | NA | Quarterly | Composite |
| **Max/Ave Total Chromium Month #2 - NA** | NA | 7.22 mg/l | NA | NA | Quarterly | Composite |
| **Max/Ave Total Chromium Month #3 - NA** | NA | 7.22 mg/l | NA | NA | Quarterly | Composite |
| **Trichloroethylene Month #1 - January** | NA | 0.33 mg/l | NA | NA | Quarterly | Grab |
| **Trichloroethylene Month #2 - NA** | NA | 0.33 mg/l | NA | NA | Quarterly | Grab |
| **Trichloroethylene Month #3 - NA** | NA | 0.33 mg/l | NA | NA | Quarterly | Grab |
| **Chromium VI*** | NA | 4.28 mg/l | NA | NA | Quarterly | Composite |

* Chromium VI results required if Messer discharges IX/AS treatment system wastewater to City sanitary sewer for a period of ten (10) consecutive days or more.
** NA – Not applicable.

## General Certification Statement

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

## Representative Sampling Certification Statement

*"I certify under penalty of law that the sample(s) collected by Messer LLC or its agent for the purpose of compliance monitoring was collected in accordance with 40 CFR 136 and represents the character of wastewater discharged to the city treatment system."*

| Signature | Project Manager | 4/8/2022 |
|---|---|---|
| *Signature* | *Title* | *Date* |

EA Engineering, Science, and Technology, Inc., PBC

2200 Sixth Avenue, Suite 707
Seattle, Washington 98121
Telephone: 206-452-5350
Fax: 206-443-7646
www.eaest.com

28 October 2022
1611310 LN1773

Mr. Nick Imbery
Industrial Pretreatment Coordinator
City of Vancouver
Marine Park Engineering Office
P.O. Box 1995
Vancouver, Washington 98668-1995

Subject: Self-Monitoring Report – 30 October 2022
Boomsnub/Airco Superfund Site
Hazel Dell, Washington

Dear Mr. Imbery:

On behalf of Messer LLC (Messer), we are submitting the Self-Monitoring Report for the Boomsnub/Airco Superfund Site, prepared in accordance with the City of Vancouver Industrial Wastewater Discharge Permit 2019-06. The time period covered includes August through October 2022. However, please note that due to system shut down in January 2021 no data is included in this Self-Monitoring Report.

The system was turned off, drained, and winterized on 3 January 2021 with prior approval from the Environmental Protection Agency (EPA). The Groundwater Treatment System will remain in this "mothballed" state unless the EPA or Messer elects to reactivate the system at a later time.

Please let me know if you have any questions regarding the enclosed information.

Sincerely,

Jonathan Reeve, LHG
Project Manager

JR/lw
cc: Nancy Van Dyke, BSI Group

Enclosures: City of Vancouver Self-Monitoring Report

*Industrial Wastewater Discharge Monitoring Report*

CITY OF Vancouver WASHINGTON

*Industrial Pretreatment*
*P.O. Box 1995*
*Vancouver, WA 98668*
*Office: 360-487-7130*
*Fax: 360- 487-7139*

**Industry Name:** **Messer (Boomsnub Airco Superfund)** Permit Number: 2019-06
Report Due Date (check one): □ April 30 □ July 30 ■ **October 30** □ January 31
Sample Collection Date: System Off – No Samples Collected

| Parameter | Result | Daily Maximum Limit | Monthly Average | Instantaneous Maximum | Reporting Frequency | Sample Type |
|---|---|---|---|---|---|---|
| **Flow, Daily Max Month #1 - NA** | NA** | 230,400 gpd | NA | NA | Quarterly | Recording |
| **Flow, Daily Max Month #2 - NA** | NA | 230,400 gpd | NA | NA | Quarterly | Recording |
| **Flow, Daily Max Month #3 – NA** | NA | 230,400 gpd | NA | NA | Quarterly | Recording |
| **pH, Max** | NA | 5.5 to 10.0 S.U. | NA | NA | Quarterly | Grab |
| **pH, Min** | NA | 5.5 to 10.0 S.U. | NA | NA | Quarterly | Grab |
| **Max/Ave Total Chromium Month #1 - NA** | NA | 7.22 mg/l | NA | NA | Quarterly | Composite |
| **Max/Ave Total Chromium Month #2 - NA** | NA | 7.22 mg/l | NA | NA | Quarterly | Composite |
| **Max/Ave Total Chromium Month #3 - NA** | NA | 7.22 mg/l | NA | NA | Quarterly | Composite |
| **Trichloroethylene Month #1 - NA** | NA | 0.33 mg/l | NA | NA | Quarterly | Grab |
| **Trichloroethylene Month #2 - NA** | NA | 0.33 mg/l | NA | NA | Quarterly | Grab |
| **Trichloroethylene Month #3 - NA** | NA | 0.33 mg/l | NA | NA | Quarterly | Grab |
| **Chromium VI*** | NA | 4.28 mg/l | NA | NA | Quarterly | Composite |

* Chromium VI results required if Messer discharges IX/AS treatment system wastewater to City sanitary sewer for a period of ten (10) consecutive days or more.
** NA – Not applicable.

## General Certification Statement

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

## Representative Sampling Certification Statement

*"I certify under penalty of law that the sample(s) collected by Messer LLC or its agent for the purpose of compliance monitoring was collected in accordance with 40 CFR 136 and represents the character of wastewater discharged to the city treatment system."*

| Signature | Project Manager | 10/28/2022 |
|---|---|---|
| *Signature* | *Title* | *Date* |

# Appendix C

# Groundwater Purge and Sampling Forms

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# Summer 2022
# Groundwater Purge and Sampling Forms

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# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | AMW-24 |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | Y |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | Y |
| Initial Depth to Groundwater (ft btoc) | 129.07 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 7/26/2022

Project Number: 1611310 Personnel: HH, OR, RR

Purge Method: ___Low Flow ___Conventional ___None

Purge Equipment: ___Bailer ✓Grundfos ___Peristaltic ___Other

Sampling Equipment: ___Bailer ✓Grundfos ___Peristaltic ___PDB ___Spigot

Weather: Sunny, 81°F, S 8 mph

Begin Purge: 1223 ~~1235~~ Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | Arrive | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1152 | 1226 | 1229 | 1232 | ~~1235~~ | 1238 | 1241 | | | |
| Depth to Ground water (ft btoc) | 129.07 | 129.10 | 129.15 | 129.15 | 129.35 | 129.35 | 129.35 | STABILIZED | | |
| Total Groundwater Purged (~~gallons~~ liters) | | 1.5 | 3.0 | 4.5 | 6.0 | 7.5 | 9.0 | | | |
| Purge Rate (ml/min) | | 500 | 500 | 500 | 500 | 500 | 500 | | | |
| pH (± 0.1) | | 7.09 | 7.00 | 6.98 | 6.99 | 6.96 | 6.97 | | | |
| Conductivity (mS/cm) (± 5%) | | 0.290 | 0.288 | 0.292 | 0.290 | 0.289 | 0.289 | | | |
| Turbidity (± 10 NTU) | | 89.68 | 75.78 | 78.16 | 85.62 | 84.29 | 90.39 | | | |
| Disssolved Oxygen (mg/L) | | 0.93 | 0.87 | 0.87 | 1.10 | 1.21 | 1.12 | | | |
| Temperature (± 1°C) | | 19.0 | 17.9 | 18.1 | 15.7 | 15.4 | 15.3 | | | |
| ORP/eH (mV) | | 45.2 | 41.9 | 37.3 | 32.7 | 23.8 | 20.2 | | | |
| Color of Purged Water (gray, brown, red, clear) | | cloudy | cloudy | cloudy | cloudy | cloudy | cloudy | | | |

Sample Identification: 2230-001

Time Sampled: 1246

Purge water disposed To: Boomsnub plant

3 # of bottles / Analysis

3 VOCs by 8260C

Total Metals - Cr

Comments: cloudy initially & throughout
Clay & silt on sub.

7/26/2022

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | AMW-27 |
| Well Diameter (inches) | 6in |
| Well Monument Locked and Good Condition? | Y |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | Y |
| Initial Depth to Groundwater (ft btoc) | 30.03 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 7/26/2022

Project Number: 1611310 Personnel: DR, HH, RR

Purge Method: ✓ Low Flow ___ Conventional ___ None

Purge Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ Other

Sampling Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ PDB ___ Spigot

Weather: 67°F, sunny, SSW 4mph

Begin Purge 0804

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | 0755 | 0807 | 0810 | 0813 | 0816 | | | | | | |
| Depth to Ground water (ft btoc) | 30.03 | 30.54 | 30.88 | 30.97 | 31.18 | | | | | | |
| Total Groundwater Purged (~~gallons~~) liters | | 1.5 | 3.0 | 4.5 | 6.0 | | | | | | |
| Purge Rate (ml/min) | | 500 | 500 | 500 | 500 | | | | | | |
| pH (± 0.1) | | 6.61 | 6.56 | 6.54 | 6.54 | | | | | | |
| Conductivity (mS/cm) (± 5%) | | 0.320 | 0.318 | 0.317 | 0.315 | | | | | | |
| Turbidity (± 10 NTU) | | 7.18 | 5.41 | 5.27 | 5.39 | | | | | | |
| Disssolved Oxygen (mg/L) | | 1.25 | 1.19 | 1.20 | 1.22 | | | | | | |
| Temperature (± 1°C) | | 13.4 | 13.4 | 13.5 | 13.6 | | | | | | |
| ORP/eH (mV) | | 104.3 | 100.6 | 99.1 | 97.8 | | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | | | | | | |

STABILIZED 7/26/2022

Sample Identification: 2230-003

Time Sampled: 0819

Purge water disposed To: Boomsnub plant

| # of bottles | Analysis |
|---|---|
| ___ | VOCs by 8260C |
| 1 | Total Metals - Cr |
| ___ | |
| ___ | |

Comments: clear, colorless, odorless.

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | AMW-59 |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | Y |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | Y |
| Initial Depth to Groundwater (ft btoc) | 17.42 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 7/25/2022

Project Number: 1611310 Personnel: HH, DR

Purge Method: ✓ Low Flow ___ Conventional ___ None

Purge Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ Other

Sampling Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ PDB ___ Spigot

Weather: 92°F, sunny, N 7mph

Begin Purge 1439

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | Arrive | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1429 | 1442 | 1445 | 1448 | | | | | | | |
| Depth to Ground water (ft btoc) | 17.42 | 18.56 | 19.40 | 19.67 | STABILIZED → | | | | | | |
| Total Groundwater Purged (~~gallons~~) Liters | | 1.5 | 3.0 | 4.5 | | | | | | | |
| Purge Rate (ml/min) | | 500 | 500 | 500 | | | | 7/25/2022 | | | |
| pH (± 0.1) | | 6.97 | 6.96 | 6.96 | | | | | | | |
| Conductivity (mS/cm) (± 5%) | | 0.749 | 0.748 | 0.747 | | | | | | | |
| Turbidity (± 10 NTU) | | 15.16 | 19.56 | 16.98 | | | | | | | |
| Disssolved Oxygen (mg/L) | | 1.01 | 0.41 | 0.36 | | | | | | | |
| Temperature (± 1°C) | | 14.7 | 14.6 | 14.5 | | | | | | | |
| ORP/eH (mV) | | -81.3 | -88.3 | -91.4 | | | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | | | | | | | |

Sample Identification: 2230-006

Time Sampled: 1451

Purge water disposed To: Boomsnub plant

3 # of bottles / Analysis

3 VOCs by 8260C

Total Metals - Cr

Comments: water dirty initially - black dirt cleared up w/ purging
Bubbles in flow cell

# Ground Water Purge and Sampling Form

| | | | |
|---|---|---|---|
| Well Identification | CAU-14 | Site Location: Boomsnub | Date: 7/26/2022 |
| Well Diameter (inches) | 4 | Project Number: 1611310 | Personnel: DR, HH, RR |
| Well Monument Locked and Good Condition? | Y | Purge Method: ✓ Low Flow ___ Conventional ___ None | |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D | Purge Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ Other | |
| Well Casing Plug Locked and Good Condition? | Y | Sampling Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ PDB ___ Spigot | |
| Initial Depth to Groundwater (ft btoc) | ✓ | Weather: 76°F, Sunny, S 8mph | |
| Well Total Depth (ft btoc) | | Begin Purge 1042 | Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | Arrive 1039 | 1045 | 1048 | 1051 | | | | | | | |
| Depth to Ground water (ft btoc) | ✓ | | ✓ | ✓ | | | | | | | |
| Total Groundwater Purged (~~gallons~~) liters | | 1.5 | 3.0 | 4.5 | STABILIZED | | | | | | |
| Purge Rate (ml/min) | | 500 | 500 | 500 | | | | | | | |
| pH (± 0.1) | | 7.44 | 7.50 | 7.52 | | | | | | | |
| Conductivity (mS/cm) (± 5%) | | 0.373 | 0.375 | 0.390 | | | | | | | |
| Turbidity (± 10 NTU) | | 4.92 | 4.08 | 2.66 | | | | | | | |
| Disssolved Oxygen (mg/L) | | 0.72 | 0.61 | 0.51 | | | | | | | |
| Temperature (± 1°C) | | 17.5 | 17.9 | 17.2 | | | | | | | |
| ORP/eH (mV) | | 14.6 | 26.7 | 34.2 | | | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | | | | | | | |

7/26/2022

Sample Identification: 2230-009

Time Sampled: 1057

Purge water disposed To: Boomsnub plant

12 # of bottles / Analysis

9 VOCs by 8260C

3 Total Metals - Cr

Comments: Cannot test water level - no access

MS/MSD

# Ground Water Purge and Sampling Form

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Identification | MW-40SHED | Site Location: Boomsnub | | | | Date: 7/25/2022 | | | | | |
| Well Diameter (inches) | 2,M | Project Number: 1611310 | | | | Personnel: HH, DR | | | | | |
| Well Monument Locked and Good Condition? | Y | Purge Method: ✓ Low Flow ___ Conventional ___ None | | | | | | | | | |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D | Purge Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ Other | | | | | | | | | |
| Well Casing Plug Locked and Good Condition? | Y | Sampling Equipment: ___ Bailer ___ Grundfos ___ Peristaltic ___ PDB ___ Spigot | | | | | | | | | |
| Initial Depth to Groundwater (ft btoc) | 25.63 | Weather: 85°F, sunny, N 7mph | | | | | | | | | |
| Well Total Depth (ft btoc) | | Begin Purge 1339 | | | | Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons | | | | | |
| Time | Arrive 1330 | 1342 | 1345 | 1348 | 1351 | | | | | | |
| Depth to Ground water (ft btoc) | 25.63 | 26.16 | 26.18 | 26.18 | 26.18 | STABILIZED | | | | | |
| Total Groundwater Purged (~~gallons~~) liters | | 1.5 | 3.0 | 4.5 | 6.0 | | | | | | |
| Purge Rate (ml/min) | | 500 | 500 | 500 | 500 | | | | | | |
| pH (± 0.1) | | 6.22 | 6.12 | 6.09 | 6.07 | | | | | | |
| Conductivity (mS/cm) (± 5%) | | 0.169 | 0.166 | 0.165 | 0.162 | | | | | | |
| Turbidity (± 10 NTU) | | 5.07 | 2.90 | 2.70 | 2.57 | | | | | | |
| Disssolved Oxygen (mg/L) | | 8.20 | 8.32 | 8.40 | 8.48 | | | | | | |
| Temperature (± 1°C) | | 15.6 | 15.5 | 15.7 | 15.1 | | | | | | |
| ORP/eH (mV) | | 136.8 | 130.8 | 126.5 | 123.8 | | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | | | | | | |

Sample Identification: 2230-014 — 4 # of bottles / Analysis

Time Sampled: 1354

3 VOCs by 8260C

1 Total Metals - Cr

Purge water disposed To: Boomsnub plant

Comments: clear, colorless, odorless.

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-6A |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | Y |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | Y |
| Initial Depth to Groundwater (ft btoc) | 24.11 |
| Well Total Depth (ft btoc) | 24.11 |

Site Location: Boomsnub Date: 7/25/2022

Project Number: 1611310 Personnel: DR, HH

Purge Method: ✓ Low Flow ___ Conventional ___ None

Purge Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ Other

Sampling Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ PDB ___ Spigot

Weather: Sunny, 95° F, WNW 10mph

Begin Purge 1549

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1540 | 1552 | 1555 | 1558 | 1601 | | | | | |
| Depth to Ground water (ft btoc) | 24.11 | 24.22 | 24.13 | 24.13 | 24.13 | | | | | |
| Total Groundwater Purged (~~gallons~~) liters | | 1.5 | 3.0 | 4.5 | 6.0 | STABILIZED | | | | |
| Purge Rate (ml/min) | | 500 | 500 | 500 | 500 | | | | | |
| pH (± 0.1) | | 6.06 | 5.77 | 5.74 | 5.71 | | | | | 7/25/2022 |
| Conductivity (mS/cm) (± 5%) | | 0.148 | 0.151 | 0.146 | 0.145 | | | | | |
| Turbidity (± 10 NTU) | | 4.75 | 4.27 | 4.02 | 3.58 | | | | | |
| Disssolved Oxygen (mg/L) | | 6.09 | 6.08 | 6.10 | 6.11 | | | | | |
| Temperature (± 1°C) | | 17.5 | 18.2 | 18.4 | 18.1 | | | | | |
| ORP/eH (mV) | | 90.5 | 98.7 | 103.0 | 107.3 | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | | | | | |

Sample Identification: 2230-015

Time Sampled: 1604

Purge water disposed To: Boomsnub Plant

| # of bottles | Analysis |
|---|---|
| ___ | VOCs by 8260C |
| 1 | Total Metals - Cr |
| ___ | |
| ___ | |

Comments: Lock very rusty

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-190 |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | Y |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | Y |
| Initial Depth to Groundwater (ft btoc) | 8.15 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 7/26/2022
Project Number: 1611310 Personnel: HH, DR, RR
Purge Method: ✓ Low Flow ___ Conventional ___ None
Purge Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ Other
Sampling Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ PDB ___ Spigot
Weather: Sunny, 76°F, 5 8mph
Begin Purge 1111
Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time Arrive | 1105 | 1114 | 1117 | 1120 | 1123 | | | | | |
| Depth to Ground water (ft btoc) | 8.15 | 8.76 | 8.78 | 8.78 | 8.78 | STABILIZED | | | | |
| Total Groundwater Purged (gallons) 1.7655 | | 1.5 | 3.0 | 4.5 | 6.0 | | | | | |
| Purge Rate (ml/min) | | 500 | 500 | 500 | 500 | | | 7/26/2022 | | |
| pH (± 0.1) | | 6.04 | 5.96 | 5.93 | 5.93 | | | | | |
| Conductivity (mS/cm) (± 5%) | | 0.185 | 0.185 | 0.185 | 0.186 | | | | | |
| Turbidity (± 10 NTU) | | 9.63 | 10.88 | 12.83 | 13.58 | | | | | |
| Disssolved Oxygen (mg/L) | | 0.58 | 0.47 | 0.39 | 0.38 | | | | | |
| Temperature (± 1°C) | | 13.5 | 13.5 | 13.4 | 13.3 | | | | | |
| ORP/eH (mV) | | 94.0 | 93.3 | 91.8 | 90.8 | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | | | | | |

Sample Identification: 2230-011
Time Sampled: 1129
Purge water disposed To: Boomsnub plant

4 # of bottles / Analysis
3 VOCs by 8260C
1 Total Metals - Cr

Comments: clear, colorless

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-20D |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | Y |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | Y |
| Initial Depth to Groundwater (ft btoc) | 19.47 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 7/26/2022
Project Number: 1611310 Personnel: HH, DR, RR
Purge Method: ✓ Low Flow ___ Conventional ___ None
Purge Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ Other
Sampling Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ PDB ___ Spigot
Weather: Sunny, 73°F, N 6MpH
Begin Purge 0955
Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | Arrive | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | | 0955 | ~~0958~~ | ~~0941~~ | 1005 | 1008 | 1011 | 1014 | Stabilized | |
| Depth to Ground water (ft btoc) | | 19.47 | ~~19.09~~ 19.88 | 19.85 | 19.82 | 19.82 | 19.82 | 19.82 | | |
| Total Groundwater Purged (~~gallons~~) liters | | | 1.5 | 3.0 | 4.5 | 6.0 | 7.5 | 9.0 | | |
| Purge Rate (ml/min) | | | 500 | 500 | 500 | 500 | 500 | 500 | | |
| pH (± 0.1) | | | 6.93 | 6.77 | 6.78 | 6.63 | 6.60 | 6.59 | | |
| Conductivity (mS/cm) (± 5%) | | | 0.361 | 0.360 | 0.365 | 0.347 | 0.340 | 0.339 | DR | |
| Turbidity (± 10 NTU) | | | 156.14 | 110.37 | 90.47 | 53.14 | 46.27 | 43.59 | | 7/26/2022 |
| Disssolved Oxygen (mg/L) | | | 0.75 | 0.6 | 1.09 | 0.48 | 0.46 | 0.44 | | |
| Temperature (± 1°C) | | | 14.52 | 14.42 | 14.3 | 14.2 | 14.1 | 14.2 | | |
| ORP/eH (mV) | | | 89.3 | 87.1 | 84.7 | 81.9 | 80.8 | 79.4 | | |
| Color of Purged Water (gray, brown, red, clear) | | | gray | gray | clear | clear | clear | clear | | |

Sample Identification: 2230-012 1612 # of bottles / Analysis
Time Sampled: 1019
Purge water disposed To: Boomsnub plant

3 VOCs by 8260C
1 Total Metals - Cr
1 Metals
1 Dissolved Iron
1 Anions
1 DOC
1 COD
1 Dissolved Gases

Comments: Add 1 bottle each for: TCr & Metals, FF >20NTU

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-22D |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | Y |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | Y |
| Initial Depth to Groundwater (ft btoc) | 18.69 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 7/26/2022
Project Number: 1611310 Personnel:
Purge Method: ✓Low Flow ___Conventional ___None
Purge Equipment: ___Bailer ✓Grundfos ___Peristaltic ___Other
Sampling Equipment: ___Bailer ✓Grundfos ___Peristaltic ___PDB ___Spigot
Weather: 64°F ; Sunny, N 0 mph
Begin Purge 0700 Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Time (Arrive) | 0649 | 0703 | 0706 | 0709 | 0712 | 0715 | | | | | |
| Depth to Ground water (ft btoc) | 18.69 | 18.74 | 18.86 | 18.93 | 18.93 | 18.93 | | | | | |
| Total Groundwater Purged (~~gallons~~) Liters | | 1.5 | 3.0 | 4.5 | 6.0 | 7.5 | STABILIZED | | | | |
| Purge Rate (ml/min) | | 500 | 500 | 500 | 500 | 500 | | | | | |
| pH (± 0.1) | | 6.92 | 6.47 | 6.94 | 6.94 | 6.93 | | | | | |
| Conductivity (mS/cm) (± 5%) | | 0.441 | 0.445 | 0.445 | 0.447 | 0.445 | | | | | |
| Turbidity (± 10 NTU) | | 7.39 | 6.50 | 5.95 | 4.89 | 4.35 | | | | | |
| Disssolved Oxygen (mg/L) | | 0.81 | 0.60 | 0.51 | 0.45 | 0.43 | | | | | |
| Temperature (± 1°C) | | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | | | | | |
| ORP/eH (mV) | | 113.8 | 110.9 | 102.7 | 82.9 | 74.4 | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | clear | | | | | |

Sample Identification: 2230-004 — 4 # of bottles / Analysis
Time Sampled: 0719
Dup 2230-005 0723
Purge water disposed To: Boomsnub Plant

3 VOCs by 8260C
1 Total Metals - Cr

Comments: clear, colorless, odorless.
Dup = 4 bottles
3 VOC
1 Cr

# Ground Water Purge and Sampling Form

| | | | |
|---|---|---|---|
| Well Identification | MW-33 | Site Location: Boomsnub | Date: 7/25/2022 |
| Well Diameter (inches) | 4 in | Project Number: 1611310 | Personnel: HH, DR |
| Well Monument Locked and Good Condition? | Y | Purge Method: ✓ Low Flow ___ Conventional ___ None | |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D | Purge Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ Other HH 7/25/22 | |
| Well Casing Plug Locked and Good Condition? | Y | Sampling Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ PDB ___ Spigot | |
| Initial Depth to Groundwater (ft btoc) | 191.3 | Weather: sunny 81°F, W 8mph | |
| Well Total Depth (ft btoc) | | Begin Purge: 1235 | Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons |

| | Arrive | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1206 | 1240 | 1243 | 1246 | | | | | | | |
| Depth to Ground water (ft btoc) | 191.3 | 197.71 | 203.8 | 204.5 | | | | | | | |
| Total Groundwater Purged ~~(gallons)~~ Liters | | 2.5 | 4.0 | 5.5 | | | | | | | |
| Purge Rate (ml/min) | | 500 | | | | | | | | | |
| pH (± 0.1) | | 6.75 | 6.75 | 6.76 | | | | | | | |
| Conductivity (mS/cm) (± 5%) | | 0.287 | 0.291 | 0.292 | | | | | | | |
| Turbidity (± 10 NTU) | | 7.93 | 9.87 | 12.49 | | | | | | | |
| Disssolved Oxygen (mg/L) | | 3.02 | 2.60 | 2.47 | | | | | | | |
| Temperature (± 1°C) | | 14.2 | 14.1 | 14.3 | | | | | | | |
| ORP/eH (mV) | | 26.3 | 29.3 | 31.0 | | | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | | | | | | | |

STABILIZED 7/25/2022

Sample Identification: 2230-002
Time Sampled: 1249
Purge water disposed To: Boomsnub plant

3 # of bottles / Analysis
3 VOCs by 8260C
Total Metals - Cr

Comments: clear, colorless, odorless. some bubbles in flow cell

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | PZ-39 |
| Well Diameter (inches) | 2 |
| Well Monument Locked and Good Condition? | Y |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | Y |
| Initial Depth to Groundwater (ft btoc) | 14.68 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 7/26/2022

Project Number: 1611310 Personnel: HH, DR, RR

Purge Method: ✓ Low Flow ___ Conventional ___ None

Purge Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ Other

Sampling Equipment: ___ Bailer ✓ Grundfos ___ Peristaltic ___ PDB ___ Spigot

Weather: Sunny, 71°F, 5 7mph

Begin Purge 0844 Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | Arrive | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | 0841 | 0847 | 0850 | 0853 | 0856 | 0859 | 0902 | | | | |
| Depth to Ground water (ft btoc) | 14.68 | 14.90 | 14.84 | 14.87 | 14.87 | 14.87 | 14.87 | | | | |
| Total Groundwater Purged (~~gallons~~) liters | | 1.5 | 3.0 | 4.5 | 6.0 | 7.5 | 9.0 | STABILIZED | | | |
| Purge Rate (ml/min) | | 500 | 500 | 500 | 500 | 500 | 500 | | | | |
| pH (± 0.1) | | 7.47 | 7.50 | 7.51 | 7.52 | 7.51 | 7.50 | | | | |
| Conductivity (mS/cm) (± 5%) | | 0.527 | 0.529 | 0.529 | 0.528 | 0.527 | 0.527 | | | | |
| Turbidity (± 10 NTU) | | 91.46 | 43.99 | 21.24 | 7.14 | ~~7.7467~~ | 3.56 | | | | |
| Disssolved Oxygen (mg/L) | | 1.29 | 0.55 | 0.49 | 0.42 | 0.39 | 0.37 | | | | |
| Temperature (± 1°C) | | 15.2 | 15.1 | 15.1 | 14.9 | 15.0 | 15.0 | | | | |
| ORP/eH (mV) | | 72.2 | 72.3 | 69.1 | 66.3 | 64.4 | 60.8 | | | | |
| Color of Purged Water (gray, brown, red, clear) | | cloudy | cloudy | clear | clear | clear | clear | | | | |

7/26/2022

Sample Identification: 2230-013

Time Sampled: 0905

Purge water disposed To: Boomsnub

14 # of bottles / Analysis

3 VOCs by 8260C

0 Total Metals - Cr

1 Metals

1 Dissolved iron

1 Anions

1 DOC

1 COD

3 Dissolved gasses

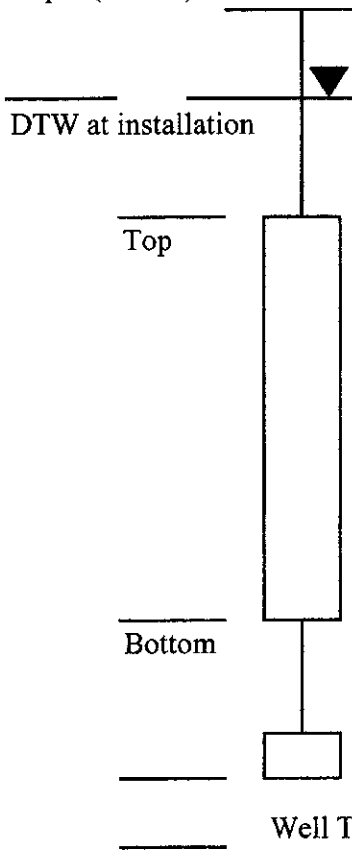
Comments: No bolts

cloudy, odorless

# Passive Diffusion Bag Sampling Form

**Well Identification:** MW-6B

Depth (BTOC)



DTW at installation _____ DTW at sampling 18.81

Top _____

Bottom _____

Weight _____

Well TD _____

Site Location: Boomsnub

Project Number: 161310

Well Diameter: 4"

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2230-016

Sample Date: 7/25/22 Time: 1315

Sampling Personnel: RRR

Analyses: 8260c

Biofilm Present (Y/N): No

New PDB Deployed (Y/N): No

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Y

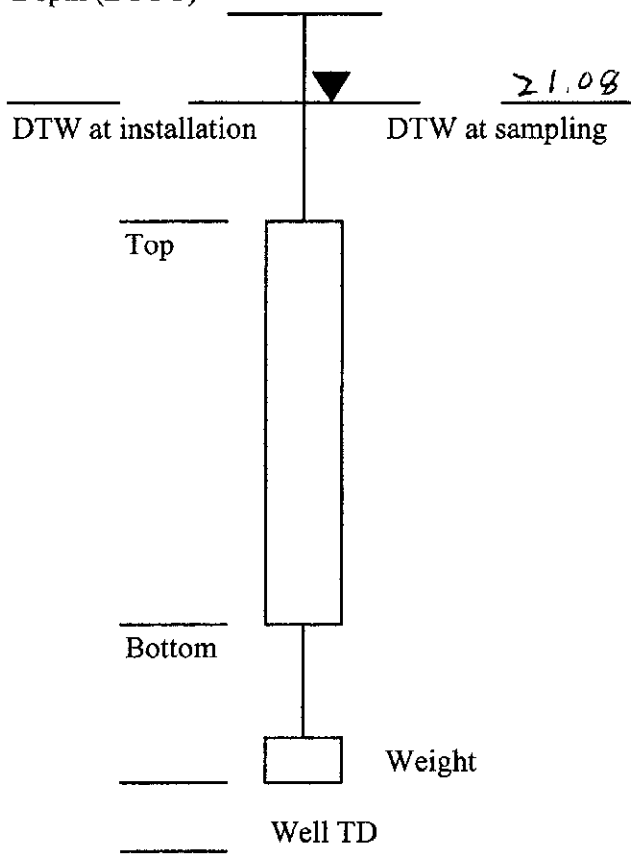
Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : NA

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

# ~~Passive~~ Diffusion Bag Sampling Form

**Well Identification:** MW-7B




Site Location: Boomsnub

Project Number: MW-7B 161310

Well Diameter: 4

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2230-017

Sample Date: 7/25/22 Time: 1458

Sampling Personnel: RRR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): N

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

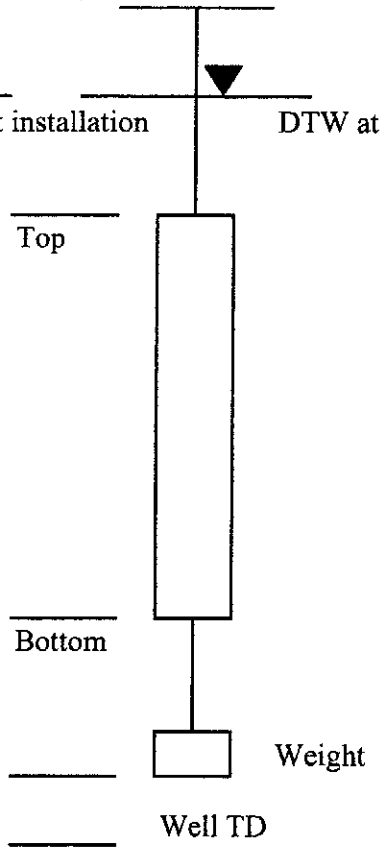
Comments: _____

# Passive Diffusion Bag Sampling Form

**Well Identification:** MW-9C

Depth (BTOC)

| | |
|---|---|
| _____ | 21.18 |
| DTW at installation | DTW at sampling |




Site Location: Boomsnub

Project Number: 161310

Well Diameter: 4"

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2230-018

Sample Date: 7/25/22 Time: 1340

Sampling Personnel: RAR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): N

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

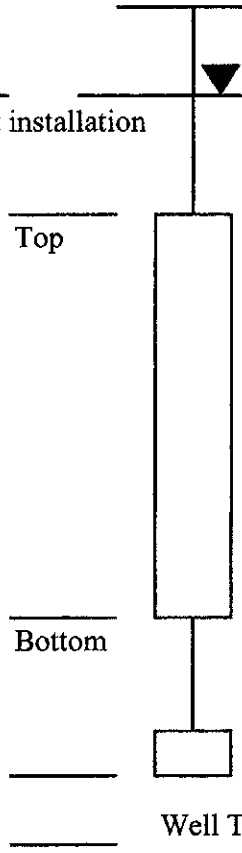
Comments: _____

# Passive Diffusion Bag Sampling Form

**Well Identification:** MW-10B

Depth (BTOC) _____

19.11
DTW at installation _____ DTW at sampling _____



Top _____

Bottom _____

Weight _____

Well TD _____

Site Location: Boomsnub

Project Number: 161310

Well Diameter: 4"

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2230-019

Sample Date: 7/25/22 Time: _____

Sampling Personnel: RRR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): N

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? _____

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : _____

Well Casing Plug Locked and in Good Condition? _____

Comments: _____

# Passive Diffusion Bag Sampling Form

**Well Identification:** MW-15E

Depth (BTOC)

13.17

DTW at installation | DTW at sampling

Top

Bottom

Weight

Well TD

Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4"

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2230.010

Sample Date: 7/25/22 Time: 1358

Sampling Personnel: RRR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): N

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Y

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Y

Comments: _____

# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-60

Depth (BTOC)

15.38
DTW at installation — DTW at sampling

Top

Bottom

Weight

Well TD

Site Location: Boomsnub
Project Number: 161310
Well Diameter: 4"
PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2230-007
Sample Date: 7/26/22 Time: 0850
Sampling Personnel: RRR Duplicate 0855
Analyses: 8260C 2230-008
Biofilm Present (Y/N): N
New PDB Deployed (Y/N): N

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

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# Fall 2022
# Groundwater Purge and Sampling Forms

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# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | AMW-53A |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | Yes |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | Yes |
| PID Reading in Well (ppm) | NA |
| Well Total Depth (ft btoc) | 32.38 |

Site Location: Boomsnub Date: 11/3/22

Project Number: 1611303 Personnel: RRR

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well X Redi-flo Pump (Ded) ___Other

Sampling Equipment: ___Extraction Well X Redi-flo Pump ___Diffusion Bag

Weather Conditions: Light Rain, 46°

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1435 | 1445 | 1450 | 1455 | 1458 | 1501 | | | | |
| Depth to Ground water (ft btoc) | 27.05 | 27.08 | 27.10 | 27.10 | 27.10 | 27.10 | | | | |
| Total Groundwater Purged(gallons, liters, other)* | | | | | | | | | | |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 300 | 300 | 250 | 250 | 250 | 250 | | | | |
| pH (± 0.1) | 6.38 | 6.38 | 6.38 | 6.38 | 6.37 | 6.37 | | | | |
| Conductivity (mS/cm) (± 3%) | 0.306 | 0.305 | 0.302 | 0.296 | 0.292 | 0.294 | | | | |
| Turbidity (NTU) (± 10% or <10) | 11.5 | 11.1 | 10.7 | 10.2 | 9.2 | 8.6 | | | | |
| Disssolved Oxygen (mg/L) (± 0.3) | 3.59 | 3.56 | 3.36 | 3.14 | 3.10 | 3.18 | | | | |
| Temperature (°C) | 15.9 | 15.9 | 16.7 | 16.8 | 17.1 | 17.0 | | | | |
| ORP/eH (mV) (± 10) | 99.8 | 99.7 | 92.0 | 87.3 | 81.9 | 81.1 | | | | |
| Color of Purged Water (gray, brown, red, clear) | | | | | | | | | | |

Sample Identification: 2242-058

Time Sampled: 1505

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| X VOCs by 8260C | 9 |
| X Total Chromium | 3 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | AMW - 59 |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 140.04 |

Site Location: Boomsnub  Date: 11/3/22

Project Number: 1611303  Personnel: SS, ED

Purge Method: X Low Flow ___Conventional ___None

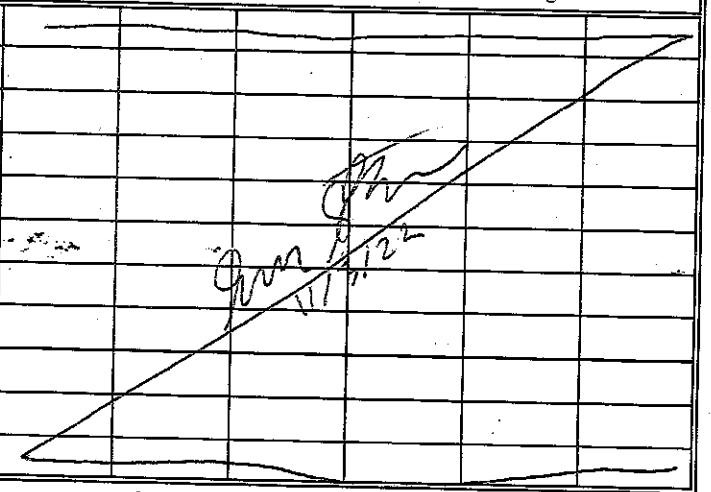
Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions: Cloudy, 50  X Sub pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | |
|---|---|---|---|---|
| Time | 0952 | 0956 | 1000 | 1004 |
| Depth to Ground water (ft btoc) | 18.61 | 19.11 | 19.11 | 19.11 |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 300 | 300 | 300 | 300 |
| pH (± 0.1) | | 7.28 | 7.30 | 7.31 |
| Conductivity (mS/cm) (± 3%) | | 0.734 | 0.730 | 0.729 |
| Turbidity (NTU) (± 10% or <10) | | 7.21 | 2.02 | 8.75 |
| Disssolved Oxygen (mg/L) (± 0.3) | | 1.73 | 1.56 | 1.60 |
| Temperature (°C) | | 13.7 | 13.8 | 13.6 |
| ORP/eH (mV) (± 10) | | -163.0 | -166.6 | -166.2 |
| Color of Purged Water (gray, brown, red, clear) | | Clear | clear | clear |



| | | | |
|---|---|---|---|
| Sample Identification: 2242-006 | Analysis | # of Bottles | Comments: |
| Time Sampled: 1009 | X VOCs by 8260C | 3 | 1 X metals scan, 1 X Dissolved Iron, 1 X Anion Scan, 1 X DOC, 1 X COD, 3 X Dissolved gases |
| | ~~X~~ SS 11/3 Total Chromium | + SS 11/3 | |
| Purge water disposed To: Boomsnub | ✓ Other | 8 | |

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | AMW-61 |
| Well Diameter (inches) | |
| Well Monument Locked and Good Condition? | |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | |
| Well Casing Plug Locked and Good Condition? | |
| PID Reading in Well (ppm) | |
| Well Total Depth (ft btoc) | [redacted] |

Site Location: Boomsnub Date: 11/3/22

Project Number: 1611303 Personnel: RAR

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well X Redi-flo Pump (Ded) ___Other

Sampling Equipment: ___Extraction Well X Redi-flo Pump ___Diffusion Bag

Weather Conditions: Rain, 46°

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1640 | 1645 | 1650 | 1655 | 1700 | | | | | |
| Depth to Ground water (ft btoc) | 43.10 | 43.14 | 43.16 | | | | | | | |
| Total Groundwater Purged(gallons, liters, other) | | | | | | | | | | |
| Purge Rate (gpm, ft³/min, ml/min, other) | 500 | 500 | 500 | 500 | 500 | | | | | |
| pH (± 0.1) | 6.95 | 6.95 | 6.86 | 6.89 | 6.88 | | | | | |
| Conductivity (mS/cm) (± 3%) | 0.210 | 0.210 | 0.186 | 0.181 | 0.171 | | | | | |
| Turbidity (NTU) (± 10% or <10) | 3.0 | 2.8 | 2.5 | 2.3 | 2.0 | | | | | |
| Disssolved Oxygen (mg/L) (± 0.3) | 5.57 | 5.62 | 5.99 | 6.16 | 6.19 | | | | | |
| Temperature (°C) | 13.3 | 13.3 | 13.3 | 13.3 | 13.3 | | | | | |
| ORP/eH (mV) (± 10) | 105.2 | 105.0 | 102.9 | 101.9 | 99.9 | | | | | |
| Color of Purged Water (gray, brown, red, clear) | clear | clear | clear | clear | clear | | | | | |

Sample Identification: 2242-004

Time Sampled: 17:20

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| 3 VOCs by 8260C | ___ |
| 1 Total Chromium | ___ |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-2A |
| Well Diameter (inches) | |
| Well Monument Locked and Good Condition? | |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | |
| Well Casing Plug Locked and Good Condition? | |
| PID Reading in Well (ppm) | |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub  Date: 10/31/22

Project Number: 1611303  Personnel: SS/ED

Purge Method: X Low Flow  ___ Conventional  ___ None

Purge Equipment: ___ Extraction Well  ___ Redi-flo Pump (Ded)  X Other

Sampling Equipment: ___ Extraction Well  ___ Redi-flo Pump  ___ Diffusion Bag

Weather Conditions: rainy  Peri

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1032 | 1036 | 1040 | 1044 | 1048 | 1052 | 1056 | 1100 | 1104 | | |
| Depth to Ground water (ft btoc) | 24.93 | 29.00 | 29.00 | 29.00 | 29.00 | 29.00 | 29.00 | 29.00 | 29.00 | | |
| Total Groundwater Purged(gallons, liters, other) | | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.00 | 8.00 | | |
| Purge Rate (gpm, ft³/min, ml/min, other) | | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | | |
| pH (± 0.1) | | 6.53 | 6.43 | 6.41 | 6.37 | 6.36 | 6.34 | 6.34 | 6.33 | | |
| Conductivity (mS/cm) (± 3%) | | 0.132 | 0.138 | 0.142 | 0.146 | 0.151 | 0.155 | 0.156 | 0.158 | | |
| Turbidity (NTU) (± 10% or <10) | | 4.8 | 0.81 | 0.80 ~~5.32~~ | 0.31 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 6.41 | 6.31 | 6.34 | 6.40 | 6.43 | 6.50 | 6.43 | 6.53 | | |
| Temperature (°C) | | 14.1 | 14.0 | 14.1 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | | |
| ORP/eH (mV) (± 10) | | 121.2 | 139.7 | 145.8 | 154.9 | 158.8 | 163.7 | 166.6 | 168.4 | | |
| Color of Purged Water (gray, brown, red, clear) | | Clear | Clear | Clear | Clear | Clear | Clear | Clear | | | |

Sample Identification: 2422-020

Time Sampled: 1108

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| 3 VOCs by 8260C | ___ |
| 1 Total Chromium | ___ |
| ___ Other | ___ |

Comments: Field Dup

11/3/22

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | Bennett Well |
| Well Diameter (inches) | — |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub  Date: 11/3/22

Project Number: 1611303  Personnel: SS, ED

Purge Method: ___Low Flow ___Conventional X None

Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions: Cloudy, 47°F  X Spiget

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | 0835 | connected hose to spiget on well, purged until pump kicked on, let run for ~10 min, then sampled well | | | | | | | | | |
| Depth to Ground water (ft btoc) | ~~X~~ ED | | | | | | | | | | |
| Total Groundwater Purged(gallons, liters, other) | | | | | | | | | | | |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | | | | | | | | | | | |
| pH (± 0.1) | | | | | | | | | | | |
| Conductivity (mS/cm) (± 3%) | | | | | | | | | | | |
| Turbidity (NTU) (± 10% or <10) | | | | | | | | | | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | | | | | | | | | | |
| Temperature (°C) | | ~~13.5~~ | SS 11/3 | | | | | | | | |
| ORP/eH (mV) (± 10) | | | | | | | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | | | | | | | | | |

Sample Identification: 2242-003

Time Sampled: 0853

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| X VOCs by 8260C | 3 |
| ___ Total Chromium | ___ |
| ___ Other | ___ |

Comments: begin purge at 0835

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | CPU-14 |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | |
| Well Casing Plug Locked and Good Condition? | |
| PID Reading in Well (ppm) | |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 11/3/22

Project Number: 1611303 Personnel: RAR

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well X Redi-flo Pump (Ded) ___Other

Sampling Equipment: ___Extraction Well X Redi-flo Pump ___Diffusion Bag

Weather Conditions: Cloudy, 45°

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| Time | 0950 | 1000 | 1005 | 1010 | 1015 | 1020 | 1025 | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth to Ground water (ft btoc) | | | | | | | | | | |
| Total Groundwater Purged(gallons, liters, other)* | | | | | | | | | | |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 300 | 300 | 300 | 306 | 300 | 300 | 300 | | | |
| pH (± 0.1) | | 6.87 | 6.93 | 6.99 | 7.03 | 7.04 | 7.04 | | | |
| Conductivity (mS/cm) (± 3%) | | 0.152 | 0.169 | 0.170 | 0.172 | 0.172 | 0.172 | | | |
| Turbidity (NTU) (± 10% or <10) | | 15.3 | 12.1 | 9.7 | 8.0 | 7.3 | 6.4 | | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 0.18 | 0.04 | -0.11 | -0.19 | -0.26 | -0.26 | | | |
| Temperature (°C) | | 12.0 | 12.1 | 12.0 | 12.2 | 12.2 | 12.1 | | | |
| ORP/eH (mV) (± 10) | | -69.9 | -78.7 | -87.2 | -94.9 | -98.2 | -99 | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | clear | clear | | | |

Sample Identification: 2242-008

Time Sampled: 1028

Purge water disposed To: Boomsnub

| Analysis | # of Bottles | Comments: |
|---|---|---|
| X VOCs by 8260C | 3 | |
| ___ Total Chromium | ___ | |
| ___ Other | | |

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-28 |
| Well Diameter (inches) | 2 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub  Date: 10/31/22

Project Number: 1611303  Personnel: SS, ED

Purge Method: ✓ Low Flow ___ Conventional ___ None

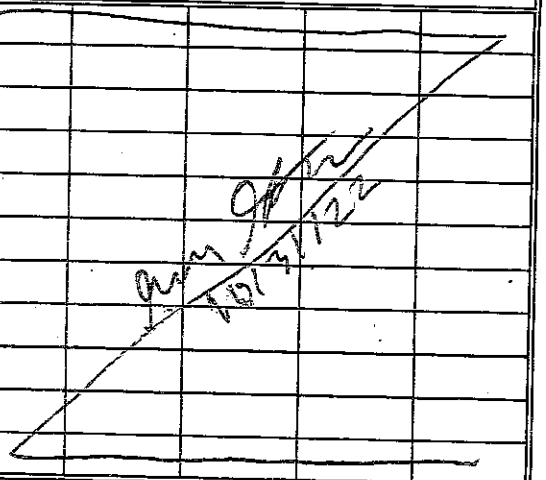
Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) ✓ Other

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: Rainy, 53°F  ROI: ✓

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| Time | 1125 | 1129 | 1133 | 1137 | 1141 |
|---|---|---|---|---|---|
| Depth to Ground water (ft btoc) | 28.96 | 29.15 | 29.15 | 29.15 | 29.15 |
| Total Groundwater Purged(gallons, liters, other) | | 1.0 | 2.0 | 3.0 | 4.0 |
| Purge Rate (gpm, ft³/min, ml/min, other) | 250 | 250 | 250 | 250 | 250 |
| pH (± 0.1) | | 6.37 | 6.37 | 6.37 | 6.37 |
| Conductivity (mS/cm) (± 3%) | | 0.204 | 0.200 | 0.204 | 0.201 |
| Turbidity (NTU) (± 10% or <10) | | 2.24 | 1.31 | 0.76 | 0.82 |
| Disssolved Oxygen (mg/L) (± 0.3) | | 6.82 | 7.05 | 6.99 | 6.92 |
| Temperature (°C) | | 14.2 | 14.2 | 14.2 | 14.2 |
| ORP/eH (mV) (± 10) | | 160.2 | 162.8 | 164.0 | 163.1 |
| Color of Purged Water (gray, brown, red, clear) | | Clear | Clear | Clear | Clear |




Sample Identification: 2422-022

Time Sampled: 1147

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| 3 VOCs by 8260C | ___ |
| 1 Total Chromium | ___ |
| ___ Other | ___ |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-3A |
| Well Diameter (inches) | 2 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 10/31/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions: Rainy, 53°C X peri

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1212 | 1215 | 1218 | 1221 | 1224 | | | | | | |
| Depth to Ground water (ft btoc) | 26.80 | 26.95 | 26.95 | 26.95 | 26.95 | | | | | | |
| Total Groundwater Purged(gallons, liters, other) | | 1.2 | 2.4 | 3.6 | 4.8 | | | | | | |
| Purge Rate (gpm, ft³/min, ml/min, other) | | 400 | 400 | 400 | 400 | | | | | | |
| pH (± 0.1) | | 6.27 | 6.26 | 6.25 | 6.25 | | | | | | |
| Conductivity (mS/cm) (± 3%) | | 0.147 | 0.147 | 0.147 | 0.147 | | | | | | |
| Turbidity (NTU) (± 10% or <10) | | 800 ED | 4.91 | 2.26 | 3.36 | | | | | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 8.12 | 8.10 | 7.91 | 8.06 | | | | | | |
| Temperature (°C) | | 13.6 | 13.6 | 13.6 | 13.6 | | | | | | |
| ORP/eH (mV) (± 10) | | 179.1 | 182.6 | 184.4 | 185.8 | | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | | | | | | |

Sample Identification: 2242-024

Time Sampled: 1232

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ~~VOCs by 8260C~~ ED | ~~8~~ ED |
| ✓ Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-3B |
| Well Diameter (inches) | 2 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | BBC |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 10/31/12

Project Number: 1611303 Personnel: SS, ED

Purge Method: ✓ Low Flow ___ Conventional ___ None

Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) ✓ Other

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: Rain, 53°F Post. ✓

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | |
|---|---|---|---|---|---|
| Time | 1410 | 1413 | 1416 | 1419 | |
| Depth to Ground water (ft btoc) | 26.96 | 26.96 | 26.96 | 26.96 | |
| Total Groundwater Purged(gallons, liters, other) | | 1.2 | 2.4 | 3.6 | |
| Purge Rate (gpm, ft³/min, ml/min, other) | | 400 | 400 | 400 | |
| pH (± 0.1) | | 7.00 | 6.98 | 6.97 | |
| Conductivity (mS/cm) (± 3%) | | 0.167 | 0.167 | 0.167 | |
| Turbidity (NTU) (± 10% or <10) | | 0.30 | 0.92 | 2.11 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 8.71 | 8.71 | 8.73 | |
| Temperature (°C) | | 13.8 | 13.8 | 13.8 | |
| ORP/eH (mV) (± 10) | | 168.5 | 170.4 | 171.4 | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | |

Sample Identification: 2422-025

Time Sampled: 1425

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-3C |
| Well Diameter (inches) | 2 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub  Date: 10/31/22

Project Number: 1611303  Personnel: SS, ED

Purge Method: X Low Flow ___Conventional ___None

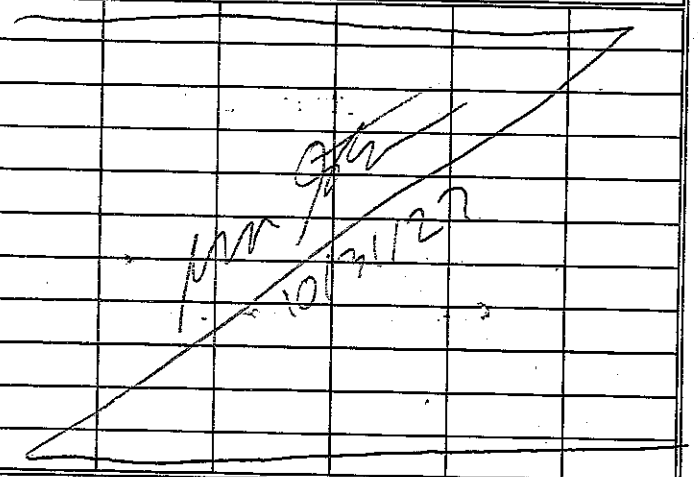
Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other Peri Pump

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag X peri Pump

Weather Conditions: Rainy, 53°F

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | |
|---|---|---|---|---|
| Time | 1438 | 1441 | 1444 | 1447 |
| Depth to Ground water (ft btoc) | 27.00 | 28.10 | 28.10 | 28.10 |
| Total Groundwater Purged(gallons, liters, other) | 0 | 1.2 | 2.4 | 3.6 |
| Purge Rate (gpm, ft³/min, ml/min, other) | 400 | 400 | 400 | 400 |
| pH (± 0.1) | | 6.32 | 6.28 | 6.27 |
| Conductivity (mS/cm) (± 3%) | | 0.239 | 0.239 | 0.240 |
| Turbidity (NTU) (± 10% or <10) | | 0.00 | 0.00 | 0.00 |
| Disssolved Oxygen (mg/L) (± 0.3) | | 1.81 | 1.87 | 1.87 |
| Temperature (°C) | | 13.9 | 13.9 | 13.8 |
| ORP/eH (mV) (± 10) | | 197.7 | 199.8 | 201.4 |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear |



Sample Identification: ~~2422-026~~ SS 10/31 2242-026

Time Sampled: 1450

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| X VOCs by 8260C | 3 |
| X Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-4A |
| Well Diameter (inches) | 2 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | Y |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub  Date: 10/31/22

Project Number: 1611303  Personnel: SS, ED

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other Peri Pump

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions: X peri pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1550 | 1553 | 1556 | 1559 | 1602 | 1605 | 1608 | 1611 | 1614 | | |
| Depth to Ground water (ft btoc) | 26.91 | 27.34 | 27.34 | 27.34 | 27.34 | 27.34 | 27.34 | 27.34 | 27.34 | | |
| Total Groundwater Purged(gallons, liters, other) | | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | 7.2 | 8.4 | 9.6 | | |
| Purge Rate (gpm, ft³/min, ml/min, other) | | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | | |
| pH (± 0.1) | | 6.38 | 6.37 | 6.38 | 6.38 | 6.38 | 6.38 | 6.38 | 6.38 | | |
| Conductivity (mS/cm) (±3%) | | 0.189 | 0.190 | 0.191 | 0.192 | 0.191 | 0.192 | 0.192 | 0.192 | | |
| Turbidity (NTU) (± 10% or <10) | | 13.93 | 15.64 | 31.26 | 45.99 | 39.00 | 78.6 | 79.28 | 77.90 | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 7.64 | 7.50 | 7.64 | 7.40 | 7.40 | 7.45 | 7.47 | 7.48 | | |
| Temperature (°C) | | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | | |
| ORP/eH (mV) (± 10) | | 205.9 | 207.5 | 208.4 | 209.4 | 210.4 | 211.7 | 212.3 | 213.3 | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | clear | clear | clear | clear | | |

Sample Identification:

Time Sampled: 1619 2242-027

1629 2242-028

Purge water disposed To: Boomsnub

Analysis

✓ VOCs by 8260C

✓ Total Chromium

___ Other

# of Bottles

3 (each)

2

Comments: 2nd bottle FF for TCT

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-48 |
| Well Diameter (inches) | 2 |
| Well Monument Locked and Good Condition? | Y |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | Y |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 10/31/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: Y Low Flow ___ Conventional ___ None

Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) Y Other

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: Rainy, 53°F per Y

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1632 | 1635 | 1638 | 1641 | 1644 | 1647 | 1650 | 1653 | 1656 | |
| Depth to Ground water (ft btoc) | 26.68 | 27.30 | 27.30 | 27.30 | 27.30 | 27.30 | 27.3 | 27.3 | 27.3 | |
| Total Groundwater Purged (gallons, liters, other) | | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | 7.2 | 8.4 | 9.6 | |
| Purge Rate (gpm, ft³/min, ml/min, other) | | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | |
| pH (± 0.1) | | 6.07 | 6.03 | 6.02 | 6.02 | 6.01 | 6.01 | 6.01 | 6.01 | |
| Conductivity (mS/cm) (± 3%) | | 0.104 | 0.105 | 0.105 | 0.105 | 0.105 | 0.106 | 0.106 | 0.106 | |
| Turbidity (NTU) (± 10% or <10) | | 39.57 | 53.00 | 67.99 | 69.52 | 76.02 | 1.00 | 2.40 | 0.03 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 5.23 | 4.34 | 3.99 | 3.97 | 3.77 | 3.67 | 3.66 | 3.64 | |
| Temperature (°C) | | 14.2 | 14.2 | 14.2 | 14.2 | 14.2 | 14.2 | 14.2 | 14.2 | |
| ORP/eH (mV) (± 10) | | 221.7 | 223.8 | 224.9 | 225.4 | 226.3 | 230.7 | 230.7 | 230.8 | |
| Color of Purged Water (gray, brown, red, clear) | | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | |

Sample Identification: 2242-0229

Time Sampled: 1656

Purge water disposed To: Boomsnub

| Analysis | # of Bottles | Comments: |
|---|---|---|
| Y VOCs by 8260C | 3 | |
| Y Total Chromium | 1 | |
| ___ Other | | |

# Ground Water Purge and Sampling Form

4B-SHED

| | | | | | | |
|---|---|---|---|---|---|---|
| Well Identification | MW - ~~4B-SHED~~ 5A 10/31 | | | | | |
| Well Diameter (inches) | 2 | | | | | |
| Well Monument Locked and Good Condition? | ✓ | | | | | |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D | | | | | |
| Well Casing Plug Locked and Good Condition? | ✓ | | | | | |
| PID Reading in Well (ppm) | 0.0 | | | | | |
| Well Total Depth (ft btoc) | | | | | | |
| Time | 1520 | 1524 | 1528 | 1532 | 1536 | |
| Depth to Ground water (ft btoc) | 27.12 | 27.30 | 27.30 | 27.30 | 27.30 | |
| Total Groundwater Purged(gallons, liters, other) | | 1.2 | 2.4 | 3.6 | 4.8 | |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | | 300 | 300 | 300 | 300 | |
| pH (± 0.1) | | 6.66 | 6.65 | 6.63 | 6.63 | |
| Conductivity (mS/cm) (±3%) | | 0.148 | 0.148 | 0.148 | 0.148 | |
| Turbidity (NTU) (± 10% or <10) | | 5.39 | 1.13 | 0.00 | 0.00 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 8.37 | 8.08 | 8.21 | 8.10 | |
| Temperature (°C) | | 14.1 | 14.1 | 14.1 | 14.1 | |
| ORP/eH (mV) (± 10) | | 182.9 | 186.3 | 189.0 | 191.9 | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | |

Site Location: Boomsnub

Date: 10/31/22

Project Number: 1611303

Personnel: SS, ED

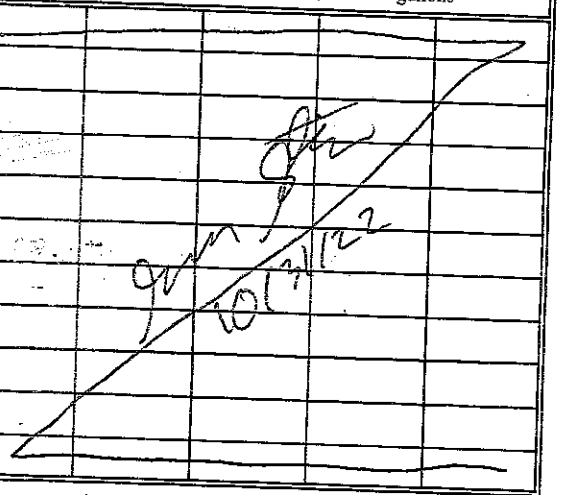
Purge Method: ✓ Low Flow ___ Conventional ___ None

Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) ✓ Other

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: Rainy, 53°F Peri ✓

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons



Sample Identification: 2242-030

Time Sampled: 1540

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-4C |
| Well Diameter (inches) | 2 |
| Well Monument Locked and Good Condition? | Yes |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | Yes |
| PID Reading in Well (ppm) | NA |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 10/31/22

Project Number: 161130 Personnel: RRR

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well X Redi-flo Pump (Ded) ___Other

Sampling Equipment: ___Extraction Well X Redi-flo Pump ___Diffusion Bag

Weather Conditions: Rain 53°

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1455 | 1505 | 1510 | 1515 | 1520 | 1525 | 1530 | 1535 | 1540 | |
| Depth to Ground water (ft btoc) | 27.05 | 27.20 | 27.22 | 27.22 | 27.22 | 27.22 | 27.23 | 27.23 | 27.23 | |
| Total Groundwater Purged (gallons, liters, other) | | | | | | | | | 3.0 | |
| Purge Rate (gpm, ft³/min, ml/min, other) | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | |
| pH (± 0.1) | | 6.05 | 6.05 | 6.05 | 6.05 | 6.06 | 6.07 | 6.07 | 6.08 | |
| Conductivity (mS/cm) (± 3%) | | 0.164 | 0.163 | 0.163 | 0.163 | 0.163 | 0.163 | 0.163 | 0.163 | |
| Turbidity (NTU) (± 10% or <10) | | 3.0 | 3.0 | 2.4 | 2.8 | 2.8 | 2.7 | 2.7 | 2.7 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 4.54 | 5.0 | 5.07 | 5.56 | 8.65 | 10.25 | 10.38 | 10.50 | |
| Temperature (°C) | | 14.1 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | |
| ORP/eH (mV) (± 10) | | 180.8 | 176.4 | 172.7 | 171.8 | 173.0 | 173.7 | 174.2 | 174.5 | |
| Color of Purged Water (gray, brown, red, clear) | | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | |

Sample Identification: 2242-038

Time Sampled: 1535

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| X VOCs by 8260C | 4 |
| X Total Chromium | ___ |
| Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-6A |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 11/1/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: ✓ Low Flow ___ Conventional ___ None

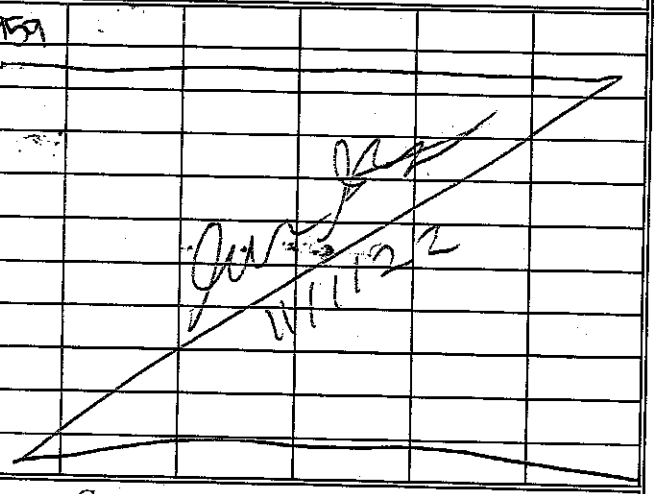
Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) ✓ Other

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: Cloudy Sub Pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | |
|---|---|---|---|---|---|
| Time | 0950 | 0953 | 0958 | ~~1002~~ EP 0959 | |
| Depth to Ground water (ft btoc) | 25.63 | 26.71 | 26.71 | 26.71 | |
| Total Groundwater Purged(gallons, liters, other) | 0 | 1.2 | 2.4 | 4.6 | |
| Purge Rate (gpm, ft³/min, ml/min, other) | 400 | 400 | 400 | 400 | |
| pH (± 0.1) | | 5.83 | 5.86 | 5.86 | |
| Conductivity (mS/cm) (± 3%) | | 0.161 | 0.160 | 0.159 | |
| Turbidity (NTU) (± 10% or <10) | | 0.00 | 0.00 | 0.00 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 6.29 | 6.27 | 6.26 | |
| Temperature (°C) | | 14.3 | 14.4 | 14.5 | |
| ORP/eH (mV) (± 10) | | 207.4 | 210.8 | 214.2 | |
| Color of Purged Water (gray, brown, red, clear) | | Clear | Clear | Clear | |




Sample Identification: 2242-032

Time Sampled: 1004

Sample Identification: 2242-033

Time Sampled: 1014

Purge water disposed To: Boomsnub

| Analysis | # of Bottles | Comments: |
|---|---|---|
| ✓ VOCs by 8260C | 3 (each) | field dup |
| ✓ Total Chromium | 1 | |
| ___ Other | | |

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-6B |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | √ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | √ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 59.00 |

Site Location: Boomsnub Date: 1/11/12

Project Number: 1611303 Personnel: SG, ED

Purge Method: √ Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) √ Other SV6 PUMP

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions: Cloudy, 48°F

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1150 | 1154 | 1158 | 1202 | | | | | | |
| Depth to Ground water (ft btoc) | 20.14 | 20.14 | 20.14 | 20.14 | | | | | | |
| Total Groundwater Purged(gallons, liters, other) | | 1.2 | 2.4 | 3.6 | | | | | | |
| Purge Rate (gpm, ft³/min, ml/min, other) | | 300 | 300 | 300 | | | | | | |
| pH (± 0.1) | | 6.40 | 6.41 | 6.41 | | | | | | |
| Conductivity (mS/cm) (± 3%) | | 0.204 | 0.206 | 0.206 | | | | | | |
| Turbidity (NTU) (± 10% or <10) | | 0.85 | 1.14 | 1.21 | | | | | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 1.66 | 1.65 | 1.62 | | | | | | |
| Temperature (°C) | | 14.1 | 14.2 | 14.2 | | | | | | |
| ORP/eH (mV) (± 10) | | 170.6 | 165.4 | 160.8 | | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | Clear | Clear | Clear | | | | | | |

Sample Identification: 2242-034

Time Sampled: 1205

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| √ VOCs by 8260C | 3 |
| √ Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-6C |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 11/1/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: X Low Flow ___Conventional ___None

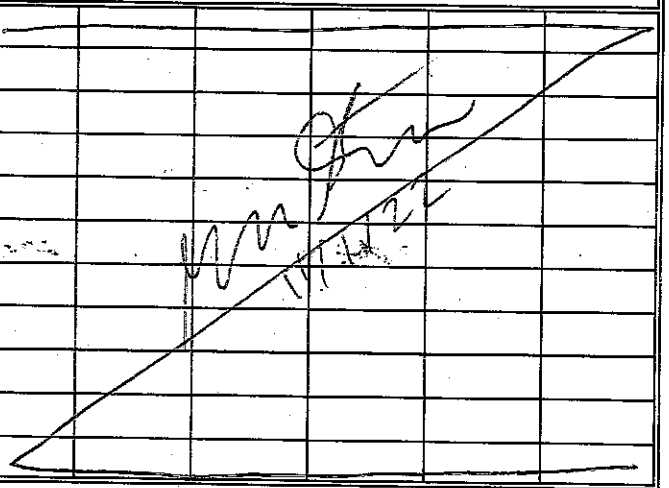
Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions: Cloudy, cold, 48°F X ~~Peri~~ SS 11/1 SV6

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | |
|---|---|---|---|---|
| Time | 1059 | 1102 | 1105 | 1108 |
| Depth to Ground water (ft btoc) | 26.67 | 25.75 | 25.75 | 25.75 |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 400 | 400 | 400 | 400 |
| pH (± 0.1) | | 6.53 | 6.51 | 6.51 |
| Conductivity (mS/cm) (± 3%) | | 0.197 | 0.198 | 0.198 |
| Turbidity (NTU) (± 10% or <10) | | 4.65 | 5.76 | 5.65 |
| Disssolved Oxygen (mg/L) (± 0.3) | | 8.13 | 8.18 | 8.16 |
| Temperature (°C) | | 14.1 | 14.1 | 14.2 |
| ORP/eH (mV) (± 10) | | 194.6 | 188.1 | 188.7 |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear |



Sample Identification: 2242-035

Time Sampled: 1110

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-6D |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 11/11/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: ✓ Low Flow ___ Conventional ___ None

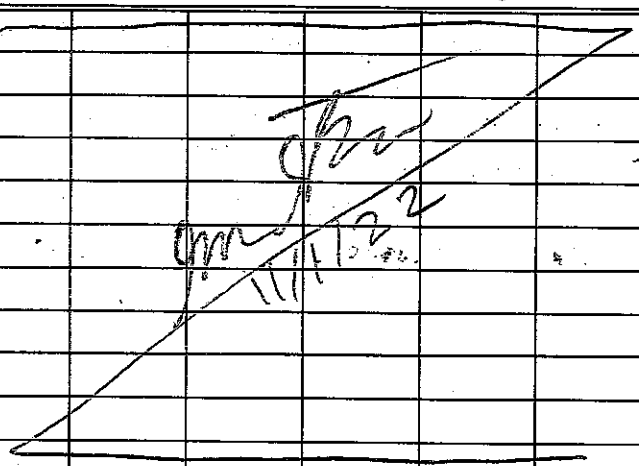
Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) ✓ Other SUB PUMP

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: Cloudy, 48°F

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | |
|---|---|---|---|---|
| Time | 1239 | 1242 | 1245 | 1248 |
| Depth to Ground water (ft btoc) | 26.20 | 26.44 | 26.44 | 26.44 |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 |
| Purge Rate (gpm, ft³/min, ml/min, other) | 400 | 400 | 400 | 400 |
| pH (± 0.1) | | 6.55 | 6.53 | 6.53 |
| Conductivity (mS/cm) (± 3%) | | 0.213 | 0.214 | 0.214 |
| Turbidity (NTU) (± 10% or <10) | | 0.00 | 0.00 | 0.00 |
| Disssolved Oxygen (mg/L) (± 0.3) | | 7.51 | 7.75 | 7.80 |
| Temperature (°C) | | 14.0 | 14.0 | 14.0 |
| ORP/eH (mV) (± 10) | | 163.7 | 164.6 | 165.2 |
| Color of Purged Water (gray, brown, red, clear) | | Clear | Clear | Clear |



Sample Identification: 2242-036

Time Sampled: 1254

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-7B |
| Well Diameter (inches) | 2 |
| Well Monument Locked and Good Condition? | |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | |
| Well Casing Plug Locked and Good Condition? | |
| PID Reading in Well (ppm) | |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 10/31/22

Project Number: 161130 Personnel: RRR

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well X Redi-flo Pump (Ded) ___Other

Sampling Equipment: ___Extraction Well X Redi-flo Pump ___Diffusion Bag

Weather Conditions: Rain, 53°

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1630 | 1640 | 1645 | 1650 | 1655 | | | | | |
| Depth to Ground water (ft btoc) | 26.73 | | | | | | | | | |
| Total Groundwater Purged(gallons, liters, other) | | | | | | | | | | |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 400 | 400 | 400 | 400 | 400 | | | | | |
| pH (± 0.1) | | 5.95 | 5.98 | 5.98 | 5.98 | | | | | |
| Conductivity (mS/cm) (± 3%) | | 0.148 | 0.147 | 0.147 | 0.147 | | | | | |
| Turbidity (NTU) (± 10% or <10) | | 6.7 | 6.2 | 6.0 | 4.9 | | | | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 2.08 | 2.27 | 2.30 | 2.33 | | | | | |
| Temperature (°C) | | 14.40 | 14.4 | 14.4 | 14.4 | | | | | |
| ORP/eH (mV) (± 10) | | 181.9 | 184.2 | 187.0 | 187.3 | | | | | |
| Color of Purged Water (gray, brown, red, clear) | clear | clear | clear | | | | | | | |

Sample Identification: 2242-037

Time Sampled: 1657

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| X VOCs by 8260C | 3 |
| X Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-7C |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 80.5 |

Site Location: Boomsnub Date: 11/2/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: ✓ Low Flow ___ Conventional ___ None

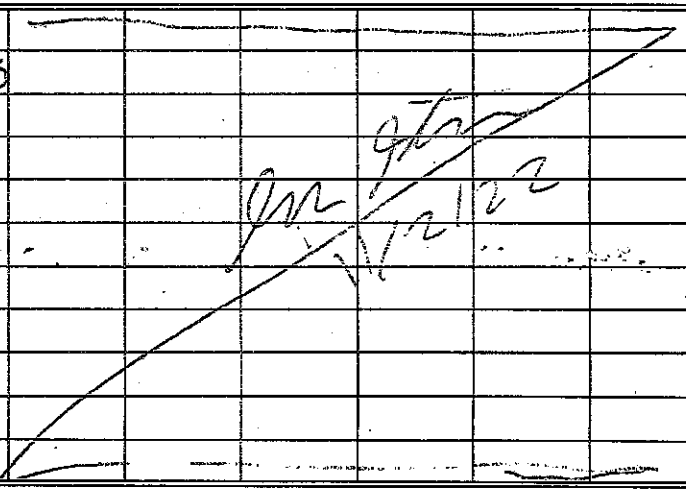
Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) ✓ Other

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: Cloudy, 41°F SUB Pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | |
|---|---|---|---|---|---|
| Time | 1322 | 1326 | 1330 | 1334 | |
| Depth to Ground water (ft btoc) | 26.39 | 26.65 | 26.65 | 26.65 | |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 | |
| Purge Rate (gpm, ft³/min, ml/min, other) | 300 | 300 | 300 | 300 | |
| pH (± 0.1) | | 6.62 | 6.60 | 6.59 | |
| Conductivity (mS/cm) (± 3%) | | 0.200 | 0.201 | 0.201 | |
| Turbidity (NTU) (± 10% or <10) | | 0.00 | 0.00 | 0.00 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 8.79 | 8.76 | 8.74 | |
| Temperature (°C) | | 13.9 | 14.2 | 14.4 | |
| ORP/eH (mV) (± 10) | | 185.5 | 185.4 | 186.4 | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | |



Sample Identification: 2242-038

Time Sampled: 1338

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-80 |
| Well Diameter (inches) | ~~2~~ 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 11/2/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: ✓ Low Flow ___ Conventional ___ None

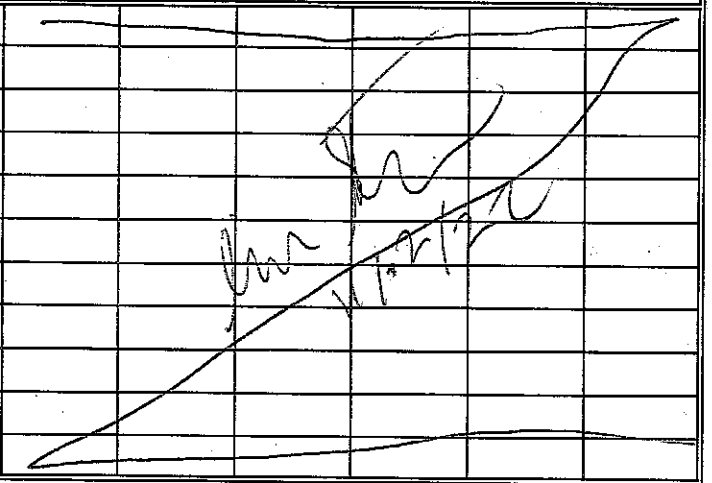
Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) ✓ Other SUB Pump

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: Cloudy, 41°F

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | |
|---|---|---|---|---|---|
| Time | | 1228 | 1233 | 1236 | 1239 |
| Depth to Ground water (ft btoc) | | 27.61 | 27.63 | 27.63 | 27.63 |
| Total Groundwater Purged(gallons, liters, other) | | 0.0 | 1.0 | 1.6 | 2.2 |
| Purge Rate (gpm, ft³/min, ml/min, other) | | 200 | 200 | 200 | 200 |
| pH | (± 0.1) | 7 | 6.41 | 6.41 | 6.41 |
| Conductivity (mS/cm) | (±3%) | | 0.211 | 0.212 | 0.211 |
| Turbidity (NTU) | (± 10% or <10) | | 0.00 | 0.00 | 0.00 |
| Disssolved Oxygen (mg/L) | (± 0.3) | | 4.24 | 4.18 | 4.15 |
| Temperature (°C) | | | 13.4 | 13.6 | 13.7 |
| ORP/eH (mV) | (± 10) | | 179.6 | 179.3 | 179.3 |
| Color of Purged Water (gray, brown, red, clear) | | | clear | clear | clear |



Sample Identification: 2242-039

Time Sampled: 1244

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-9B |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 58.0 |

Site Location: Boomsnub Date: 11/1/22

Project Number: 1611303 Personnel: SS, EB

Purge Method: ✓ Low Flow ___Conventional ___None

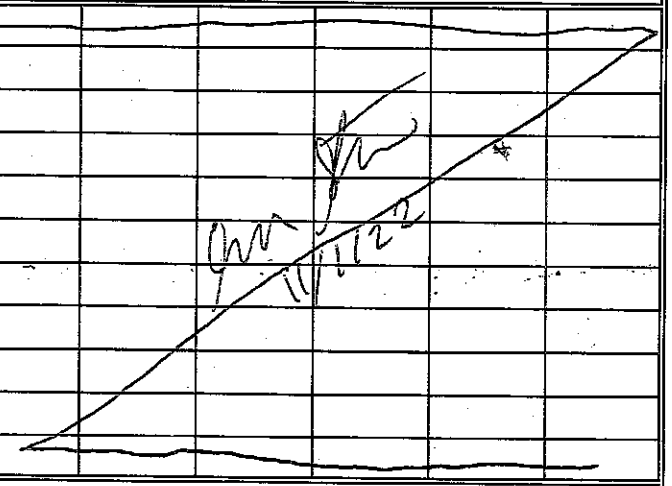
Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) ___Other

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions: Cloudy, 48°F SUB Pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | |
|---|---|---|---|---|
| Time | 1645 | 1650 | 1653 | 1656 |
| Depth to Ground water (ft btoc) | 26.60 | 26.30 | 26.3 | 26.3 |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.0 | 1.6 | 2.2 |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 200 | 200 | 200 | 200 |
| pH (± 0.1) | | 6.52 | 6.51 | 6.51 |
| Conductivity (mS/cm) (± 3%) | | 0.163 | 0.165 | 0.165 |
| Turbidity (NTU) (± 10% or <10) | | 0.02 | 0.00 | 0.00 |
| Disssolved Oxygen (mg/L) (± 0.3) | | 7.02 | 7.01 | 7.00 |
| Temperature (°C) | | 14.5 | 14.5 | 14.5 |
| ORP/eH (mV) (± 10) | | 208.1 | 205.5 | 204.9 |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear |



| | | | |
|---|---|---|---|
| Sample Identification: 1242-040 | Analysis | # of Bottles | Comments: |
| Time Sampled: 1700 | ✓ VOCs by 8260C | 3 | |
| | ✓ Total Chromium | 1 | |
| Purge water disposed To: Boomsnub | ___ Other | | |

# Ground Water Purge and Sampling Form

| | | | | | |
|---|---|---|---|---|---|
| Well Identification | MW-10B | | | | |
| Well Diameter (inches) | 4 | | | | |
| Well Monument Locked and Good Condition? | ✓ | | | | |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | ~~WAC~~ D | | | | |
| Well Casing Plug Locked and Good Condition? | ✓ | | | | |
| PID Reading in Well (ppm) | 0.0 | | | | |
| Well Total Depth (ft btoc) | 61.5 | | | | |
| Time | 1416 | 1420 | 1424 | 1428 | |
| Depth to Ground water (ft btoc) | 20.45 | 20.80 | 20.80 | 20.80 | |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 | |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 300 | 300 | 300 | 300 | |
| pH (± 0.1) | | 6.80 | 6.79 | 6.78 | |
| Conductivity (mS/cm) (± 3%) | | 0.234 | 0.234 | 0.233 | |
| Turbidity (NTU) (± 10% or <10) | | 0.00 | 0.00 | 0.00 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 8.44 | 8.43 | 8.42 | |
| Temperature (°C) | | 15.0 | 15.1 | 15.1 | |
| ORP/eH (mV) (± 10) | | 135.6 | 131.0 | 127.9 | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | |

Site Location: Boomsnub Date: 11/1/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions:

X sub pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

E-2 D 11/1/22

| | | | |
|---|---|---|---|
| Sample Identification: 2242-041 | Analysis | # of Bottles | Comments: |
| Time Sampled: 1430 | ✓ VOCs by 8260C | 3 | |
| | ✓ Total Chromium | 1 | |
| Purge water disposed To: Boomsnub | ___ Other | | |

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-10C |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 81.5 |

Site Location: Boomsnub  Date: 11/1/12

Project Number: 1611303  Personnel: SS, ED

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions: Sunny, 50° X Sub pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1508 | 1512 | 1516 | 1520 | 1524 | 1528 | 1532 | 1536 | 1540 | 1544 |
| Depth to Ground water (ft btoc) | 20.33 | 20.33 | 20.33 | 20.33 | 20.33 | 20.33 | 20.33 | 20.33 | 20.33 | 20.33 |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | 7.2 | 8.4 | 9.6 | 10.8 |
| Purge Rate (gpm, ft³/min, ml/min, other) | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| pH (± 0.1) | | 6.47 | 6.41 | 6.40 | 6.39 | 6.40 | 6.39 | 6.38 | 6.39 | 6.39 |
| Conductivity (mS/cm) (± 3%) | | 0.165 | 0.165 | 0.165 | 0.165 | 0.165 | 0.165 | 0.164 | 0.164 | 0.164 |
| Turbidity (NTU) (± 10% or <10) | | 64.47 | 47.12 | 39.80 | 34.60 | 29.23 | 25.98 | 22.79 | 19.60 | 17.23 |
| Disssolved Oxygen (mg/L) (± 0.3) | | 6.21 | 4.81 | 4.52 | 4.38 | 4.31 | 4.23 | 4.19 | 4.16 | 4.12 |
| Temperature (°C) | | 15.3 | 15.0 | 15.1 | 15.1 | 15.2 | 15.1 | 15.0 | 15.1 | 15.1 |
| ORP/eH (mV) (± 10) | | 134.5 | 138.7 | 141.2 | 144.4 | 148.2 | 152.5 | 155.9 | 157.2 | 159.2 |
| Color of Purged Water (gray, brown, red, clear) | | cloudy | cloudy | cloudy | cloudy | cloudy | cloudy | cloudy | cloudy | cloudy |

Sample Identification: 2242-042

Time Sampled: 1608

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| ___ Other | |

Comments:

(CONT.)

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-10C |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 81.5 |

Site Location: Boomsnub Date: 11/11/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: ✓ Low Flow ___ Conventional ___ None

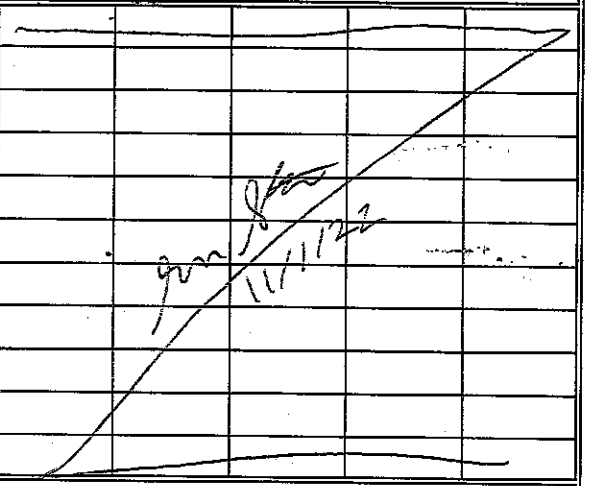
Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) ✓ Other SUB PUMP

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: SUNNY, 50°F

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | |
|---|---|---|---|---|---|
| Time | 1548 | 1552 | 1556 | 1600 | 1604 |
| Depth to Ground water (ft btoc) | 20.33 | 20.33 | 20.33 | 20.33 | 20.33 |
| Total Groundwater Purged(gallons, liters, other) | 12.0 | 13.2 | 14.4 | 15.6 | 16.8 |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 300 | 300 | 300 | 300 | 300 |
| pH (± 0.1) | 6.39 | 6.39 | 6.38 | 6.38 | 6.37 |
| Conductivity (mS/cm) (± 3%) | 0.163 | 0.163 | 0.163 | 0.163 | 0.163 |
| Turbidity (NTU) (± 10% or <10) | 15.53 | 14.90 | 13.72 | 12.33 | 12.67 |
| Disssolved Oxygen (mg/L) (± 0.3) | 4.12 | 4.12 | 4.12 | 4.12 | 4.15 |
| Temperature (°C) | 15.2 | 15.1 | 15.1 | 15.1 | 15.1 |
| ORP/eH (mV) (± 10) | 159.9 | 162.5 | 164.1 | 165.6 | 168.4 |
| Color of Purged Water (gray, brown, red, clear) | Cloudy | clear | clear | clear | clear |




Sample Identification: 2242-042

Time Sampled: 1608

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| ___ Other | |

Comments: Page 2 of 2

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-12C |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | NO |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | YES |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 82.7 |

Site Location: Boomsnub Date: 11/2/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: ✓ Low Flow ___ Conventional ___ None

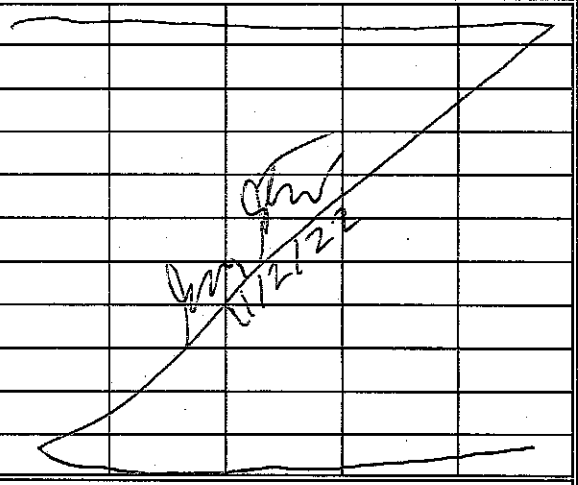
Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) ✓ Other SUB pump

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: Cloudy, 41°F

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | |
|---|---|---|---|---|---|---|
| Time | 1134 | 1138 | 1142 | 1146 | 1150 | |
| Depth to Ground water (ft btoc) | 21.68 | 21.72 | 21.72 | 21.72 | 21.72 | |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 | 4.8 | |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 300 | 300 | 300 | 300 | 300 | |
| pH (± 0.1) | | 6.58 | 6.53 | 6.52 | 6.52 | |
| Conductivity (mS/cm) (± 3%) | | 0.192 | 0.193 | 0.194 | 0.194 | |
| Turbidity (NTU) (± 10% or <10) | | 0.00 | 0.45 | 1.20 | 1.20 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 8.41 | 8.63 | 8.70 | 8.71 | |
| Temperature (°C) | | 13.5 | 13.7 | 13.8 | 13.8 | |
| ORP/eH (mV) (± 10) | | 168.2 | 161.5 | 156.5 | 155.0 | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | |




Sample Identification: 2242-043

Time Sampled: 1154

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| ___ Other | ___ |

Comments: well flush mount casing lid missing (well vault/casing open)

MS/MSD

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-13C |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 11/2/22

Project Number: 1611303 Personnel: CS, ED

Purge Method: X Low Flow ___Conventional ___None

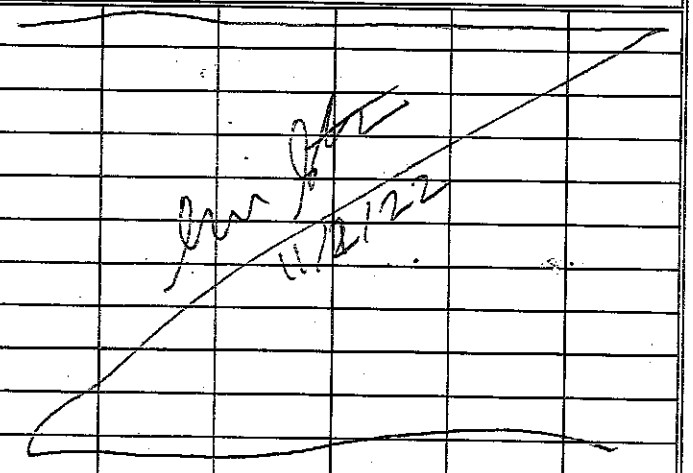
Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions: Cloudy, 41°F X SUB

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | |
|---|---|---|---|---|
| Time | 1035 | 1039 | 1043 | 1047 |
| Depth to Ground water (ft btoc) | 19.19 | 19.25 | 19.25 | 19.25 |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 |
| Purge Rate (gpm, ft³/min, ml/min, other) | 300 | 300 | 300 | 300 |
| pH (± 0.1) | | 6.5 | 6.44 | 6.43 |
| Conductivity (mS/cm) (± 3%) | | 0.202 | 0.203 | 0.202 |
| Turbidity (NTU) (± 10% or <10) | | 9.40 | 9.51 | 9.61 |
| Disssolved Oxygen (mg/L) (± 0.3) | | 8.08 | 8.02 | 9.02 |
| Temperature (°C) | | 13.7 | 13.9 | 13.9 |
| ORP/eH (mV) (± 10) | | 173.4 | 181.3 | 183.2 |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear |



| | | | |
|---|---|---|---|
| Sample Identification: 2242-044 | Analysis | # of Bottles | Comments: |
| Time Sampled: 1051 | ✓ VOCs by 8260C | 3 | None |
| | ✓ Total Chromium | 1 | |
| Purge water disposed To: Boomsnub | Other | | |

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-14C |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 81.5 |

Site Location: Boomsnub  Date: 11/3/22

Project Number: 1611303  Personnel: SS, ED

Purge Method: ✓ Low Flow  ___ Conventional  ___ None

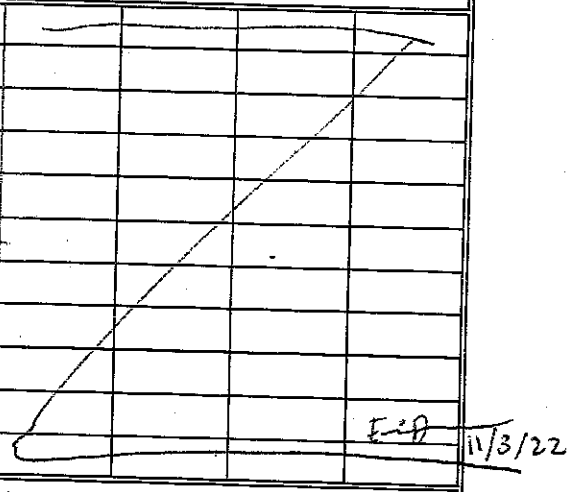
Purge Equipment: ___ Extraction Well  ___ Redi-flo Pump (Ded)  ✓ Other

Sampling Equipment: ___ Extraction Well  ___ Redi-flo Pump  ___ Diffusion Bag

Weather Conditions: Cloudy, breezy  ✓ Sub pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time | 1039 | 1042 | 1045 | 1048 | 1051 | 1054 | |
| Depth to Ground water (ft btoc) | 18.74 | 18.90 | 18.90 | 18.90 | 18.90 | 18.90 | |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | |
| Purge Rate (gpm, ft³/min, ml/min, other) | 400 | 400 | 400 | 400 | 400 | 400 | |
| pH (± 0.1) | | 6.64 | 6.52 | 6.47 | 6.45 | 6.43 | |
| Conductivity (mS/cm) (± 3%) | | 0.232 | 0.232 | 0.232 | 0.231 | 0.230 | |
| Turbidity (NTU) (± 10% or <10) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 1.72 | 1.55 | 1.40 | 1.38 | 1.43 | |
| Temperature (°C) | | 14.1 | 14.3 | 14.3 | 14.3 | 14.4 | |
| ORP/eH (mV) (± 10) | | 33.7 | 42.9 | 29.0 | 27.0 | 27.1 | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | clear | |




Sample Identification: 2242-009

Time Sampled: 1059

2242-010

1109

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| ✓ Other | |

Comments:
1 x metals scan
1 x dissolved iron
1 x Anion Scan
1x DOC
1 x COD
3 x Dissolved gases
Field dup

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-14E |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 126 |

Site Location: Boomsnub Date: 11/3/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: ✓ Low Flow ___Conventional ___None

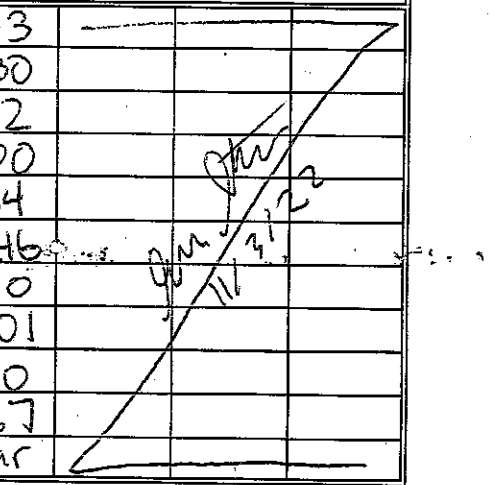
Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions: Cloudy, 45°F X sub pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Time | 1136 | 1139 | 1142 | 1145 | 1148 | 1151 | 1153 | |
| Depth to Ground water (ft btoc) | 16.96 | 17.30 | 17.30 | 17.30 | 17.30 | 17.30 | 17.30 | |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | 7.2 | |
| Purge Rate (gpm, ft³/min, ml/min, other) | 400 | 400 | 400 | 400 | 400 | 400 | 400 | |
| pH (± 0.1) | | 6.66 | 6.69 | 6.64 | 6.64 | 6.64 | 6.64 | |
| Conductivity (mS/cm) (± 3%) | | 0.246 | 0.246 | 0.246 | 0.246 | 0.246 | 0.246 | |
| Turbidity (NTU) (± 10% or <10) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 6.12 | 6.08 | 6.05 | 6.02 | 6.01 | 6.01 | |
| Temperature (°C) | | 14.1 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | |
| ORP/eH (mV) (± 10) | | 38.7 | 58.6 | 70.4 | 83.0 | 87.0 | 89.7 | |
| Color of Purged Water (gray, brown, red, clear) | | clear | Clear | Clear | Clear | clear | Clear | |



Sample Identification: 2242-011

Time Sampled: 1157

Purge water disposed To: Boomsnub

| Analysis | # of Bottles | Comments: | |
|---|---|---|---|
| ✓ VOCs by 8260C | 3 | 1x metals scan | 1x DOC |
| ✓ Total Chromium | 1 | 1x Dissolved iron | 1x COD |
| ___ Other | ___ | 1x Anion scan | 3x Dissolved gases |

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-15E |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 107.23 |

Site Location: Boomsnub  Date: 11/3/22

Project Number: 1611303  Personnel: SS, ED

Purge Method: X Low Flow ___ Conventional ___ None

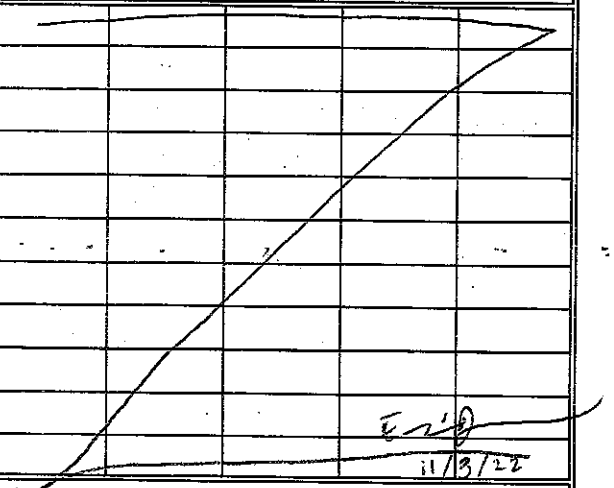
Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) X Other

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: rainy, 50° F  X Sub pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | |
|---|---|---|---|---|---|---|
| Time | 1632 | 1637 | 1640 | 1643 | 1646 | |
| Depth to Ground water (ft btoc) | 14.43 | 14.50 | 14.50 | 14.50 | 14.50 | |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.0 | 1.6 | 2.2 | 2.8 | |
| Purge Rate (gpm, ft³/min, ml/min, other) | 200 | 200 | 200 | 200 | 200 | |
| pH (± 0.1) | | 6.67 | 6.67 | 6.67 | 6.67 | |
| Conductivity (mS/cm) (± 3%) | | 0.249 | 0.253 | 0.253 | 0.253 | |
| Turbidity (NTU) (± 10% or <10) | | 0.07 | 0.02 | 0.10 | 0.05 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 2.31 | 1.67 | 1.59 | 1.51 | |
| Temperature (°C) | | 14.0 | 14.0 | 14.0 | 13.9 | |
| ORP/eH (mV) (± 10) | | 143.1 | 139.8 | 138.9 | 138.2 | |
| Color of Purged Water (gray, brown, red, clear) | | Clear | Clear | Clear | Clear | |




Sample Identification: 2242-012

Time Sampled: 1650

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| X VOCs by 8260C | 3 |
| X Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-18D |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | |
| Well Casing Plug Locked and Good Condition? | |
| PID Reading in Well (ppm) | |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 11/3/22

Project Number: 1611303 Personnel: RRL

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well X Redi-flo Pump (Ded) ___Other

Sampling Equipment: ___Extraction Well X Redi-flo Pump ___Diffusion Bag

Weather Conditions: Cloudy, 47°

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1140 | 1145 | 1150 | 1153 | 1156 | 1159 | | | | |
| Depth to Ground water (ft btoc) | | | | | | | | | | |
| Total Groundwater Purged(gallons, liters, other) | | | | | | | | | | |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 400 | 400 | 400 | 400 | 400 | 400 | | | | |
| pH (± 0.1) | | 6.14 | 6.08 | 6.06 | 6.06 | 6.05 | | | | |
| Conductivity (mS/cm) (± 3%) | | 0.167 | 0.167 | 0.167 | 0.167 | 0.167 | | | | |
| Turbidity (NTU) (± 10% or <10) | | 8.0 | 7.6 | 7.1 | 6.8 | 5.6 | | | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 0.25 | 0.27 | 0.16 | 0.10 | 0.05 | | | | |
| Temperature (°C) | | 13.4 | 13.7 | 13.7 | 13.7 | 13.7 | | | | |
| ORP/eH (mV) (± 10) | | 2.9 | 13.2 | 21.0 | 24.8 | 27.0 | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | clear | | | | |

Sample Identification: 2242-13

Time Sampled: 1202

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| X VOCs by 8260C | 3 |
| X Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-18E |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | Yes |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | |
| Well Casing Plug Locked and Good Condition? | |
| PID Reading in Well (ppm) | |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub  Date: 11/3/22

Project Number: 1611303  Personnel: RAR

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well X Redi-flo Pump (Ded) ___Other

Sampling Equipment: ___Extraction Well X Redi-flo Pump ___Diffusion Bag

Weather Conditions: Cloudy, 47°

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| Time | 1117 | 1123 | 1128 | 1131 | 1134 | 1137 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth to Ground water (ft btoc) | | | | | | | | | | |
| Total Groundwater Purged(gallons, liters, other)* | | | | | | | | | | |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 400 | 400 | 400 | 400 | 400 | 400 | | | | |
| pH (± 0.1) | | 6.95 | 6.97 | 6.99 | 7.00 | 7.01 | | | | |
| Conductivity (mS/cm) (± 3%) | | 0.404 | 0.405 | 0.405 | 0.405 | 0.405 | | | | |
| Turbidity (NTU) (± 10% or <10) | | 30.2 | 14.1 | 13.4 | 10.1 | 8.6 | | | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 0.08 | -0.04 | -0.17 | -0.20 | 0.21 | | | | |
| Temperature (°C) | | 13.3 | 13.4 | 13.5 | 13.3 | 13.3 | | | | |
| ORP/eH (mV) (± 10) | | -154.7 | -157.6 | -163.1 | -164.0 | -165.3 | | | | |
| Color of Purged Water (gray, brown, red, clear) | | Slightly gray | Clear | Clear | clear | clear | | | | |

Sample Identification: 2242-014

Time Sampled: 1140

Purge water disposed To: Boomsnub

| Analysis | # of Bottles | Comments: |
|---|---|---|
| X VOCs by 8260C | 3 | |
| X Total Chromium | 1 | |
| ___ Other | | |

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-19D |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 92.2 |

Site Location: Boomsnub Date: 11/3/22

Project Number: 1611303 Personnel: JS, ED

Purge Method: ✓ Low Flow ___ Conventional ___ None

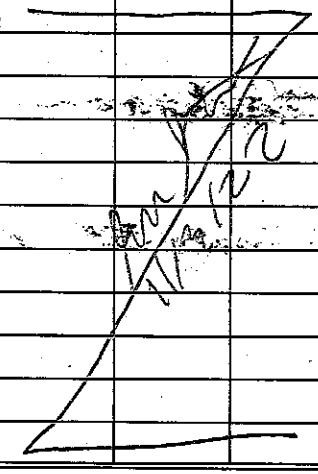
Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) ✓ Other

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: rainy, 50° X Sub pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Time | 1515 | 1518 | 1521 | 1524 | 1527 | 1530 | 1533 | |
| Depth to Ground water (ft btoc) | 9.35 | 9.30 | 9.30 | 9.30 | 9.30 | 9.30 | 9.30 | |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | 7.2 | |
| Purge Rate (gpm, ft³/min, ml/min, other) | 400 | 400 | 400 | 400 | 400 | 400 | 400 | |
| pH (± 0.1) | | 6.42 | 6.42 | 6.42 | 6.43 | 6.44 | 6.44 | |
| Conductivity (mS/cm) (± 3%) | | 0.239 | 0.244 | 0.244 | 0.256 | 0.260 | 0.260 | |
| Turbidity (NTU) (± 10% or <10) | | 1.54 | 1.05 | 1.19 | 1.24 | 1.55 | 1.75 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 1.64 | 1.59 | 1.58 | 1.52 | 1.50 | 1.51 | |
| Temperature (°C) | | 12.9 | 12.9 | 13.0 | 12.9 | 12.8 | 12.6 | |
| ORP/eH (mV) (± 10) | | 153.6 | 129.1 | 102.0 | 86.0 | 86.9 | 88.3 | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | clear | clear | |



Sample Identification: 2242-015

Time Sampled: 1540

Purge water disposed To: Boomsnub

| Analysis | # of Bottles | Comments: |
|---|---|---|
| ___ VOCs by 8260C | ~~9~~ 3 | 3 x metals scan |
| ___ Total Chromium | 3 | 3 x diss. iron |
| ___ Other | ___ | 3 x Anions |

3 x COD
3 x DOC
9 x dissolved gases

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-20D |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | yes |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | Yes |
| PID Reading in Well (ppm) | NA |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 11/3/22

Project Number: 1611303 Personnel: RRL

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well X Redi-flo Pump (Ded) ___Other

Sampling Equipment: ___Extraction Well X Redi-flo Pump ___Diffusion Bag

Weather Conditions: Rain; 46°

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1250 | 1300 | 1305 | 1308 | 1311 | 1314 | | | | |
| Depth to Ground water (ft btoc) | 20.83 | 20.87 | 20.89 | 20.89 | 20.89 | 20.89 | | | | |
| Total Groundwater Purged(gallons, liters, other) | | | | | | | | | | |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 400 | 400 | 400 | 400 | 400 | 400 | | | | |
| pH (± 0.1) | | 6.79 | 6.71 | 6.68 | 6.65 | 6.65 | | | | |
| Conductivity (mS/cm) (± 3%) | | 0.318 | 0.303 | 0.298 | 0.294 | 0.291 | | | | |
| Turbidity (NTU) (± 10% or <10) | | 12.2 | 13.5 | 12.0 | 11.3 | 9.8 | | | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 0.04 | -0.06 | -0.11 | -0.12 | -0.13 | | | | |
| Temperature (°C) | | 13.7 | 13.7 | 13.8 | 13.8 | 13.8 | | | | |
| ORP/eH (mV) (± 10) | | 50.3 | 45.7 | 43.7 | 43.5 | 43.6 | | | | |
| Color of Purged Water (gray, brown, red, clear) | | clear | cloudy | clear | clear | clear | | | | |

Sample Identification: 2242-016

Time Sampled: ~~2242-016~~ 1328

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| X VOCs by 8260C | 3 |
| X Total Chromium | 1 |
| ___ Other | |

Comments:

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-21D |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 75.4 |

Site Location: Boomsnub Date: 1/12/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: ✓ Low Flow ___ Conventional ___ None

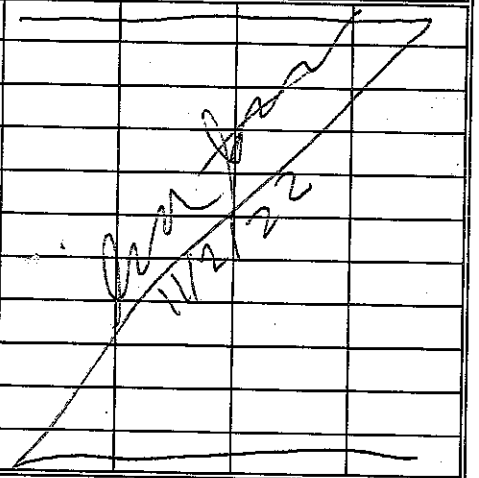
Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) ✓ Other

Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions: Cloudy, 42°F 600 SUB

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time | 1602 | 1606 | 1610 | 1614 | 1618 | 1622 | |
| Depth to Ground water (ft btoc) | 19.82 | 19.07 | 19.10 | 19.15 | 19.17 | 19.19 | |
| Total Groundwater Purged(gallons, liters, other) | | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | |
| Purge Rate (gpm, ft³/min, ml/min, other) | | 300 | 300 | 300 | 300 | 300 | |
| pH (± 0.1) | | 7.40 | 7.32 | 7.30 | 7.29 | 7.28 | |
| Conductivity (mS/cm) (± 3%) | | 0.195 | 0.195 | 0.195 | 0.195 | 0.195 | |
| Turbidity (NTU) (± 10% or <10) | | 14.10 | 13.79 | 13.70 | 13.66 | 13.01 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 6.62 | 6.46 | 6.48 | 6.50 | 6.50 | |
| Temperature (°C) | | 13.2 | 13.3 | 13.3 | 13.3 | 13.5 | |
| ORP/eH (mV) (± 10) | | 178.0 | 168.5 | 160.8 | 156.3 | 150.9 | |
| Color of Purged Water (gray, brown, red, clear) | | clear | clear | clear | clear | clear | |



Sample Identification: 2242-070

Time Sampled: 1626

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| ___ Other | |

Comments: None

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | MW-22D |
| Well Diameter (inches) | 4 |
| Well Monument Locked and Good Condition? | ✓ |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WBC |
| Well Casing Plug Locked and Good Condition? | ✓ |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | 65.2 |

Site Location: Boomsnub Date: 11/2/22

Project Number: 1611303 Personnel: SS, ED

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other

Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag

Weather Conditions: Cloudy, 42° F X Sub pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1456 | 1459 | 1502 | 1505 | 1508 | 1511 | 1514 | 1517 | 1520 | 1523 |
| Depth to Ground water (ft btoc) | 20.25 | 20.40 | 20.40 | 20.40 | 20.40 | 20.4 | 20.4 | 20.4 | 20.4 | 20.4 |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | 7.2 | 8.4 | 9.6 | 10.8 |
| Purge Rate (gpm, ft³/min, ml/min, other) | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 |
| pH (± 0.1) | | 7.18 | 7.16 | 7.16 | 7.16 | 7.19 | 7.20 | 7.20 | 7.20 | 7.20 |
| Conductivity (mS/cm) (± 3%) | | 0.403 | 0.417 | 0.421 | 0.430 | 0.434 | 0.436 | 0.436 | 0.437 | 0.437 |
| Turbidity (NTU) (± 10% or <10) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Disssolved Oxygen (mg/L) (± 0.3) | | 5.13 | 3.14 | 2.42 | 2.00 | 1.71 | 1.56 | 1.54 | 1.50 | 1.49 |
| Temperature (°C) | | 12.3 | 12.5 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 |
| ORP/eH (mV) (± 10) | | 164.0 | 163.8 | 163.0 | 165.6 | 175.7 | 188.5 | 197.3 | 203.8 | 206.1 |
| Color of Purged Water (gray, brown, red, clear) | | clear | Clear | Clear | Clear | clear | clear | clear | clear | clear |

Sample Identification: 2242-005

Time Sampled: 1528

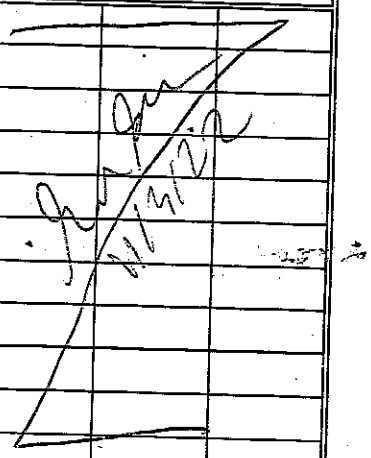
Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| ✓ VOCs by 8260C | 3 |
| ✓ Total Chromium | 1 |
| Other | |

Comments: None

# Ground Water Purge and Sampling Form

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Well Identification | MW-40 | | Site Location: Boomsnub | | | | Date: 11/3/22 | | |
| Well Diameter (inches) | 2 ~~8~~ ED | | Project Number: 1611303 | | | | Personnel: SS, ED | | |
| Well Monument Locked and Good Condition? | ✓ | | Purge Method: X Low Flow ___Conventional ___None | | | | | | |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | WAC | | Purge Equipment: ___Extraction Well ___Redi-flo Pump (Ded) X Other | | | | | | |
| Well Casing Plug Locked and Good Condition? | ✓ | | Sampling Equipment: ___Extraction Well ___Redi-flo Pump ___Diffusion Bag | | | | | | |
| PID Reading in Well (ppm) | 0.0 | | Weather Conditions: Raining, 45°F X Sub pump | | | | | | |
| Well Total Depth (ft btoc) | 66 | | Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons | | | | | | |
| Time | 1418 | 1422 | 1426 | 1430 | 1434 | 1438 | 1442 | | |
| Depth to Ground water (ft btoc) | 16.94 | 17.13 | 17.13 | 17.13 | 17.13 | 17.13 | 17.13 | | |
| Total ~~Groundwater~~ Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | 7.2 | | |
| Purge Rate (gpm, $ft^3$/min, ml/min, other) | 300 | 300 | 300 | 300 | 300 | 300 | 300 | | |
| pH (± 0.1) | | 6.49 | 6.46 | 6.45 | 6.44 | 6.43 | 6.43 | | |
| Conductivity (mS/cm) (± 3%) | | 0.206 | 0.207 | 0.208 | 0.210 | 0.211 | 0.21 | | |
| Turbidity (NTU) (± 10% or <10) | | 5.46 | 1.97 | 0.73 | 0.00 | 0.00 | 0.00 | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 5.25 | 5.02 | 4.80 | 4.56 | 4.48 | 4.43 | | |
| Temperature (°C) | | 14.1 | 14.3 | 14.3 | 14.3 | 14.4 | 14.4 | | |
| ORP/eH (mV) (± 10) | | 139.1 | 147.5 | 152.0 | 154.9 | 157.2 | 159.2 | | |
| Color of Purged Water (gray, brown, red, clear) | | Clear | Clear | Clear | Clear | Clear | Clear | | |



| | | | |
|---|---|---|---|
| Sample Identification: 2242-017 | Analysis | # of Bottles | Comments: |
| Time Sampled: 1445 | X VOCs by 8260C | 3 | |
| | X Total Chromium | 1 | |
| Purge water disposed To: Boomsnub | ___ Other | | |

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | PZ-39 |
| Well Diameter (inches) | 2 |
| Well Monument Locked and Good Condition? | X |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | X |
| PID Reading in Well (ppm) | 0.0 |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub  Date: 11/3/22

Project Number: 1611303  Personnel: SS, ED

Purge Method: X Low Flow ___ Conventional ___ None

Purge Equipment: ___ Extraction Well ___ Redi-flo Pump (Ded) X Other

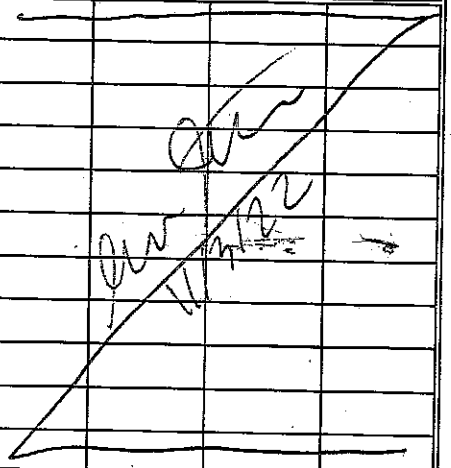
Sampling Equipment: ___ Extraction Well ___ Redi-flo Pump ___ Diffusion Bag

Weather Conditions:

X Sub pump

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time | 1259 | 1303 | 1307 | 1311 | 1315 | 1319 | |
| Depth to Ground water (ft btoc) | 15.89 | 15.97 | 15.97 | 15.97 | 15.97 | 15.97 | |
| Total Groundwater Purged(gallons, liters, other) | 0.0 | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | |
| Purge Rate (gpm, ft³/min, ml/min, other) | 300 | 300 | 300 | 300 | 300 | 300 | |
| pH (± 0.1) | | 7.68 | 7.74 | 7.76 | 7.76 | 7.78 | |
| Conductivity (mS/cm) (± 3%) | | 0.518 | 0.520 | 0.521 | 0.522 | 0.521 | |
| Turbidity (NTU) (± 10% or <10) | | 8.25 | 7.62 | 6.97 | 6.98 | 6.97 | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 1.61 | 1.56 | 1.56 | 1.57 | 1.56 | |
| Temperature (°C) | | 13.4 | 13.5 | 13.6 | 13.6 | 13.5 | |
| ORP/eH (mV) (± 10) | | -56.4 | -46.2 | -34.0 | -30.1 | -26.3 | |
| Color of Purged Water (gray, brown, red, clear) | | Clear | Clear | clear | Clear | Clear | |



Sample Identification: 2242-018

Time Sampled: 1325

Purge water disposed To: Boomsnub

| Analysis | # of Bottles | Comments: |
|---|---|---|
| X VOCs by 8260C | 3 | 1 x Metals Scan |
| X Total Chromium (ED) | | 1 x Dissolved iron |
| ___ Other | | 1 x Anion Scan |
| | | 1x DOC |
| | | 1x cod |
| | | 3x dissolved gas |

# Ground Water Purge and Sampling Form

| | |
|---|---|
| Well Identification | PW-1B |
| Well Diameter (inches) | 6" |
| Well Monument Locked and Good Condition? | yes |
| Inside Well Head and Outside Well Casing (D=dry), (WAC=Water above Casing), WBC=Water Below Casing) | D |
| Well Casing Plug Locked and Good Condition? | Yes |
| PID Reading in Well (ppm) | NA |
| Well Total Depth (ft btoc) | |

Site Location: Boomsnub Date: 10/31/22

Project Number: 161130 Personnel: RRR

Purge Method: X Low Flow ___Conventional ___None

Purge Equipment: ___Extraction Well X Redi-flo Pump (Ded) ___Other

Sampling Equipment: ___Extraction Well X Redi-flo Pump ___Diffusion Bag

Weather Conditions: Rain, 54°

Well Volume Calculation: 2"=.16, 4"=.64, 6"=1.44 gallons

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | 1550 | 1600 | 1605 | 1610 | | | | | | | |
| Depth to Ground water (ft btoc) | 23.17 | 23.19 | 23.19 | 23.19 | | | | | | | |
| Total Groundwater Purged (gallons, liters, other) | | | | 4 | | | | | | | |
| Purge Rate (gpm, ft³/min, ml/min, other) | 400 | 400 | 400 | 400 | | | | | | | |
| pH (± 0.1) | | 5.94 | 5.94 | 5.94 | | | | | | | |
| Conductivity (mS/cm) (± 3%) | | 0.120 | 0.120 | 0.120 | | | | | | | |
| Turbidity (NTU) (± 10% or <10) | | 2.8 | 2.7 | 2.6 | | | | | | | |
| Disssolved Oxygen (mg/L) (± 0.3) | | 3.48 | 3.39 | 3.45 | | | | | | | |
| Temperature (°C) | | 14.2 | 14.2 | 14.2 | | | | | | | |
| ORP/eH (mV) (± 10) | | 180.1 | 180.9 | 181.7 | | | | | | | |
| Color of Purged Water (gray, brown, red, clear) | | Clear | Clear | Clear | | | | | | | |

Sample Identification: 2242-045

Time Sampled: 1612

Purge water disposed To: Boomsnub

| Analysis | # of Bottles |
|---|---|
| X VOCs by 8260C | 3 |
| X Total Chromium | 1 |
| ___ Other | |

Comments:

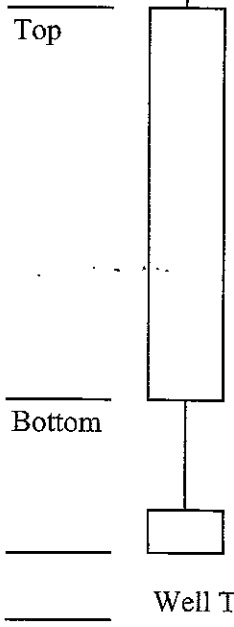
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-1A

Depth (BTOC)

29.53

DTW at installation — DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 2

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-046

Sample Date: 11/01/22 Time: 1305

Sampling Personnel: RRR

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing): D

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

pH 4.26 ORP 190.2 DO 15.16 Cond 0.006

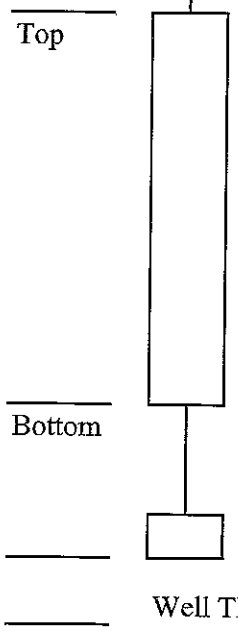
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-16

Depth (BTOC) _____

_____ _____ 29.88

DTW at installation DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-047

Sample Date: 11/01/22 Time: 1315

Sampling Personnel: RRR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

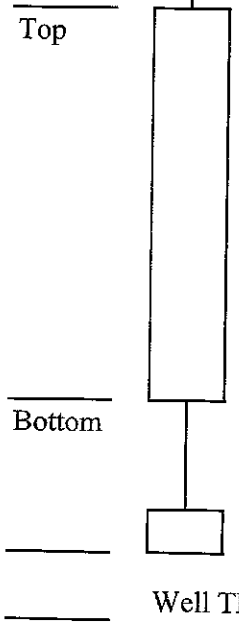
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-1C

Depth (BTOC)

29.82

DTW at installation — DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-048

Sample Date: 11/01/22 Time: 1325

Sampling Personnel: RRR

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-2A

Depth (BTOC)

29.63

DTW at installation — DTW at sampling

Top

Bottom

Weight

Well TD

Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 2

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-049

Sample Date: 11/01/22 Time: 1335

Sampling Personnel: RRR

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Yes

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

pH 3.69 Cond 0.007 DO 11.46 ORP 309.3

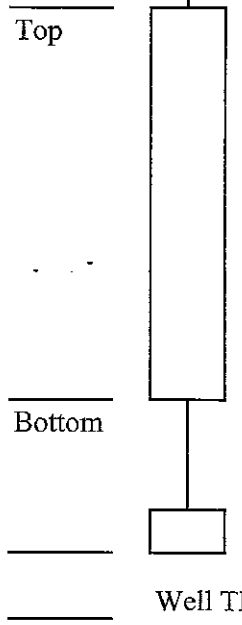
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-2B

Depth (BTOC)

29.81

DTW at installation — DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter:

PDB Installation Date: Time:

**Sample Information**

Sample No: 2242-050

Sample Date: 11/01/22 Time: 1345

Sampling Personnel: RAR

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

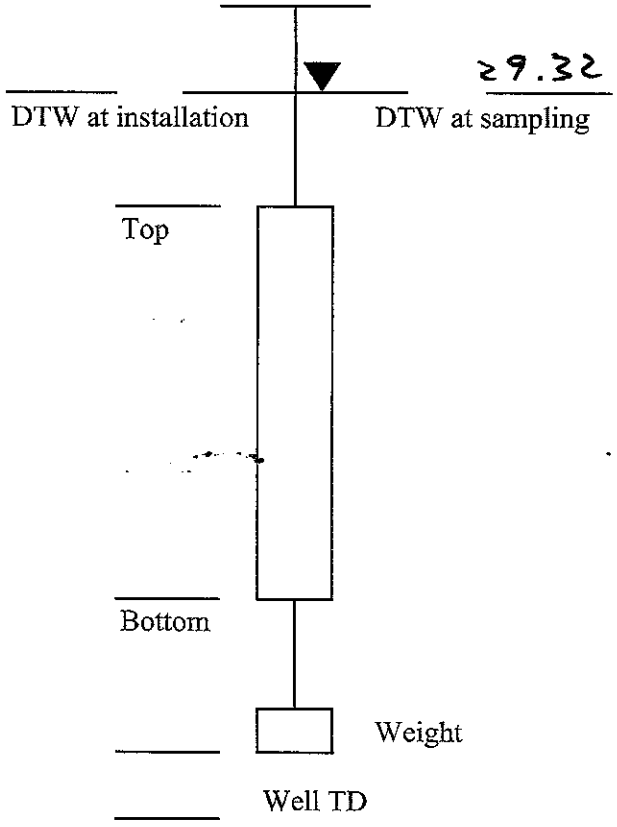
Well Casing Plug Locked and in Good Condition? Yes

Comments:

# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-3A

Depth (BTOC)




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4"

PDB Installation Date: 10/11/22 Time: 12:40

**Sample Information**

Sample No: 2242-051

Sample Date: 11/01/22 Time: 1400

Sampling Personnel: RRR

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : WBC

Well Casing Plug Locked and in Good Condition? yes

Comments:

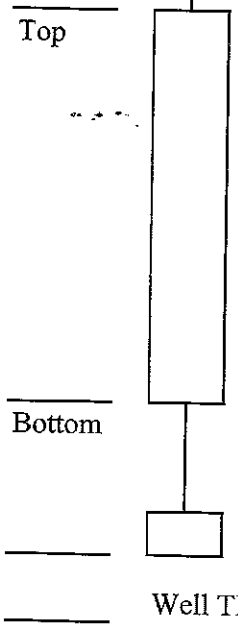
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-4A

Depth (BTOC) _____

_____ _____ 29.30

DTW at installation DTW at sampling



_____ Top

_____ Bottom

_____ Weight

_____ Well TD

Site Location: Boomsnub

Project Number: 1611310

Well Diameter: _____

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-052

Sample Date: 11/01/22 Time: 1210

Sampling Personnel: RRR

Analyses: 8260c-s

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : WBC

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

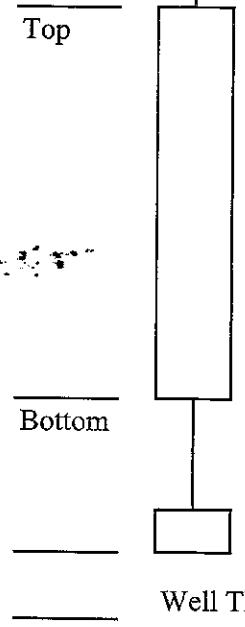
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-8A

Depth (BTOC) _____

_____ _____ 29.38

DTW at installation DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: _____

PDB Installation Date: 4/22 Time: _____

**Sample Information**

Sample No: 2242-064 Duplicate: 2242-065

Sample Date: 11/01/22 Time: 1238 / 1244

Sampling Personnel: RRR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y x2

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : WBC

Well Casing Plug Locked and in Good Condition? yes

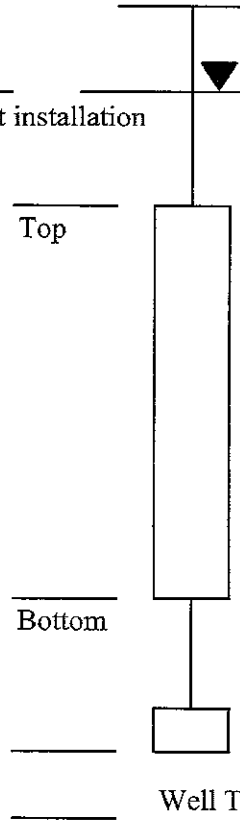
Comments: _____

# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-13A

Depth (BTOC) _____

_____ 28.91
DTW at installation DTW at sampling




Site Location: Boomsnub
Project Number: 1611310
Well Diameter: 4
PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-054
Sample Date: 11/01/22 Time: 1220
Sampling Personnel: RRR
Analyses: 8260C
Biofilm Present (Y/N): N
New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Y

Comments: _____

# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-16

Depth (BTOC)

17.73

DTW at installation — DTW at sampling

Top

Bottom

Weight

Well TD

Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-066

Sample Date: 11/2/22 Time: 1525

Sampling Personnel: RRR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Yes

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

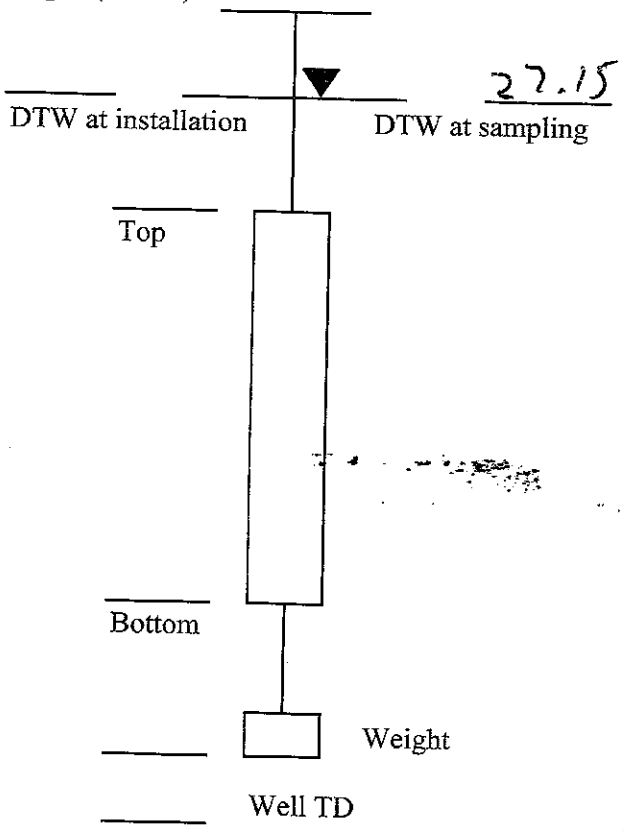
Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-18




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-067

Sample Date: 11/2/22 Time: 1408

Sampling Personnel: RRR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : WAC

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

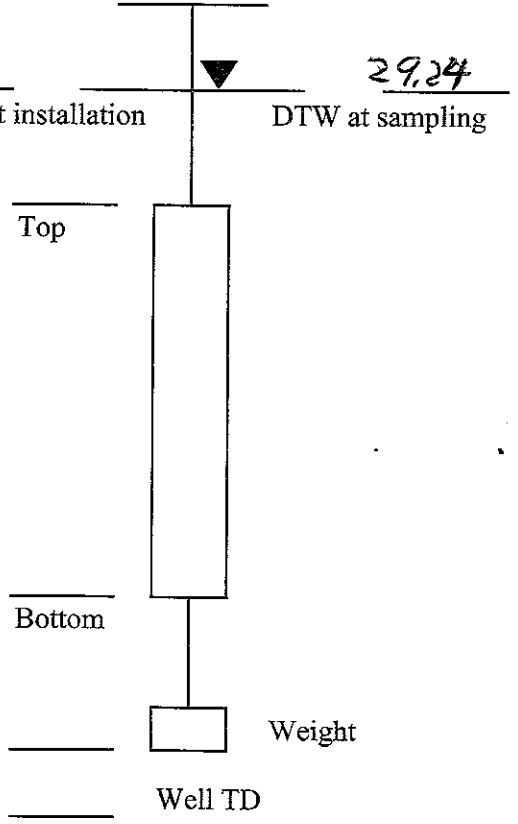
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-19A

Depth (BTOC)

DTW at installation

DTW at sampling: 29.24




Site Location: Boomsnub

Project Number: 1611310

Well Diameter:

PDB Installation Date: Time:

**Sample Information**

Sample No: 2242-055

Sample Date: 11/01/22 Time: 1410

Sampling Personnel: RRR

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : WBC

Well Casing Plug Locked and in Good Condition? yes

Comments:

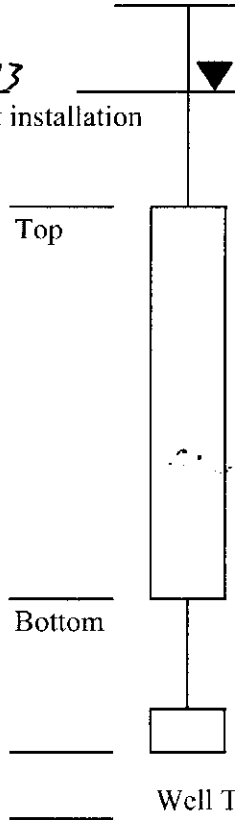
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-23

Depth (BTOC)

37.93 DTW at installation

37.96 DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4"

PDB Installation Date: 11/02/22 Time: 16:08

**Sample Information**

Sample No: 2246-068

Sample Date: 11/18/22 Time: 0730

Sampling Personnel: RRR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Yes

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Needs new monument

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

Comments:

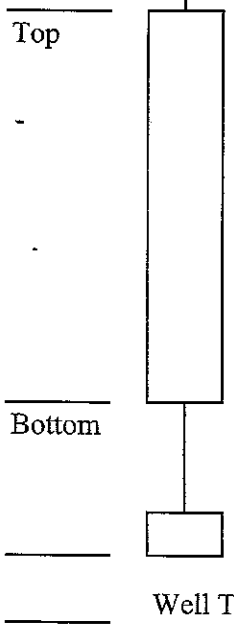
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-24

Depth (BTOC) _____

130.38

DTW at installation _____ DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4

PDB Installation Date: 10/11/22 Time: 1410

**Sample Information**

Sample No: 2242-001 Duplicate: 2242-002

Sample Date: 11/2/22 Time: 1345/1352

Sampling Personnel: RRR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y x2

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? yes

Comments: _____

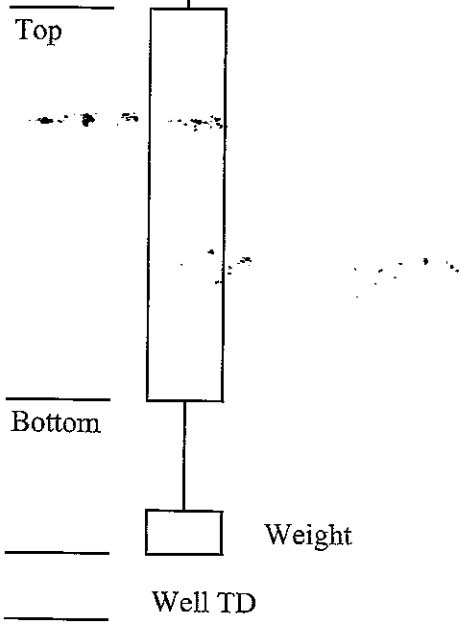
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-26

Depth (BTOC) _____

_____ 29.22

DTW at installation DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-056

Sample Date: 11/01/22 Time: 1252

Sampling Personnel: RRR

Analyses: 82606

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : WBC

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

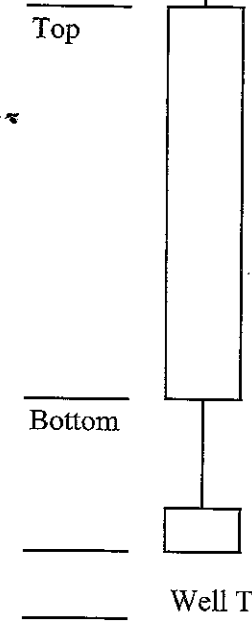
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-52A

Depth (BTOC)

26.50

DTW at installation | DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-057

Sample Date: 11/2/22 Time: 1750

Sampling Personnel: ARR

Analyses: 8260c

Biofilm Present (Y/N): No

New PDB Deployed (Y/N): Yes

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

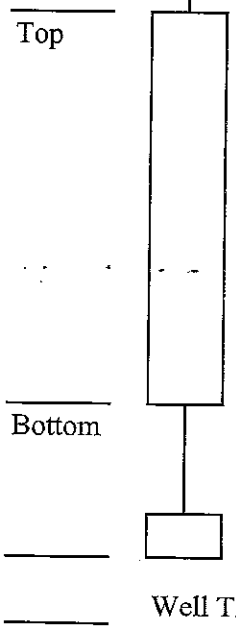
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-56A

Depth (BTOC)

29.24

DTW at installation — DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 2

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-059

Sample Date: 11-01-22 Time: 1535

Sampling Personnel: RRR

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : WBC

Well Casing Plug Locked and in Good Condition? yes

Comments: _____

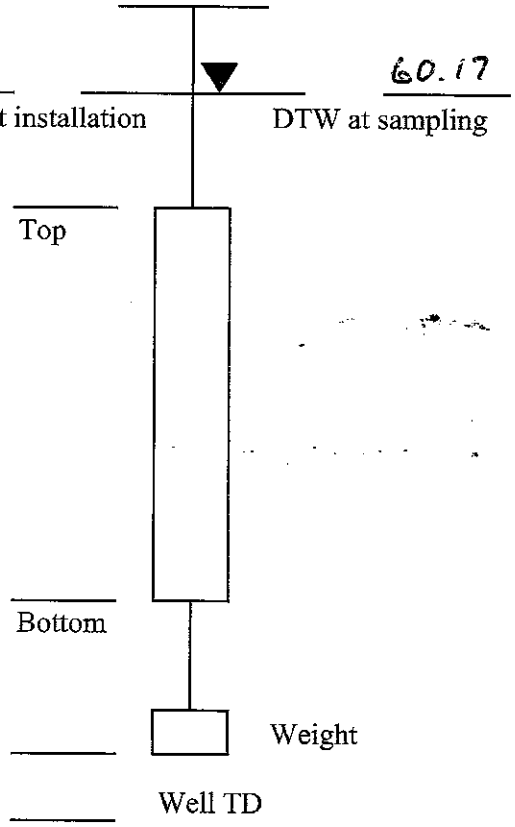
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-58

Depth (BTOC)

60.17

DTW at installation | DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4"

PDB Installation Date: 10/11/22 Time: 1040

**Sample Information**

Sample No: 2242-019

Sample Date: 10/31/22 Time: 1420

Sampling Personnel: RRR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing): D

Well Casing Plug Locked and in Good Condition? Yes

Comments:

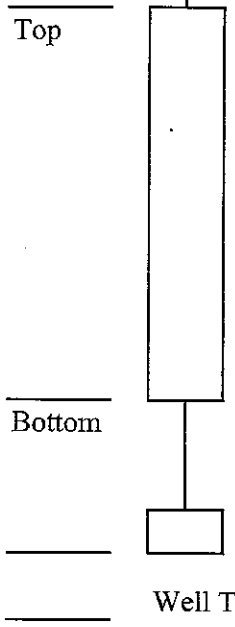
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-60

Depth (BTOC) _____

_____ _____ 17.09

DTW at installation DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-007

Sample Date: 11/2/22 Time: 1505

Sampling Personnel: RER

Analyses:. 8260c

Biofilm Present (Y/N): No

New PDB Deployed (Y/N): Yes

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

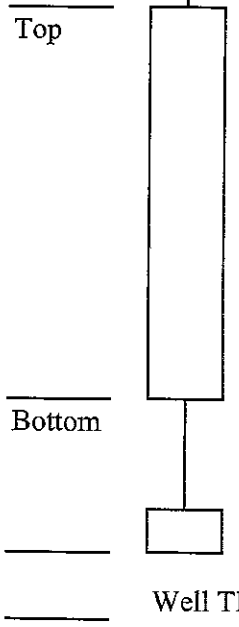
# Passive Diffusion Bag Sampling Form

**Well Identification:** AMW-64

Depth (BTOC)

16.33

DTW at installation — DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-069

Sample Date: 11/2/22 Time: 1430

Sampling Personnel: RAR

Analyses: 8260c

Biofilm Present (Y/N): No

New PDB Deployed (Y/N): Yes

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : WBC

Well Casing Plug Locked and in Good Condition? Yes

Comments: _____

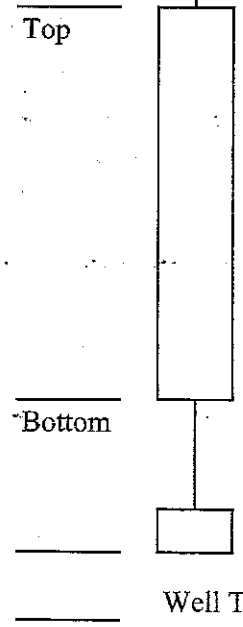
# Passive Diffusion Bag Sampling Form

**Well Identification:** MW-1A

Depth (BTOC)

31.33

DTW at installation | DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 2"

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-060

Sample Date: 10/31/22 Time: 1151

Sampling Personnel: RRR

Analyses: 8260

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

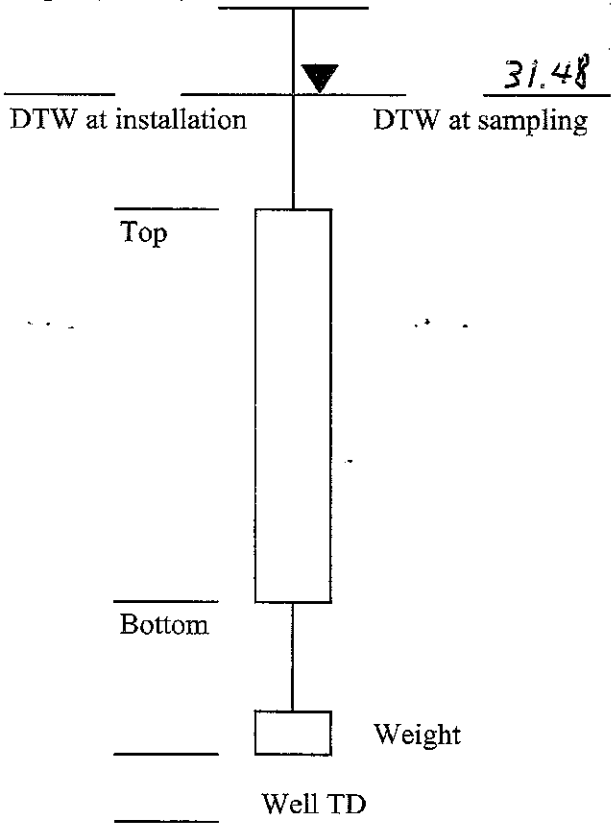
Comments: _____

Temp 14.4 pH 4.20 Cond 0.045 DO 4.05 ORP 186.5 Turb 2.4

# Passive Diffusion Bag Sampling Form

**Well Identification:** MW-1B

Depth (BTOC)




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 2"

PDB Installation Date: 10/11/22 Time: 1045

**Sample Information**

Sample No: 2242-061 Duplicate 2242-062

Sample Date: 10/31/22 Time: 1205 / 1212

Sampling Personnel: RR

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Yes

Comments:

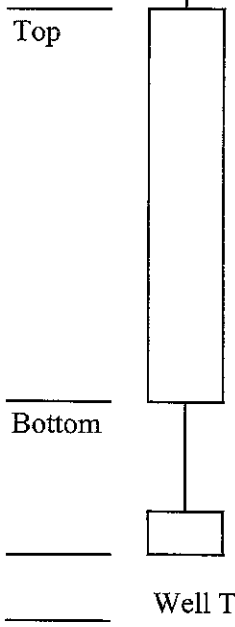
# Passive Diffusion Bag Sampling Form

**Well Identification:** MW-1C

Depth (BTOC) _____

_____ _____ 31.48

DTW at installation DTW at sampling



_____ Top

_____ Bottom

_____ Weight

_____ Well TD

Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 2"

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-063

Sample Date: 10/31/22 Time: 1220

Sampling Personnel: RRR

Analyses: 8260C

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : _____

Well Casing Plug Locked and in Good Condition? YES

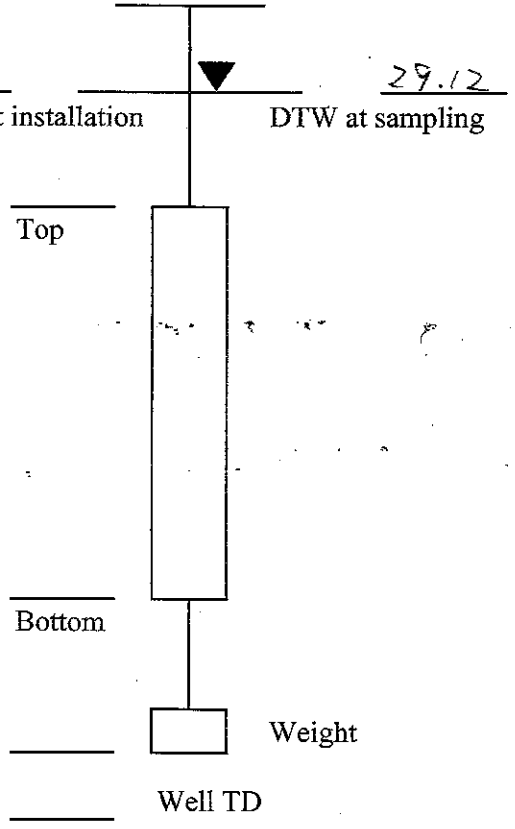
Comments: _____

# Passive Diffusion Bag Sampling Form

**Well Identification:** MW-2C

Depth (BTOC) _____

DTW at installation _____ DTW at sampling 29.12




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 2"

PDB Installation Date: 10/11/22 Time: 1030

**Sample Information**

Sample No: 2242-023

Sample Date: 10/31/22 Time: 1045

Sampling Personnel: RRR

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): _____

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Y

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : D

Well Casing Plug Locked and in Good Condition? Y

Comments: _____

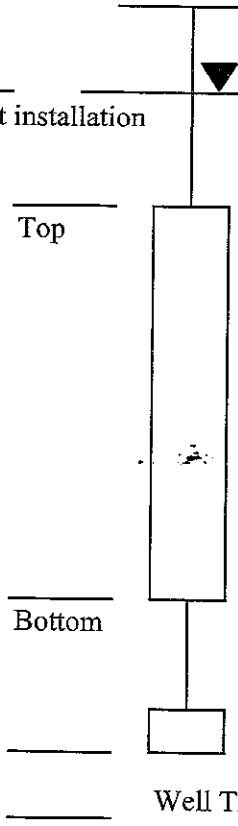
# Passive Diffusion Bag Sampling Form

**Well Identification:** MW-23D

Depth (BTOC) _____

_____ _____ 19.13

DTW at installation DTW at sampling



_____ Top

_____ Bottom

_____ Weight

_____ Well TD

Site Location: Boomsnub

Project Number: 1611310

Well Diameter: 4"

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-071

Sample Date: 11/2/22 Time: 1554

Sampling Personnel: RRR

Analyses: 8260c

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Yes

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? Yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : WAC

Well Casing Plug Locked and in Good Condition? yes

Comments: _____

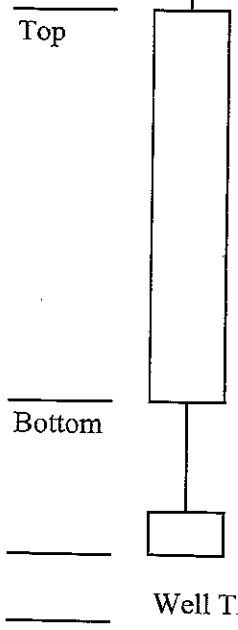
# Passive Diffusion Bag Sampling Form

**Well Identification:** MW-38

Depth (BTOC) _____

_____ _____ 14.50

DTW at installation DTW at sampling




Site Location: Boomsnub

Project Number: 1611310

Well Diameter: ~~2242-072~~ see 2"

PDB Installation Date: _____ Time: _____

**Sample Information**

Sample No: 2242-072

Sample Date: 11/2/22 Time: 1448

Sampling Personnel: RAR

Analyses: 8260c.

Biofilm Present (Y/N): N

New PDB Deployed (Y/N): Y

**Well Condition at Sampling**

Well Monument Locked and in Good Condition? yes

Inside Well Head and Outside Well Casing (D = Dry, WAC = Water Above Casing, WBC=Water Below Casing) : WAC

Well Casing Plug Locked and in Good Condition? yes

Comments: _____

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# Appendix D

# Monthly Data Quality Assurance/Quality Control Summary of Groundwater Data/Validation Report

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**DATA VALIDATION REPORT**
**SAMPLE DELIVERY GROUP NO. K2212930**

**PROJECT NO:** 1611310.3
**PROJECT NAME:** Boomsnub/Airco Superfund Site
**LABORATORY:** ALS Environmental, Kelso, Washington
**REVIEWER:** Christopher Ma, Project Chemist
**DATE:** 26 January 2023

| Date(s) Collected | 31 October and 1 November 2022 | | | |
|---|---|---|---|---|
| Sample Delivery Group No. | K2212930 | | | |
| ANALYSIS (METHOD) | Water Sample(s) | Equipment Blank(s) | Trip Blank(s) | Field Duplicate(s) |
| Volatile organic compounds (SW8260C) | 17 | 1 | 2 | 2 |
| Chromium (E200.7) | 5 | 1 | 0 | 1 |

The analytical data were reviewed with respect to quality assurance and quality control (QA/QC) parameters as specified in the *Revised QASP Addendum for the Winter 2022 Quarterly Sampling Event, Boomsnub/Airco Superfund Site, Hazel Dell, Washington* (EA, 2022). In addition, the following guidance documents were used while assessing the validity of these data: the U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program, *National Functional Guidelines for Inorganic Superfund Data Review*, November 2020, and *National Functional Guidelines for Organic Superfund Methods Data Review*, November 2020; and the USEPA Office of Solid Waste, *SW-846 Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods*, April 1998 and the associated updates.

As applicable to referenced methodology, QA/QC parameters reviewed include:

- Chain of custody/ Sample receipt
- Holding times
- Instrument performance checks
- Initial and continuing calibrations
- Method and calibration blanks
- Interference check samples
- Laboratory control samples (LCSs)
- Surrogate recovery
- Matrix spikes (MS), matrix spike duplicates, and laboratory replicates
- Field QC samples
- Serial dilution
- Internal standards
- Target compound identification
- Compound quantitation
- Data qualifiers

| SAMPLE DELIVERY GROUP | K2212930 |
|---|---|

**Chain of custody/Sample Receipt:**
The sample cooler and the samples contained within were received intact at the laboratory with the proper chemical preservatives at temperatures below 6 degrees Celsius. No qualification of sample data is necessary on the condition at sample receipt or chain of custody.

**Holding Times:**
The project samples were prepared and analyzed within the holding times specified by the referenced methods of analysis.

**Instrument Performance Checks:**
Instrument performance checks are performed to ensure mass resolution, identification, and sensitivity. The instrument performance check results associated with samples from this sample delivery group (SDG) are within the method-established QC limits.

**Initial and Continuing Calibrations:**
Initial and continuing calibrations were performed at the required frequencies. The results for target analytes are within the laboratory and project-established QC limits, or the indicated bias is high, and the associated sample results are nondetectable, with the following exceptions.

- The percent differences (%Ds) were reported below QC limits (≤20%) at -29.6% and -26.2% for hexachlorobutadiene and tetrachloroethene respectively, for a continuing calibration verification (CCV) (KQ2219521-02) associated with project samples. The results for the samples associated with this standard are nondetectable and have been flagged as estimated with the UJ qualifier due to evidence of potential low bias.
- The %Ds were reported above QC limits (≤20%) at 24.0% for both trichlorofluoromethane and vinyl chloride, for a CCV (KQ2219523-02) associated with project samples. The results for the samples associated with this standard which are detectable at concentrations exceeding the LOQs have been flagged as estimated with the J qualifier due to evidence of potential high bias.

Note that equipment blank 2242-073 and trip blanks 2242-074 and 2242-075 are associated with these out-of-control standards. The results were non-detectable, and no qualification was performed.

**Method and Calibration Blanks:**
Method and calibration blanks were prepared and analyzed as recommended by the referenced method. The results for the method and calibration blank samples are nondetectable or the results for project samples are for compounds detected in blanks, with the following exceptions. Methylene chloride was detected at estimated concentrations ranging from 0.18 micrograms per liter (µg/L) to 0.24 µg/L in the method blanks associated with project samples. These concentrations are below the reporting limit (RL) and J flagged by the laboratory. Methylene chloride is nondetectable for project samples with the exception of the results for project samples 2242-041 and 2242-059. The project sample results with detections less than 5 times the method blank results have been flagged with the UJ qualifier. Note that project samples 2242-073 (equipment blank), 2242-075 (trip blank), and 2242-074 (trip blank) had methylene chloride detections associated with these method blanks, but no qualification is warranted for field blanks.

| SAMPLE DELIVERY GROUP | K2212930 |
|---|---|

**Interference Check Samples:**
Inductively coupled plasma (ICP) interference check samples (ICSA/ICSAB) verify the interelement and background correction factors. ICSA/ICSAB standards were analyzed at the beginning of each analytical sequence. The results for the ICSAB standard associated with samples from this SDG are within the laboratory and project-established QC limits.

**Laboratory Control Samples:**
LCSs were prepared and analyzed as recommended by the referenced method. The percent recoveries (%R) for LCSs are within the laboratory and project-established QC limits for the analytical batches containing the samples from this SDG.

**Surrogate Recovery:**
Surrogates were added to environmental and QC samples and standards for analysis of organic compounds as required by the referenced methodology. The surrogate %Rs are within the laboratory and project-established QC limits.

**Matrix Spikes / Matrix Spike Duplicates / Laboratory Replicates:**
The results for matrix spike and laboratory replicate samples were reviewed. The %R and relative percent difference (RPD) for these QC samples are within the laboratory and project-established QC limits.

**Field Quality Control Samples:**

Field Duplicate(s): One field duplicate was collected with this SDG. The analytical results reported for the duplicate were compared those for the primary sample. The RPDs for field duplicate results greater than the associated reporting limits are less than 30 percent.

Trip Blank(s): Two trip blanks were collected with this SDG (sample IDs 2242-074 and 2242-075). The analytical results for the trip blank samples are below the RLs and method detection limits, with the following exception. Low-levels detections of methylene chloride were reported in both trip blanks 2242-074 and 2242-075 at 0.44 µg/L, concentrations below the RL and J flagged by the laboratory. Note that methylene chloride was also detected in the method blanks associated with project samples and results for project samples have already been flagged due to method blank contaminations.

Equipment Rinsate Blank(s): One equipment rinsate blank (sample ID 2242-073) was collected with this SDG. The analytical results for this blank sample are below the RLs and MDLs, with the exception of low-level detections of cis-1,2-dichloroethene at 0.25 µg/L and methylene chloride at 0.34 µg/L at concentrations below the RL and J flagged by the laboratory. Cis-1,2-Dichloroethene is nondetectable for project samples with the exception of samples 2242-032, 2242-033, 2242-034, and 2242-049. The project sample results with detections less than 5 times the rinsate blank concentration have been flagged with the UJ qualifier. Note that methylene chloride was also detected in the method blanks associated with project samples and results for project samples have already been flagged due to method blank contamination.

**Serial Dilution:**
The ICP serial dilution determines whether significant physical or chemical interferences exist due to sample matrix. Serial dilution was performed at a minimum rate of one per 20 samples per

matrix. The percent difference for the serial dilution results were within the laboratory and project-established QC limits for the analytical batches containing the samples from this SDG.

**Internal Standards:**
Internal standards were added to environmental and QC samples and standards to monitor sensitivity and response during every analytical run, as appropriate for the analytical method. The internal standard area counts and retention times were within the method-specified control limits.

**Target Compound Identification:**
Organic analysis performed by gas chromatography/mass spectrometry methods requires reporting mass spectra comparison to verify compound identification. For project samples, mass spectra criteria were within method-specified criteria for the detectable target analytes.

**Compound Quantitation:**
The reported quantitation results and reported detection limits were reviewed and found to be accurate and to meet project requirements.

**Data Qualifiers:**
The appropriate data flags were used and defined in the analytical report. During data validation, additional qualifiers have been applied to data. These are defined below:

> "J" indicates that the analyte was detected; however, the quantitation limit is estimated due to discrepancies in the associated quality control criteria or a result between the RL and MDL.
>
> "UJ" indicates that the analyte was not detected; however, the quantitation limit is estimated due to discrepancies in the associated quality control criteria.

**Summary:**
The analytical data contained in this report have been reviewed for completeness, accuracy, and precision. The data as qualified meet the quality objectives for the intended use.

Results which were qualified during data validation are summarized in the table below.

| SAMPLE DELIVERY GROUP | K2212930 |
|---|---|

## Sample Results Qualified During Validation

| Field Sample ID | Method | Analyte | Result (µg/L) | Final Qualifier | Reason |
|---|---|---|---|---|---|
| 2242-032 | SW8260C | cis-1,2-Dichloroethene | 0.20 J | UJ | RB |
| 2242-032 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-032 | SW8260C | Tetrachloroethene (PCE) | ND | UJ | CCV low |
| 2242-033 | SW8260C | cis-1,2-Dichloroethene | 0.24 J | UJ | RB |
| 2242-033 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-033 | SW8260C | Tetrachloroethene (PCE) | ND | UJ | CCV low |
| 2242-034 | SW8260C | cis-1,2-Dichloroethene | 0.20 J | UJ | RB |
| 2242-034 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-035 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-036 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-036 | SW8260C | Tetrachloroethene (PCE) | ND | UJ | CCV low |
| 2242-041 | SW8260C | Methylene chloride | 0.15 J | UJ | MB, TB, RB |
| 2242-041 | SW8260C | Trichlorofluoromethane | ND | UJ | CCV high |
| 2242-046 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-046 | SW8260C | Tetrachloroethene (PCE) | ND | UJ | CCV low |
| 2242-047 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-047 | SW8260C | Tetrachloroethene (PCE) | ND | UJ | CCV low |
| 2242-048 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-048 | SW8260C | Tetrachloroethene (PCE) | ND | UJ | CCV low |
| 2242-049 | SW8260C | cis-1,2-Dichloroethene | 1.2 | UJ | RB |
| 2242-049 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-050 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-050 | SW8260C | Tetrachloroethene (PCE) | ND | UJ | CCV low |
| 2242-051 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-052 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-052 | SW8260C | Tetrachloroethene (PCE) | ND | UJ | CCV low |
| 2242-054 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-054 | SW8260C | Tetrachloroethene (PCE) | ND | UJ | CCV low |
| 2242-055 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-056 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-059 | SW8260C | Methylene chloride | 0.13 J | UJ | MB, TB, RB |
| 2242-059 | SW8260C | Trichlorofluoromethane | ND | UJ | CCV high |
| 2242-064 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-064 | SW8260C | Tetrachloroethene (PCE) | ND | UJ | CCV low |
| 2242-065 | SW8260C | Hexachlorobutadiene | ND | UJ | CCV low |
| 2242-065 | SW8260C | Tetrachloroethene (PCE) | ND | UJ | CCV low |

Notes:
CCV high = continuing calibration verification %D high
CCV low = continuing calibration verification %D low
ND = not detectable
RB = rinsate blank detection
TB = trip blank detection
µg/L = microgram(s) per liter

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# Appendix E

# Chromium Concentrations in Groundwater

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# Appendix E-1

# Chromium Concentrations – Summary Table

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## Table E-1. Chromium Concentrations – Summary Table

| Well Group | Well | February 2021 | Spring 2021 | July 2021 | Fall 2021 | January 2022 | Spring 2022 | July 2022 | Fall 2022 |
|---|---|---|---|---|---|---|---|---|---|
| Church of God Wells | AMW-27 | -- | -- | 38.3 | -- | -- | -- | **114** | -- |
| | AMW-61 | -- | -- | -- | -- | -- | -- | -- | 27.1 |
| | CPU-12 | 8.59 | -- | -- | -- | -- | -- | -- | -- |
| | MW-22D | 62.8 | 68.2 | 57.4 | -- | 72.5 | -- | **85.4** | **86.6** |
| Intermediate Plume Wells | AMW-59 | 11.6 | 12.2 | 11.1 | -- | -- | -- | -- | -- |
| | CPU-14 | -- | -- | -- | **165** | -- | **90.5** | 9.1 | -- |
| | MW-14C | 74.6 | **84.1** | -- | 37.7 | **89.1** | -- | -- | 67.8 |
| | MW-14E | **166** | **234** | **176** | **192** | **146** | -- | -- | **207** |
| | MW-15E | 10.3 | -- | 11.2 | 10.5 | -- | 3.53 | -- | 2.4 J |
| | MW-18D | **127** | **158** | **177** | -- | -- | 3.26 | -- | **139** |
| | MW-18E | 4.18 | -- | -- | -- | -- | 1.62 | -- | < 8.4 U |
| | MW-19D | **122** | 59.6 | 66.1 | 63.2 | 10.5 | -- | 9.6 | 6.2 J |
| | MW-20D | 79.2 | **86.4** | **81.5** | **115** | 74.5 | -- | **144** | **137** |
| | MW-40 | **124** | -- | -- | **135** | -- | -- | -- | **127** |
| | PZ-39 | 15 | 6.49 | 7.78 | -- | -- | -- | 4.9 J | -- |
| Northern Plume | MW-21D | -- | -- | -- | -- | -- | -- | -- | 5.4 J |
| Proximal Source Wells | AMW-58 | -- | -- | 12.6 | -- | -- | -- | -- | -- |
| | MW-10B | -- | -- | -- | **116** | 60.7 | 63 | -- | 63.3 |
| | MW-10C | -- | -- | **238** | 74.5 | -- | **299** | -- | **169** |
| | MW-12C | -- | -- | 11.3 | 13.8 | 1.18 | 1.51 | -- | 2.8 J |
| | MW-13C | 39.8 | -- | 46.3 | 43.2 | 34.6 | -- | -- | 46.8 |
| | MW-2A | -- | -- | -- | **330** | -- | -- | -- | 71 |
| | MW-2B | 5.9 | -- | 10.5 | 7.28 | -- | 4.39 | -- | 3.0 J |
| | MW-2C | -- | -- | 28.3 | -- | -- | -- | -- | -- |
| | MW-3A | **131** | **140** | **113** | **129** | -- | **144** | -- | **152** |
| | MW-3B | -- | -- | 7.16 | 6.74 | 4.97 | 6.88 | -- | 4.9 J |
| | MW-3C | -- | -- | 31.2 | 10.5 | 5.22 | 5.91 | -- | 6.3 J |
| | MW-4A | **263** | **380** | **890** | **589** | -- | **517** | -- | **455** |
| | MW-4B | **87.1** | **107** | **204** | **124** | -- | **211** | -- | **319** |
| | MW-4BSHED | -- | -- | -- | 72.7 | 67.7 | **139** | **137** | **101** |
| | MW-4C | 65 | **97.2** | 52.2 | 45.4 | -- | 44.9 | -- | 35.5 |
| | MW-6A | 15.9 | 11.1 | 37.9 | 68.1 | 5.85 | 3.33 | 6.2 J | 13.8 |
| | MW-6B | 38.5 | 70.8 | 33.1 | 35.4 | -- | 57.8 | -- | 28 |
| | MW-6C | -- | -- | 13.9 | 23.8 | 5.45 | 5.69 | -- | 4.1 J |
| | MW-6D | -- | -- | 13.8 | 17.2 | 1.46 | 0.92 | -- | 4.2 J |

| Well Group | Well | February 2021 | Spring 2021 | July 2021 | Fall 2021 | January 2022 | Spring 2022 | July 2022 | Fall 2022 |
|---|---|---|---|---|---|---|---|---|---|
| Proximal Source Wells | MW-7C | -- | -- | 10.8 | 8.5 | 11.5 | 3.58 | -- | 3.8 J |
| | MW-8B | -- | -- | 15.1 | 7.65 | 1.91 | 1.87 | -- | < 8.4 U |
| | MW-9B | 13.6 | 5.69 | 18.3 | 12.1 | -- | 10.1 | -- | 8.2 J |
| | MW-9C | -- | -- | 17.4 | -- | -- | -- | -- | -- |
| | PW-1B | -- | -- | 61.4 | 40.3 | 71.4 | **131** | -- | 47.7 |
| TCE Source Wells | AMW-12A | -- | 0.9 | -- | -- | -- | -- | -- | -- |
| | AMW-53A | -- | -- | -- | -- | -- | -- | -- | 7.1 J |

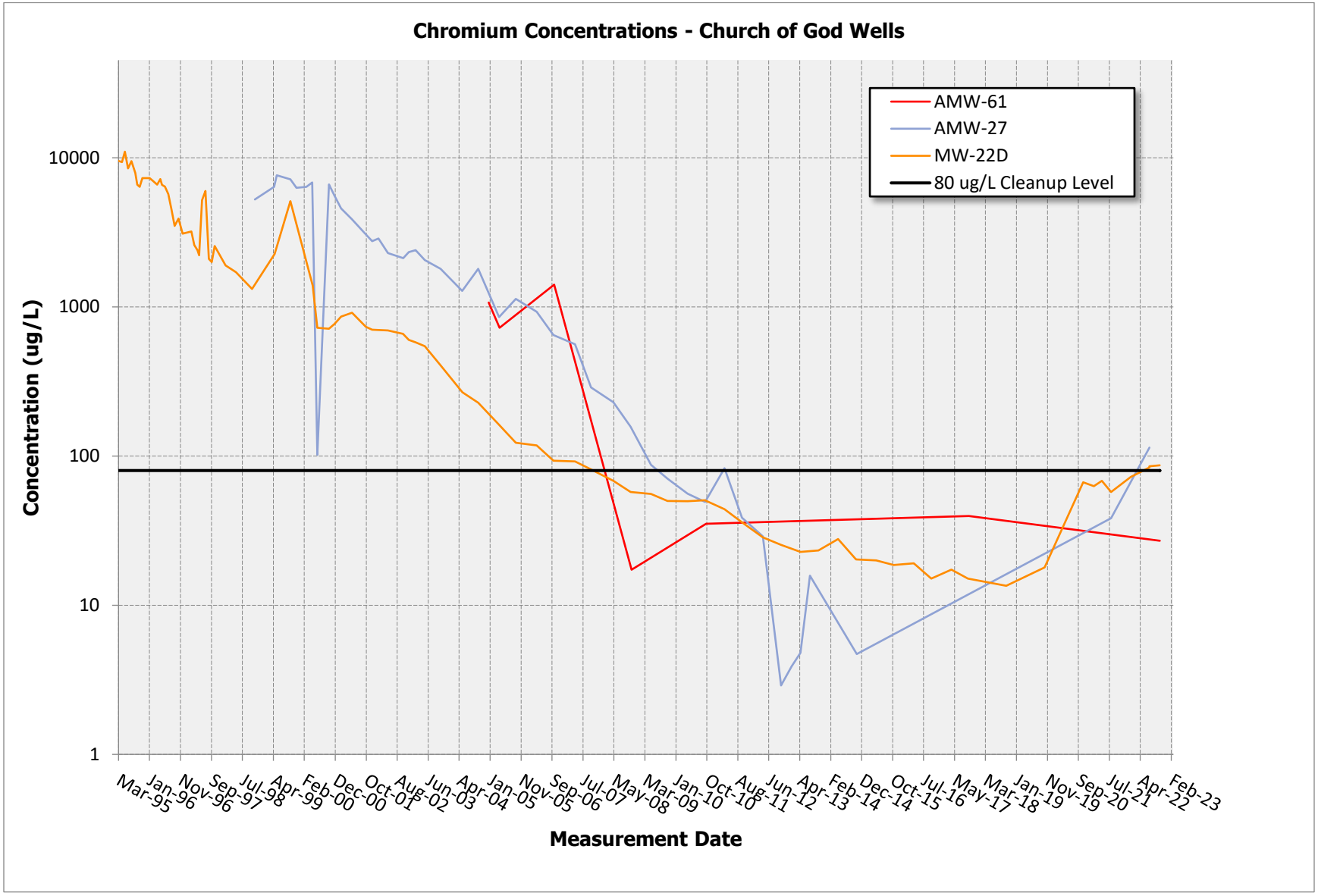
NOTES:
Results for historic chromium concentrations presented in Appendices E-2 and E-3
Results are in micrograms per liter (µg/L).
Results are for total chromium, unless otherwise noted.
Results shown in blue bold exceed the cleanup level of 80 µg/L.
Results shown in beige highlight for dissolved chromium rather than total.
-- = Not Sampled

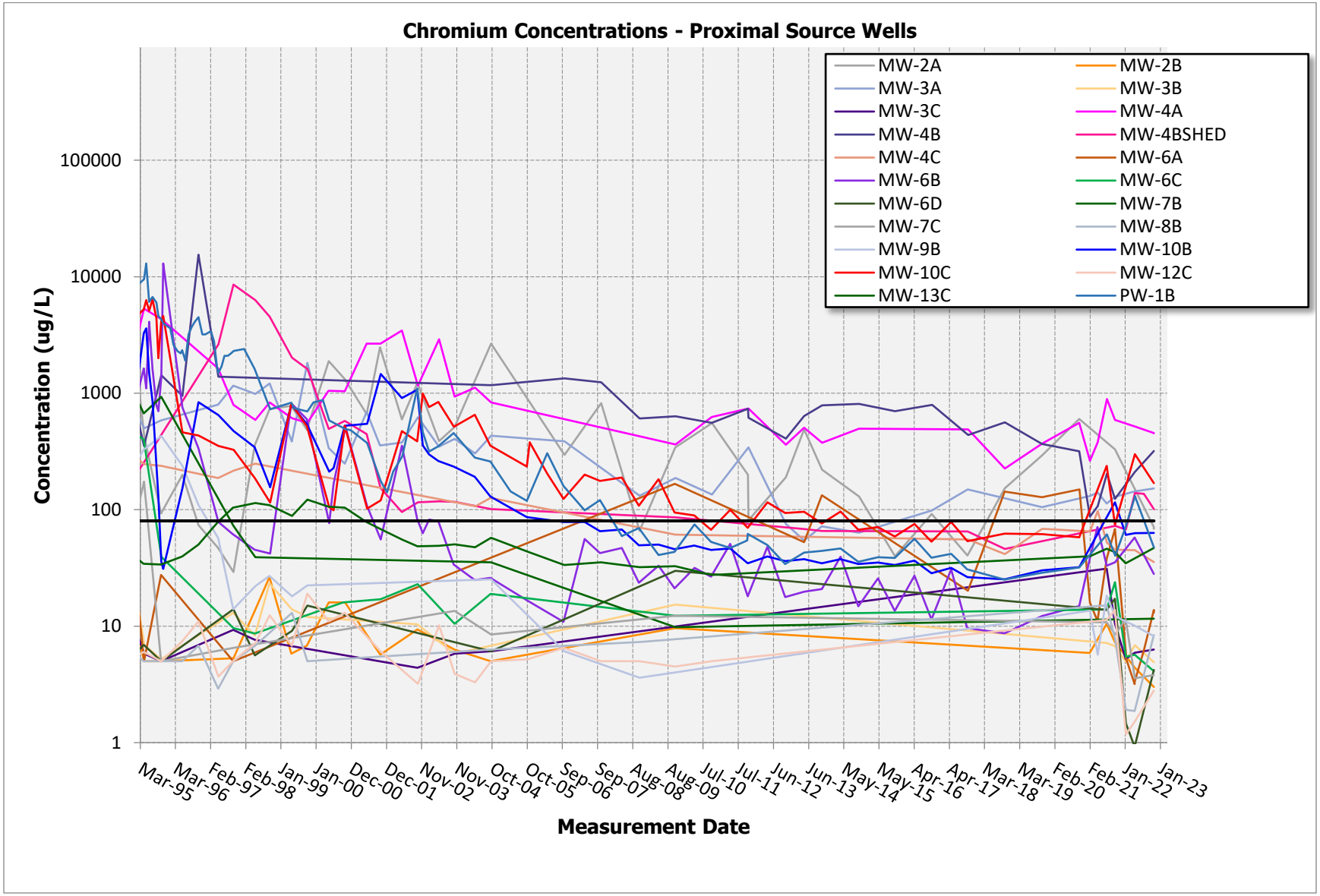
# Appendix E-2

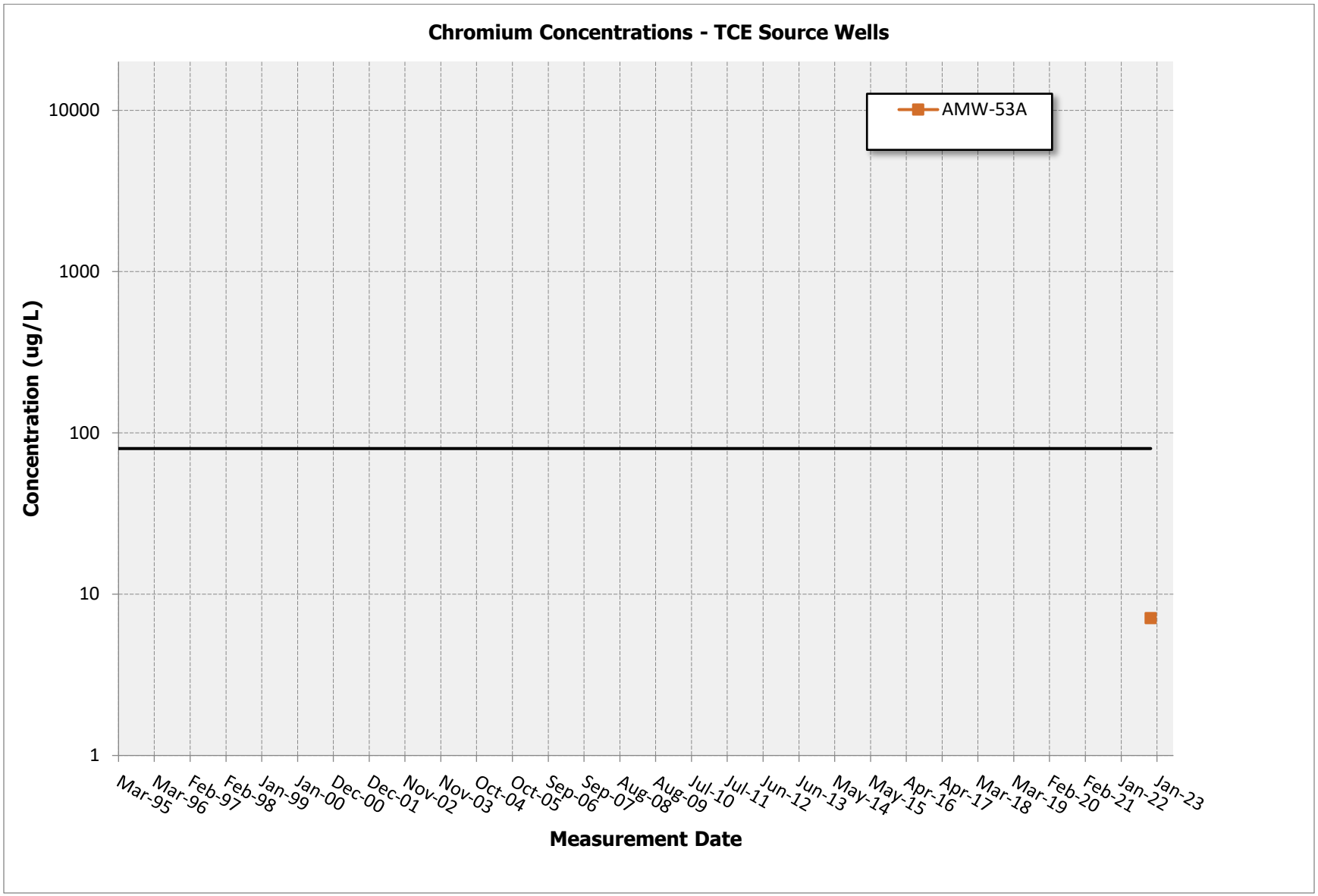
# Chromium Concentration Graphs –

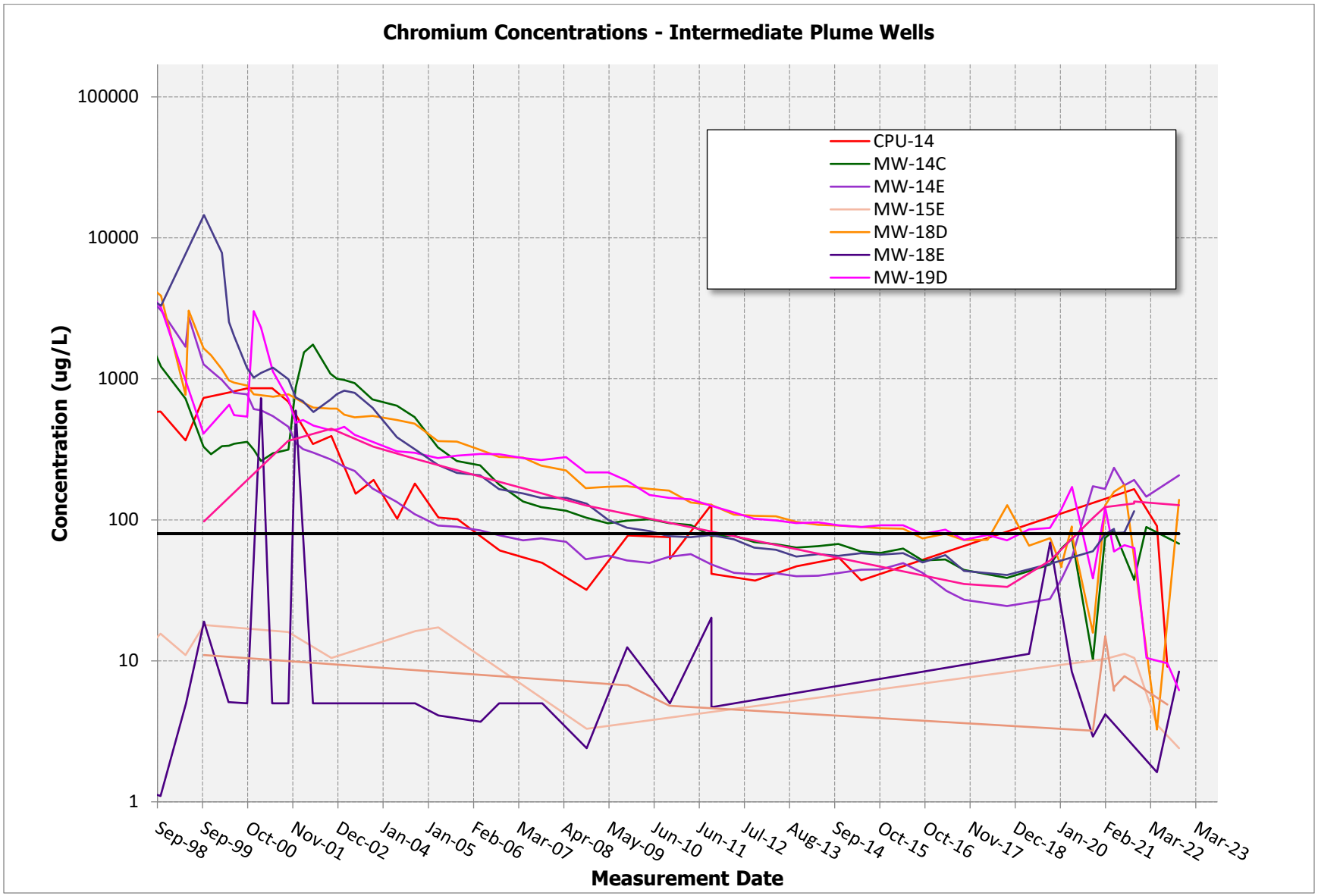
# By Well Grouping

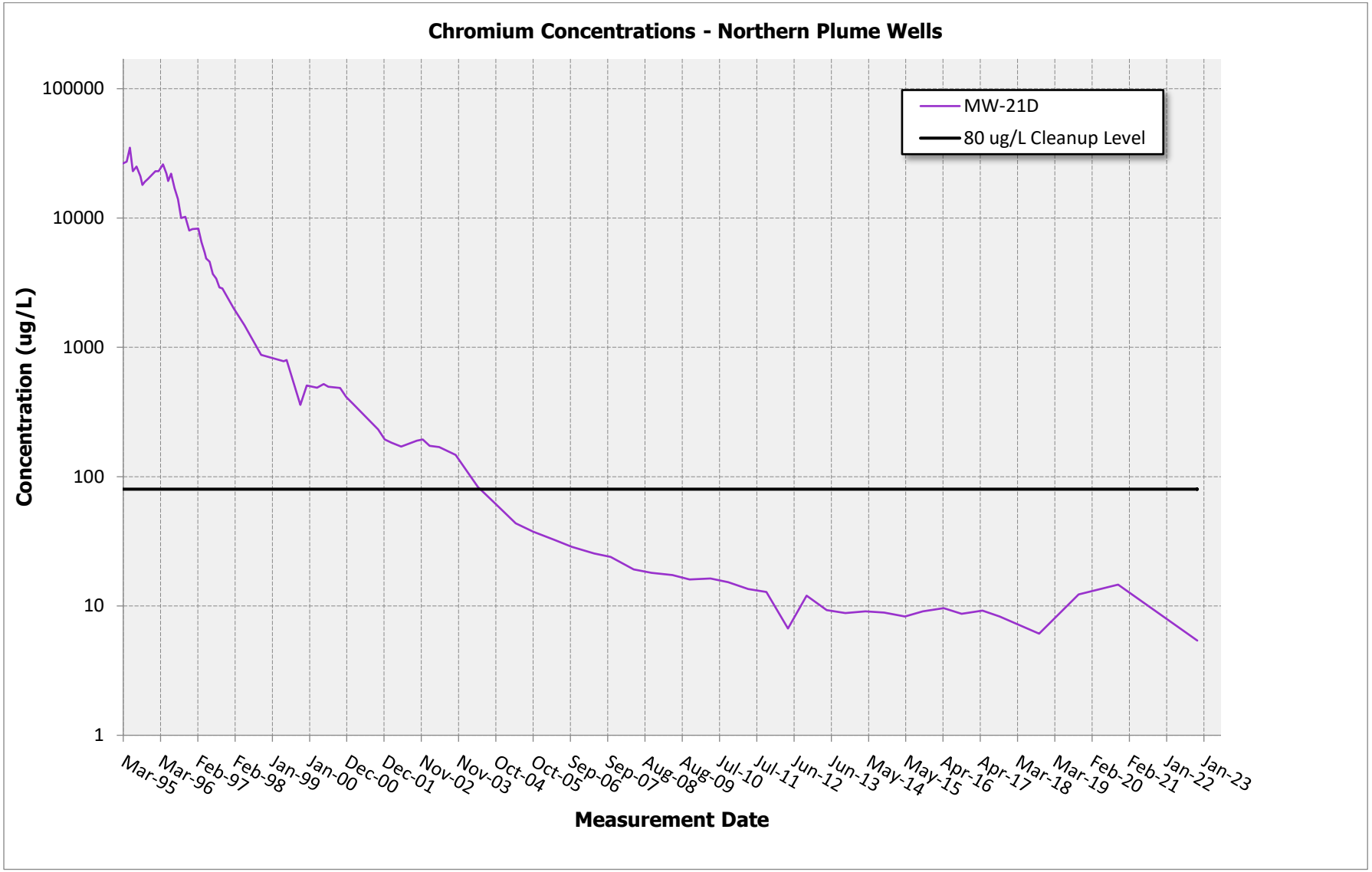
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Chromium Concentrations - Church of God Wells
AMW-61
AMW-27
MW-22D
80 ug/L Cleanup Level
Concentration (ug/L)
10000
1000
100
10
1
Mar-95
Jan-96
Nov-96
Sep-97
Jul-98
Apr-99
Feb-00
Dec-00
Oct-01
Aug-02
Jun-03
Apr-04
Jan-05
Nov-05
Sep-06
Jul-07
May-08
Mar-09
Jan-10
Oct-10
Aug-11
Jun-12
Apr-13
Feb-14
Dec-14
Oct-15
Jul-16
May-17
Mar-18
Jan-19
Nov-19
Sep-20
Jul-21
Apr-22
Feb-23
Measurement Date


Chromium Concentrations - Proximal Source Wells
Concentration (ug/L)
100000
10000
1000
100
10
1
Mar-95
Mar-96
Feb-97
Feb-98
Jan-99
Jan-00
Dec-00
Dec-01
Nov-02
Nov-03
Oct-04
Oct-05
Sep-06
Sep-07
Aug-08
Aug-09
Jul-10
Jul-11
Jun-12
Jun-13
May-14
May-15
Apr-16
Apr-17
Mar-18
Mar-19
Feb-20
Feb-21
Jan-22
Jan-23
Measurement Date
MW-2A
MW-2B
MW-3A
MW-3B
MW-3C
MW-4A
MW-4B
MW-4BSHED
MW-4C
MW-6A
MW-6B
MW-6C
MW-6D
MW-7B
MW-7C
MW-8B
MW-9B
MW-10B
MW-10C
MW-12C
MW-13C
PW-1B


Chromium Concentrations - TCE Source Wells
AMW-53A
Concentration (ug/L)
10000
1000
100
10
1
Mar-95
Mar-96
Feb-97
Feb-98
Jan-99
Jan-00
Dec-00
Dec-01
Nov-02
Nov-03
Oct-04
Oct-05
Sep-06
Sep-07
Aug-08
Aug-09
Jul-10
Jul-11
Jun-12
Jun-13
May-14
May-15
Apr-16
Apr-17
Mar-18
Mar-19
Feb-20
Feb-21
Jan-22
Jan-23
Measurement Date


Chromium Concentrations - Intermediate Plume Wells
Concentration (ug/L)
100000
10000
1000
100
10
1
CPU-14
MW-14C
MW-14E
MW-15E
MW-18D
MW-18E
MW-19D
Sep-98
Sep-99
Oct-00
Nov-01
Dec-02
Jan-04
Jan-05
Feb-06
Mar-07
Apr-08
May-09
Jun-10
Jun-11
Jul-12
Aug-13
Sep-14
Oct-15
Oct-16
Nov-17
Dec-18
Jan-20
Feb-21
Mar-22
Mar-23
Measurement Date


Chromium Concentrations - Northern Plume Wells
MW-21D
80 ug/L Cleanup Level
Concentration (ug/L)
100000
10000
1000
100
10
1
Mar-95
Mar-96
Feb-97
Feb-98
Jan-99
Jan-00
Dec-00
Dec-01
Nov-02
Nov-03
Oct-04
Oct-05
Sep-06
Sep-07
Aug-08
Aug-09
Jul-10
Jul-11
Jun-12
Jun-13
May-14
May-15
Apr-16
Apr-17
Mar-18
Mar-19
Feb-20
Feb-21
Jan-22
Jan-23
Measurement Date

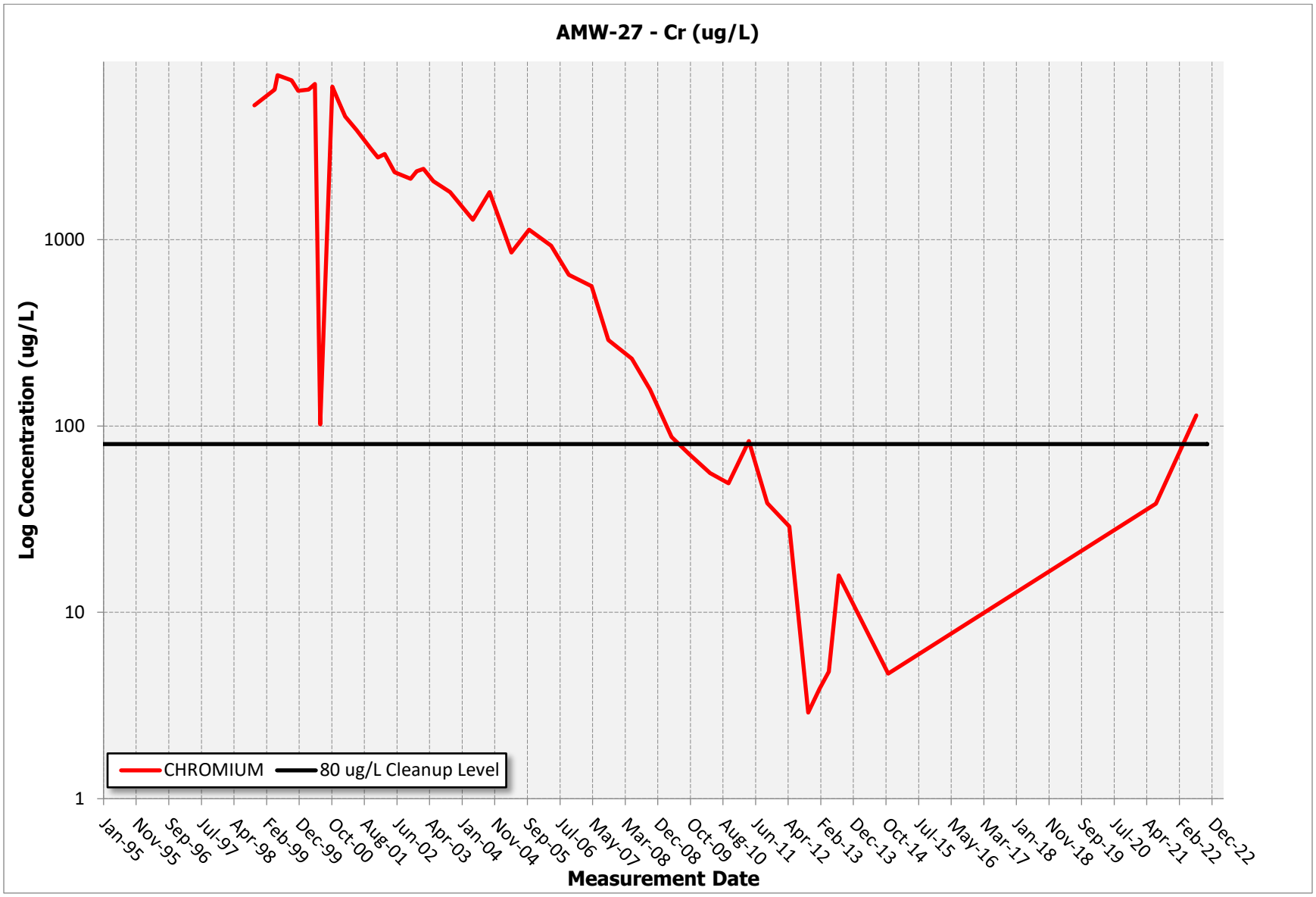
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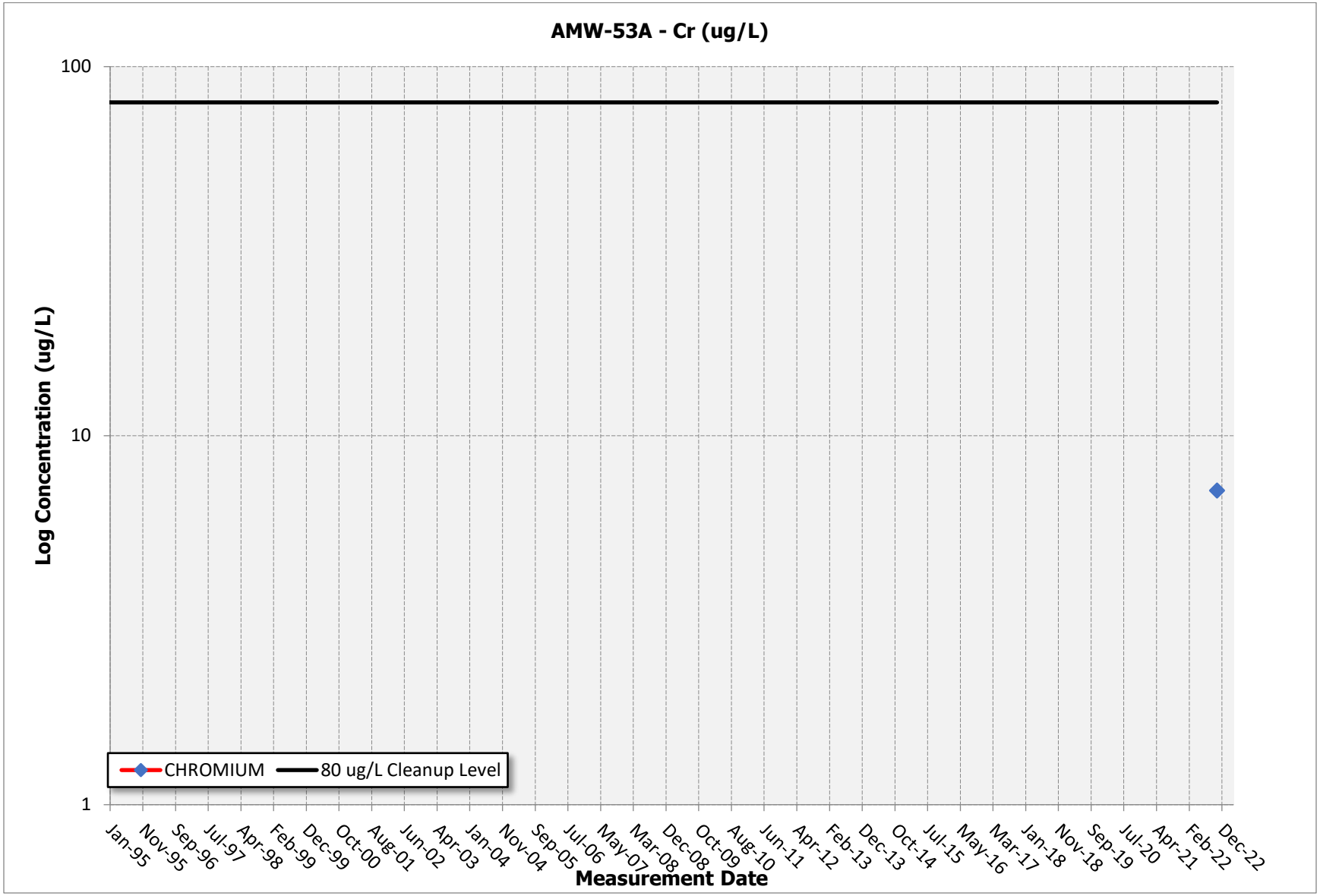
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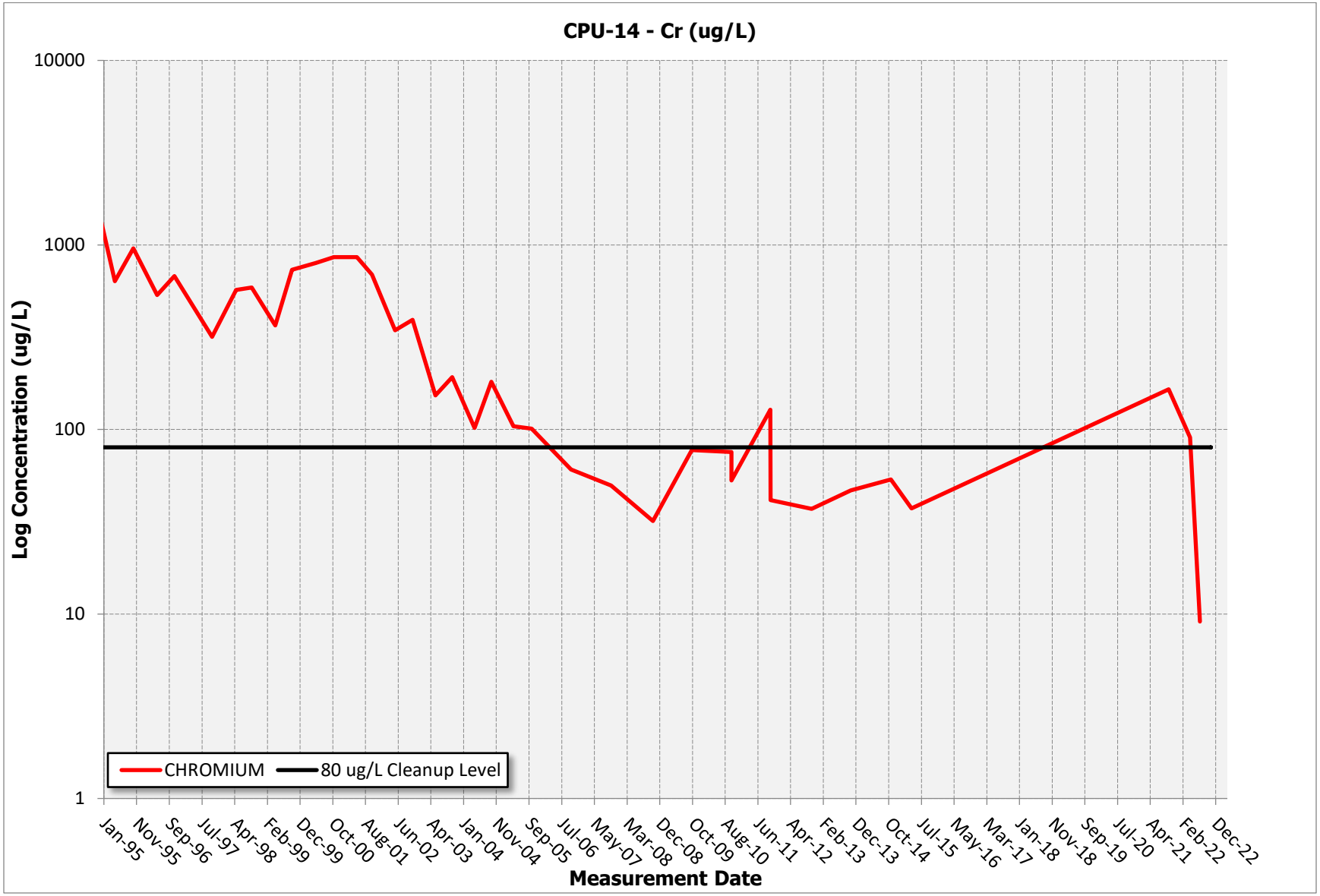
# Chromium Concentration Graphs –

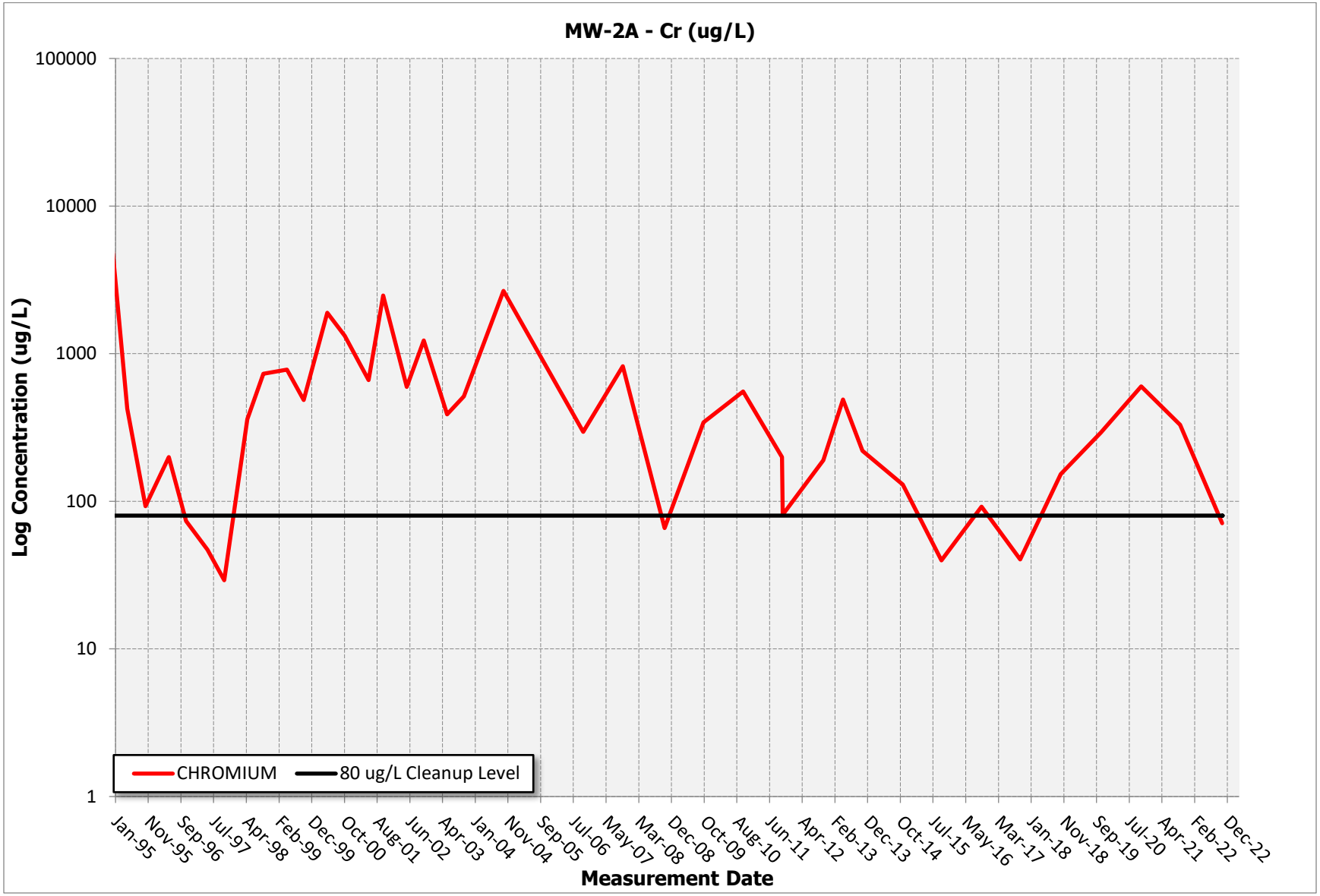
# Individual Wells

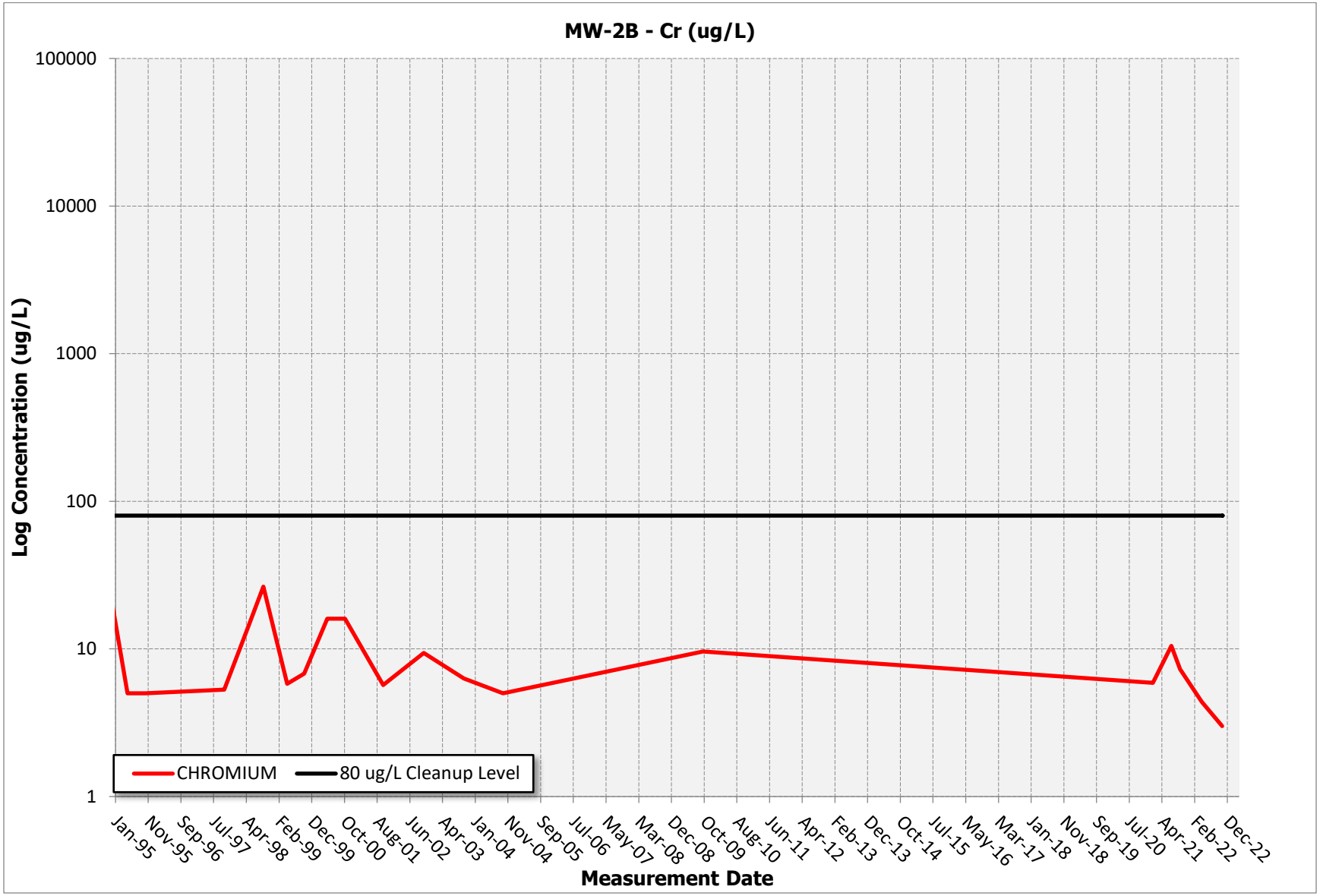
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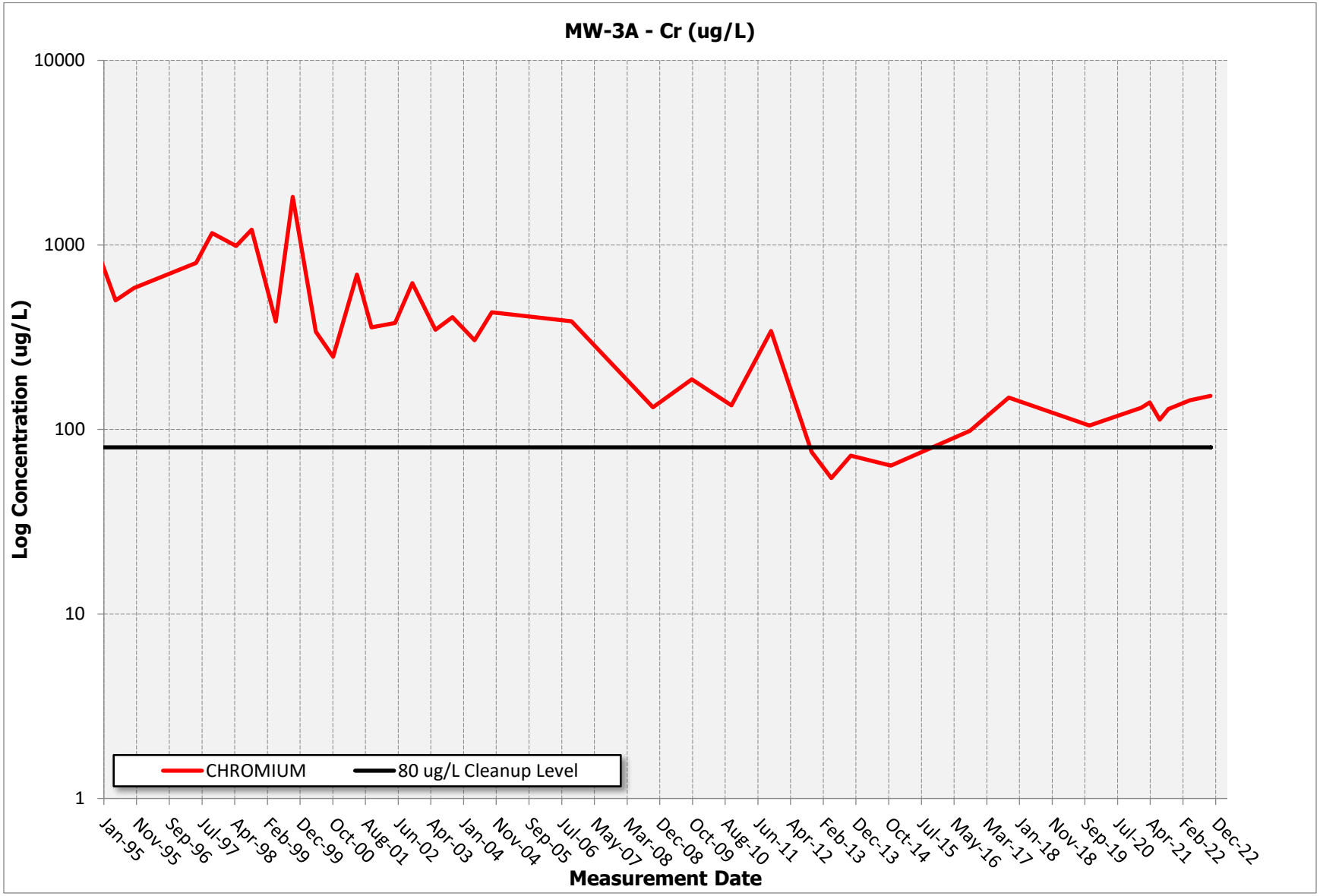

AMW-27 - Cr (ug/L)
Log Concentration (ug/L)
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

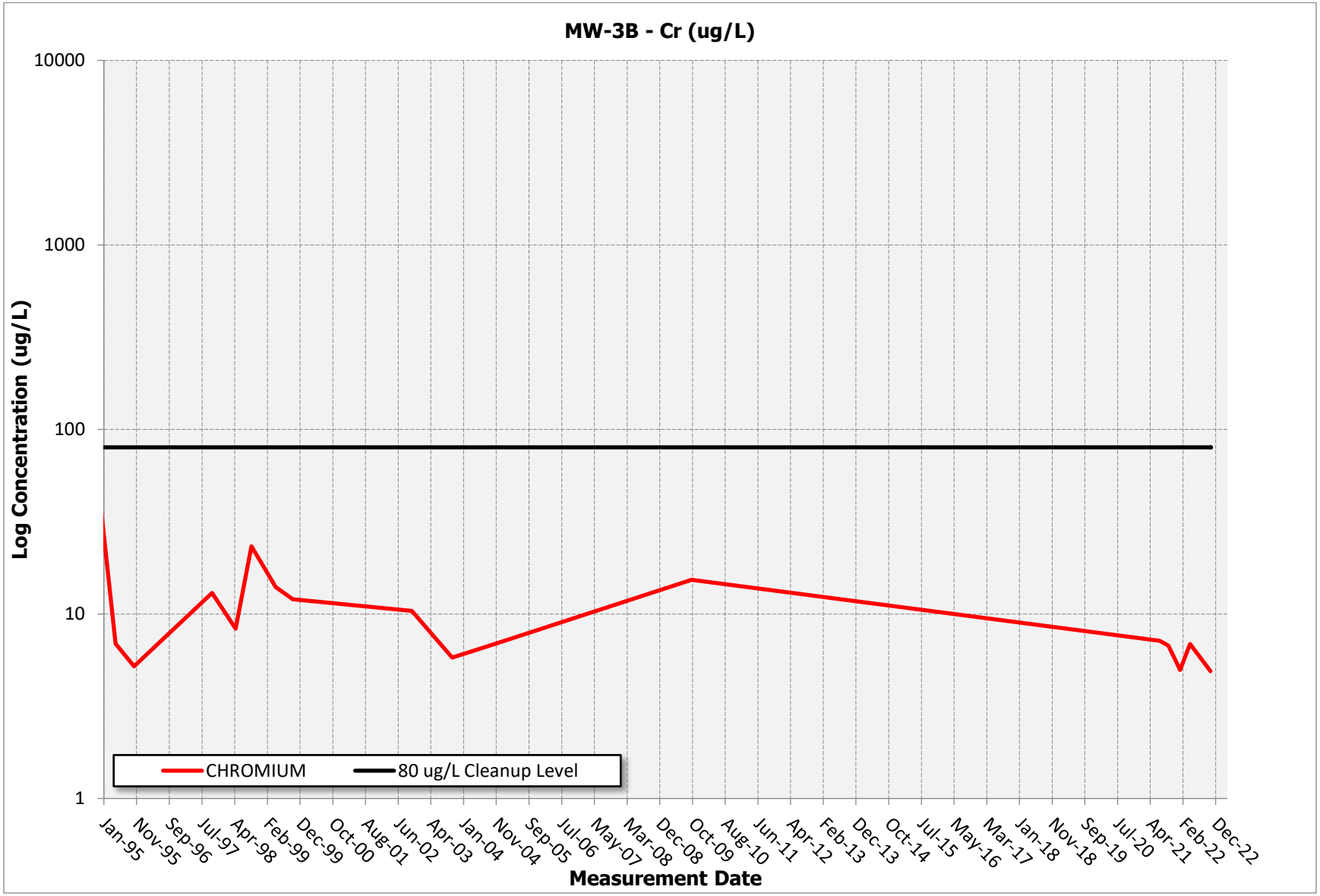

AMW-53A - Cr (ug/L)
Log Concentration (ug/L)
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

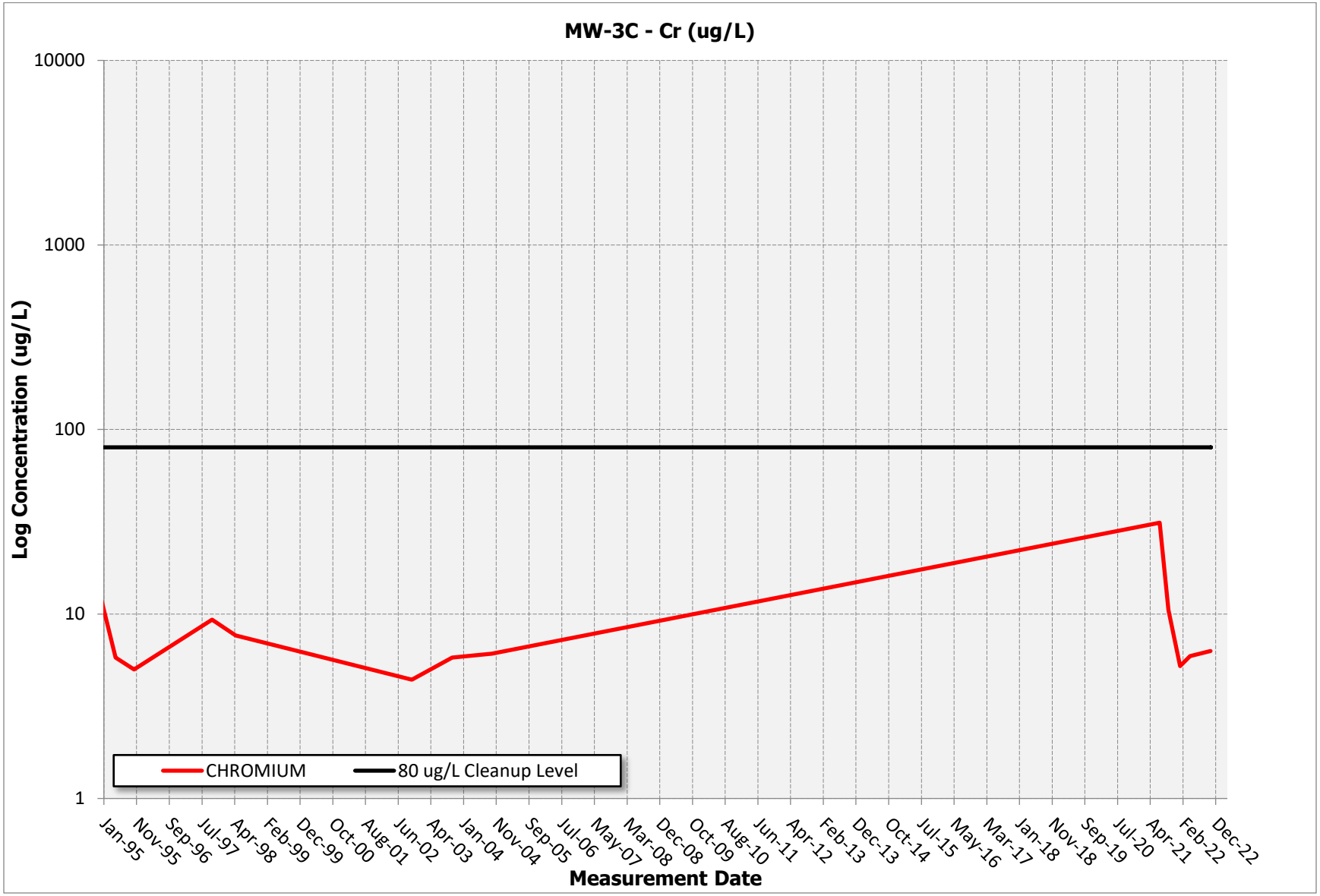

CPU-14 - Cr (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
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Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

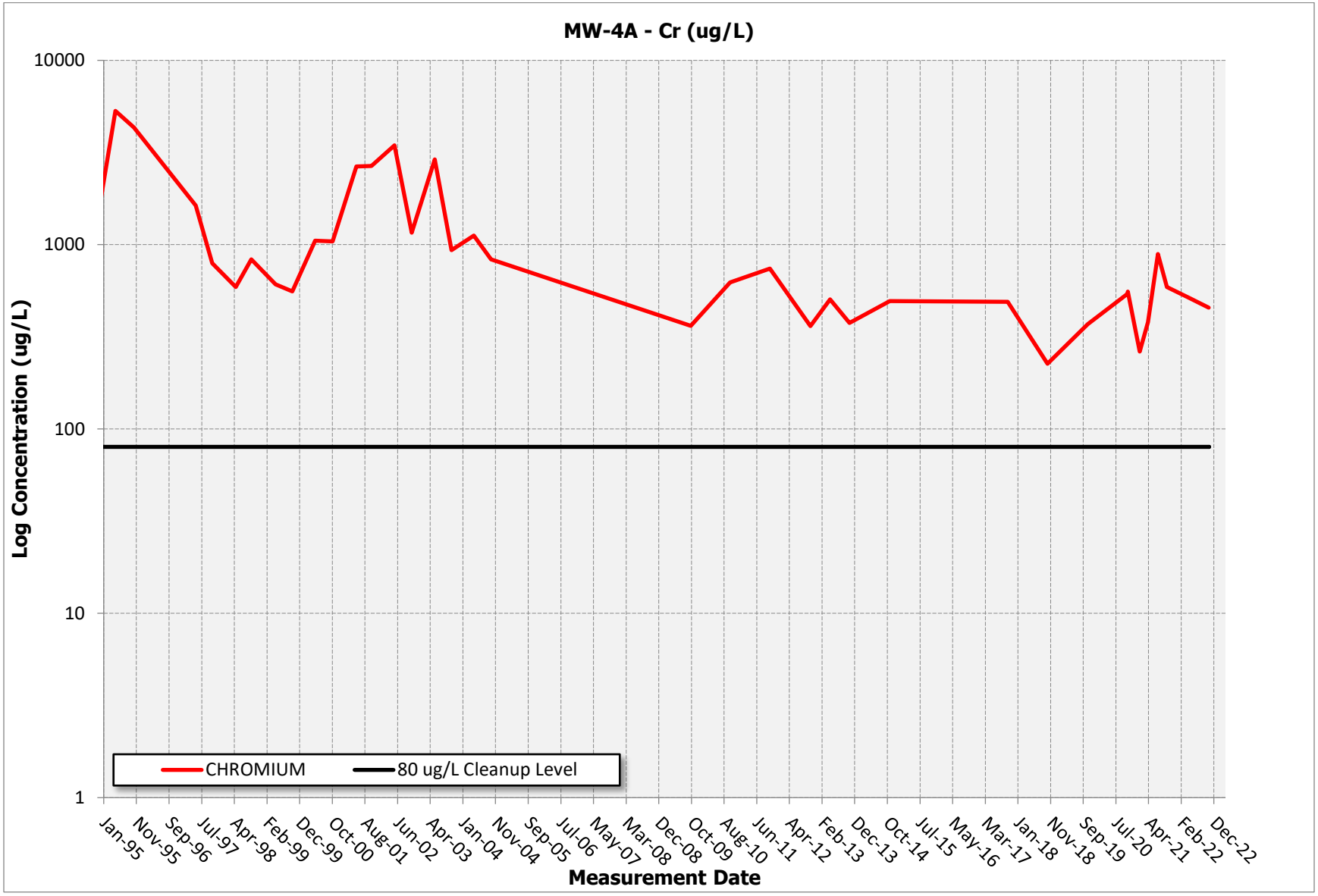

MW-2A - Cr (ug/L)
Log Concentration (ug/L)
100000
10000
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
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Apr-21
Feb-22
Dec-22
Measurement Date

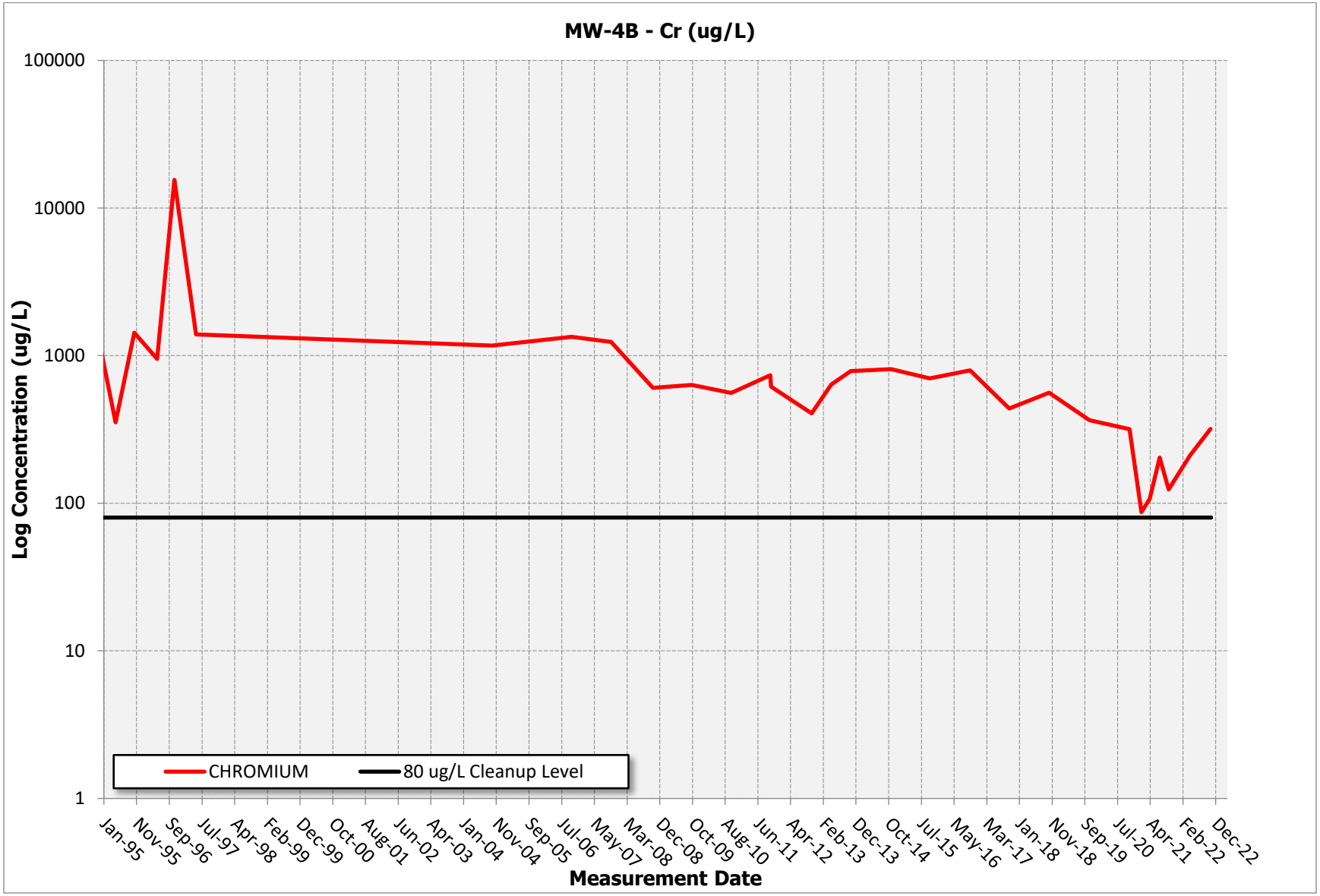

MW-2B - Cr (ug/L)
Log Concentration (ug/L)
100000
10000
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
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Dec-22
Measurement Date

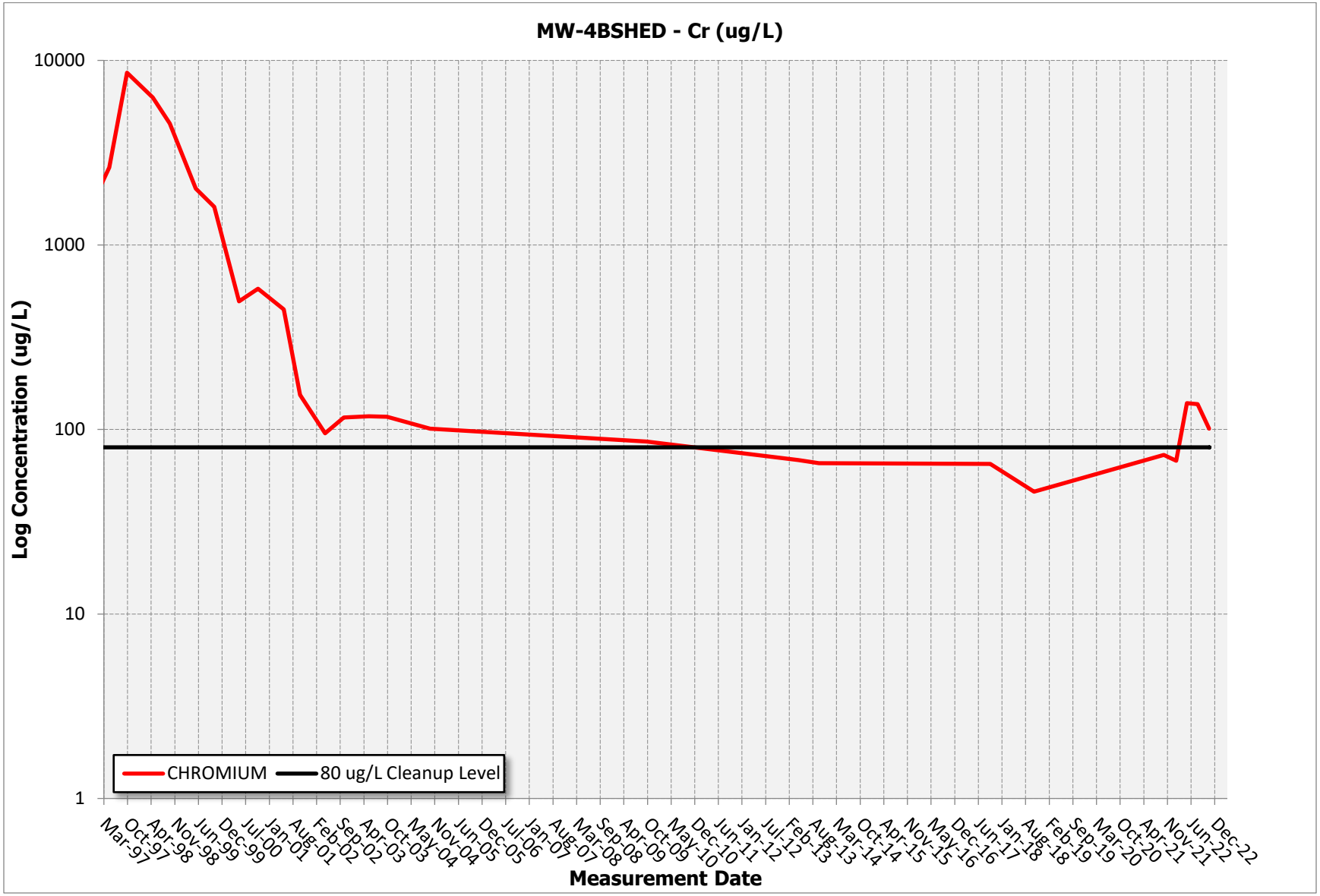

MW-3A - Cr (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
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Feb-22
Dec-22
Measurement Date

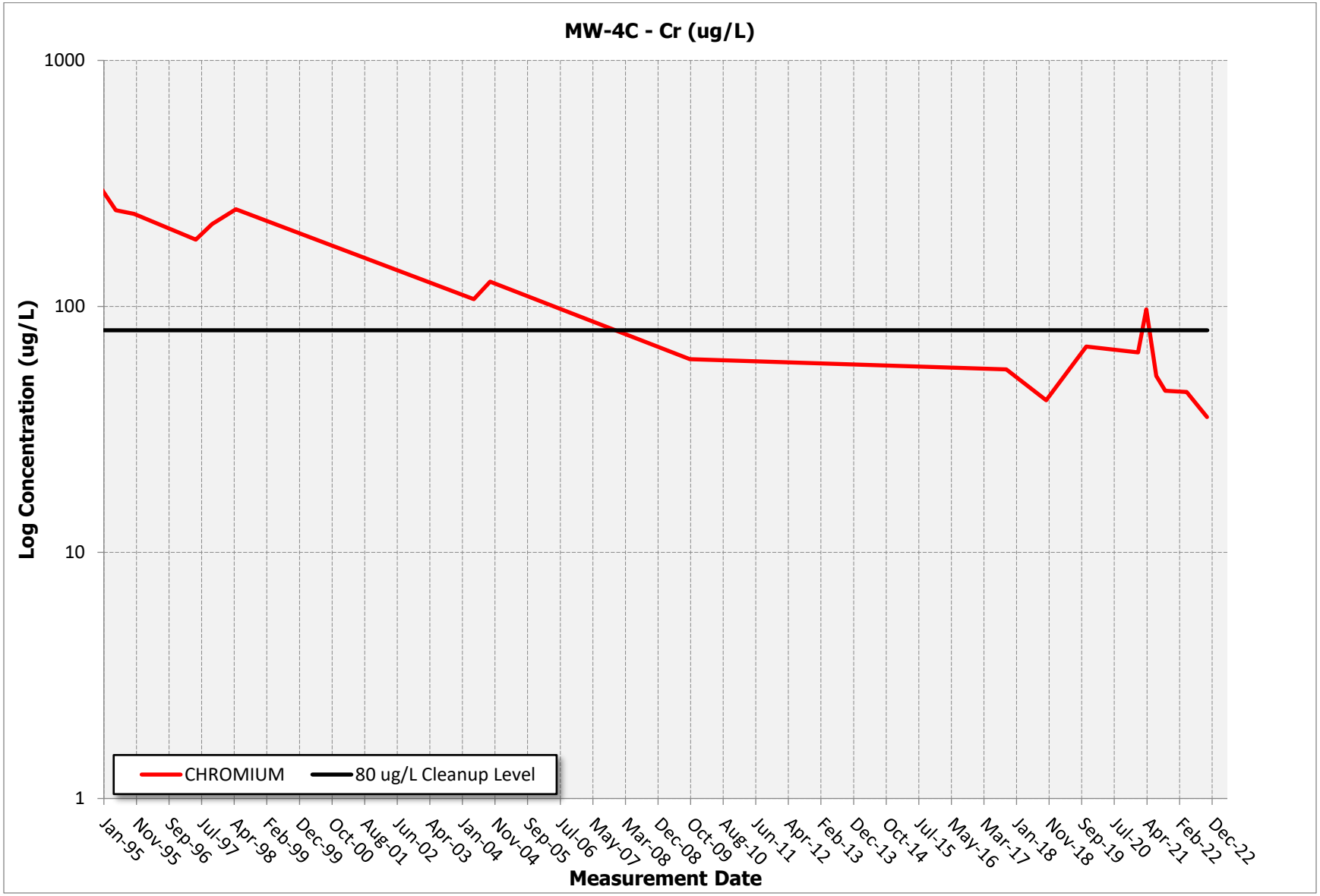

MW-3B - Cr (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
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Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
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Feb-22
Dec-22
Measurement Date

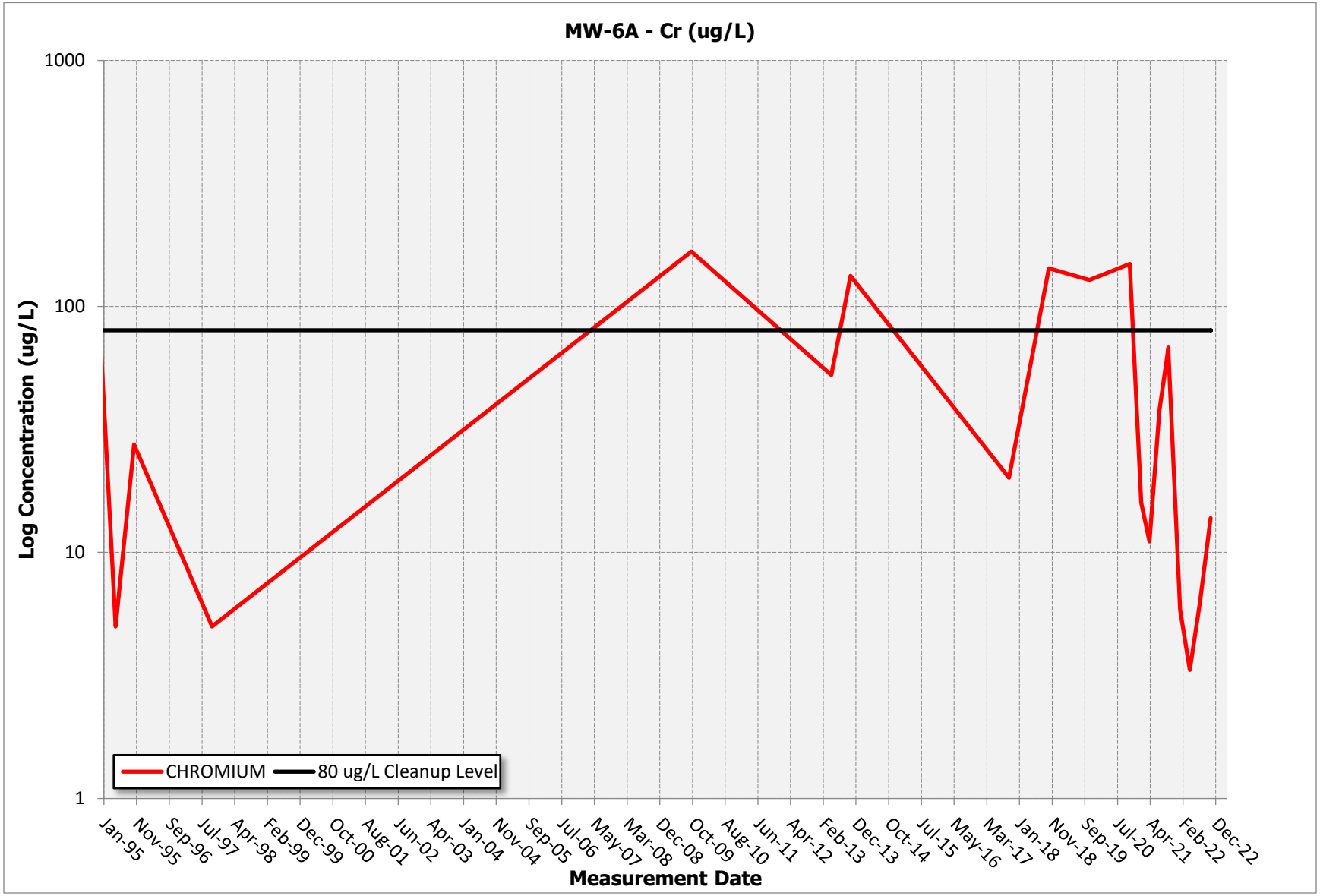

MW-3C - Cr (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
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Nov-18
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Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

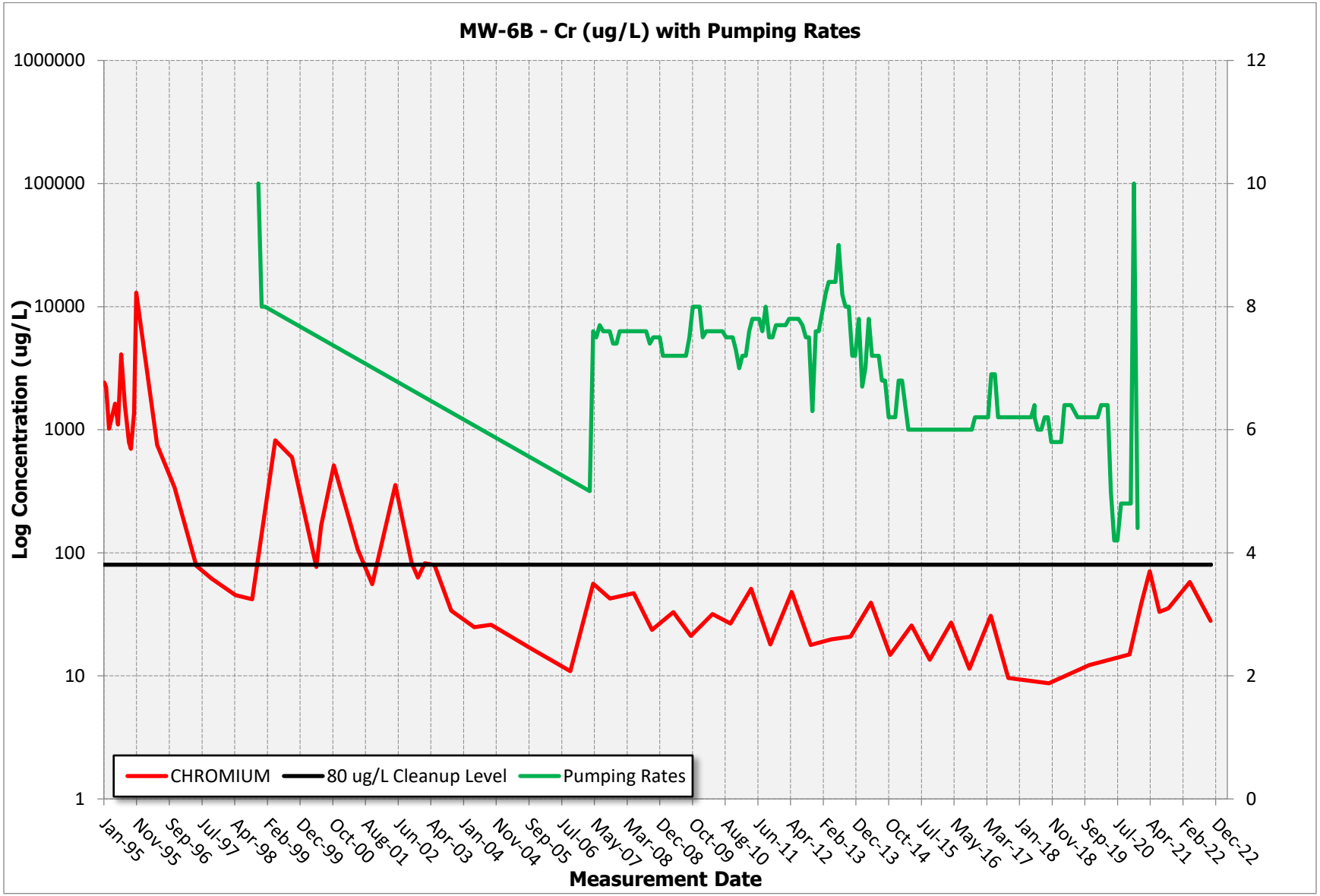

MW-4A - Cr (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

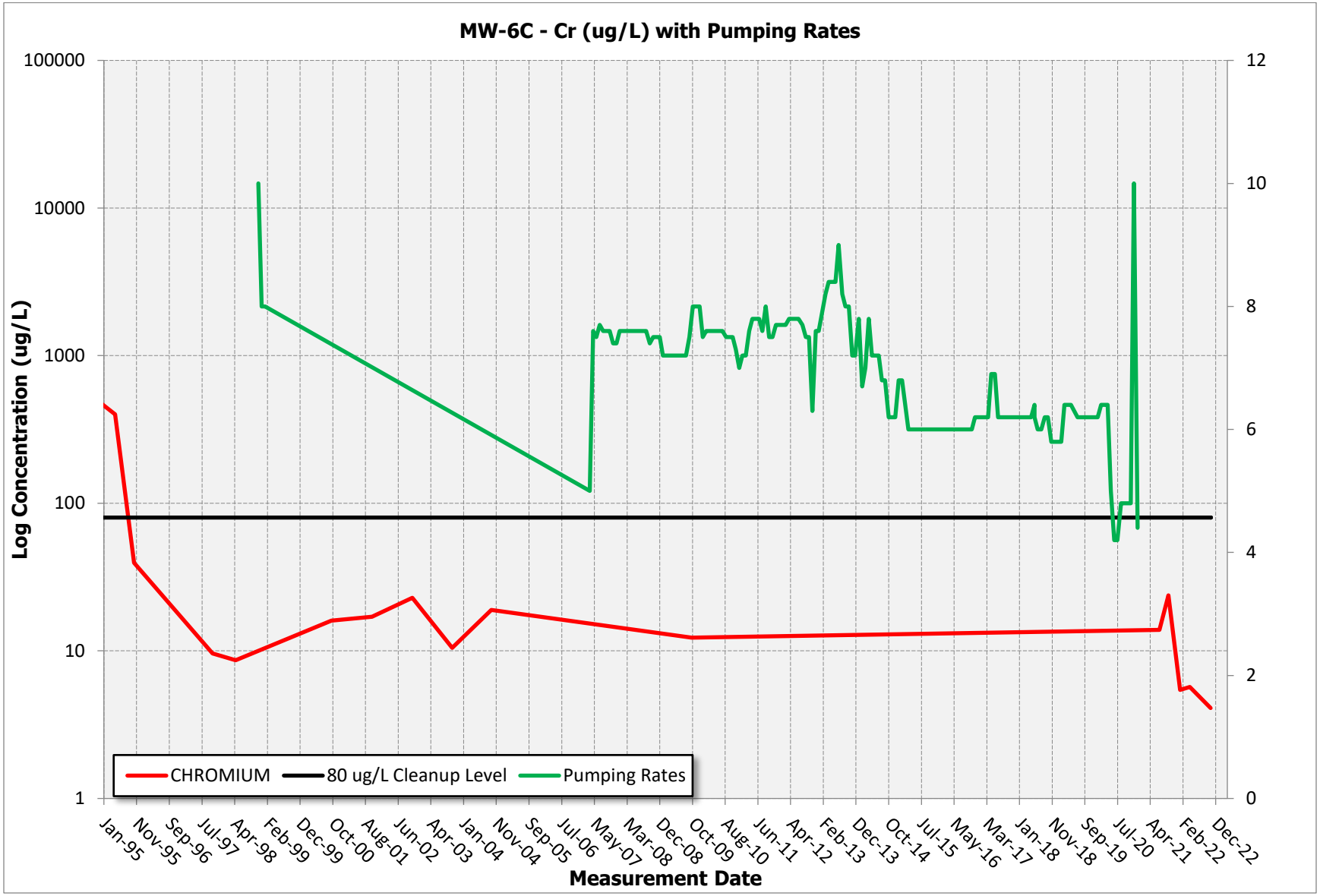

MW-4B - Cr (ug/L)
Log Concentration (ug/L)
100000
10000
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

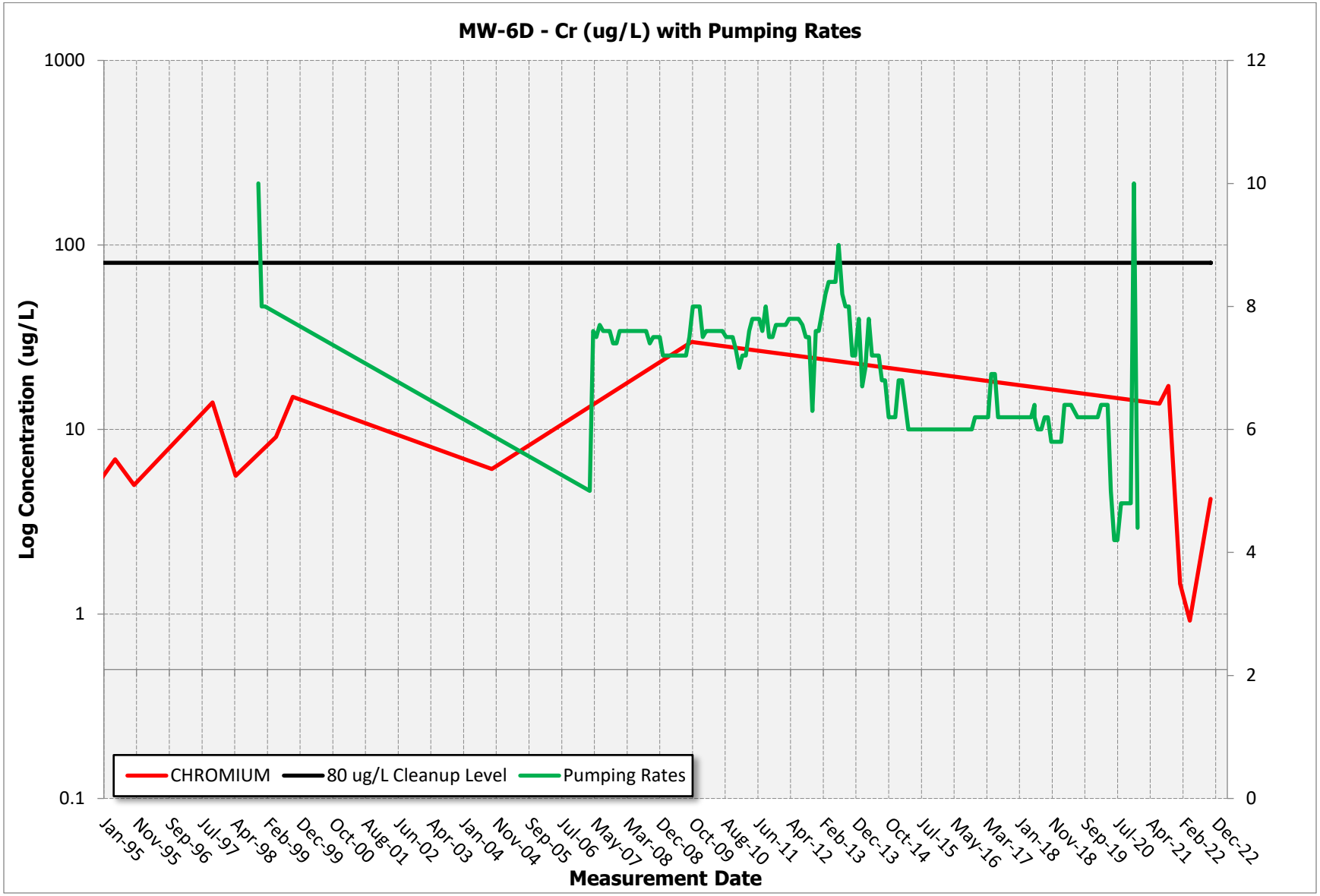

MW-4BSHED - Cr (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Mar-97
Oct-97
Apr-98
Nov-98
Jun-99
Dec-99
Jul-00
Jan-01
Aug-01
Feb-02
Sep-02
Apr-03
Oct-03
May-04
Nov-04
Jun-05
Dec-05
Jul-06
Jan-07
Aug-07
Mar-08
Sep-08
Apr-09
Oct-09
May-10
Dec-10
Jun-11
Jan-12
Jul-12
Feb-13
Aug-13
Mar-14
Oct-14
Apr-15
Nov-15
May-16
Dec-16
Jun-17
Jan-18
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Feb-19
Sep-19
Mar-20
Oct-20
Apr-21
Nov-21
Jun-22
Dec-22
Measurement Date

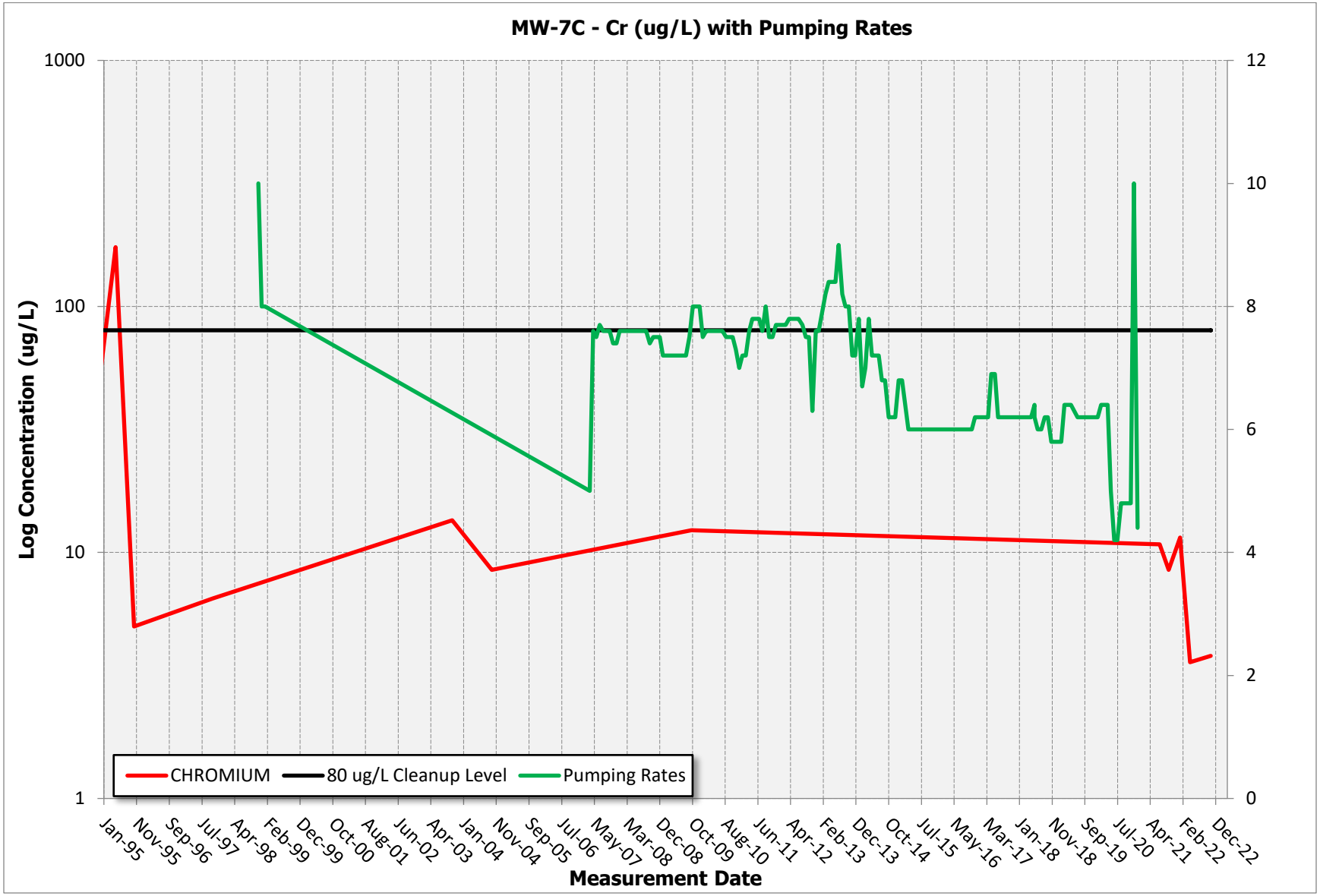

MW-4C - Cr (ug/L)
1000
100
10
1
Log Concentration (ug/L)
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

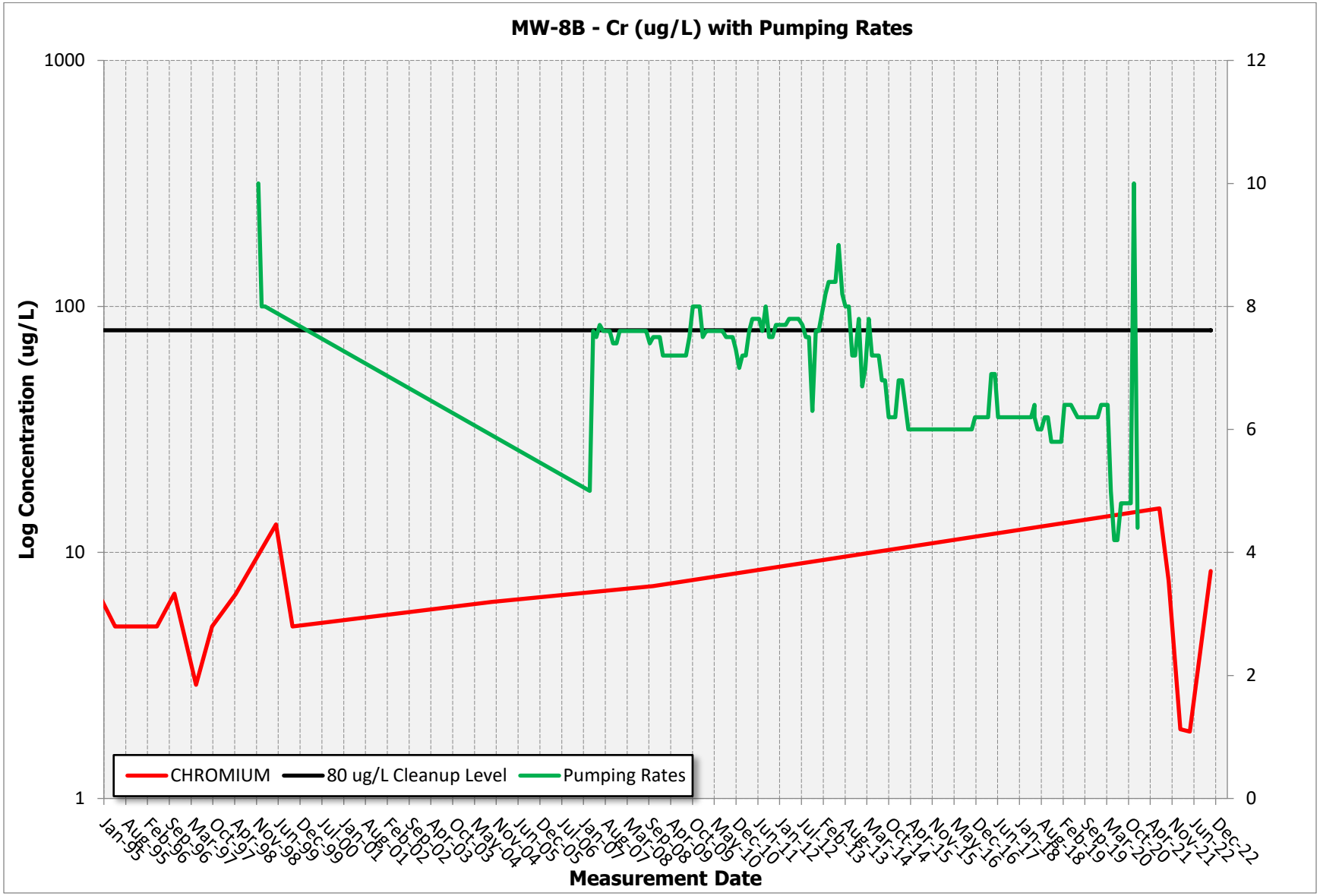

MW-6A - Cr (ug/L)
Log Concentration (ug/L)
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
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Mar-17
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Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

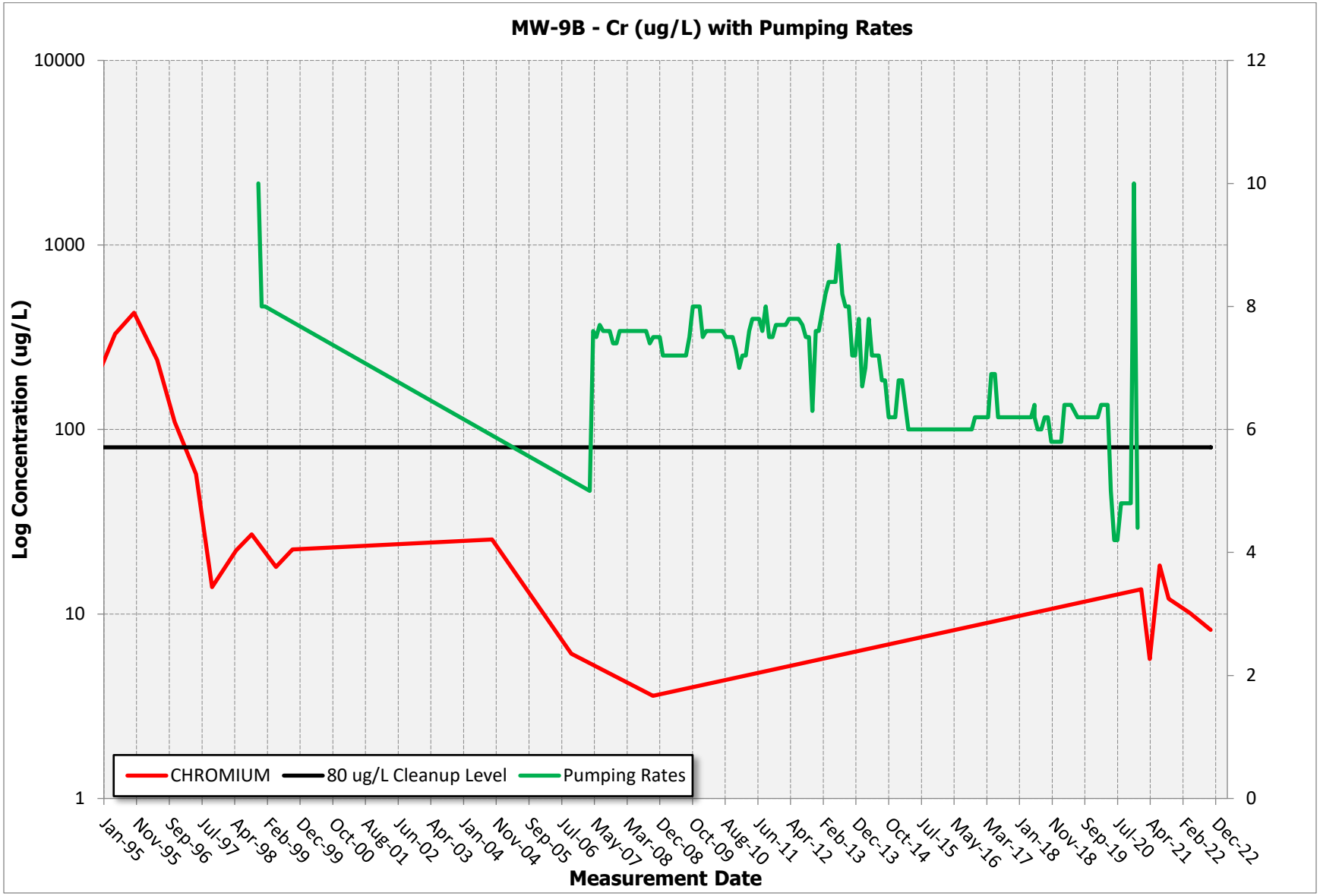

MW-6B - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
1000000
100000
10000
1000
100
10
1
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

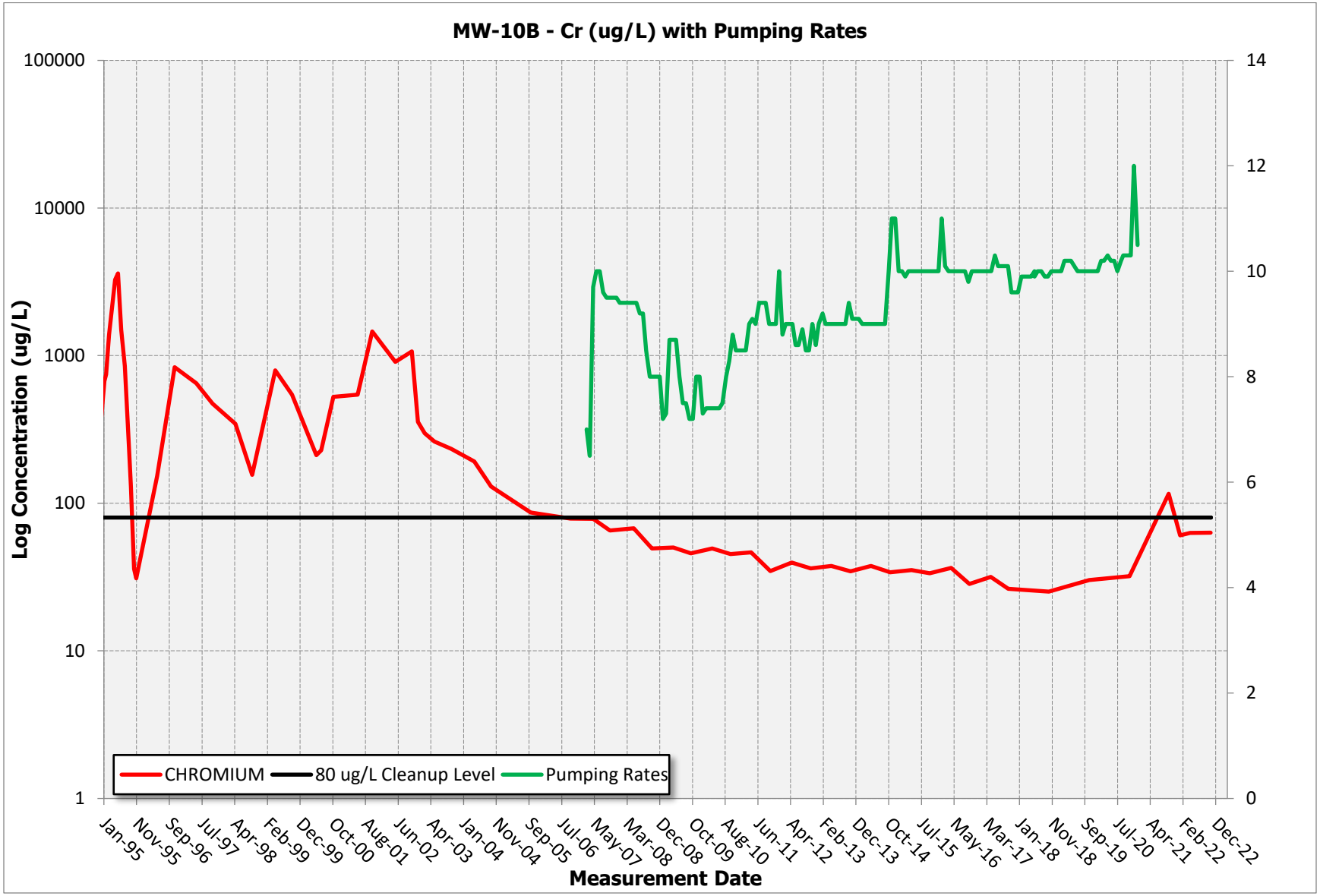

MW-6C - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
100000
10000
1000
100
10
1
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

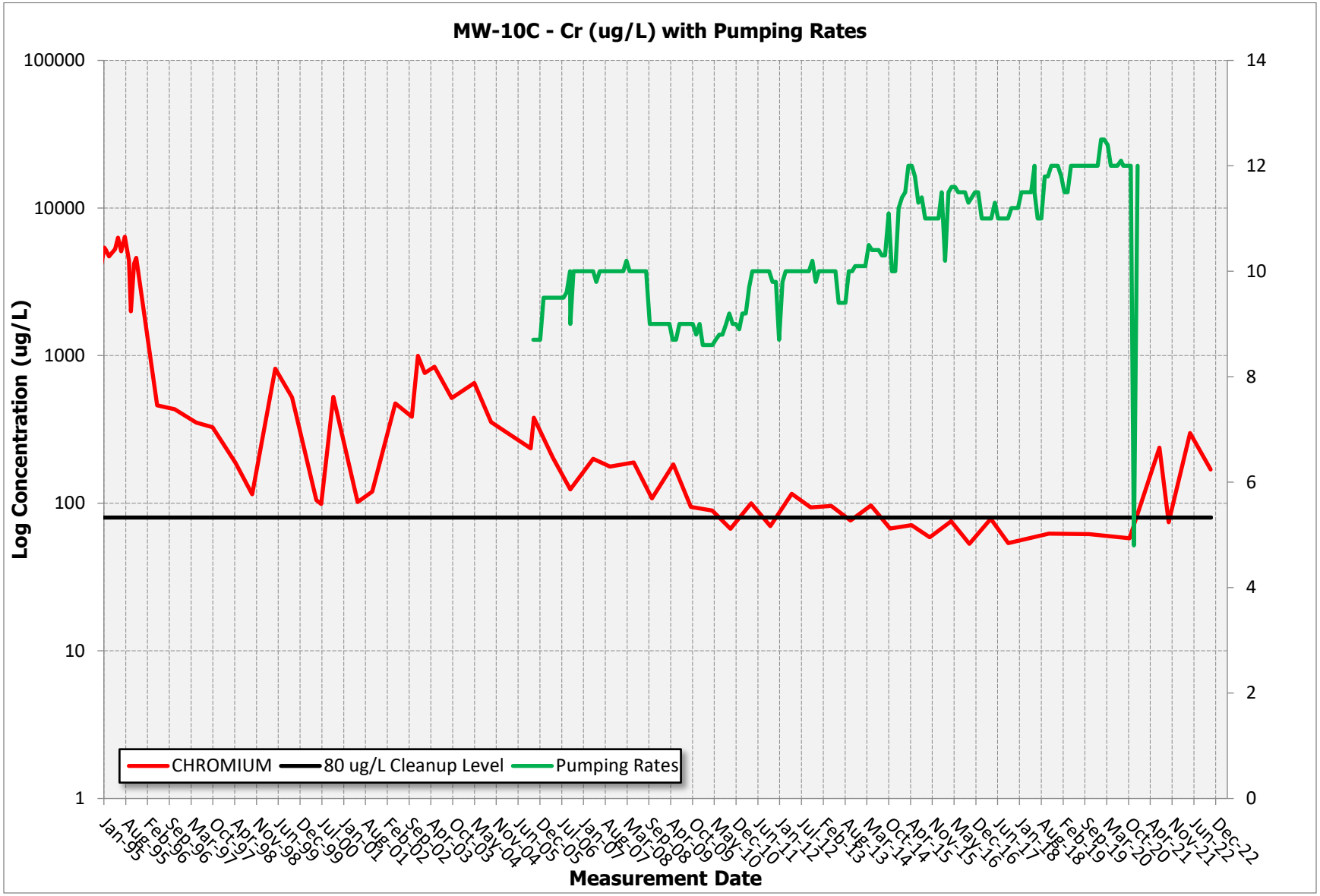

MW-6D - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
1000
100
10
1
0.1
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
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Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

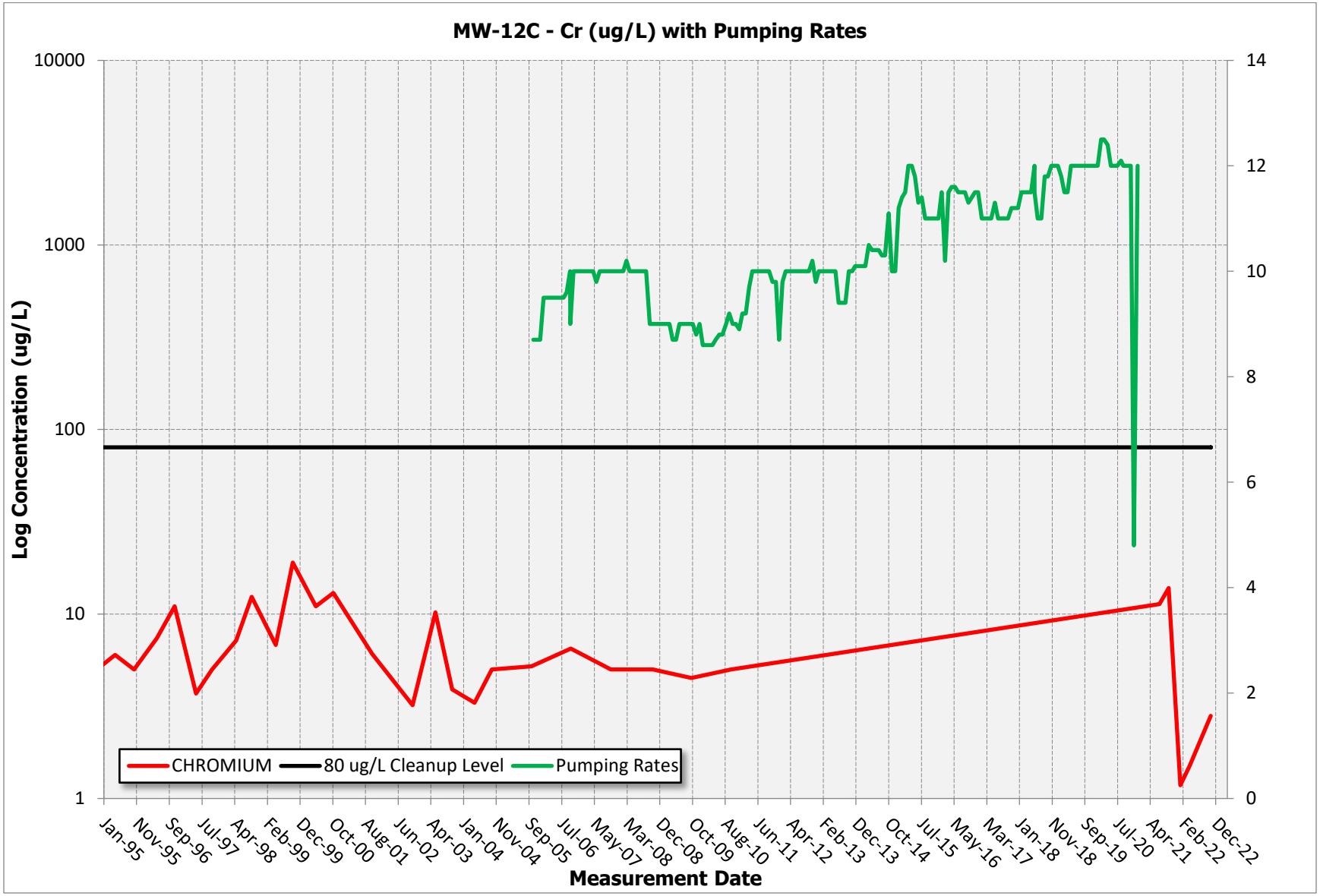

MW-7C - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
1000
100
10
1
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

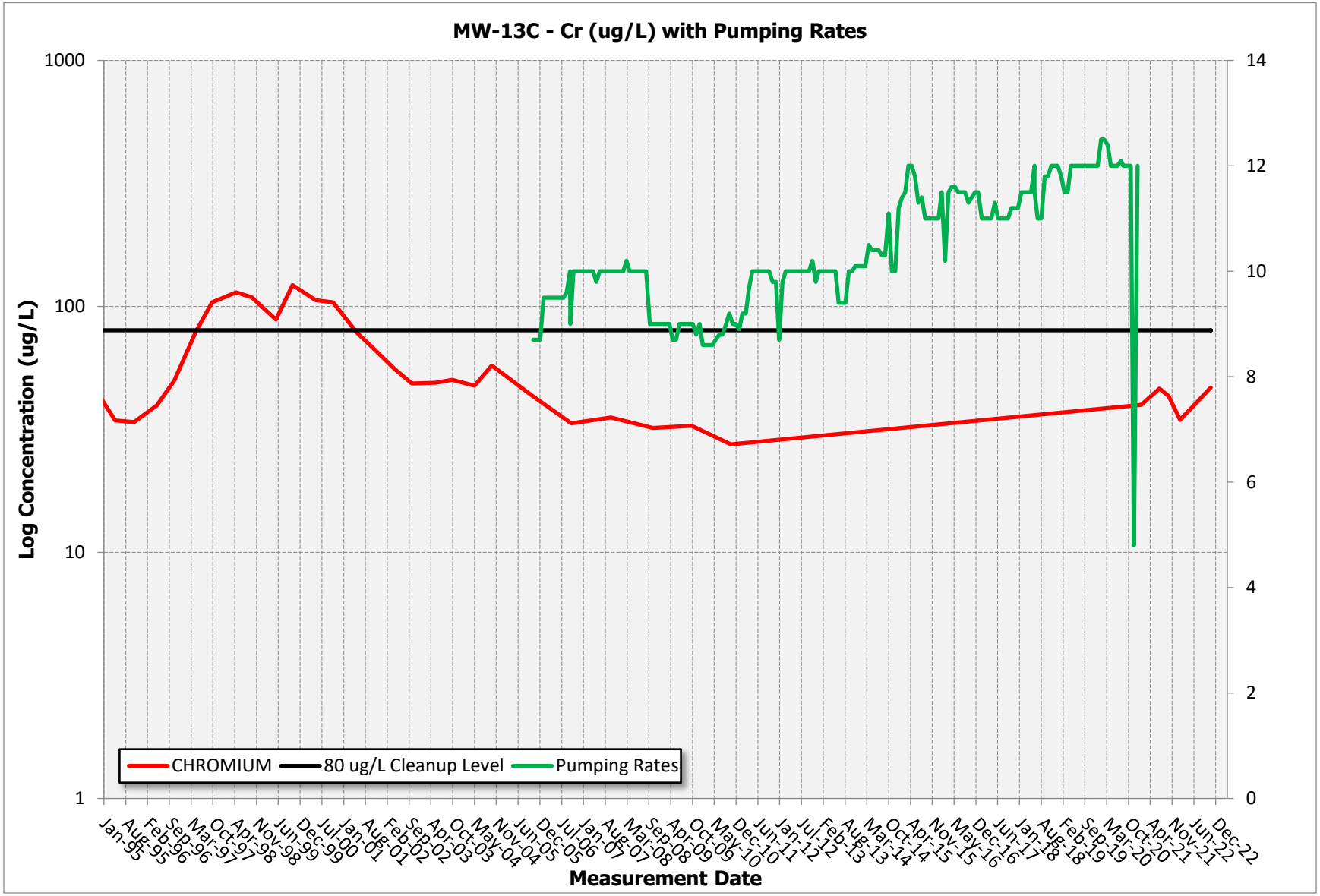

MW-8B - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
1000
100
10
1
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Aug-95
Feb-96
Sep-96
Mar-97
Oct-97
Apr-98
Nov-98
Jun-99
Dec-99
Jul-00
Jan-01
Aug-01
Feb-02
Sep-02
Apr-03
Oct-03
May-04
Nov-04
Jun-05
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May-16
Dec-16
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Mar-20
Oct-20
Apr-21
Nov-21
Jun-22
Dec-22
Measurement Date

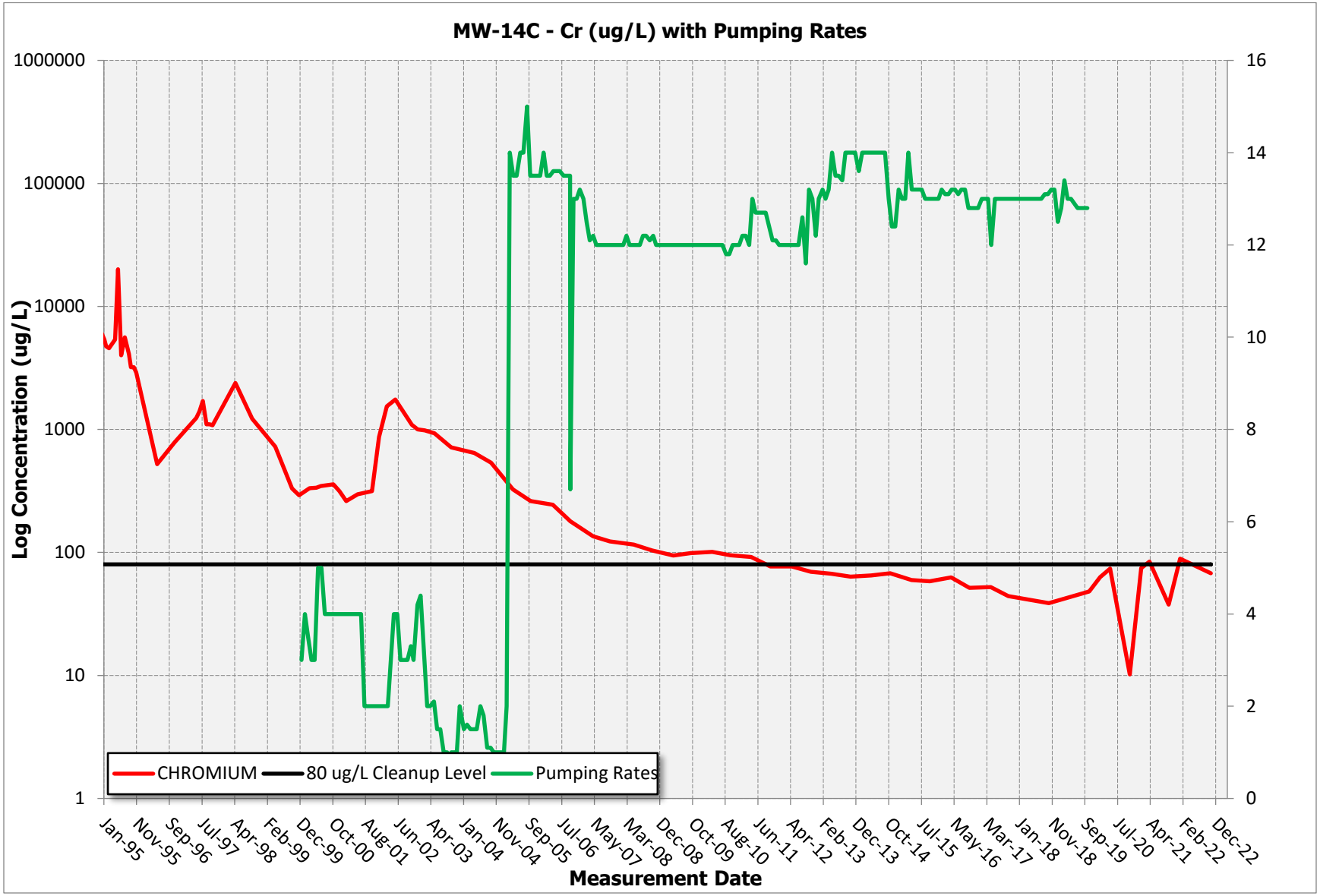

MW-9B - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
10000
1000
100
10
1
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
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Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

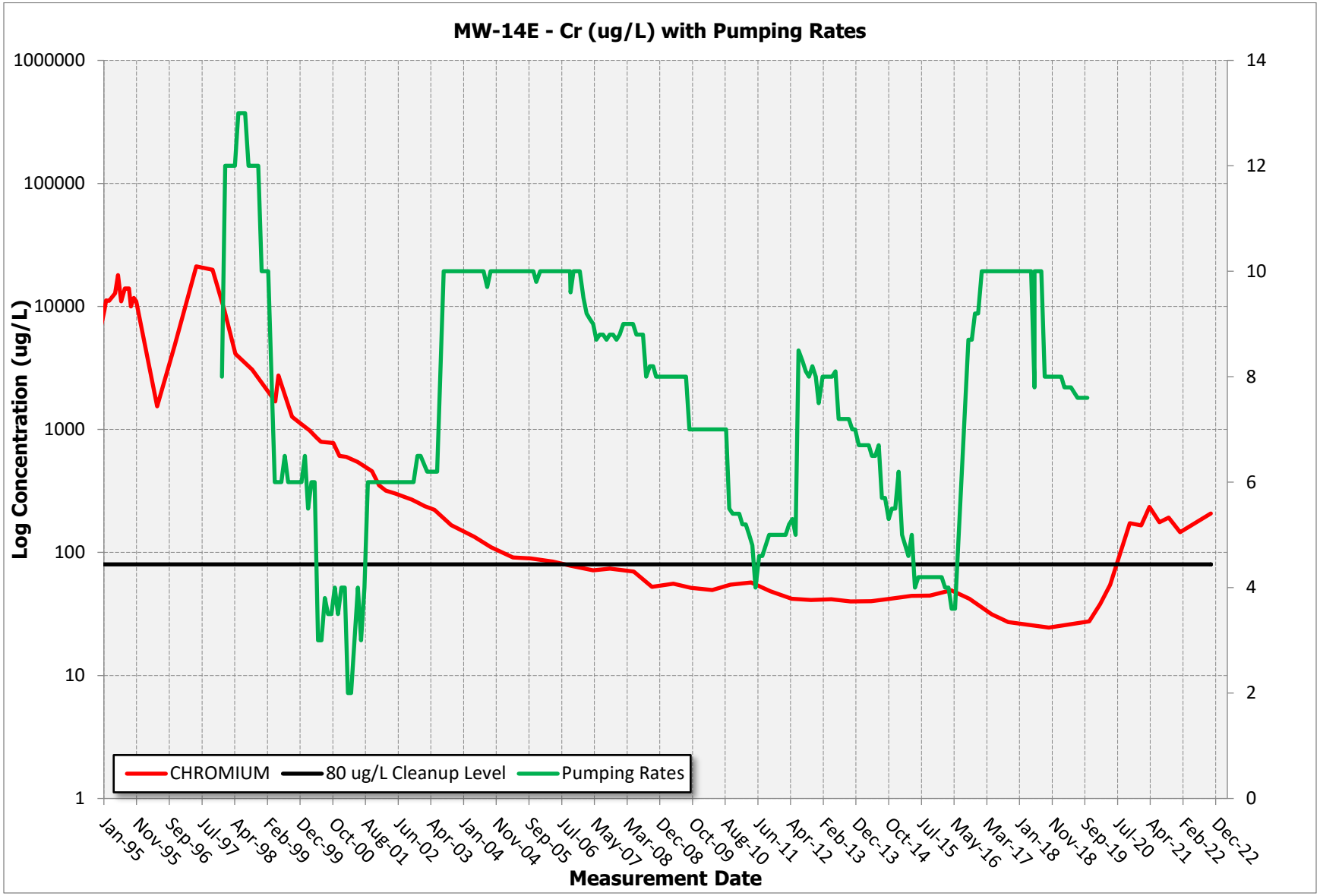

MW-10B - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
100000
10000
1000
100
10
1
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

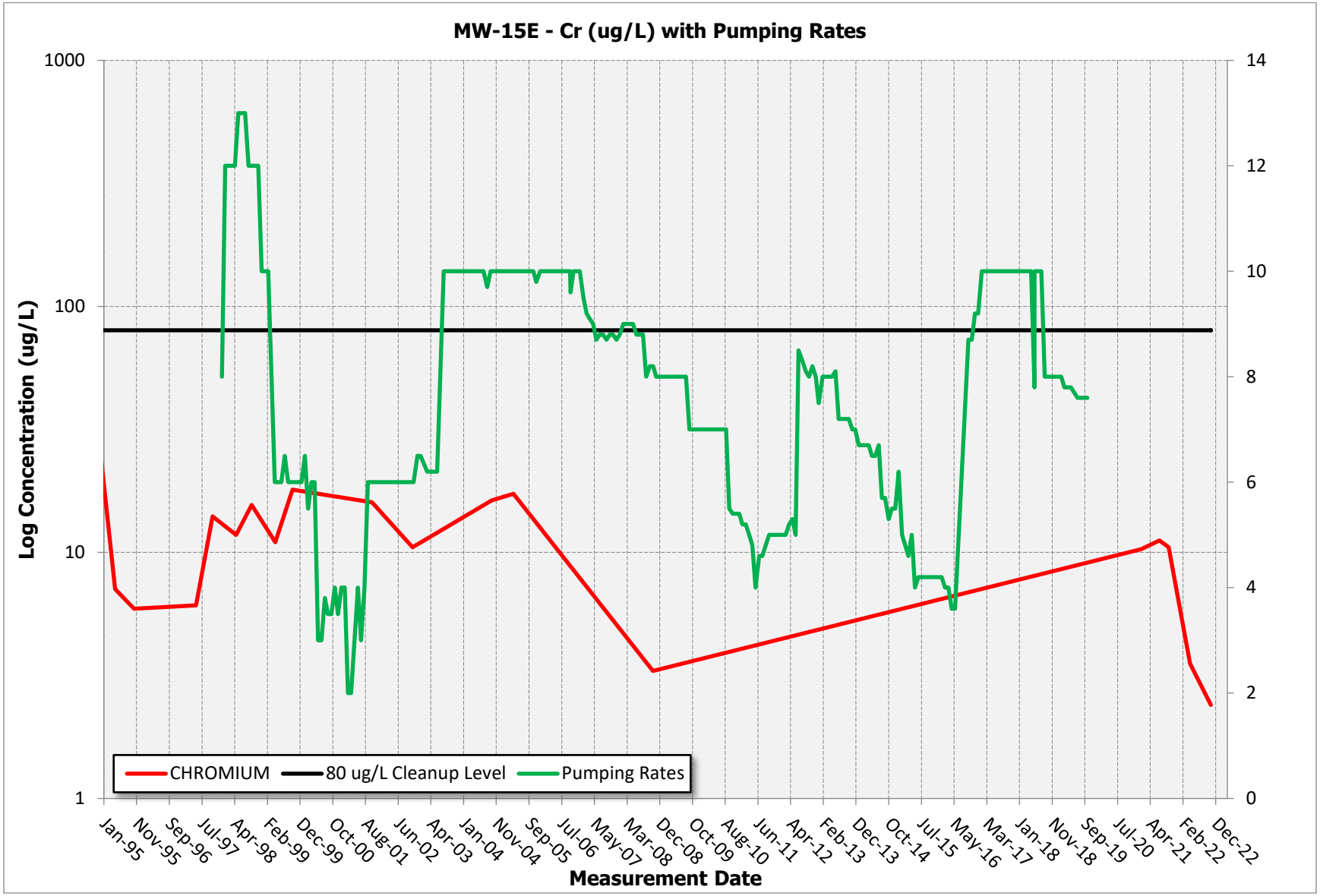

MW-10C - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
100000
10000
1000
100
10
1
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Aug-95
Feb-96
Sep-96
Mar-97
Oct-97
Apr-98
Nov-98
Jun-99
Dec-99
Jul-00
Jan-01
Aug-01
Feb-02
Sep-02
Apr-03
Oct-03
May-04
Nov-04
Jun-05
Dec-05
Jul-06
Jan-07
Aug-07
Mar-08
Sep-08
Apr-09
Oct-09
May-10
Dec-10
Jun-11
Jan-12
Jul-12
Feb-13
Aug-13
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Nov-15
May-16
Dec-16
Jun-17
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Feb-19
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Mar-20
Oct-20
Apr-21
Nov-21
Jun-22
Dec-22
Measurement Date

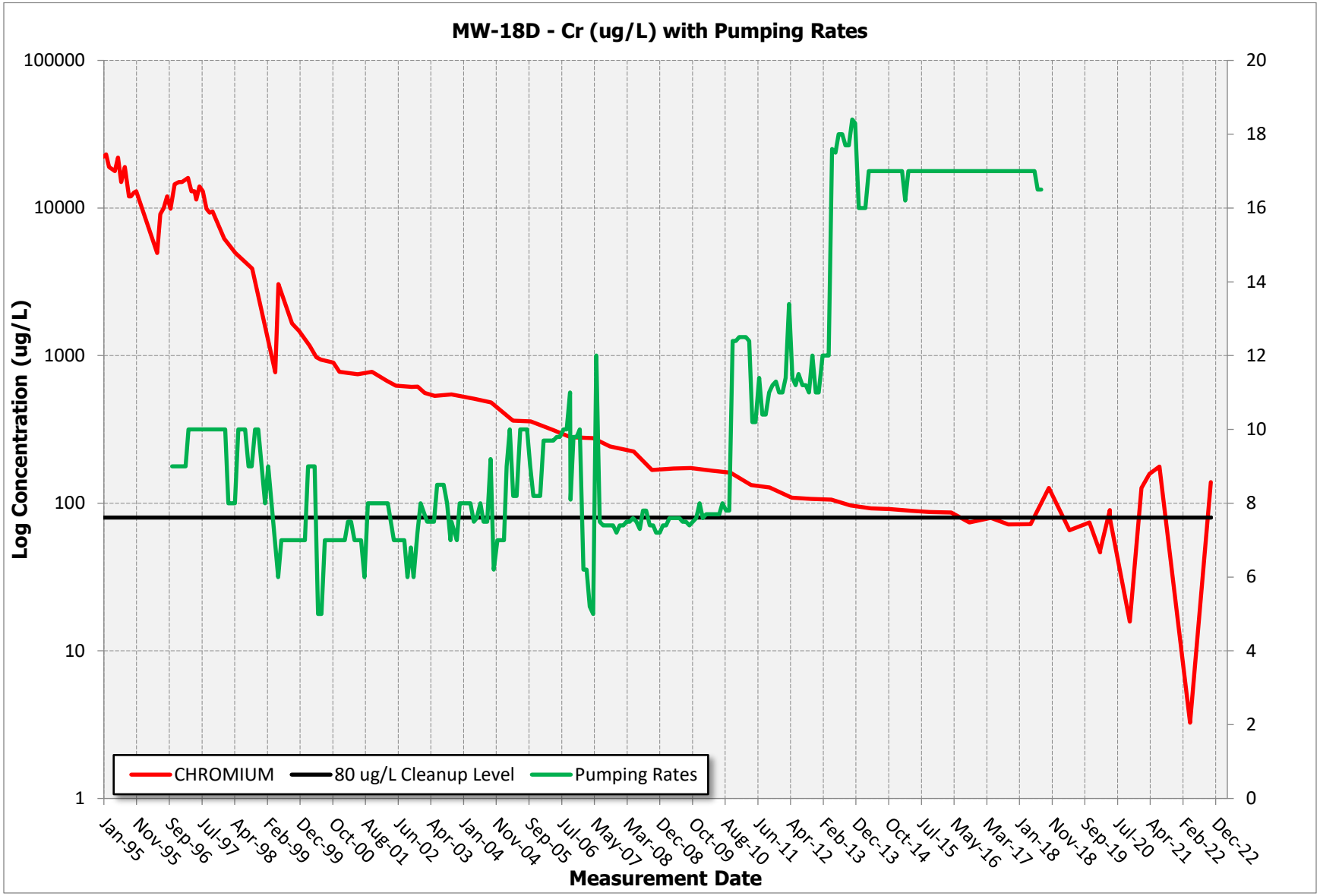

MW-12C - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
10000
1000
100
10
1
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

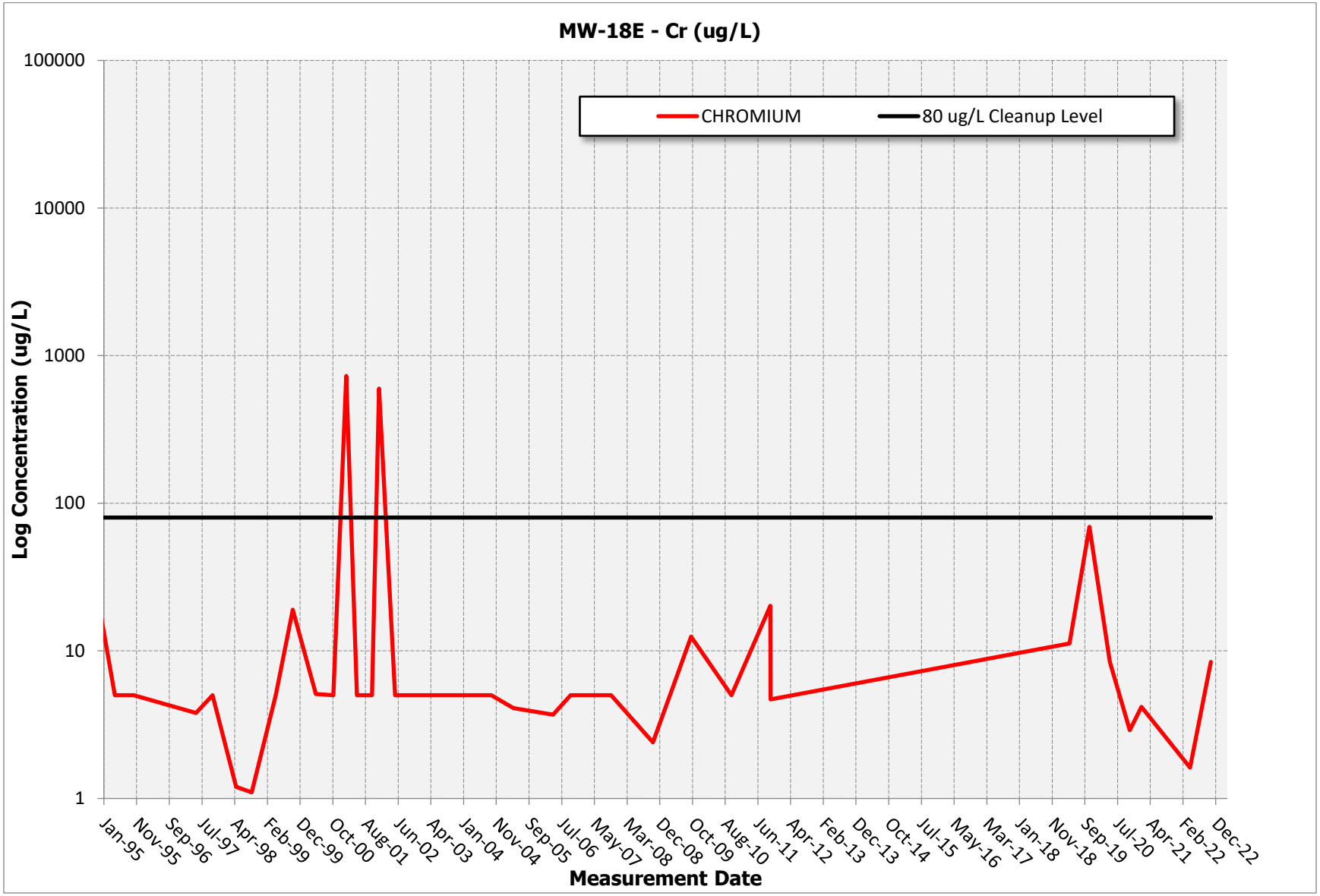

MW-13C - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
1000
100
10
1
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Aug-95
Feb-96
Sep-96
Mar-97
Oct-97
Apr-98
Nov-98
Jun-99
Dec-99
Jul-00
Jan-01
Aug-01
Feb-02
Sep-02
Apr-03
Oct-03
May-04
Nov-04
Jun-05
Dec-05
Jul-06
Jan-07
Aug-07
Mar-08
Sep-08
Apr-09
Oct-09
May-10
Dec-10
Jun-11
Jan-12
Jul-12
Feb-13
Aug-13
Mar-14
Oct-14
Apr-15
Nov-15
May-16
Dec-16
Jun-17
Jan-18
Aug-18
Feb-19
Sep-19
Mar-20
Oct-20
Apr-21
Nov-21
Jun-22
Dec-22
Measurement Date

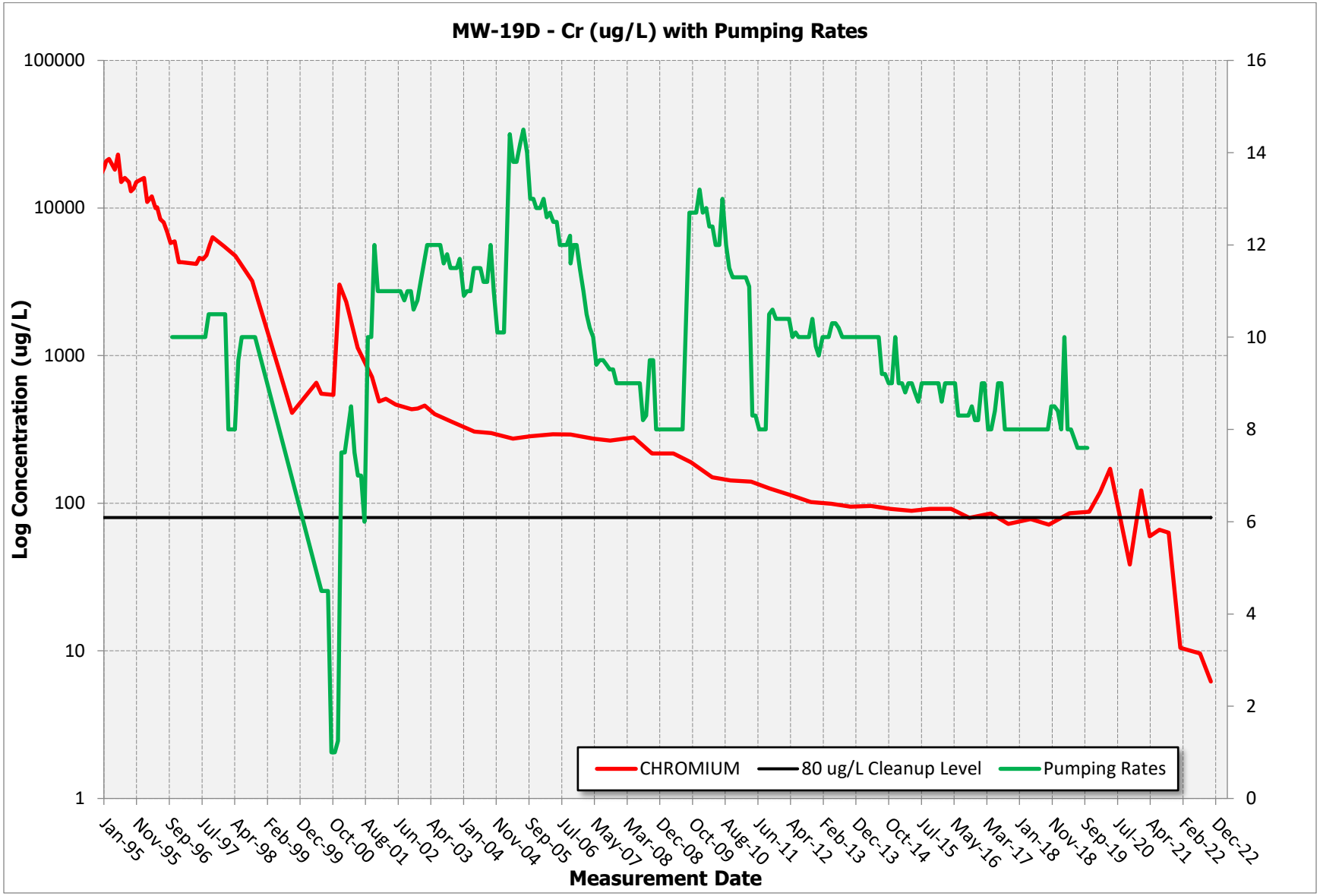

MW-14C - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
1000000
100000
10000
1000
100
10
1
16
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

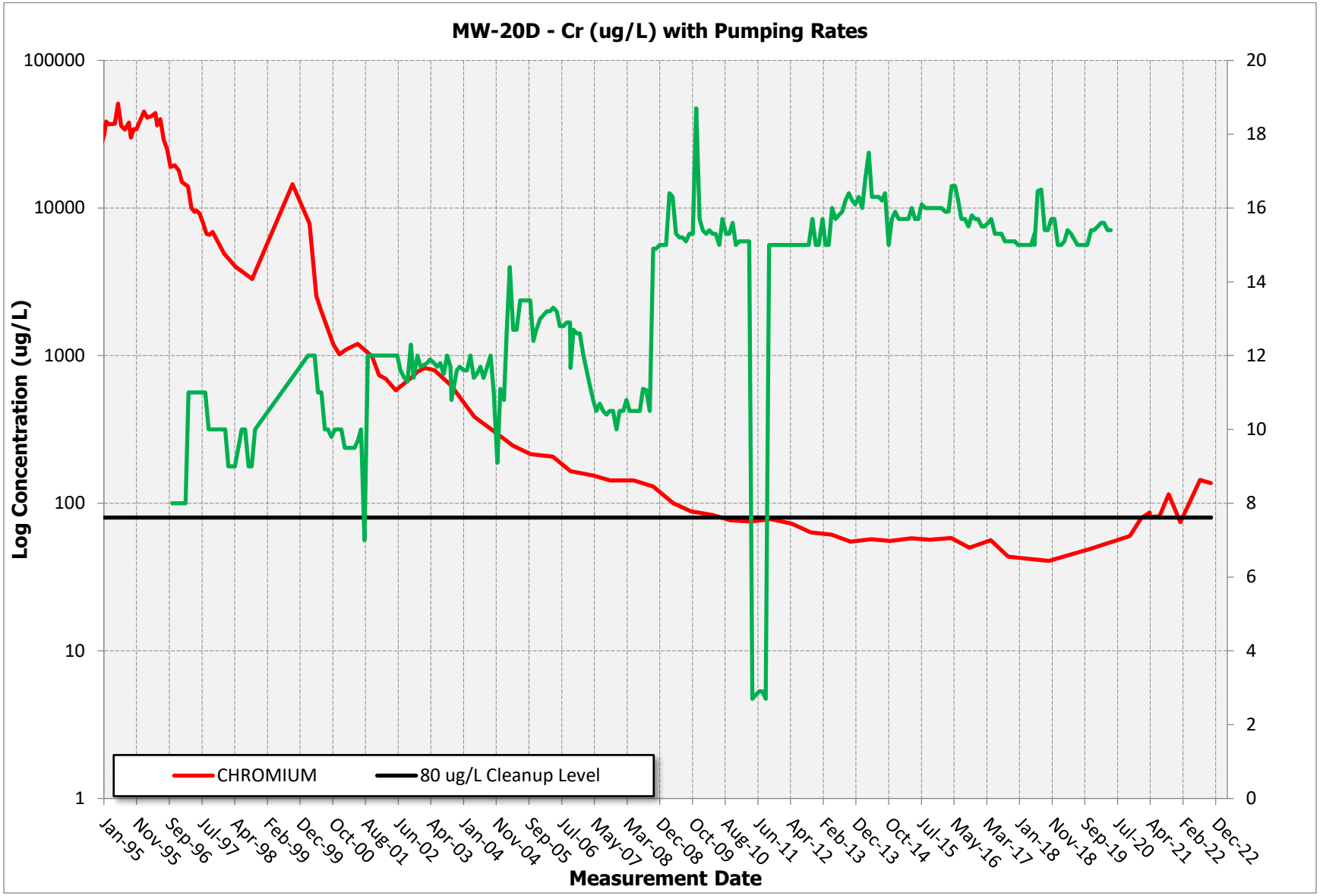

MW-14E - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
1000000
100000
10000
1000
100
10
1
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

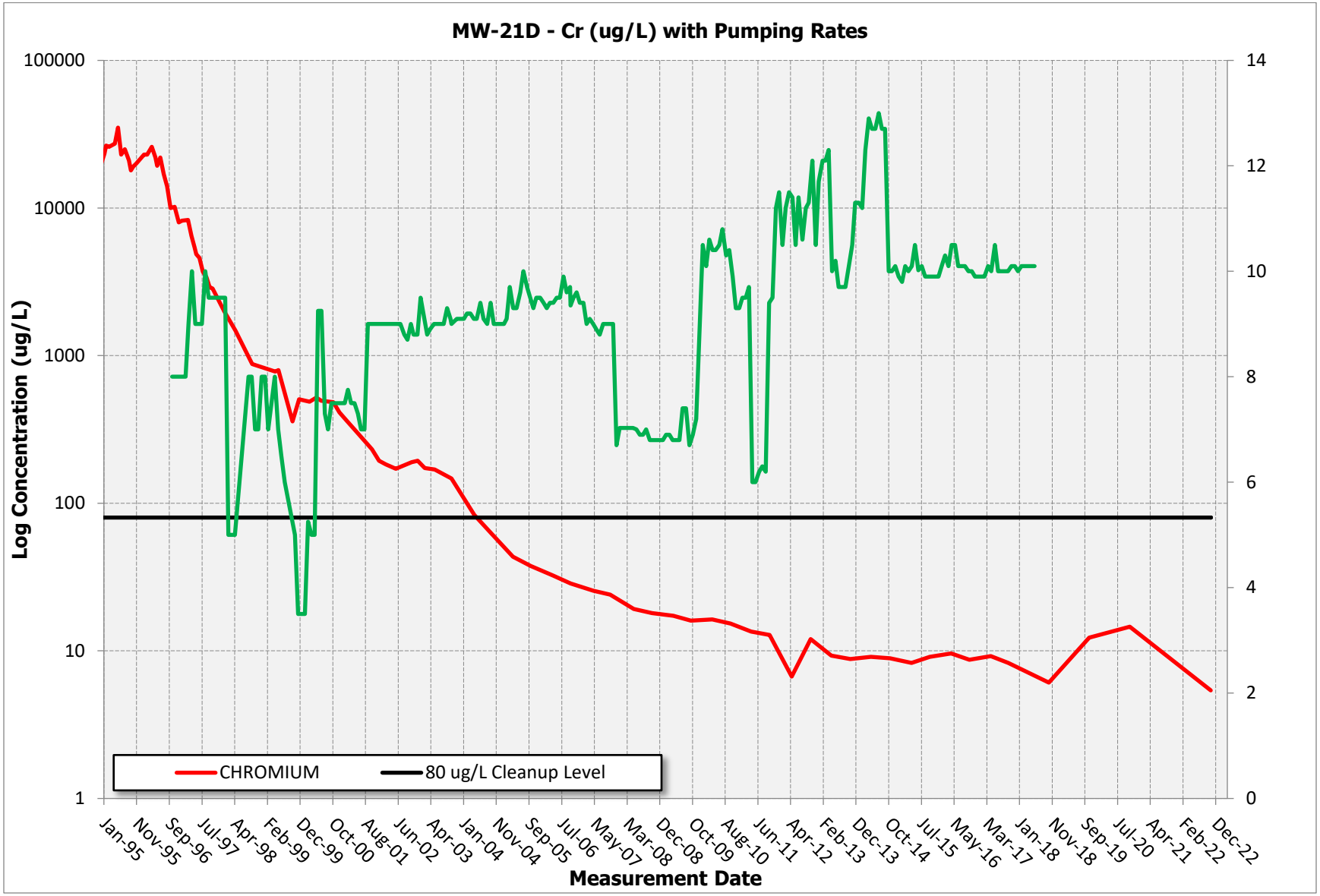

MW-15E - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
1000
100
10
1
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

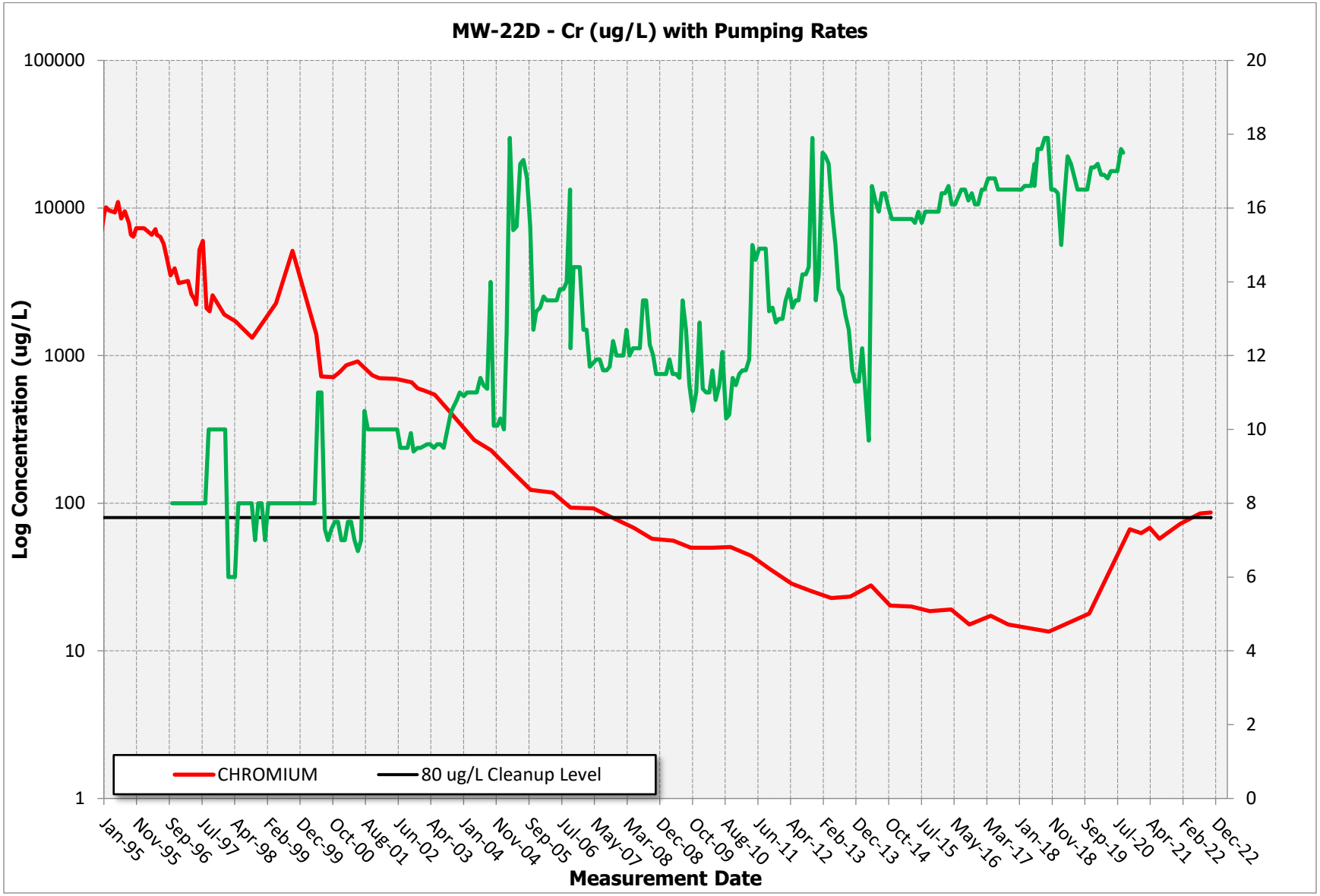

MW-18D - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
100000
10000
1000
100
10
1
20
18
16
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

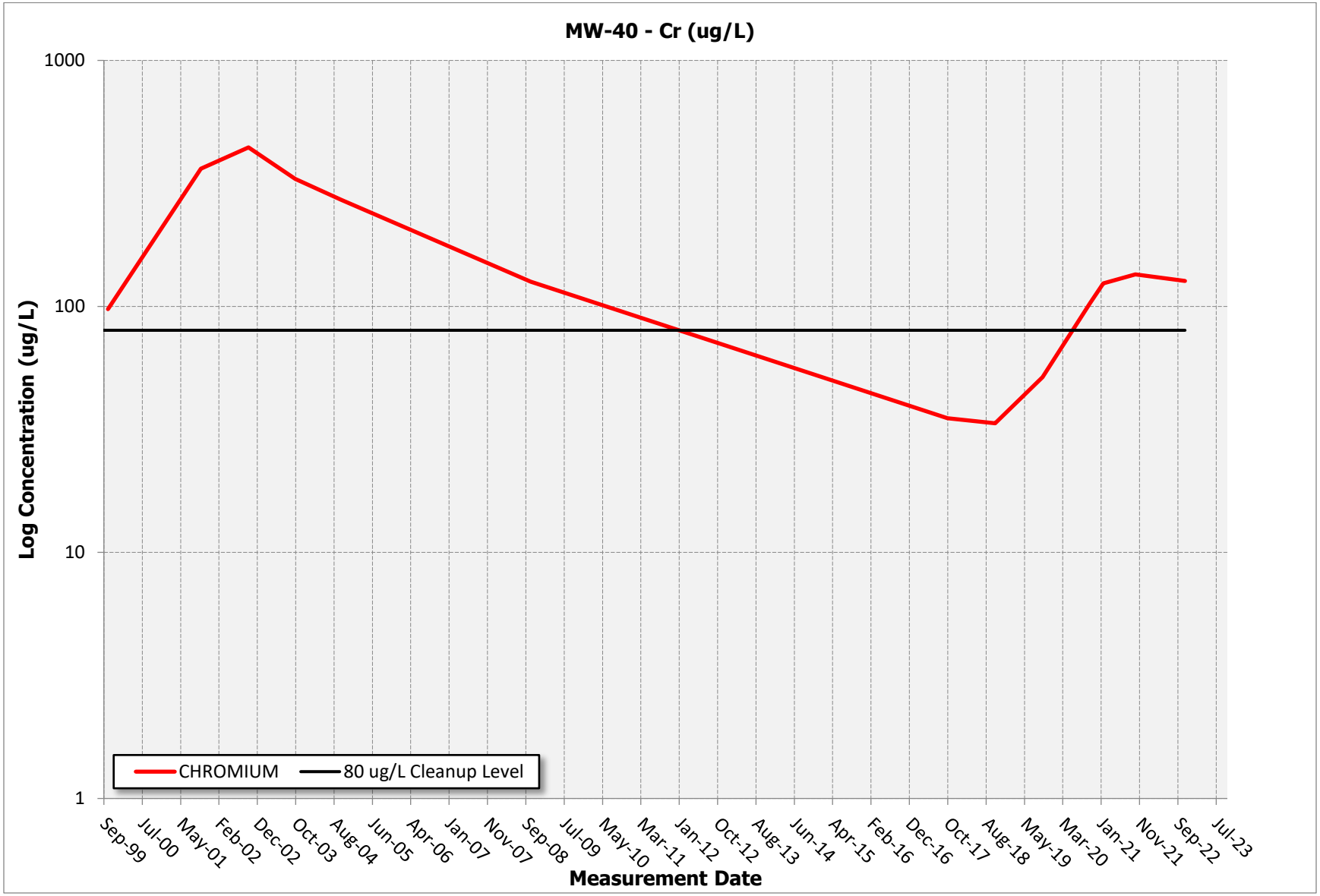

MW-18E - Cr (ug/L)
CHROMIUM
80 ug/L Cleanup Level
Log Concentration (ug/L)
100000
10000
1000
100
10
1
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

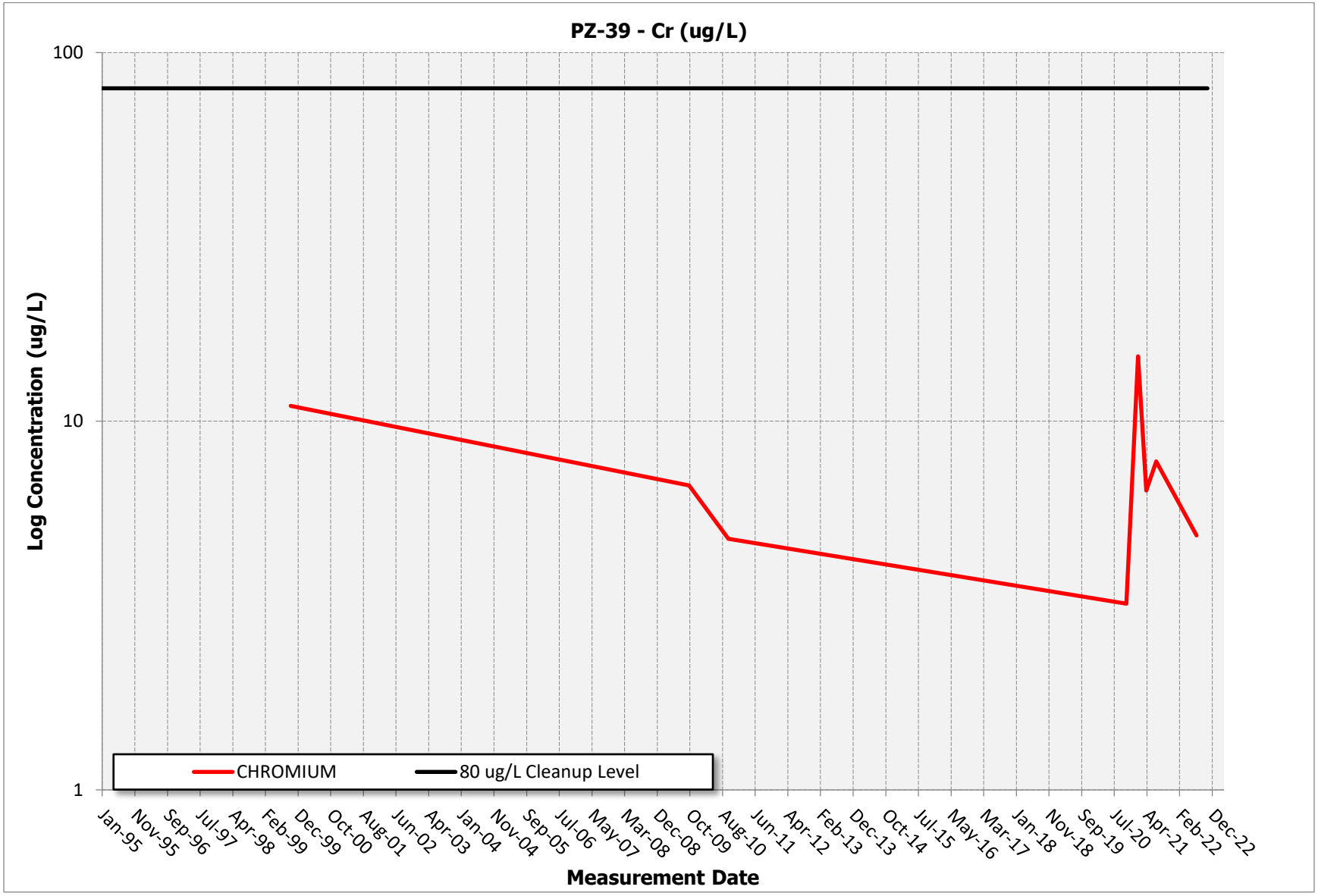

MW-19D - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
100000
10000
1000
100
10
1
16
14
12
10
8
6
4
2
0
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates

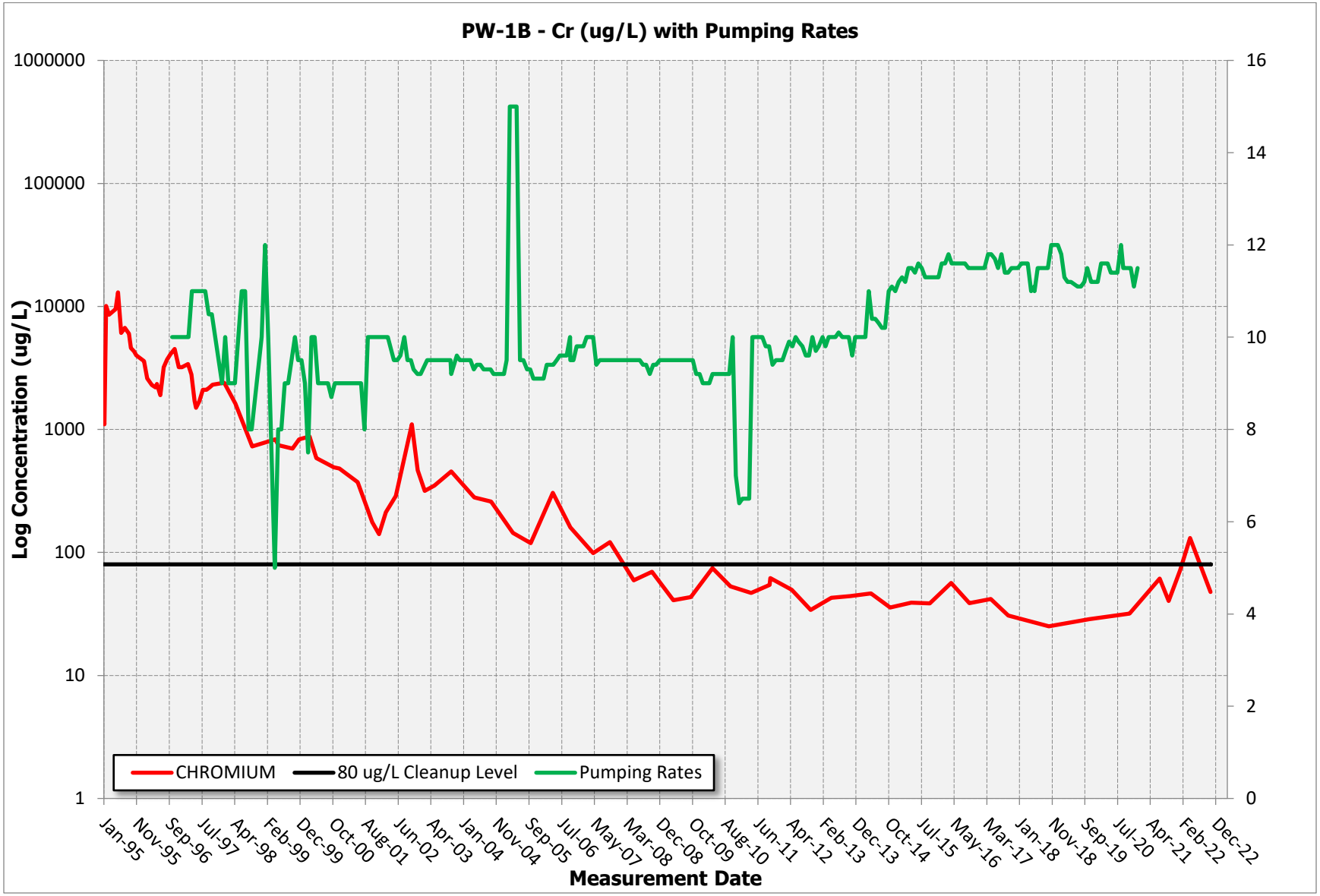

MW-20D - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
100000
10000
1000
100
10
1
20
18
16
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date


MW-21D - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
100000
10000
1000
100
10
1
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date


MW-22D - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
100000
10000
1000
100
10
1
20
18
16
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date


MW-40 - Cr (ug/L)
Log Concentration (ug/L)
1000
100
10
1
CHROMIUM
80 ug/L Cleanup Level
Sep-99
Jul-00
May-01
Feb-02
Dec-02
Oct-03
Aug-04
Jun-05
Apr-06
Jan-07
Nov-07
Sep-08
Jul-09
May-10
Mar-11
Jan-12
Oct-12
Aug-13
Jun-14
Apr-15
Feb-16
Dec-16
Oct-17
Aug-18
May-19
Mar-20
Jan-21
Nov-21
Sep-22
Jul-23
Measurement Date


PZ-39 - Cr (ug/L)
100
10
1
Log Concentration (ug/L)
CHROMIUM
80 ug/L Cleanup Level
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date


PW-1B - Cr (ug/L) with Pumping Rates
Log Concentration (ug/L)
1000000
100000
10000
1000
100
10
1
16
14
12
10
8
6
4
2
0
CHROMIUM
80 ug/L Cleanup Level
Pumping Rates
Jan-95
Nov-95
Sep-96
Jul-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
Jun-02
Apr-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Mar-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Dec-13
Oct-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Sep-19
Jul-20
Apr-21
Feb-22
Dec-22
Measurement Date

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# Appendix F

# TCE Concentrations in Groundwater

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# Appendix F-1

# TCE Concentrations – Summary Table

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# Table F-1. Trichloroethene Concentrations – Summary Table

| Well Group | Well | February 2021 | Spring 2021 | July 2021 | Fall 2021 | January 2022 | Spring 2022 | July 2022 | Fall 2022 |
|---|---|---|---|---|---|---|---|---|---|
| Church of God Wells | AMW-27 | 3.5 | -- | 1.6 | -- | 1.7 | -- | -- | -- |
| | AMW-61 | -- | -- | -- | **5.5** | -- | -- | -- | 4.7 |
| | CPU-12 | 3.0 | -- | -- | -- | -- | 2.2 | -- | -- |
| | MW-22D | 3.1 | 4.0 | 3.5 | -- | **11** | -- | **9.5** | **8.4** |
| Intermediate Plume Wells | AMW-59 | **16** | 4.6 | **9.3** | 0.39 J | < 0.50 U | -- | < 0.50 U | < 0.50 U |
| | AMW-60 | -- | -- | -- | 0.26 J | 0.44 J | -- | 0.40 J | 0.31 J |
| | CPU-14 | -- | 2.9 | 4.4 | 1.0 | 4.7 | 3.3 | 2.1 | 0.51 |
| | MW-14C | 2.9 | 2.8 | 2.8 | 2.5 | 3.1 | -- | -- | 4.2 |
| | MW-14E | **10** | **8.4** | **12** | **19** | **18** | -- | -- | **19** |
| | MW-15E | 1.5 | -- | 2.6 | 3.0 | -- | **10** | 1.2 | 1.6 |
| | MW-18D | 3.4 | 3.5 | 3.6 | -- | -- | 2.8 | -- | 4.0 |
| | MW-18E | 0.22 J | 0.47 J | 0.43 J | -- | -- | 0.94 | -- | 0.41 J |
| | MW-19D | **7.7** | **9.2** | **6.0** | **7.4** | 0.21 J | -- | 1.2 | 3.7 |
| | MW-20D | **6.9** | **11** | **6.8** | **9.4** | **8.3** | -- | **12** | **11** |
| | MW-40 | 0.89 | -- | -- | 0.96 | -- | 0.42 J | -- | 0.59 |
| | PZ-39 | **36** | **39** | **42** | **37** | **41** | -- | **45** | **28** |
| Northern Plume Well | AMW-16 | -- | **22** | -- | **27** | -- | **46** | -- | **54** |
| | AMW-17 | -- | **46** | -- | **42** | -- | -- | -- | -- |
| | AMW-23 | -- | -- | -- | -- | -- | -- | -- | < 0.50 U |
| | AMW-18 | -- | **17** | -- | **16** | -- | **13** | -- | **9.7** |
| | AMW-64 | -- | **8.4** | -- | **9.3** | -- | **8.5** | -- | **8.3** |
| | MW-21D | -- | 1.5 | -- | 1.5 | -- | 0.77 | -- | 1.4 |
| | MW-23D | -- | **72** | -- | **61** | -- | **71** | -- | **49** |
| | MW-38 | **14** | **22** | **27** | **25** | -- | **17** | -- | **12** |
| Proximal Source Wells | AMW-58 | -- | -- | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | -- | < 0.50 U |
| | MW-10B | -- | 2.3 | 2.6 | 1.4 | 2.5 | 3.1 | 2.9 | 3.0 |
| | MW-10C | -- | -- | 2.0 | 2.6 | 3.4 | 4.3 | -- | **8.1** |
| | MW-12C | -- | -- | 3.3 | 1.2 | **33** | **49** | -- | 2.3 |
| | MW-13C | 4.5 | -- | 2.8 | 1.3 | 1.6 | -- | -- | 0.94 |
| | MW-2A | 0.94 | -- | 0.82 | 0.76 | 0.45 J | -- | -- | 0.32 J |
| | MW-2B | 1.4 | -- | 1.6 | 0.97 | -- | 1.4 | -- | 1.2 |
| | MW-2C | 0.38 J | -- | 0.38 J | 0.27 J | 0.38 J | -- | -- | 0.27 J |
| | MW-3C | -- | -- | 1.3 | 1.6 | 1.4 | 1.7 | -- | 1.4 |
| | MW-4A | -- | -- | -- | 2.0 | 1.8 | 2.2 | -- | 1.9 |
| | MW-4B | -- | -- | -- | 2.5 | 2.9 | 2.4 | -- | 3.1 |
| | MW-4BSHED | -- | -- | -- | 2.4 | 2.0 | 2.2 | 2.3 | 2.1 |
| | MW-4C | -- | -- | -- | 1.0 | 1.1 | 1.2 | -- | 0.99 |

| Well Group | Well | February 2021 | Spring 2021 | July 2021 | Fall 2021 | January 2022 | Spring 2022 | July 2022 | Fall 2022 |
|---|---|---|---|---|---|---|---|---|---|
| | MW-6A | -- | -- | -- | < 0.50 U | < 0.50 U | < 0.50 U | -- | < 0.50 U |
| | MW-6B | -- | -- | -- | **30** | **16** | **49** | **19** | **11** |
| | MW-6C | -- | -- | 0.47 J | 0.47 J | 1.1 | 1.8 | -- | 0.77 |
| | MW-6D | -- | -- | 1.2 | 0.48 J | 2.2 | 0.97 | -- | 0.32 J |
| | MW-7B | -- | -- | -- | -- | 2.4 | 2.9 | 2.3 | 2.1 |
| | MW-7C | -- | -- | 0.21 J | 0.30 J | 0.35 J | 0.28 J | -- | 0.21 J |
| | MW-8B | -- | -- | 1.2 | 1.2 | 1.3 | 2.2 | -- | 1.7 |
| | MW-9B | -- | -- | -- | 1.4 | 1.4 | 1.8 | -- | 1.5 |
| | MW-9C | -- | -- | 1.2 | 0.83 | 0.85 | 2.5 | 0.97 | -- |
| | PW-1B | -- | -- | 2.7 | 3.1 | 3.2 | 0.45 J | -- | 2.7 |
| TCE Source Wells | AMW-12A | **11** | **12** | **6.6** | **5.6** | **9.1** | -- | -- | -- |
| | AMW-13A | -- | -- | < 0.50 U | < 0.50 U | 0.37 J | 0.12 J | -- | < 0.50 U |
| | AMW-19A | -- | -- | 1.6 | 1.2 | 0.71 | 1.5 | -- | 2.3 |
| | AMW-1A | 4.8 | **6.2** | **5.3** | **15** | **5.1** | -- | -- | 3.8 |
| | AMW-1B | -- | -- | -- | 0.15 J | 0.23 J | 0.18 J | -- | 0.14 J |
| | AMW-1C | -- | -- | -- | < 0.50 U | 0.14 J | < 0.50 U | -- | < 0.50 U |
| | AMW-26 | -- | -- | 2.9 | 2.9 | 1.5 | 1.5 | -- | 1.6 |
| | AMW-2A | **6.3** | **54** | **52** | **47** | **7.2** | -- | -- | **47** |
| | AMW-2B | -- | -- | -- | 0.23 J | 0.28 J | 0.14 J | -- | 0.14 J |
| | AMW-3A | -- | -- | 0.80 | -- | 0.53 | -- | -- | 0.78 |
| | AMW-4A | < 0.50 U | -- | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | -- | < 0.50 U |
| | AMW-52A | -- | -- | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | -- | < 0.50 U |
| | AMW-53A | **28** | **9.3** | **22** | **18** | **9.1** | -- | -- | **7.7** |
| | AMW-56A | -- | -- | -- | -- | -- | -- | -- | 3.5 |
| | MW-1A | 0.41 J | 0.24 J | 0.44 J | 0.32 J | 0.52 | 0.45 J | -- | 0.13 J |
| | MW-1B | < 0.50 U | -- | < 0.50 U | < 0.50 U | < 0.50 U | -- | -- | < 0.50 U |
| | MW-1C | -- | -- | 0.24 J | < 0.50 U | < 0.50 U | < 0.50 U | -- | < 0.50 U |
| TCE Upgradient Wells (On BOC Property) | AMW-8A | -- | -- | -- | 0.57 | 0.25 J | 0.61 | -- | 0.78 |
| Troutdale Wells | AMW-24 | -- | -- | -- | 4.9 | **5.2** | -- | 4.9 | 4.3 |
| | Bennett | 1.0 | -- | 2.5 | -- | -- | 0.75 | -- | 1.9 |
| | MW-33 | 3.0 | 0.92 | 0.99 | 2.4 | < 0.50 U | -- | 1.9 | -- |

NOTES:

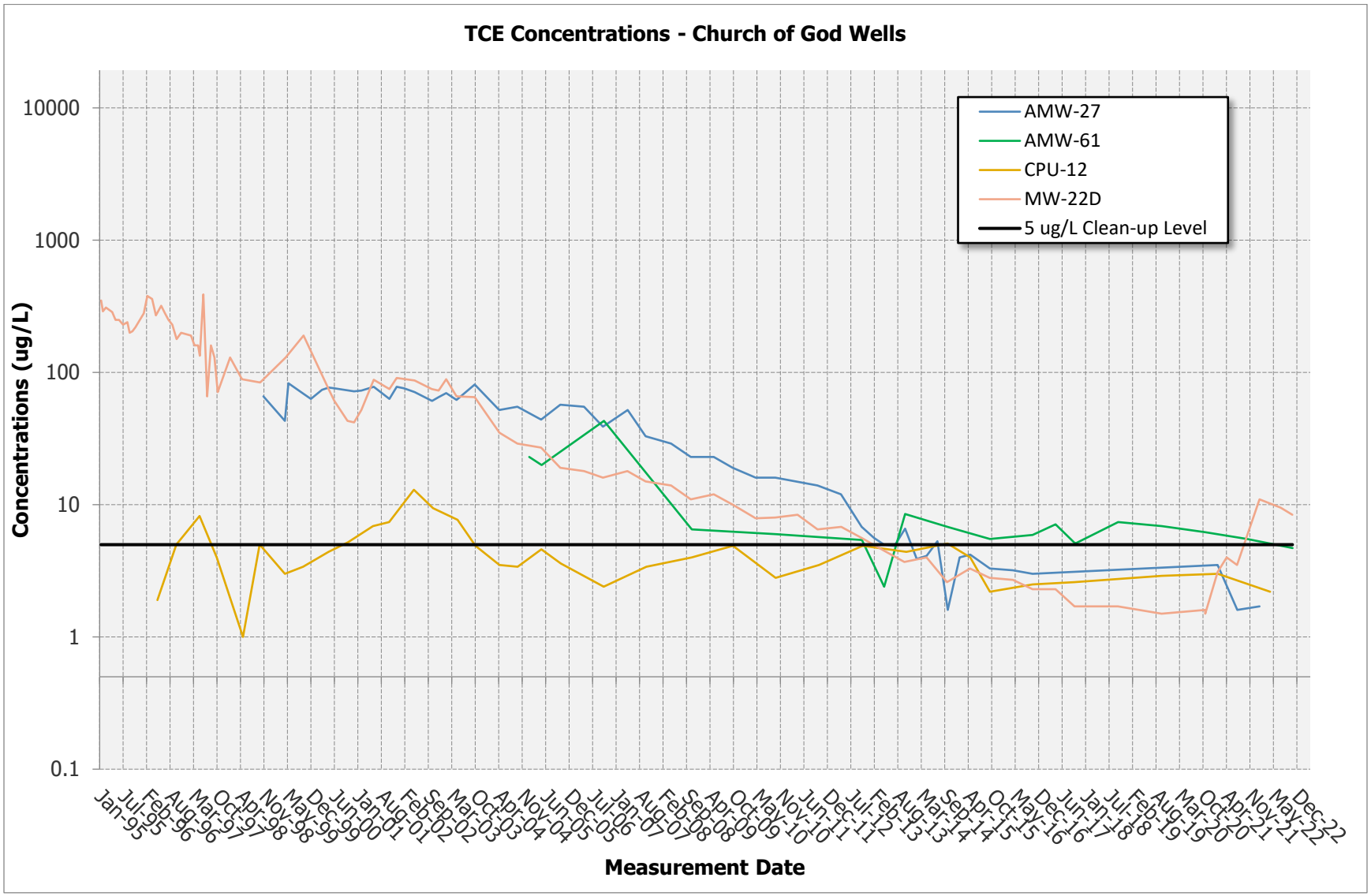
Results for historic TCE concentrations are presented in Appendices F-1 and F-2
Results are in micrograms per liter (µg/L).
Results are for total chromium, unless otherwise noted.
Results shown in **blue bold** exceed the cleanup level of 5 µg/L.
-- = Not Sampled
J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.
TCE = Trichloroethene.
U = Analyte not detected above the specified reporting limit.

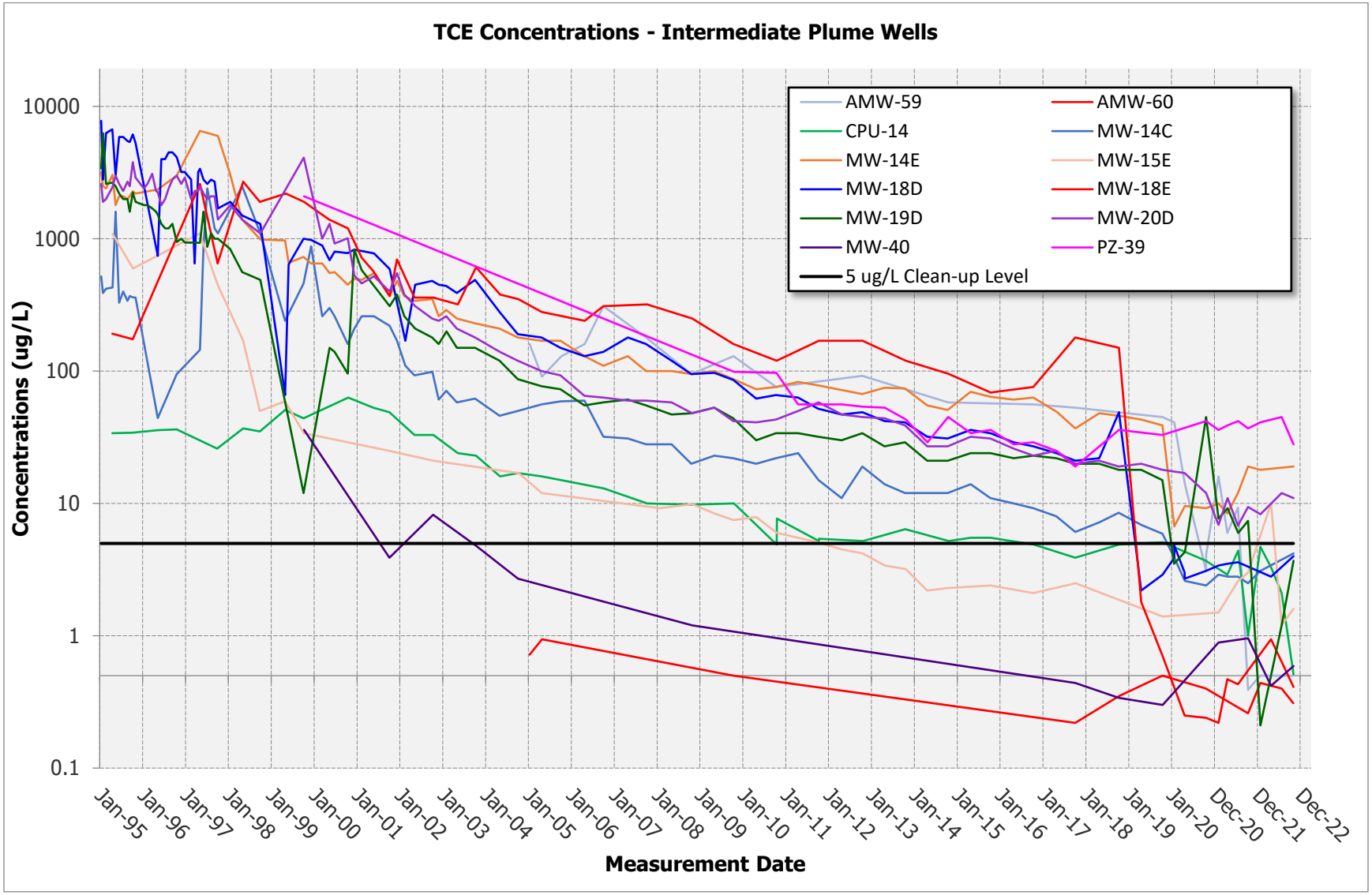
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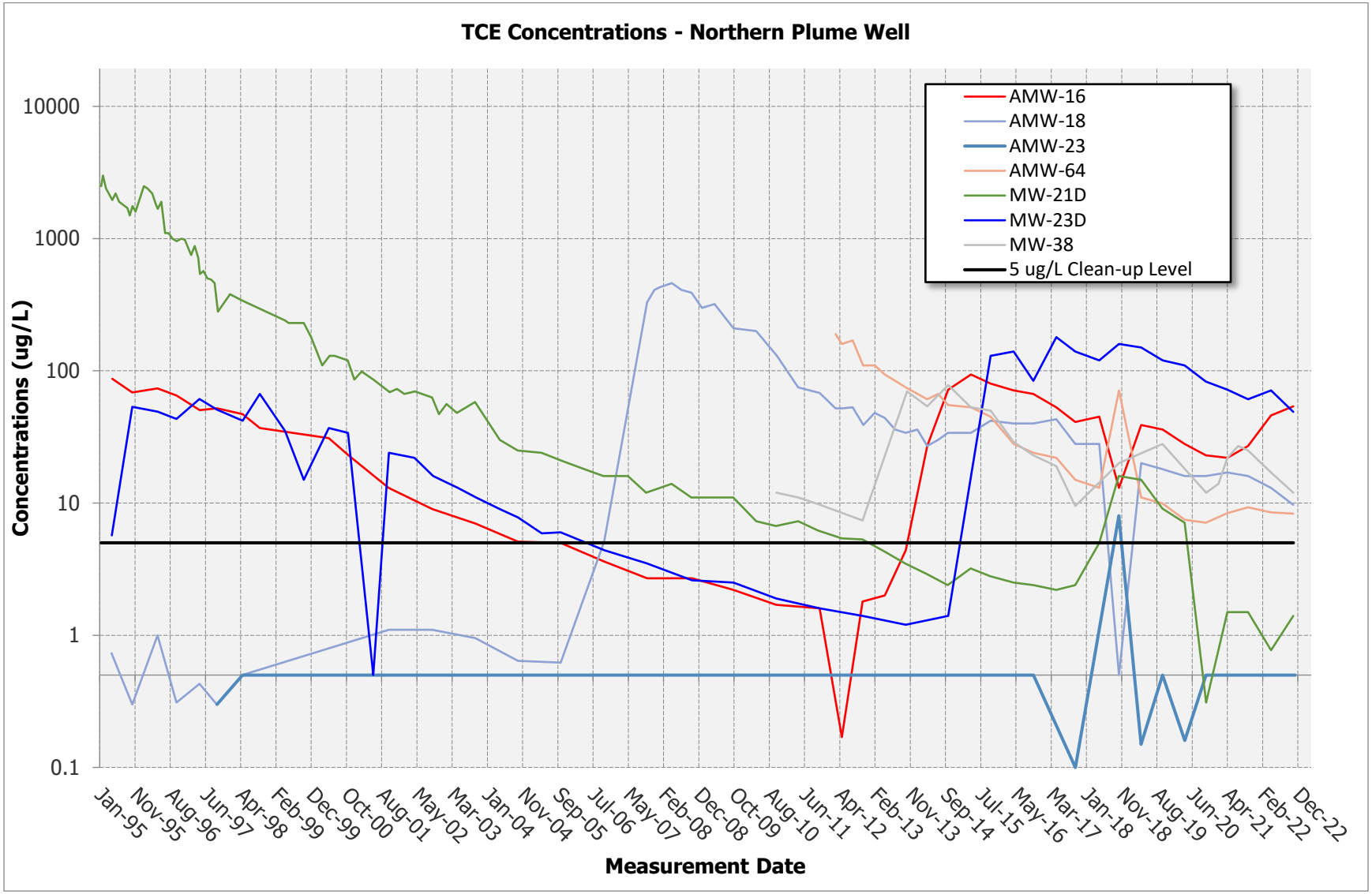
# TCE Concentration Trend Graphs –

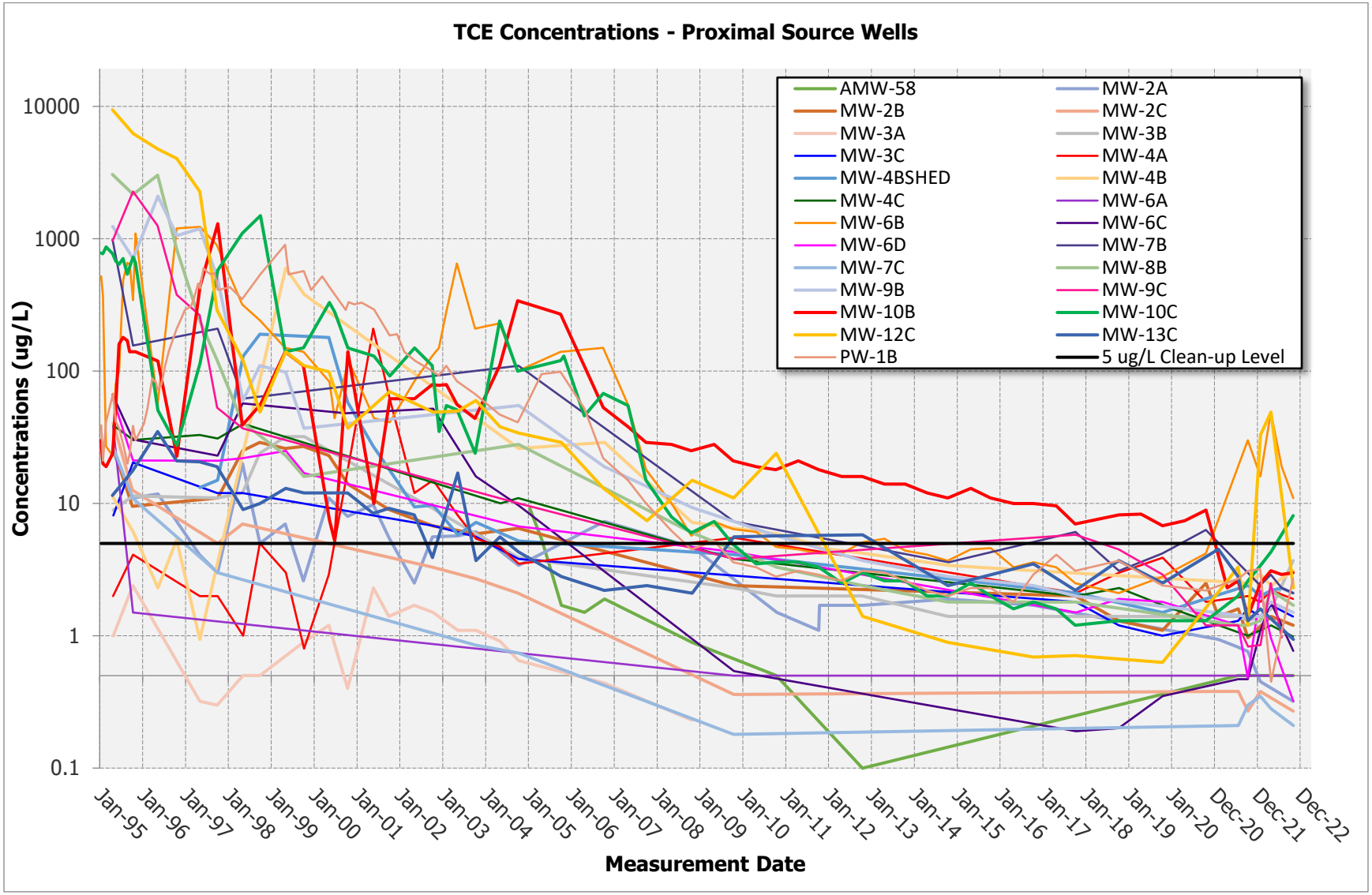
# By Well Grouping

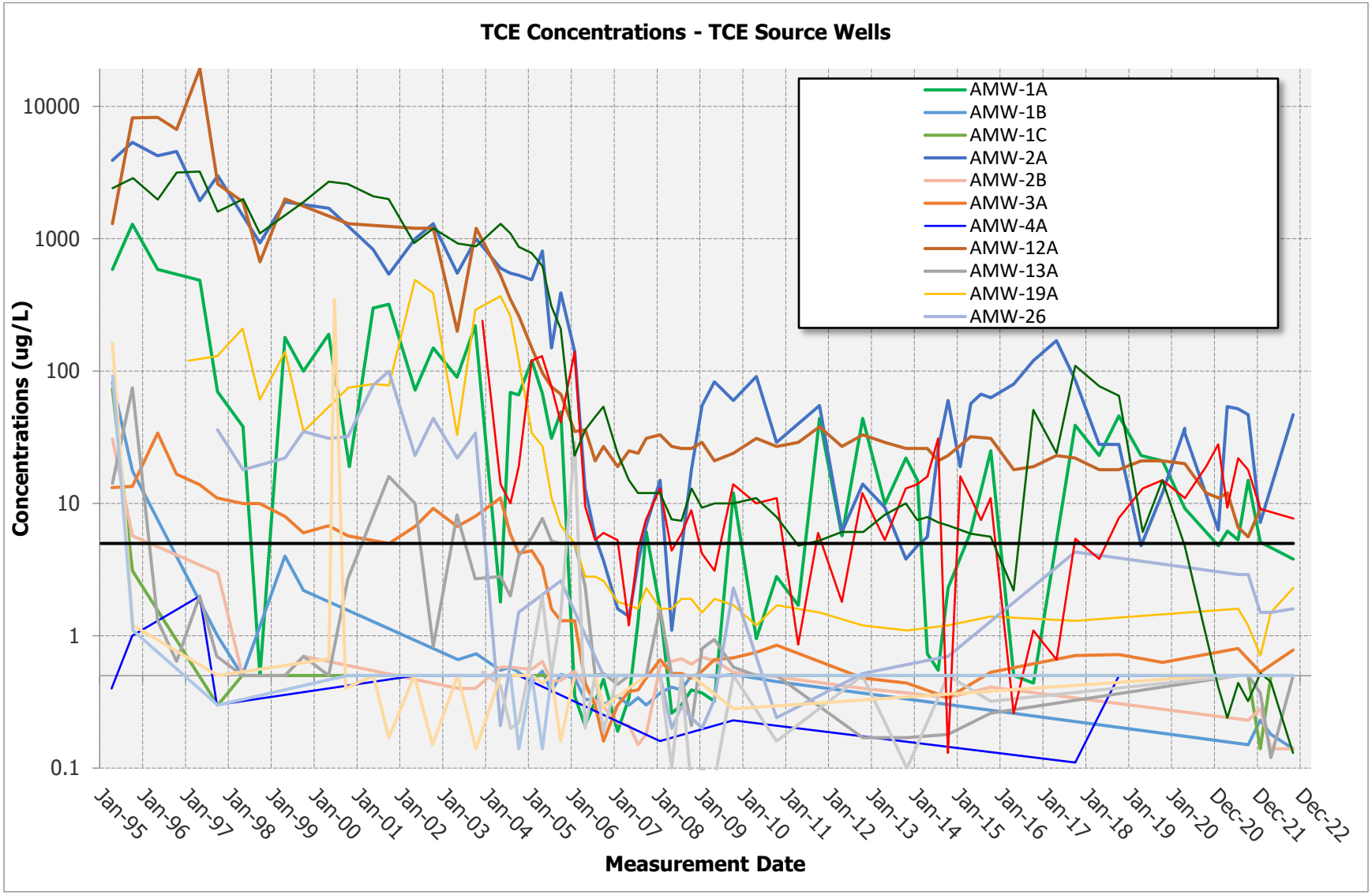
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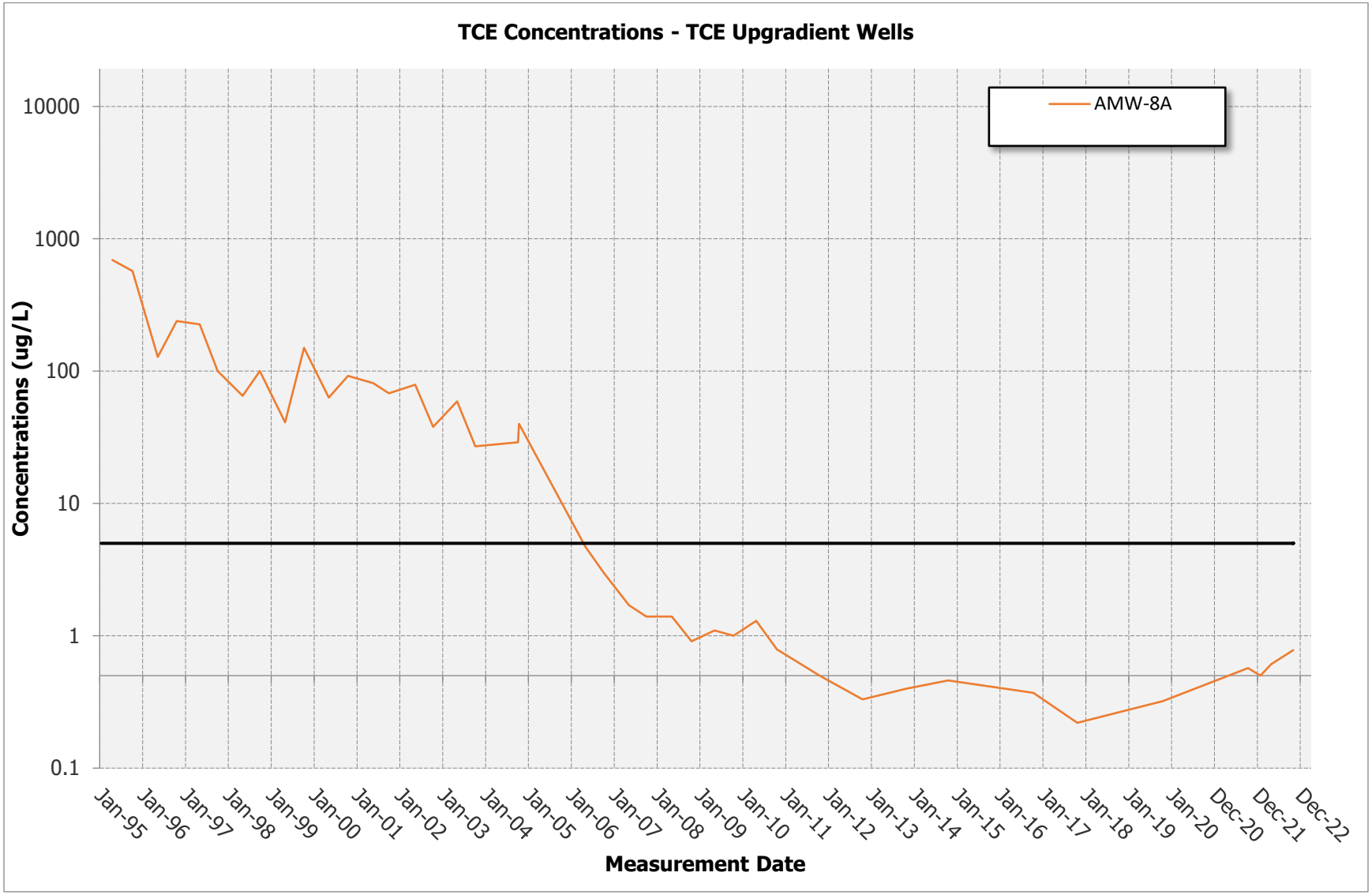

TCE Concentrations - Church of God Wells
Concentrations (ug/L)
10000
1000
100
10
1
0.1
AMW-27
AMW-61
CPU-12
MW-22D
5 ug/L Clean-up Level
Jan-95
Jul-95
Feb-96
Aug-96
Mar-97
Oct-97
Apr-98
Nov-98
May-99
Dec-99
Jun-00
Jan-01
Aug-01
Feb-02
Sep-02
Mar-03
Oct-03
Apr-04
Nov-04
Jun-05
Dec-05
Jul-06
Jan-07
Aug-07
Feb-08
Sep-08
Apr-09
Oct-09
May-10
Nov-10
Jun-11
Dec-11
Jul-12
Feb-13
Aug-13
Mar-14
Sep-14
Apr-15
Oct-15
May-16
Dec-16
Jun-17
Jan-18
Jul-18
Feb-19
Aug-19
Mar-20
Oct-20
Apr-21
Nov-21
May-22
Dec-22
Measurement Date

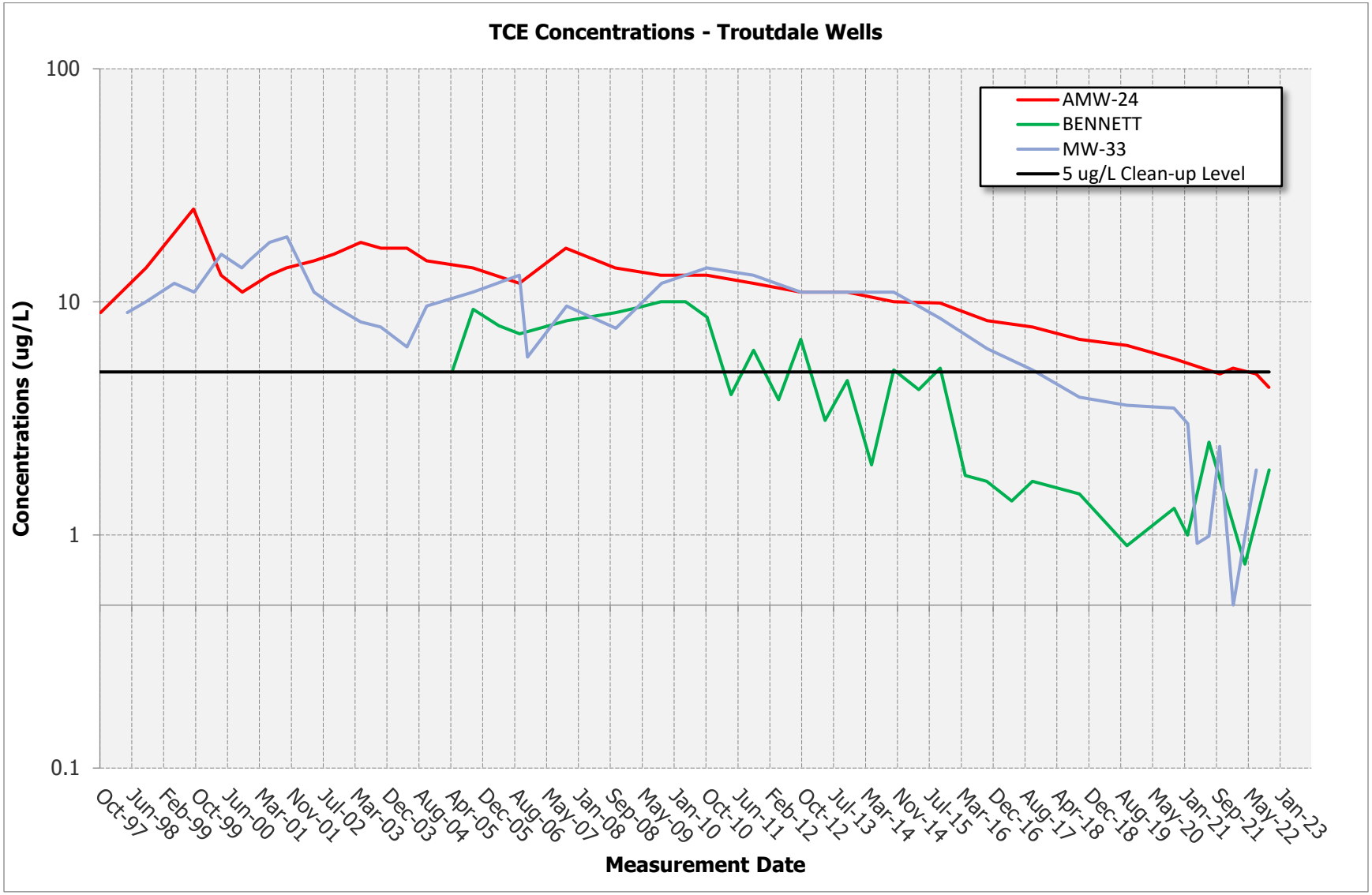

TCE Concentrations - Intermediate Plume Wells
Concentrations (ug/L)
10000
1000
100
10
1
0.1
AMW-59
AMW-60
CPU-14
MW-14C
MW-14E
MW-15E
MW-18D
MW-18E
MW-19D
MW-20D
MW-40
PZ-39
5 ug/L Clean-up Level
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Measurement Date


TCE Concentrations - Northern Plume Well
Concentrations (ug/L)
10000
1000
100
10
1
0.1
AMW-16
AMW-18
AMW-23
AMW-64
MW-21D
MW-23D
MW-38
5 ug/L Clean-up Level
Jan-95
Nov-95
Aug-96
Jun-97
Apr-98
Feb-99
Dec-99
Oct-00
Aug-01
May-02
Mar-03
Jan-04
Nov-04
Sep-05
Jul-06
May-07
Feb-08
Dec-08
Oct-09
Aug-10
Jun-11
Apr-12
Feb-13
Nov-13
Sep-14
Jul-15
May-16
Mar-17
Jan-18
Nov-18
Aug-19
Jun-20
Apr-21
Feb-22
Dec-22
Measurement Date


TCE Concentrations - Proximal Source Wells
Concentrations (ug/L)
10000
1000
100
10
1
0.1
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Measurement Date
AMW-58
MW-2A
MW-2B
MW-2C
MW-3A
MW-3B
MW-3C
MW-4A
MW-4BSHED
MW-4B
MW-4C
MW-6A
MW-6B
MW-6C
MW-6D
MW-7B
MW-7C
MW-8B
MW-9B
MW-9C
MW-10B
MW-10C
MW-12C
MW-13C
PW-1B
5 ug/L Clean-up Level


TCE Concentrations - TCE Source Wells
Concentrations (ug/L)
10000
1000
100
10
1
0.1
AMW-1A
AMW-1B
AMW-1C
AMW-2A
AMW-2B
AMW-3A
AMW-4A
AMW-12A
AMW-13A
AMW-19A
AMW-26
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Measurement Date


TCE Concentrations - TCE Upgradient Wells
AMW-8A
Concentrations (ug/L)
10000
1000
100
10
1
0.1
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Dec-20
Dec-21
Dec-22
Measurement Date


TCE Concentrations - Troutdale Wells
100
10
1
0.1
Concentrations (ug/L)
AMW-24
BENNETT
MW-33
5 ug/L Clean-up Level
Oct-97
Jun-98
Feb-99
Oct-99
Jun-00
Mar-01
Nov-01
Jul-02
Mar-03
Dec-03
Aug-04
Apr-05
Dec-05
Aug-06
May-07
Jan-08
Sep-08
May-09
Jan-10
Oct-10
Jun-11
Feb-12
Oct-12
Jul-13
Mar-14
Nov-14
Jul-15
Mar-16
Dec-16
Aug-17
Apr-18
Dec-18
Aug-19
May-20
Jan-21
Sep-21
May-22
Jan-23
Measurement Date

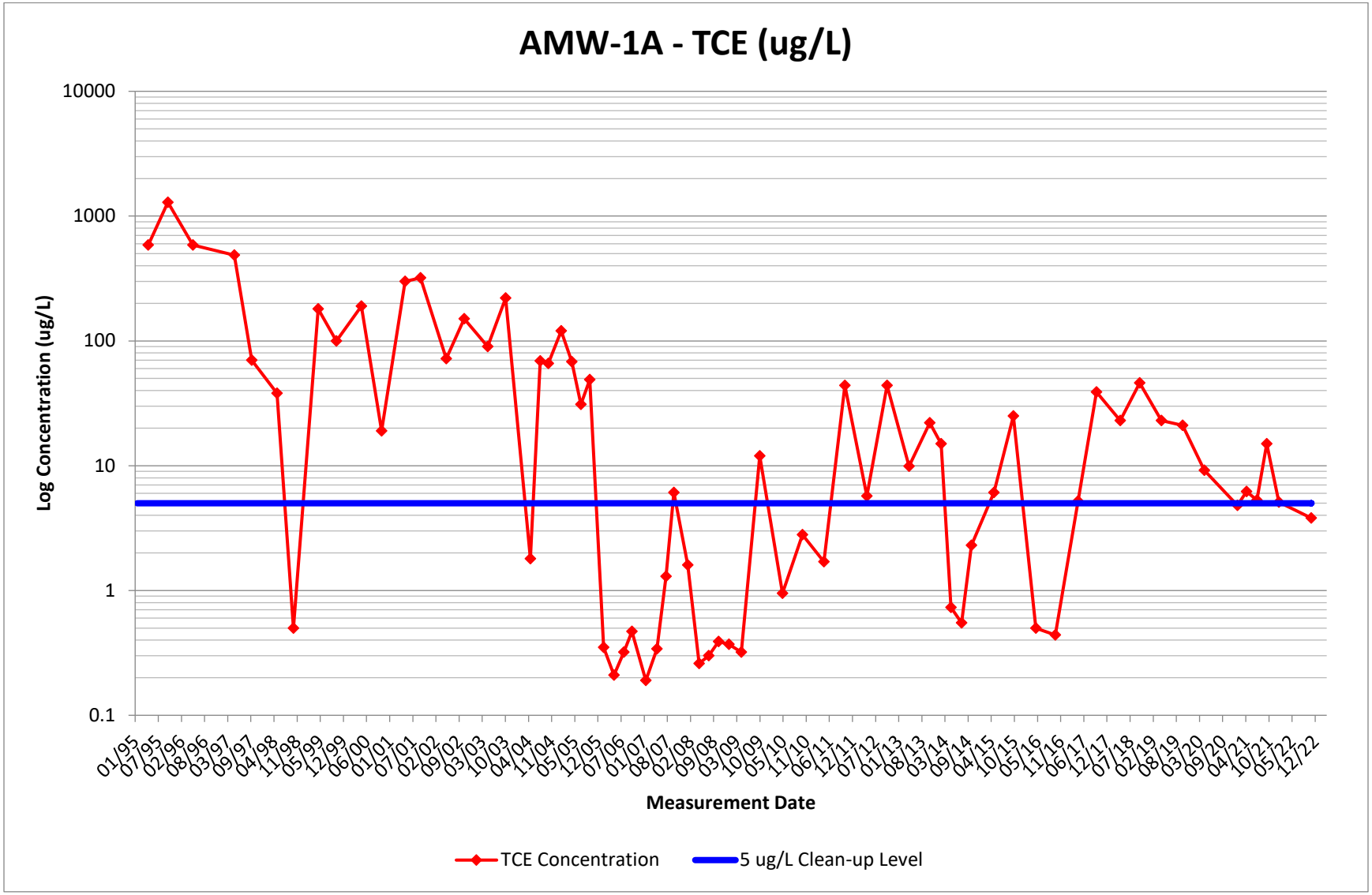
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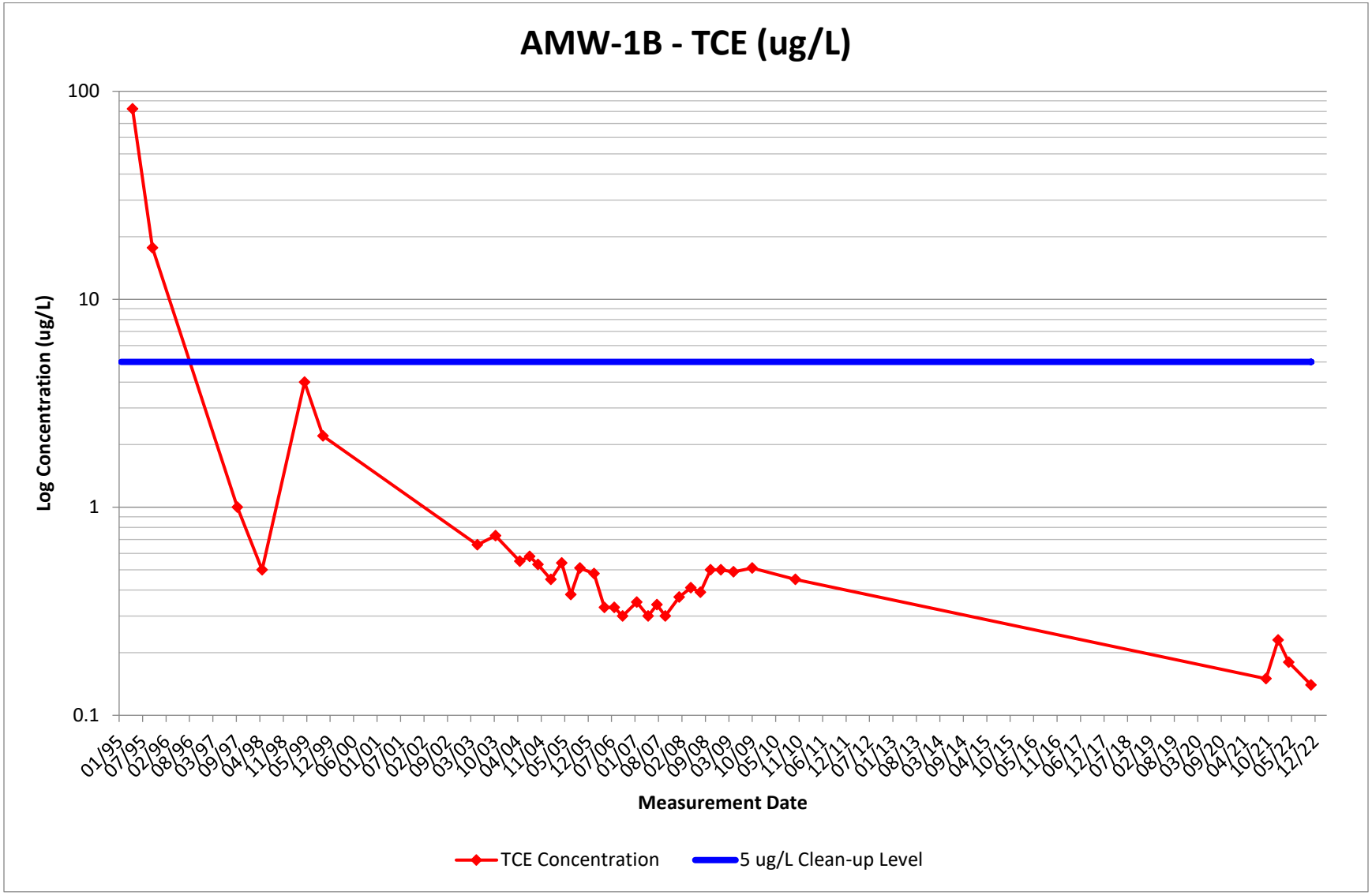
# Appendix F-3

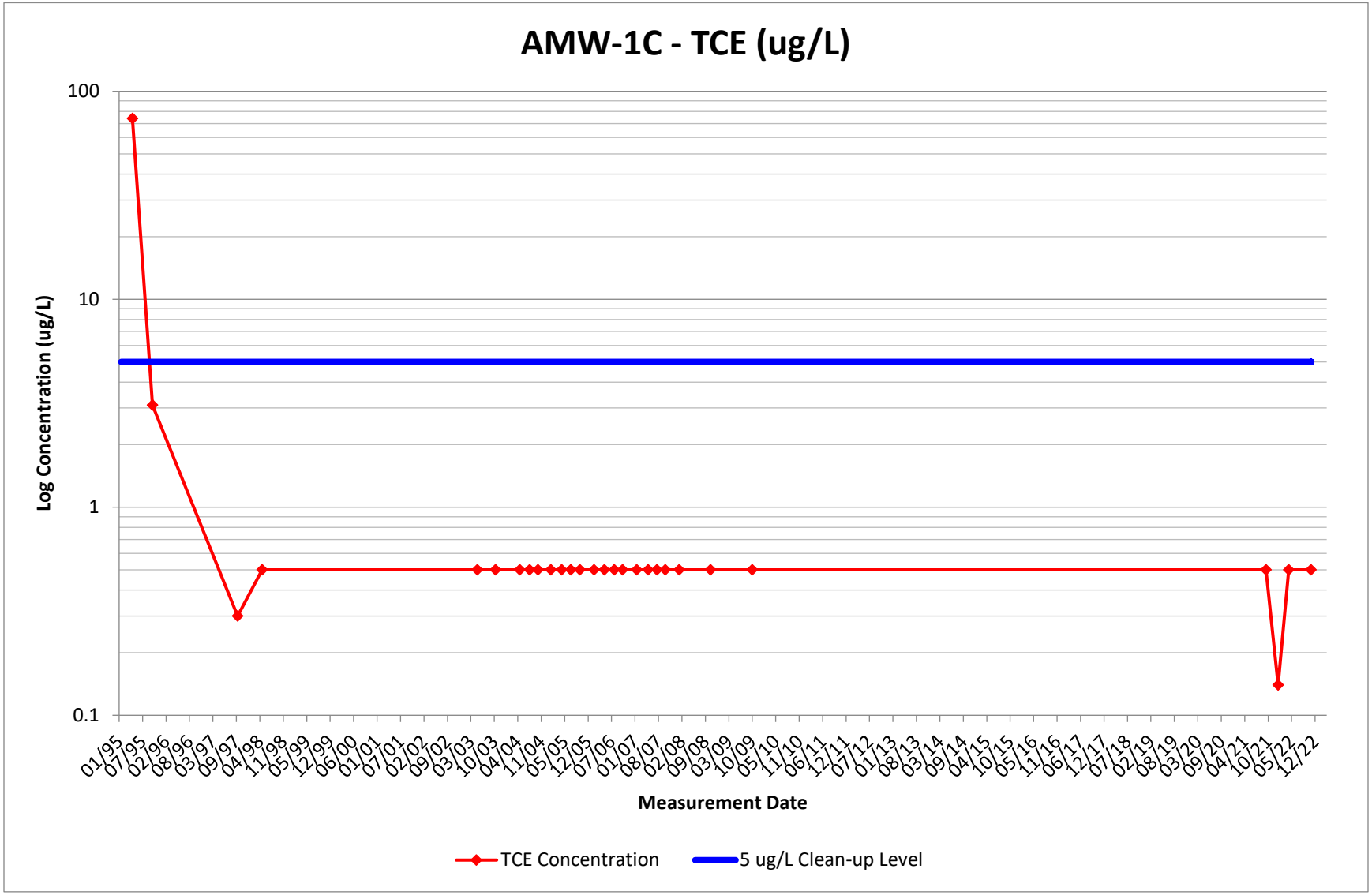
# TCE Concentration Trend Graphs –

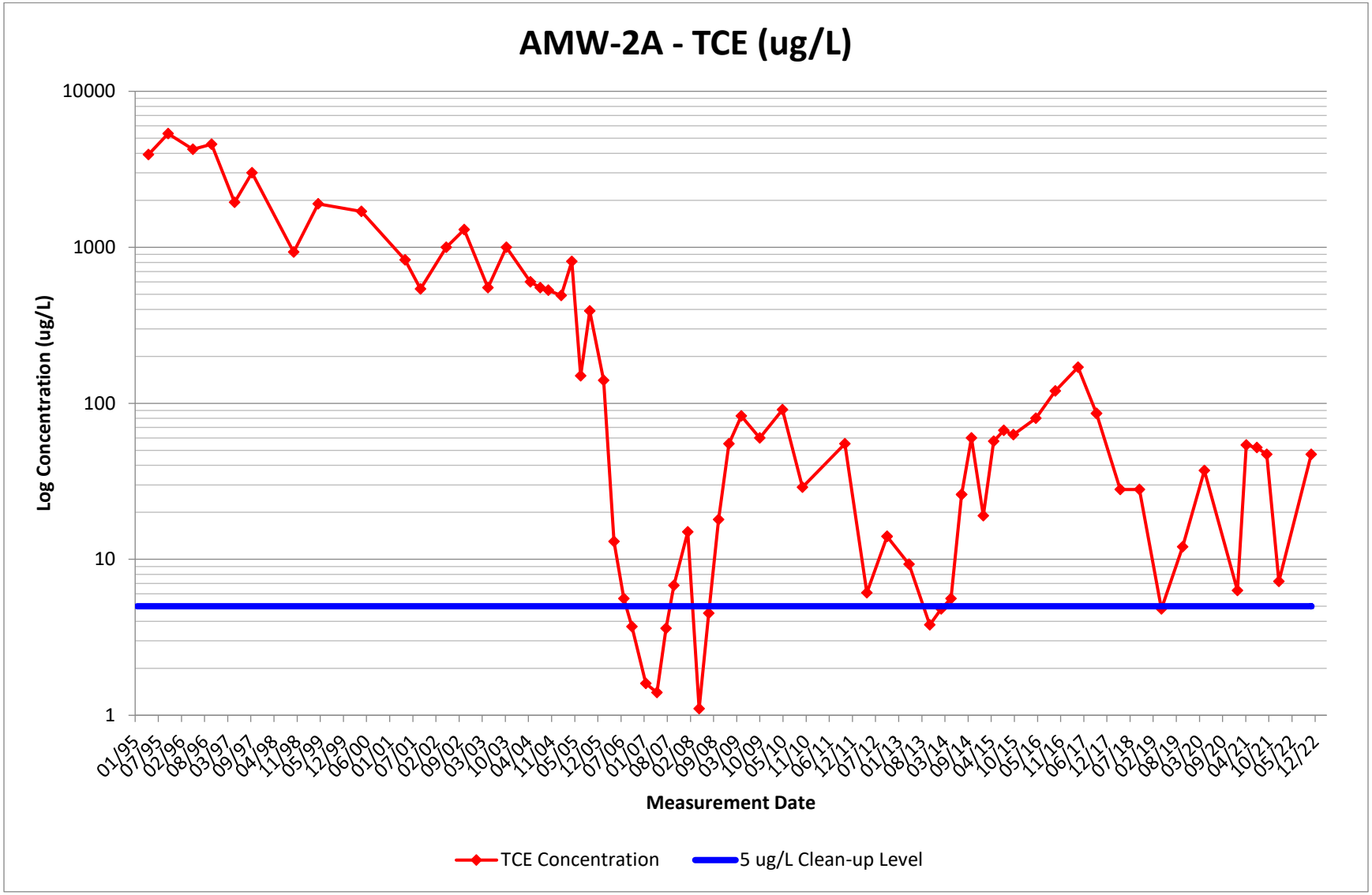
# Individual Wells

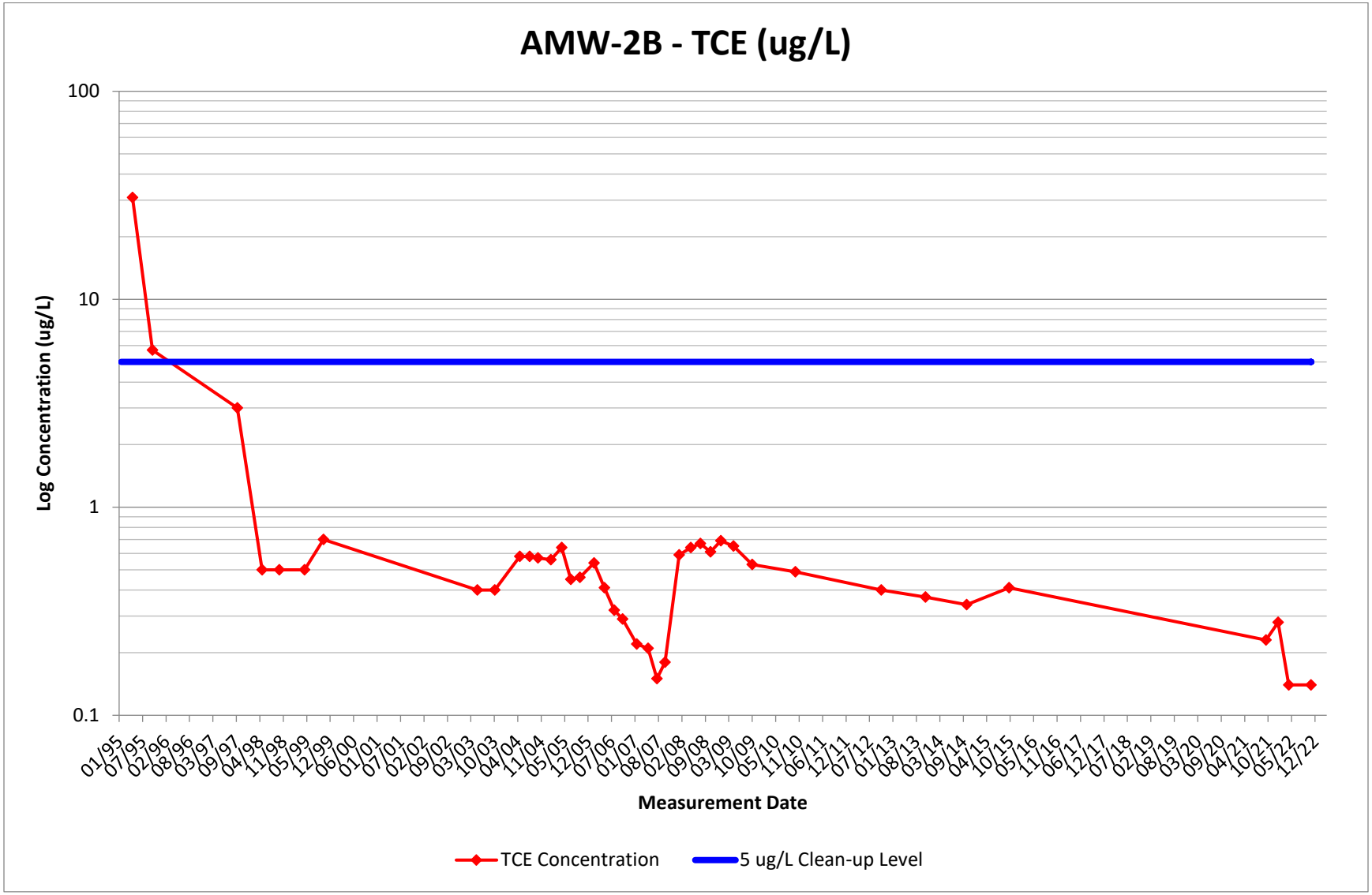
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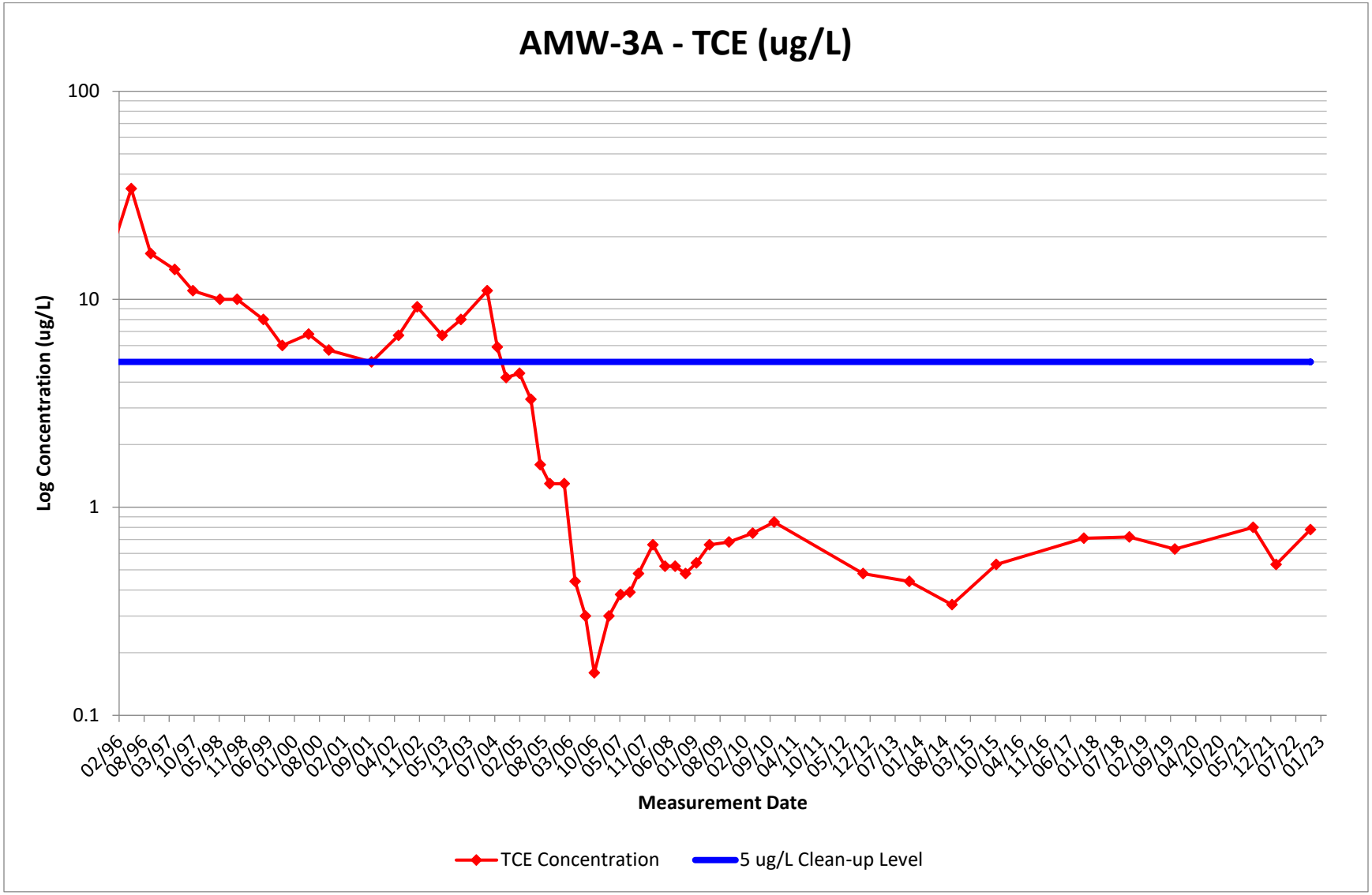

AMW-1A - TCE (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
0.1
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
11/04
05/05
12/05
07/06
01/07
08/07
02/08
09/08
03/09
10/09
05/10
11/10
06/11
12/11
07/12
01/13
08/13
03/14
09/14
04/15
10/15
05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

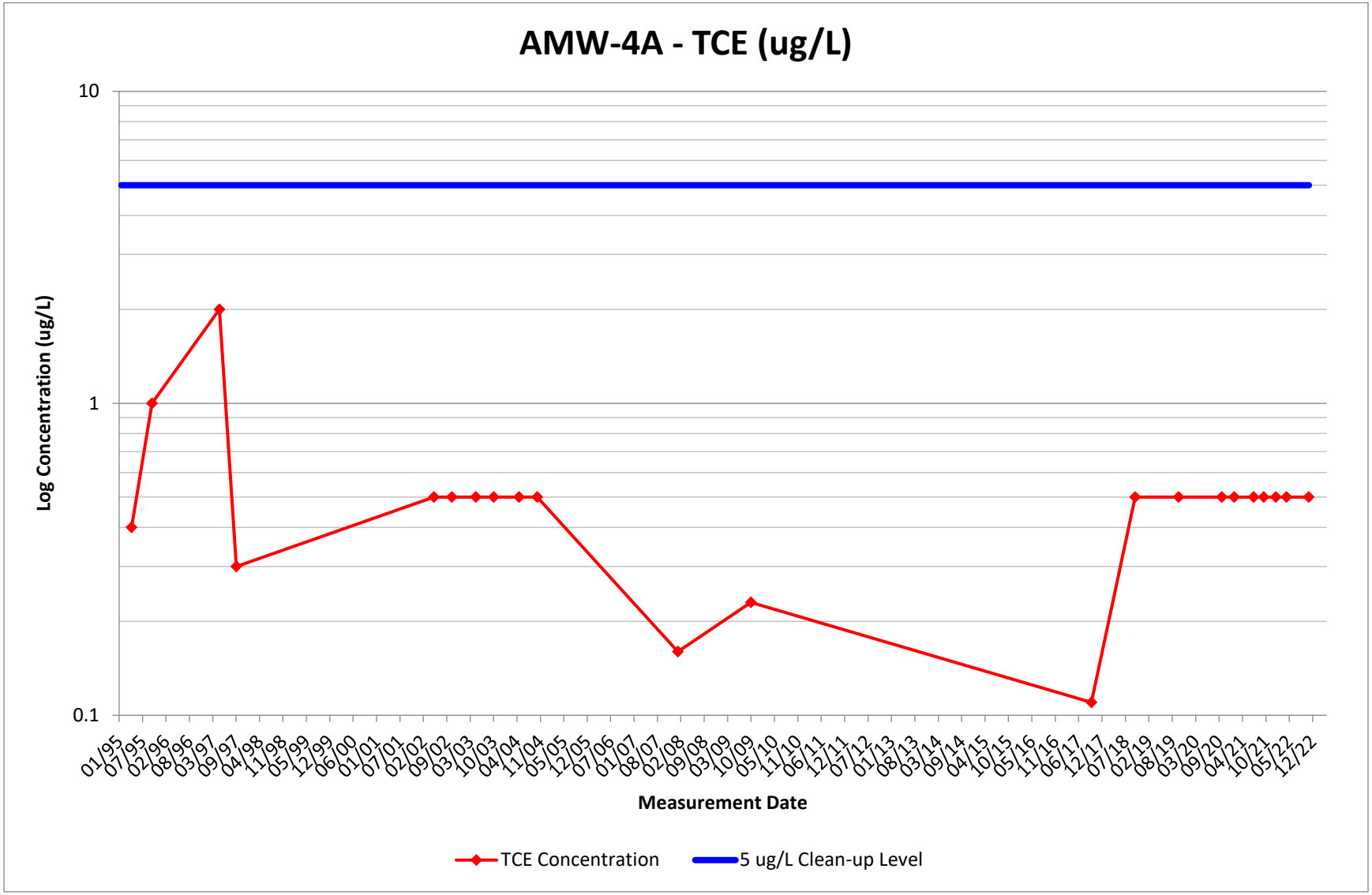

AMW-1B - TCE (ug/L)
Log Concentration (ug/L)
100
10
1
0.1
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
11/04
05/05
12/05
07/06
01/07
08/07
02/08
09/08
03/09
10/09
05/10
11/10
06/11
12/11
07/12
01/13
08/13
03/14
09/14
04/15
10/15
05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

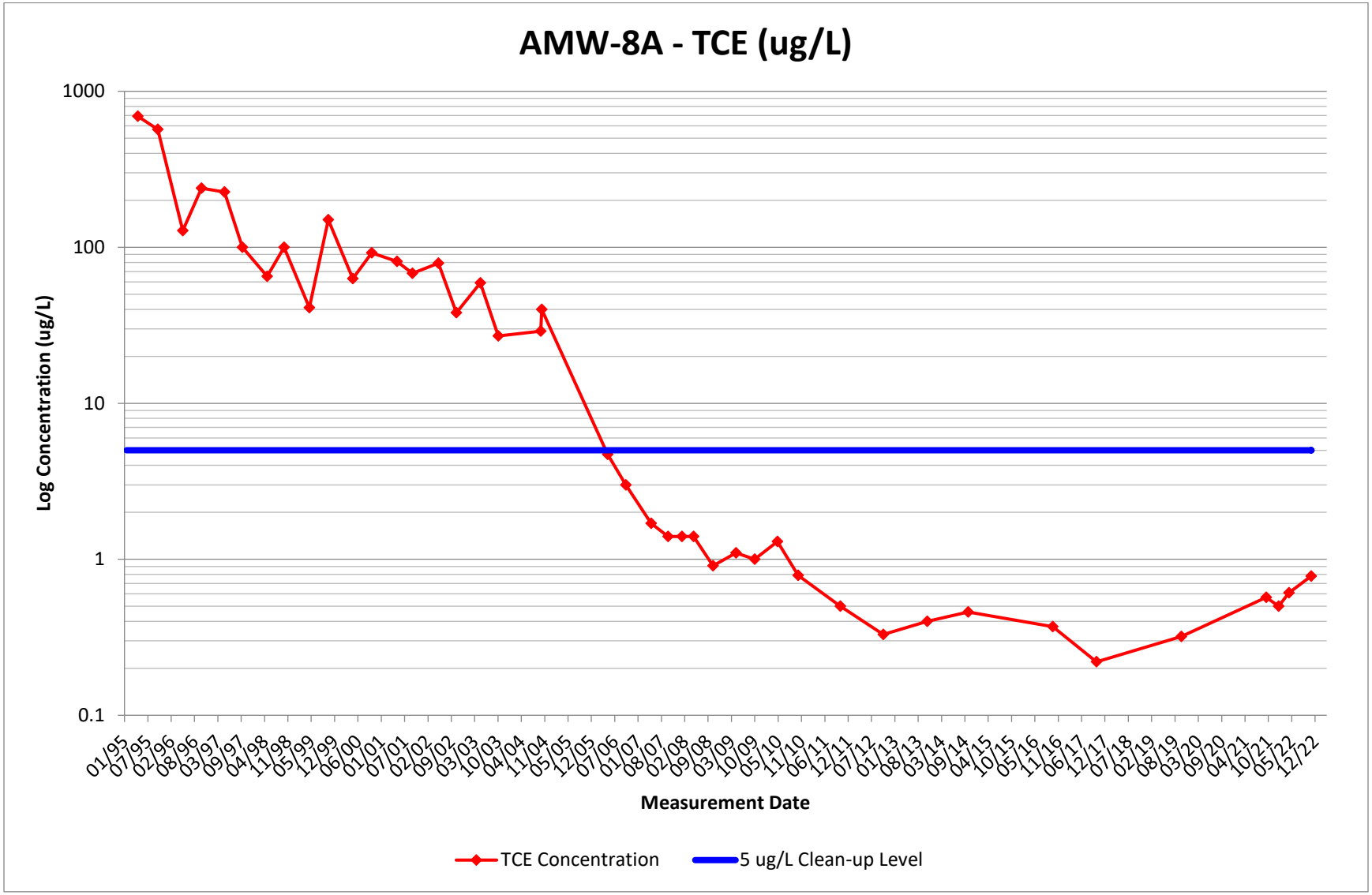

AMW-1C - TCE (ug/L)
100
10
1
0.1
Log Concentration (ug/L)
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
11/04
05/05
12/05
07/06
01/07
08/07
02/08
09/08
03/09
10/09
05/10
11/10
06/11
12/11
07/12
01/13
08/13
03/14
09/14
04/15
10/15
05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

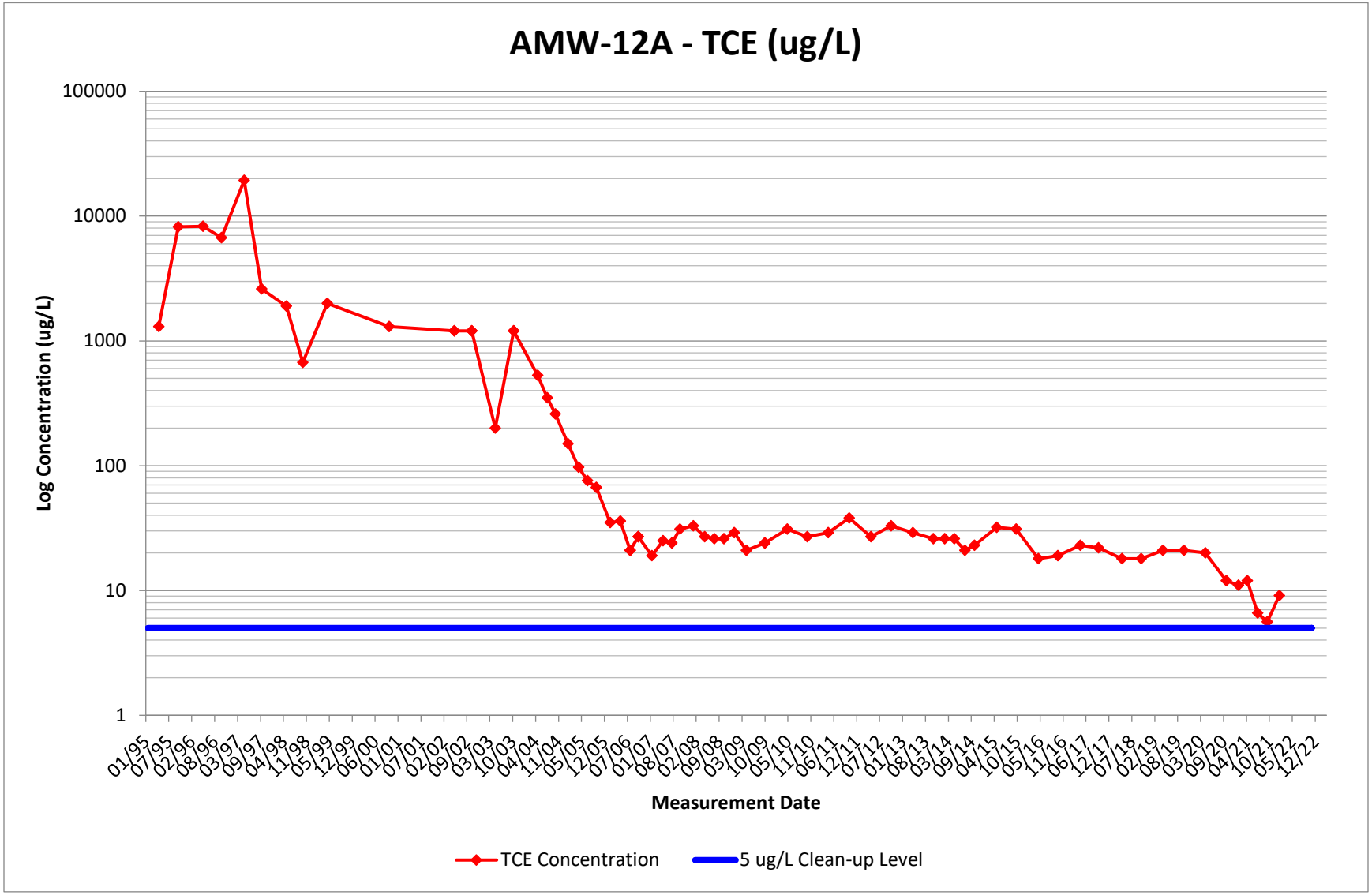

AMW-2A - TCE (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
11/04
05/05
12/05
07/06
01/07
08/07
02/08
09/08
03/09
10/09
05/10
11/10
06/11
12/11
07/12
01/13
08/13
03/14
09/14
04/15
10/15
05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

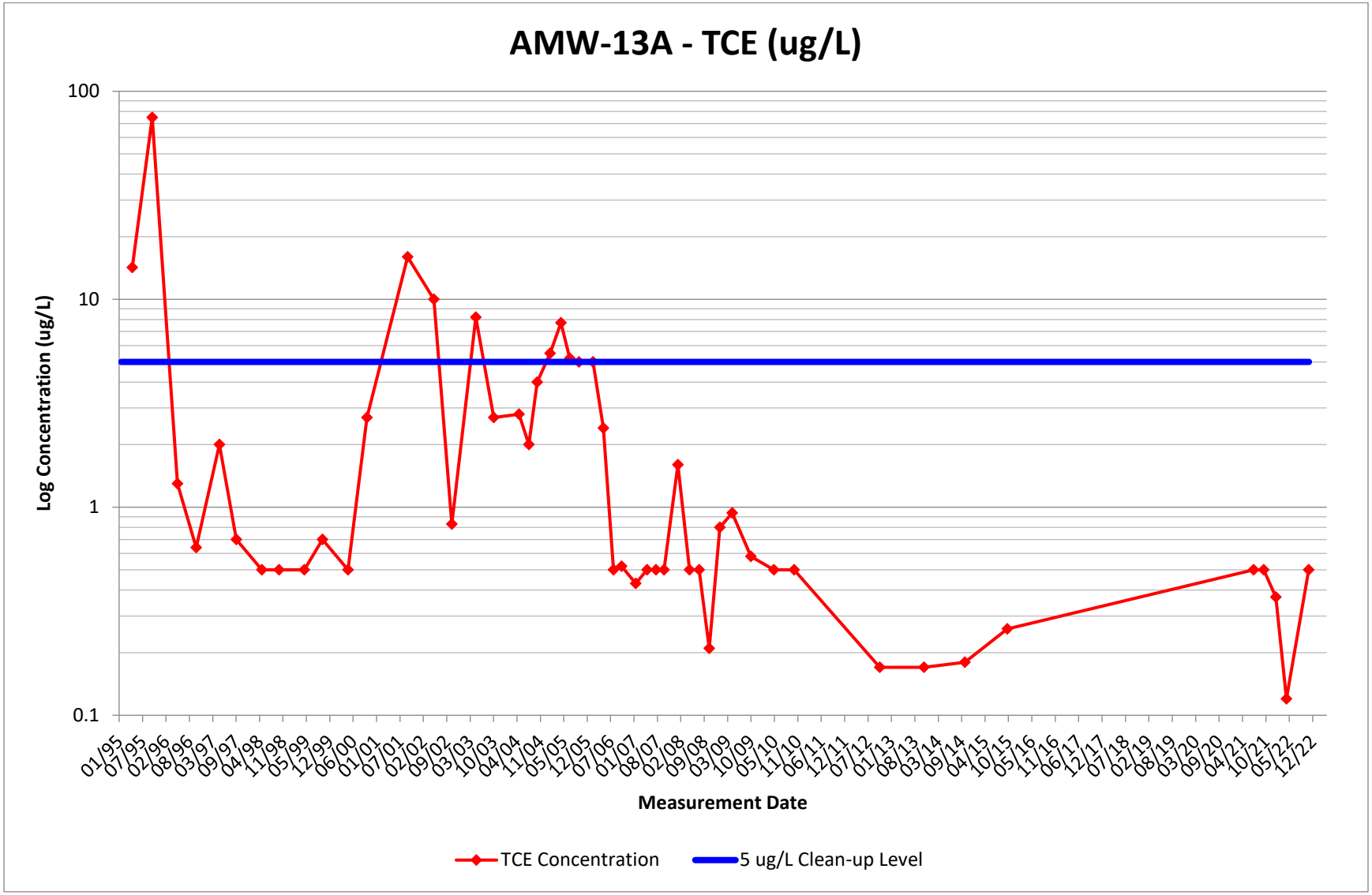

AMW-2B - TCE (ug/L)
Log Concentration (ug/L)
100
10
1
0.1
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
11/04
05/05
12/05
07/06
01/07
08/07
02/08
09/08
03/09
10/09
05/10
11/10
06/11
12/11
07/12
01/13
08/13
03/14
09/14
04/15
10/15
05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

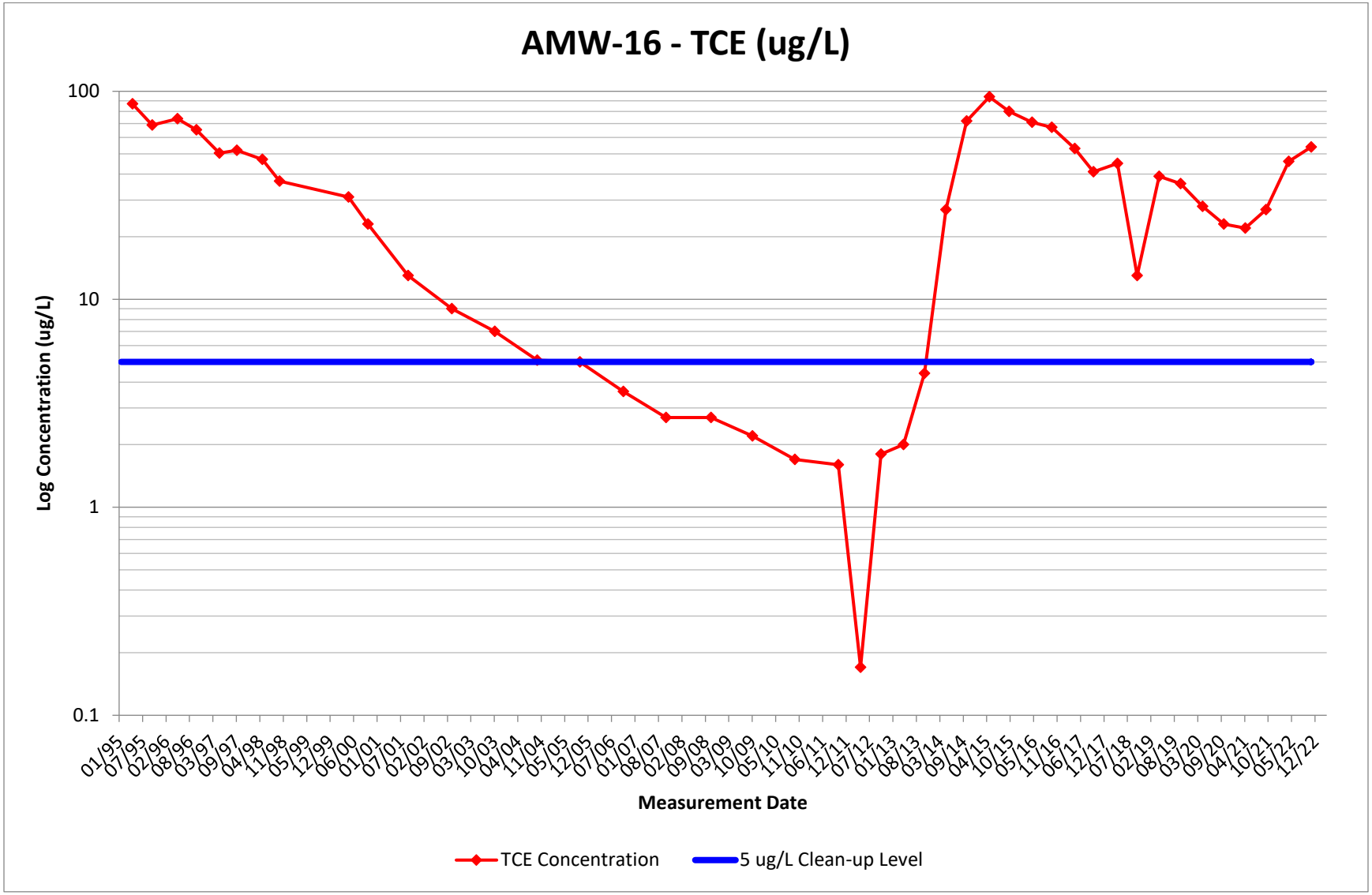

AMW-3A - TCE (ug/L)
Log Concentration (ug/L)
100
10
1
0.1
02/96
08/96
03/97
10/97
05/98
11/98
06/99
01/00
08/00
02/01
09/01
04/02
11/02
05/03
12/03
07/04
02/05
08/05
03/06
10/06
05/07
11/07
06/08
01/09
08/09
02/10
09/10
04/11
10/11
05/12
12/12
07/13
01/14
08/14
03/15
10/15
04/16
11/16
06/17
01/18
07/18
02/19
09/19
04/20
10/20
05/21
12/21
07/22
01/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

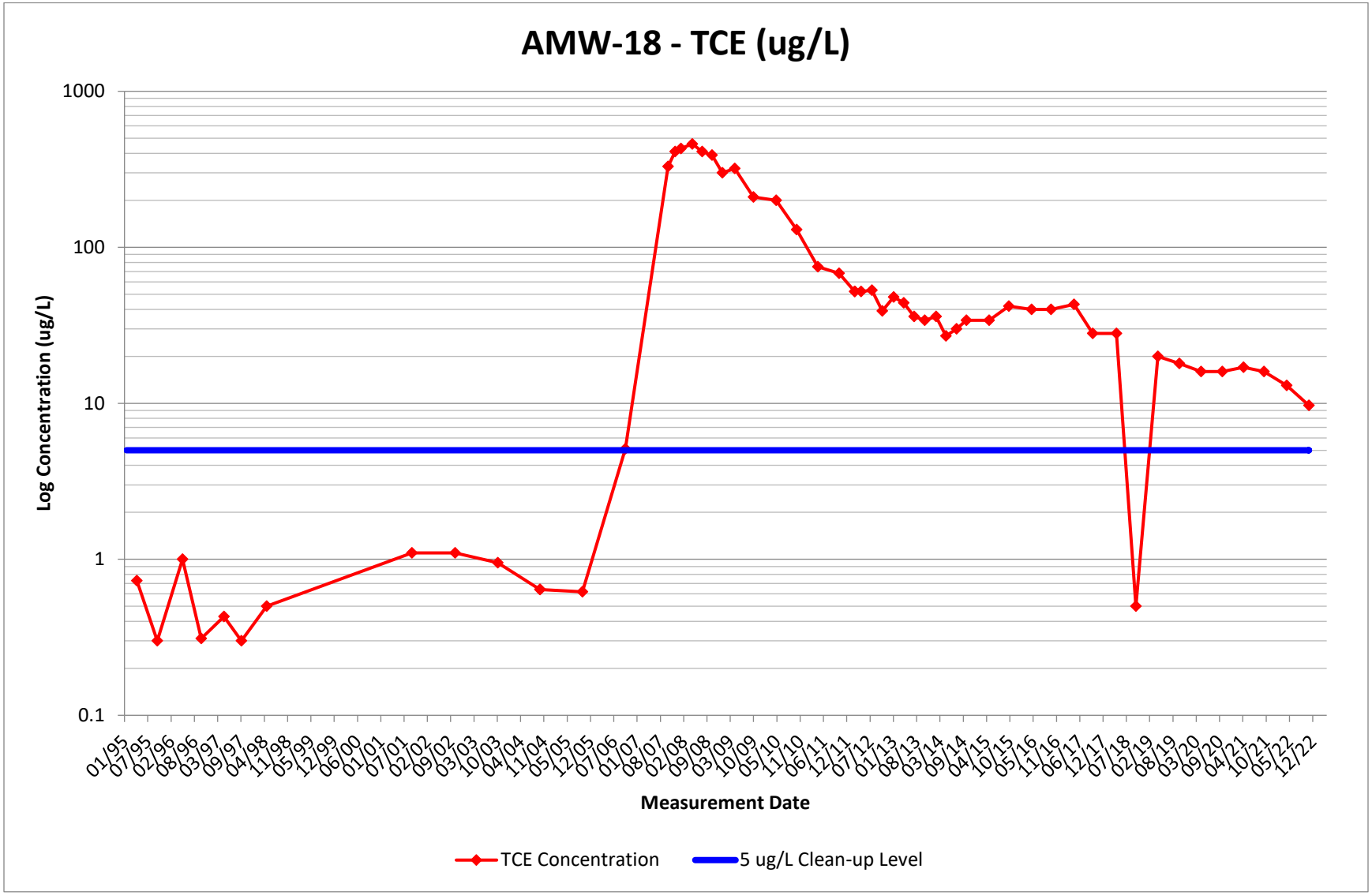

AMW-4A - TCE (ug/L)
10
1
0.1
Log Concentration (ug/L)
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
11/04
05/05
12/05
07/06
01/07
08/07
02/08
09/08
03/09
10/09
05/10
11/10
06/11
12/11
07/12
01/13
08/13
03/14
09/14
04/15
10/15
05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

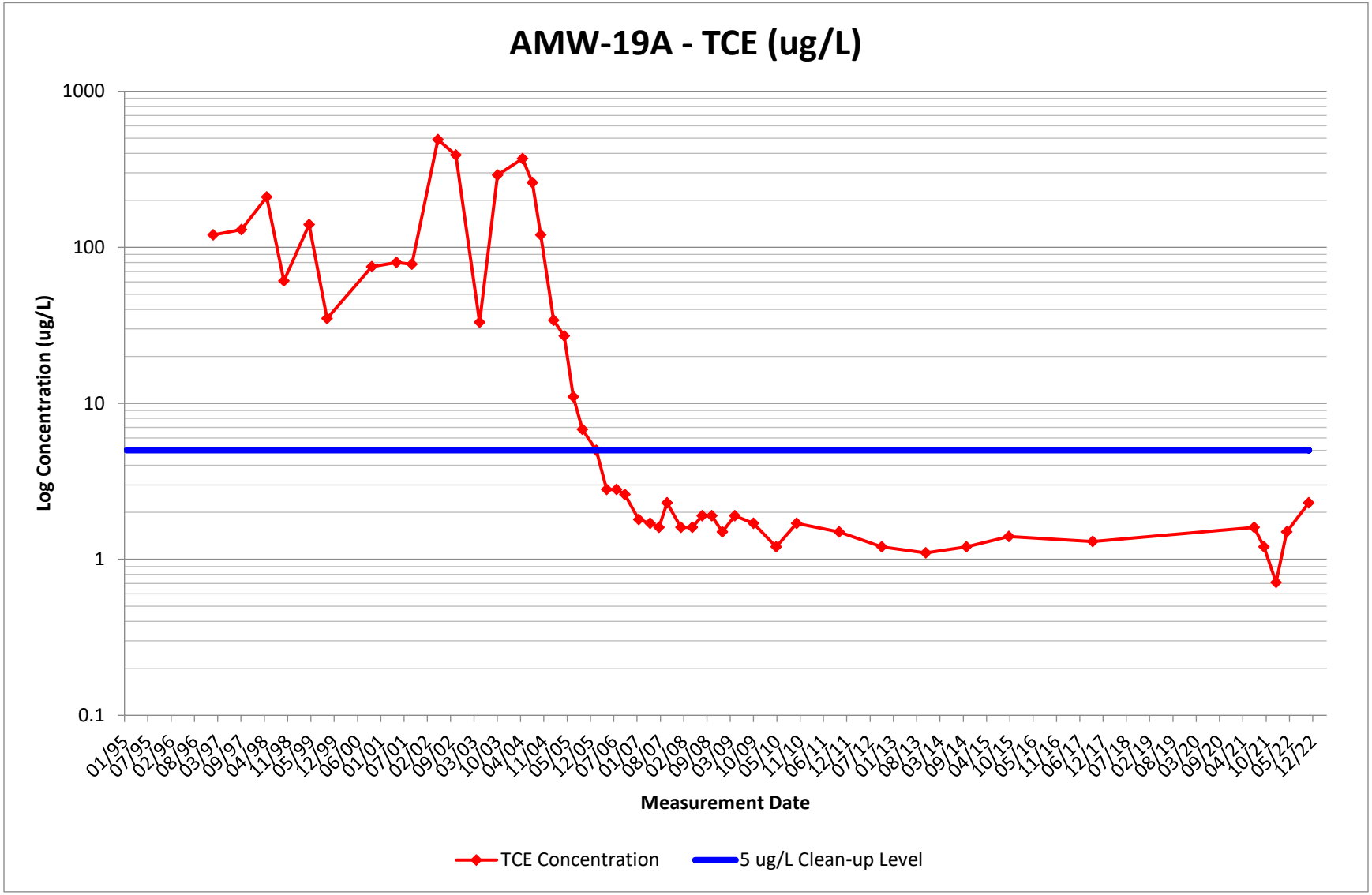

AMW-8A - TCE (ug/L)
Log Concentration (ug/L)
1000
100
10
1
0.1
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
11/04
05/05
12/05
07/06
01/07
08/07
02/08
09/08
03/09
10/09
05/10
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06/11
12/11
07/12
01/13
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03/14
09/14
04/15
10/15
05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

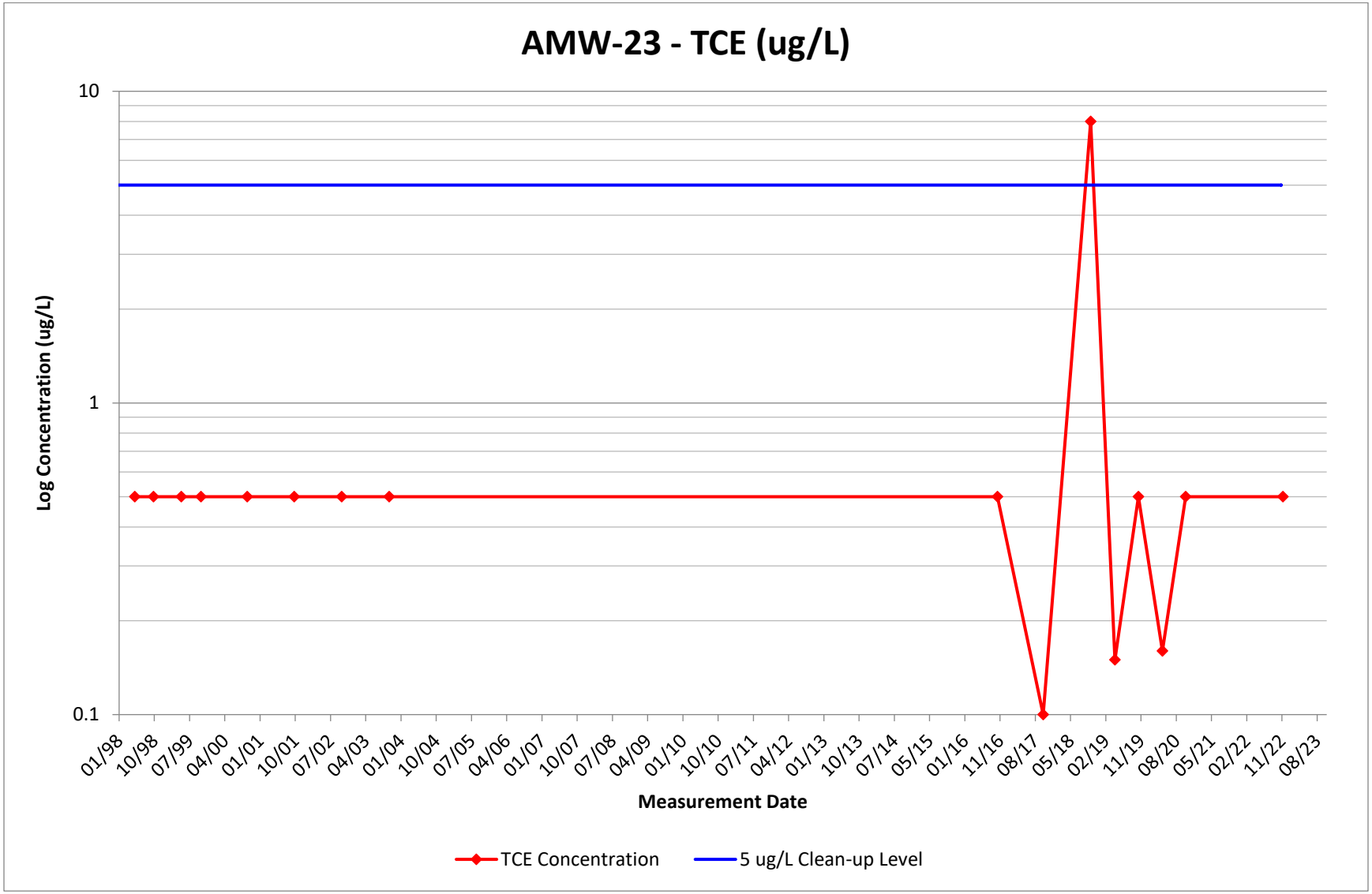

AMW-12A - TCE (ug/L)
Log Concentration (ug/L)
100000
10000
1000
100
10
1
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

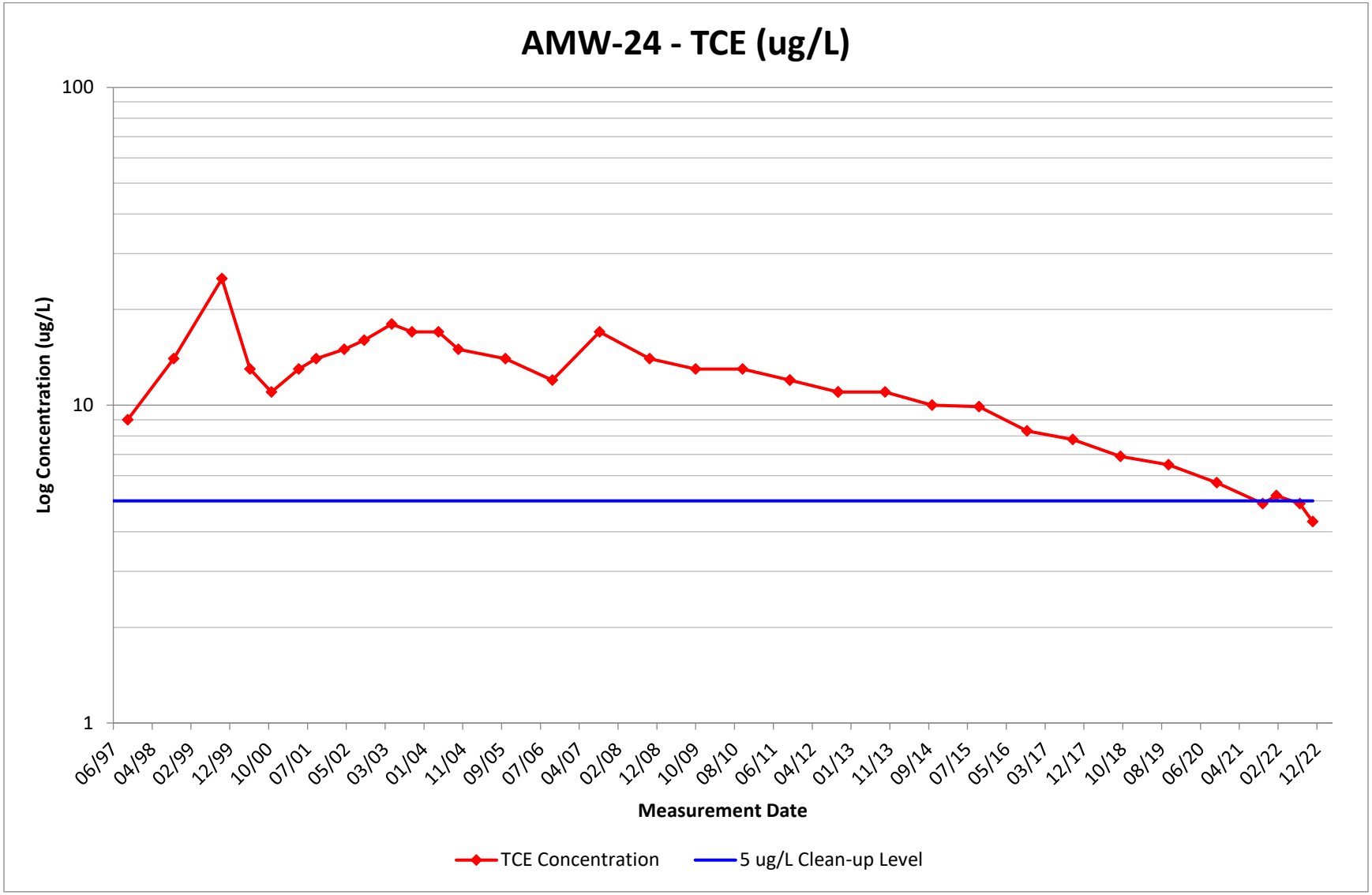

AMW-13A - TCE (ug/L)
Log Concentration (ug/L)
100
10
1
0.1
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
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05/05
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02/08
09/08
03/09
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05/10
11/10
06/11
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09/14
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05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

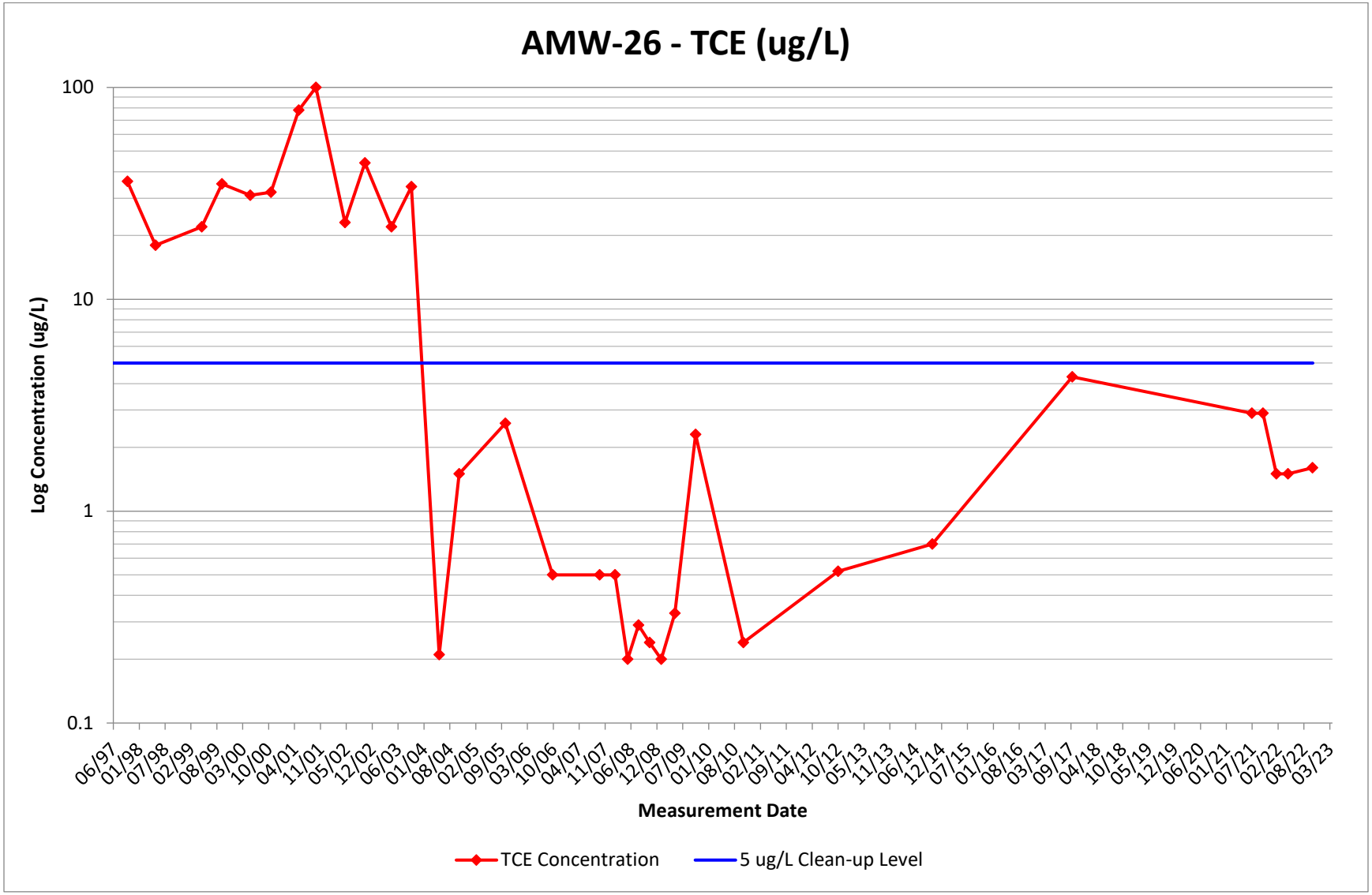

AMW-16 - TCE (ug/L)
Log Concentration (ug/L)
100
10
1
0.1
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
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03/09
10/09
05/10
11/10
06/11
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07/12
01/13
08/13
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10/15
05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

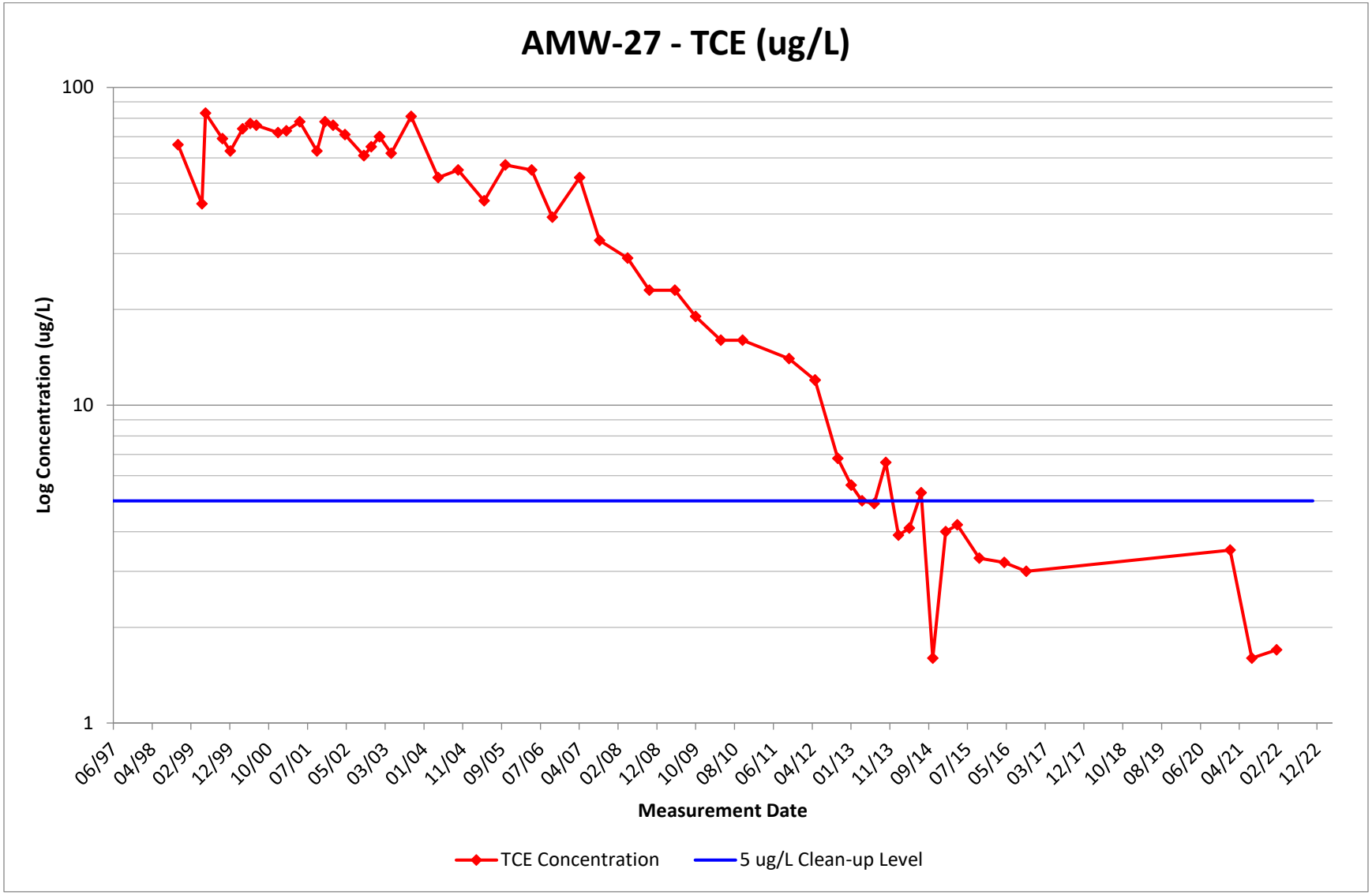

AMW-18 - TCE (ug/L)
1000
100
10
1
0.1
Log Concentration (ug/L)
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
11/04
05/05
12/05
07/06
01/07
08/07
02/08
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03/09
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05/10
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04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

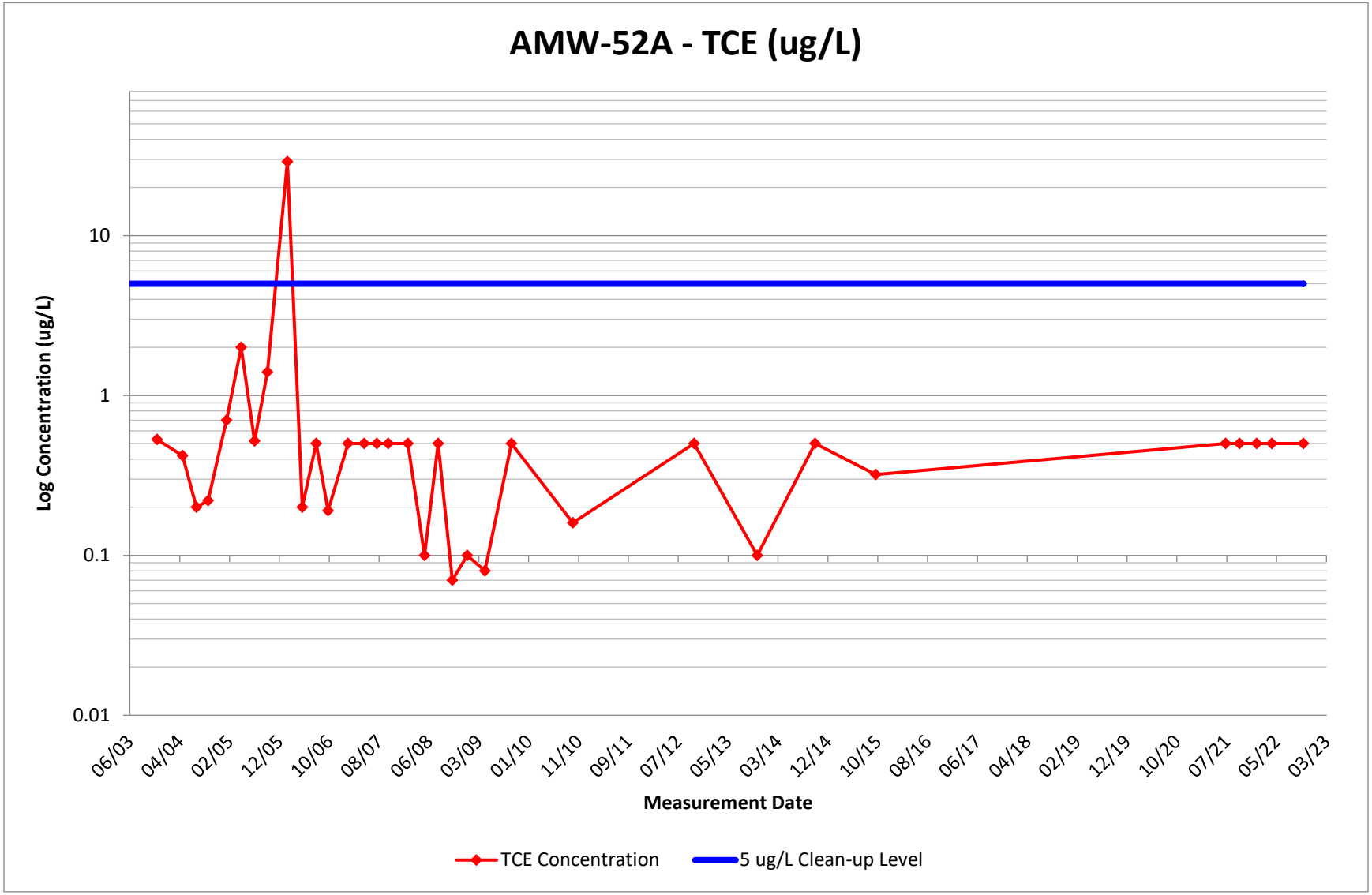

AMW-19A - TCE (ug/L)
Log Concentration (ug/L)
1000
100
10
1
0.1
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
11/04
05/05
12/05
07/06
01/07
08/07
02/08
09/08
03/09
10/09
05/10
11/10
06/11
12/11
07/12
01/13
08/13
03/14
09/14
04/15
10/15
05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

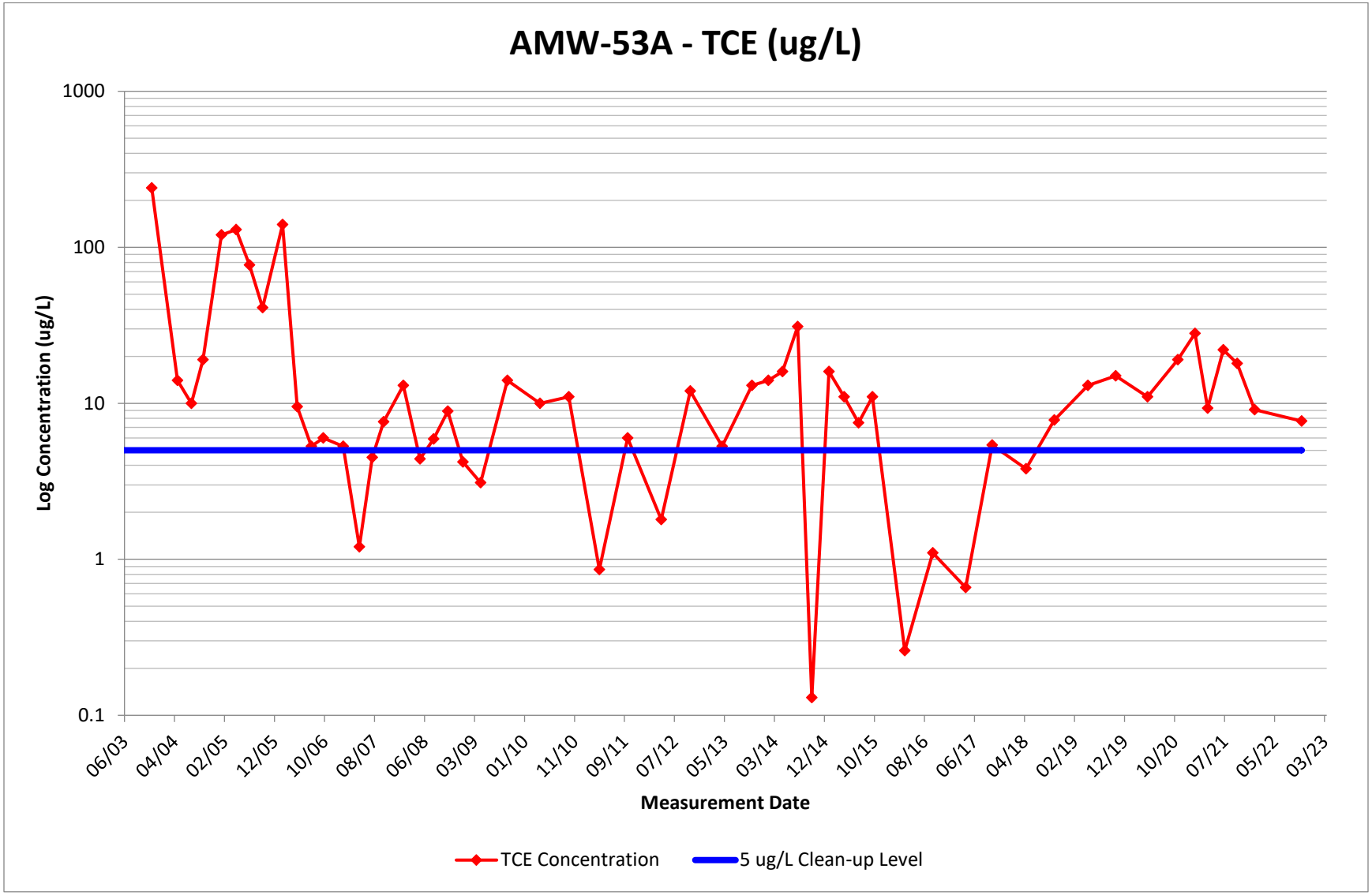

AMW-23 - TCE (ug/L)
10
1
0.1
Log Concentration (ug/L)
01/98
10/98
07/99
04/00
01/01
10/01
07/02
04/03
01/04
10/04
07/05
04/06
01/07
10/07
07/08
04/09
01/10
10/10
07/11
04/12
01/13
10/13
07/14
05/15
01/16
11/16
08/17
05/18
02/19
11/19
08/20
05/21
02/22
11/22
08/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

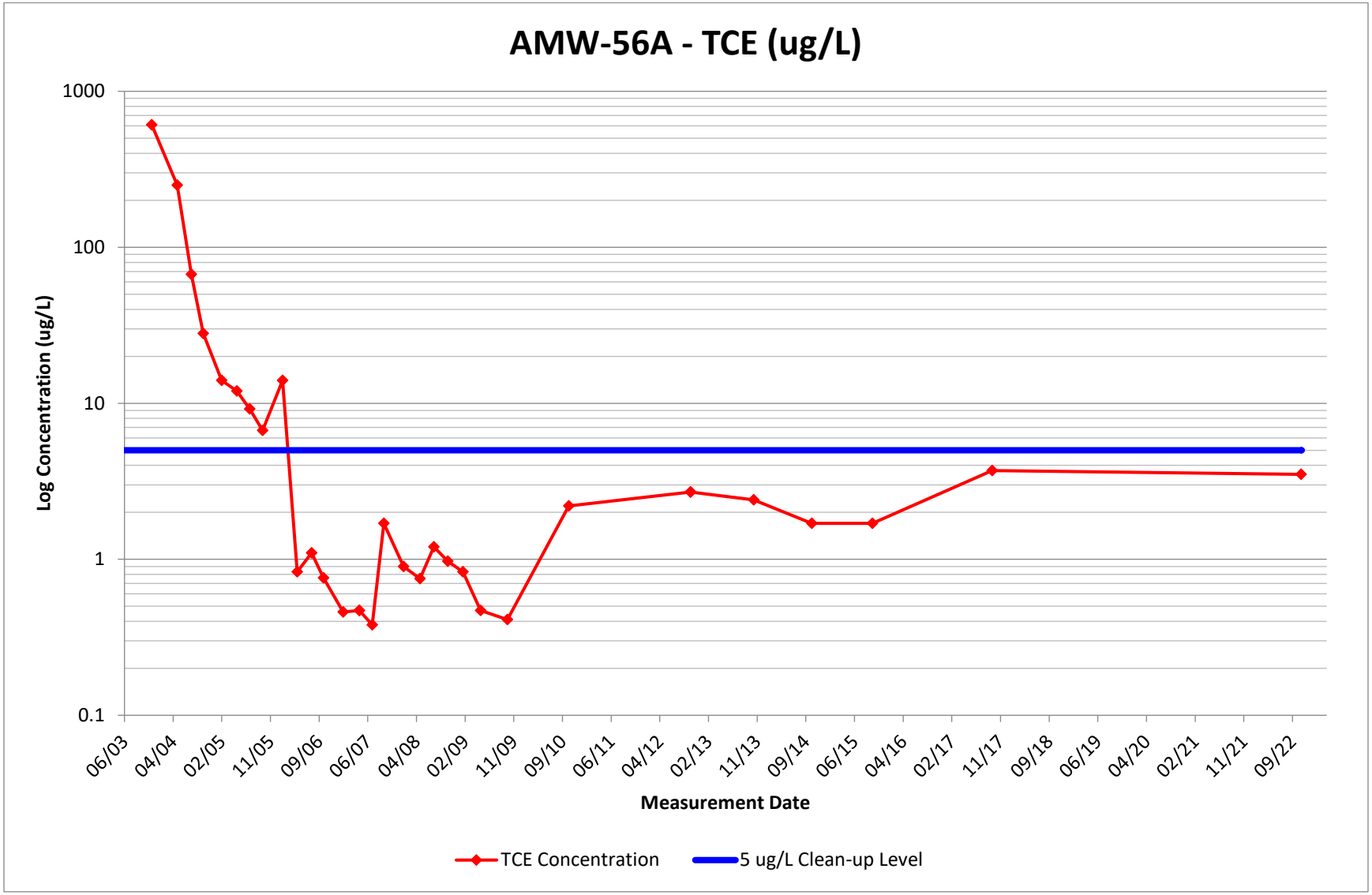

AMW-24 - TCE (ug/L)
100
10
1
Log Concentration (ug/L)
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

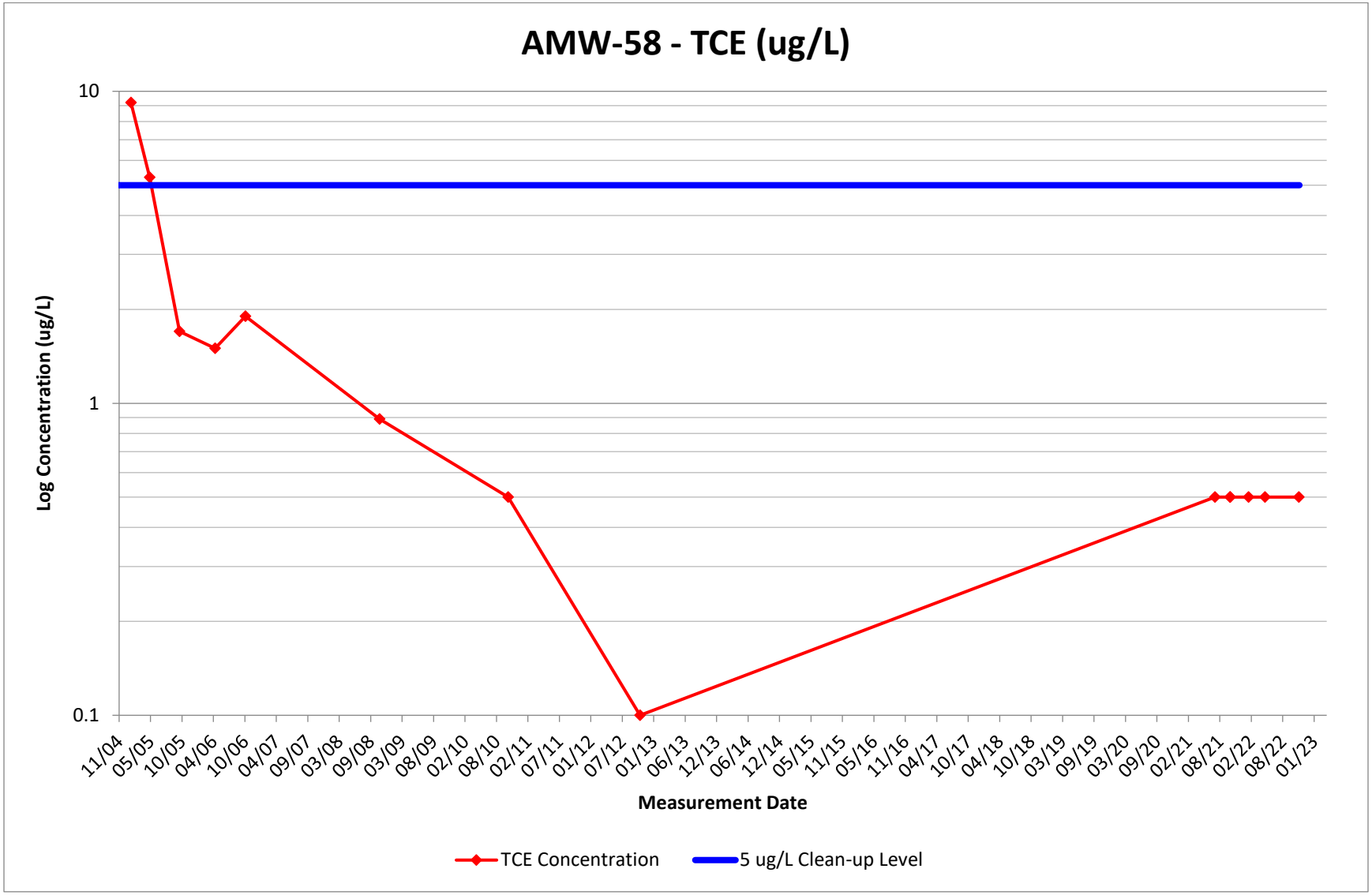

AMW-26 - TCE (ug/L)
Log Concentration (ug/L)
100
10
1
0.1
06/97
01/98
07/98
02/99
08/99
03/00
10/00
04/01
11/01
05/02
12/02
06/03
01/04
08/04
02/05
09/05
03/06
10/06
04/07
11/07
06/08
12/08
07/09
01/10
08/10
02/11
09/11
04/12
10/12
05/13
11/13
06/14
12/14
07/15
01/16
08/16
03/17
09/17
04/18
10/18
05/19
12/19
06/20
01/21
07/21
02/22
08/22
03/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

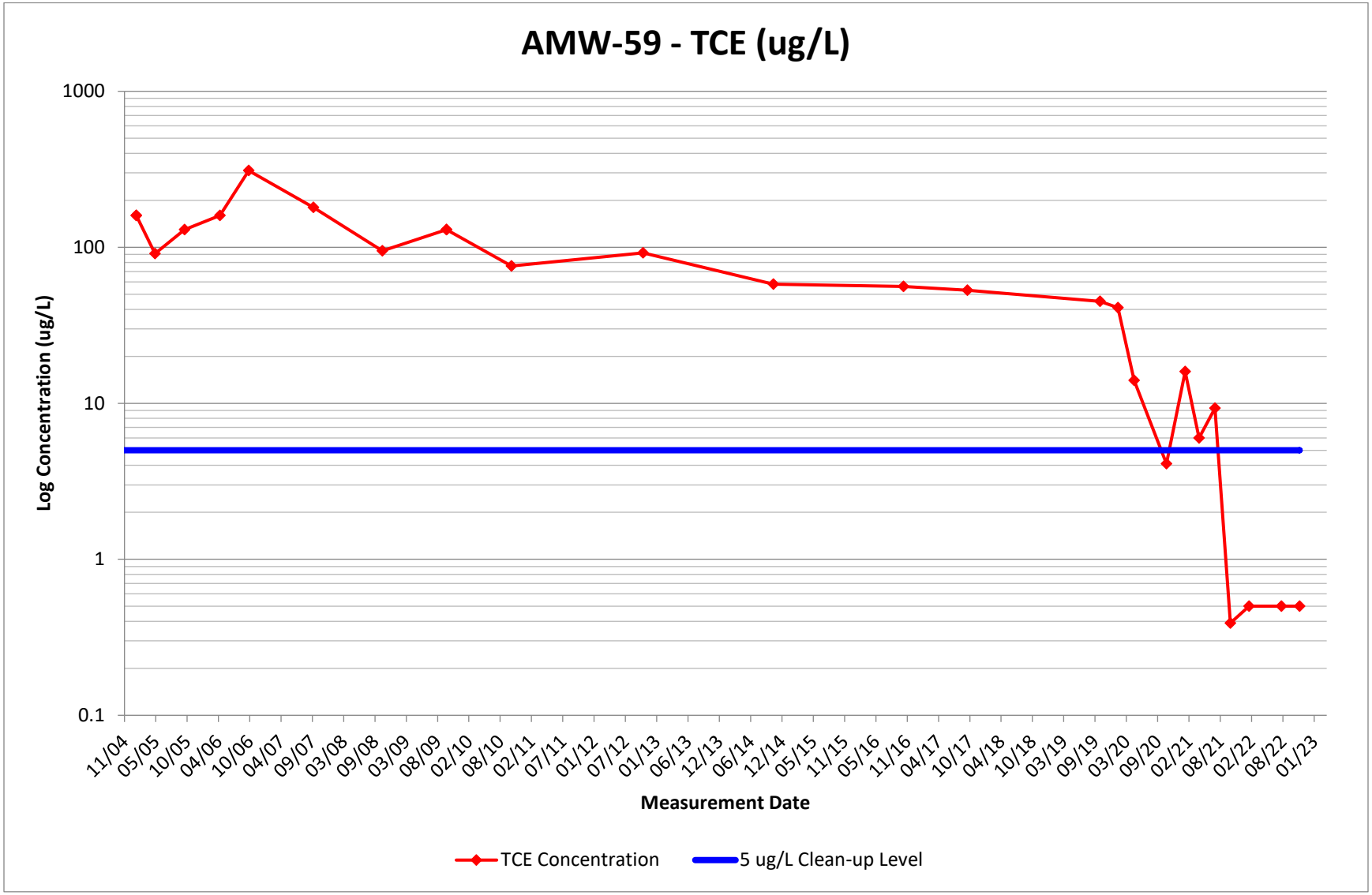

AMW-27 - TCE (ug/L)
100
10
1
Log Concentration (ug/L)
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

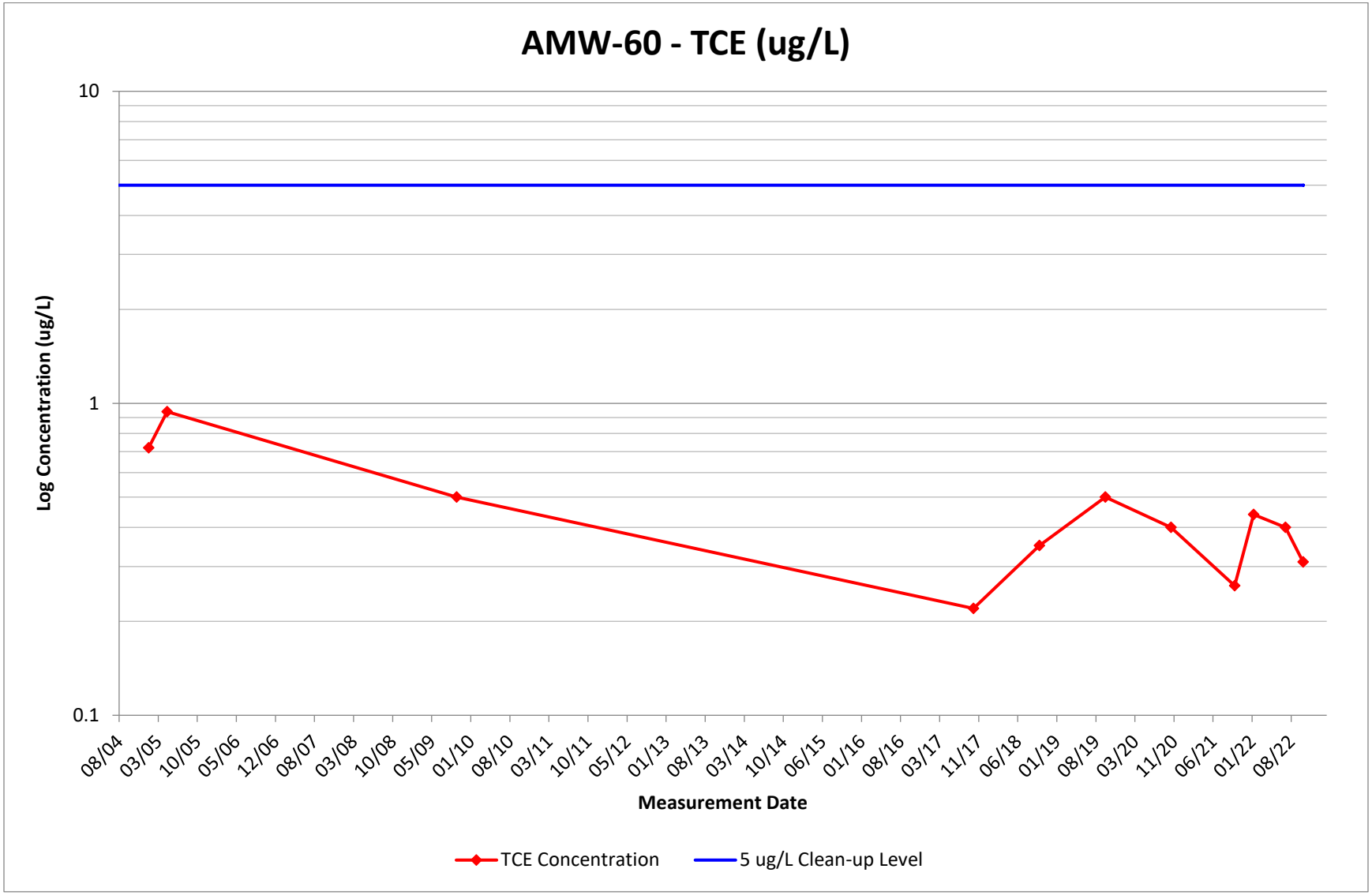

AMW-52A - TCE (ug/L)
Log Concentration (ug/L)
10
1
0.1
0.01
06/03
04/04
02/05
12/05
10/06
08/07
06/08
03/09
01/10
11/10
09/11
07/12
05/13
03/14
12/14
10/15
08/16
06/17
04/18
02/19
12/19
10/20
07/21
05/22
03/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

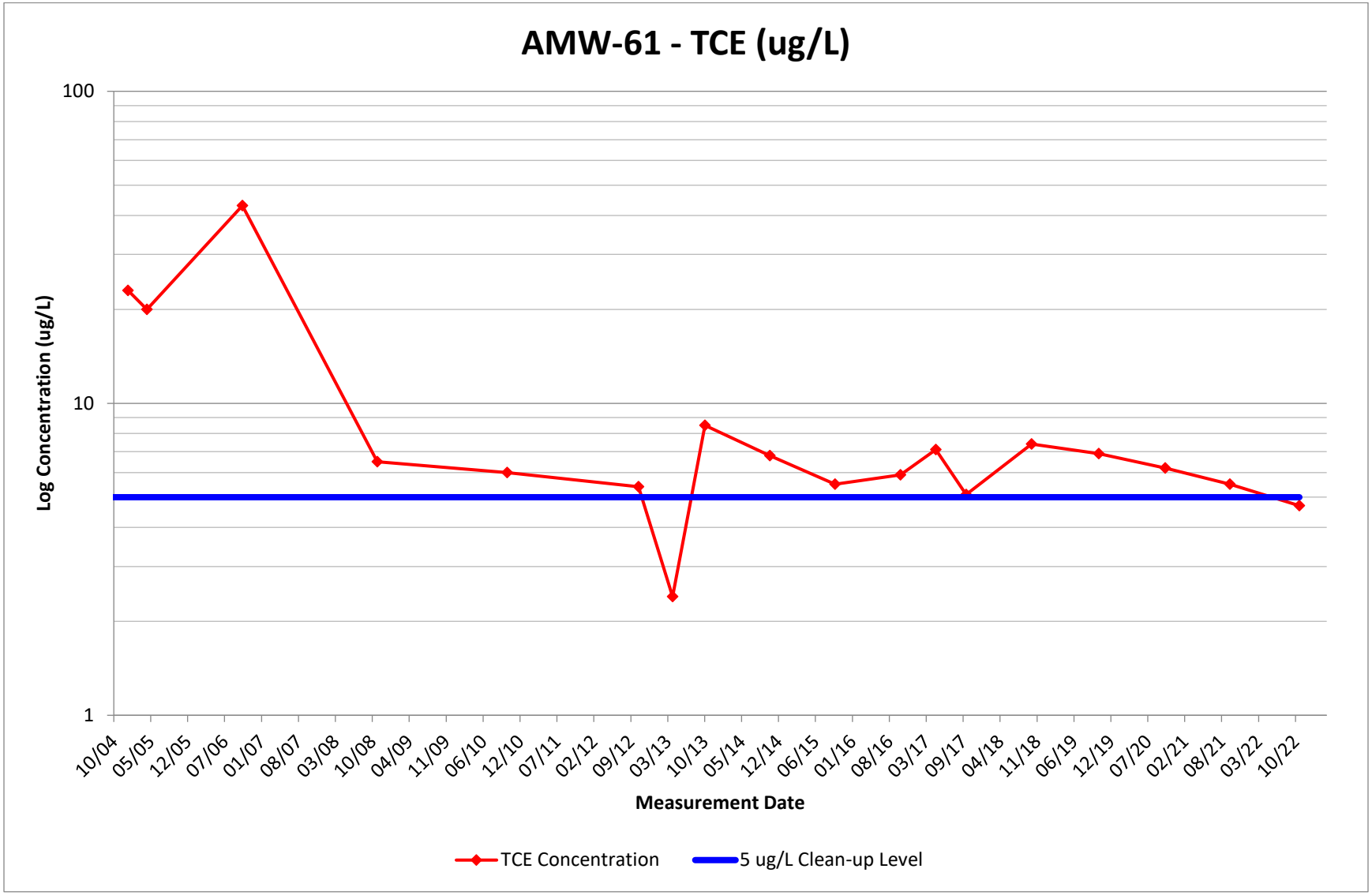

AMW-53A - TCE (ug/L)
Log Concentration (ug/L)
1000
100
10
1
0.1
06/03
04/04
02/05
12/05
10/06
08/07
06/08
03/09
01/10
11/10
09/11
07/12
05/13
03/14
12/14
10/15
08/16
06/17
04/18
02/19
12/19
10/20
07/21
05/22
03/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

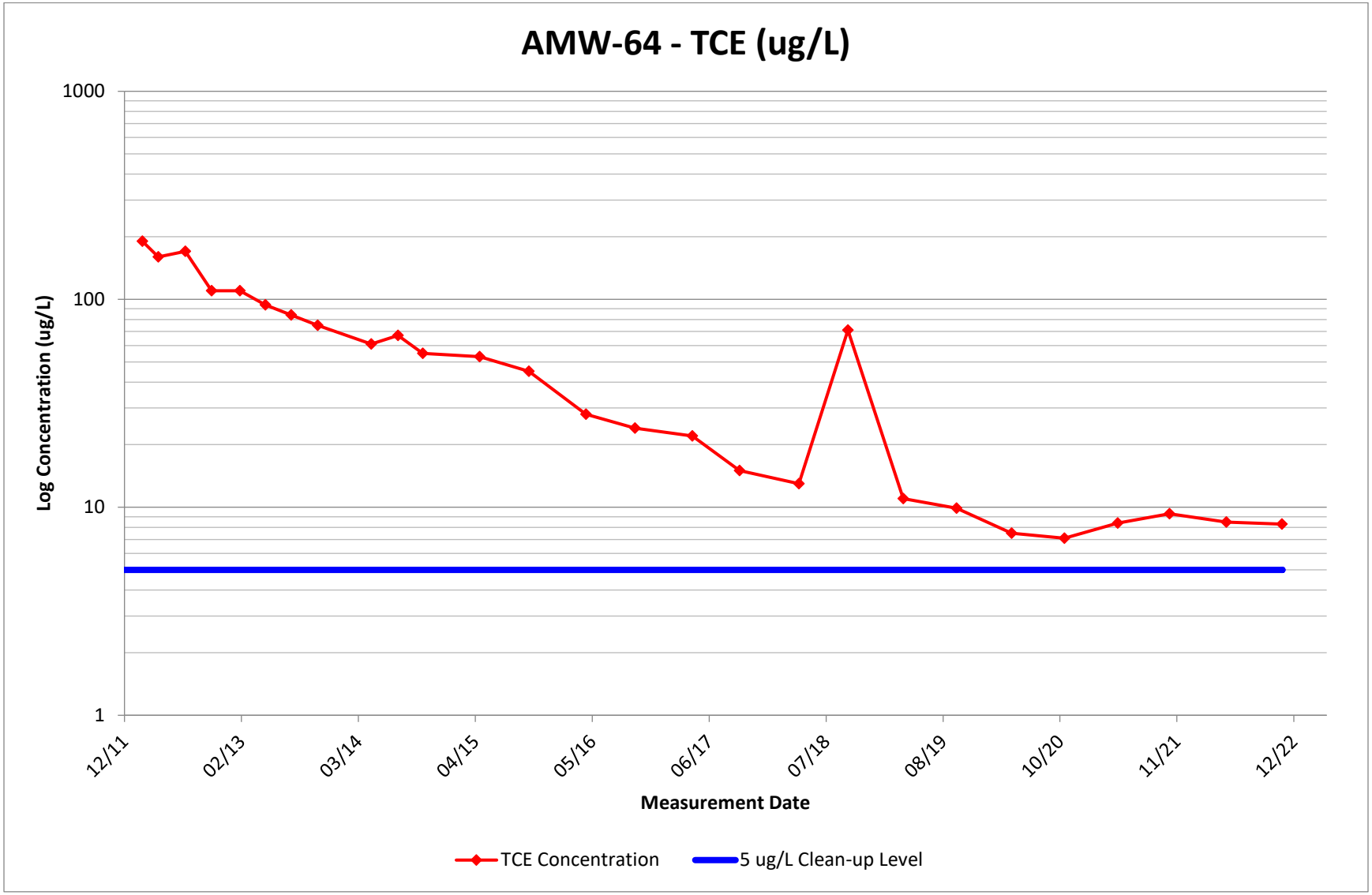

AMW-56A - TCE (ug/L)
1000
100
10
1
0.1
Log Concentration (ug/L)
06/03
04/04
02/05
11/05
09/06
06/07
04/08
02/09
11/09
09/10
06/11
04/12
02/13
11/13
09/14
06/15
04/16
02/17
11/17
09/18
06/19
04/20
02/21
11/21
09/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

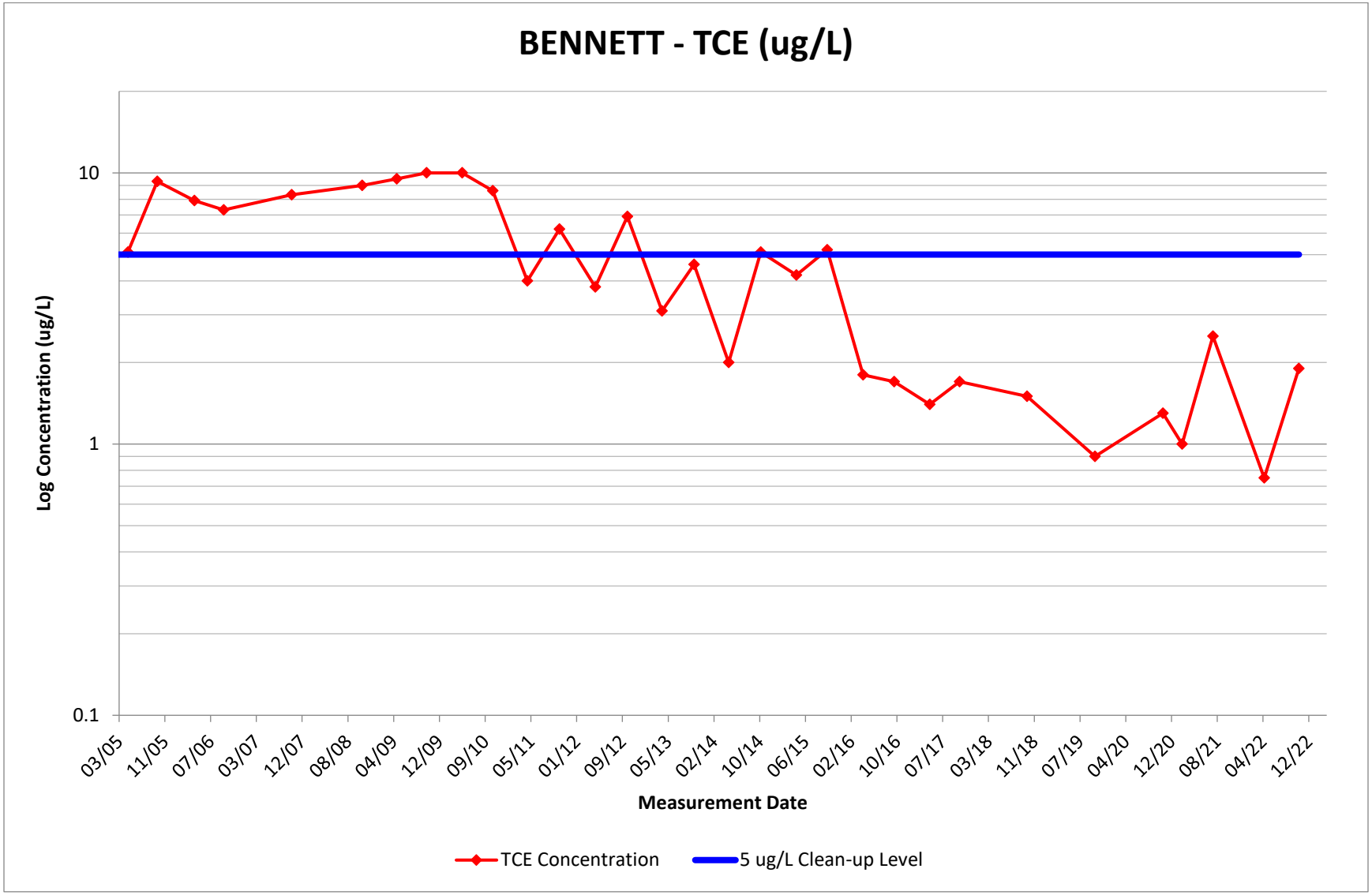

AMW-58 - TCE (ug/L)
10
1
0.1
Log Concentration (ug/L)
11/04
05/05
10/05
04/06
10/06
04/07
09/07
03/08
09/08
03/09
08/09
02/10
08/10
02/11
07/11
01/12
07/12
01/13
06/13
12/13
06/14
12/14
05/15
11/15
05/16
11/16
04/17
10/17
04/18
10/18
03/19
09/19
03/20
09/20
02/21
08/21
02/22
08/22
01/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

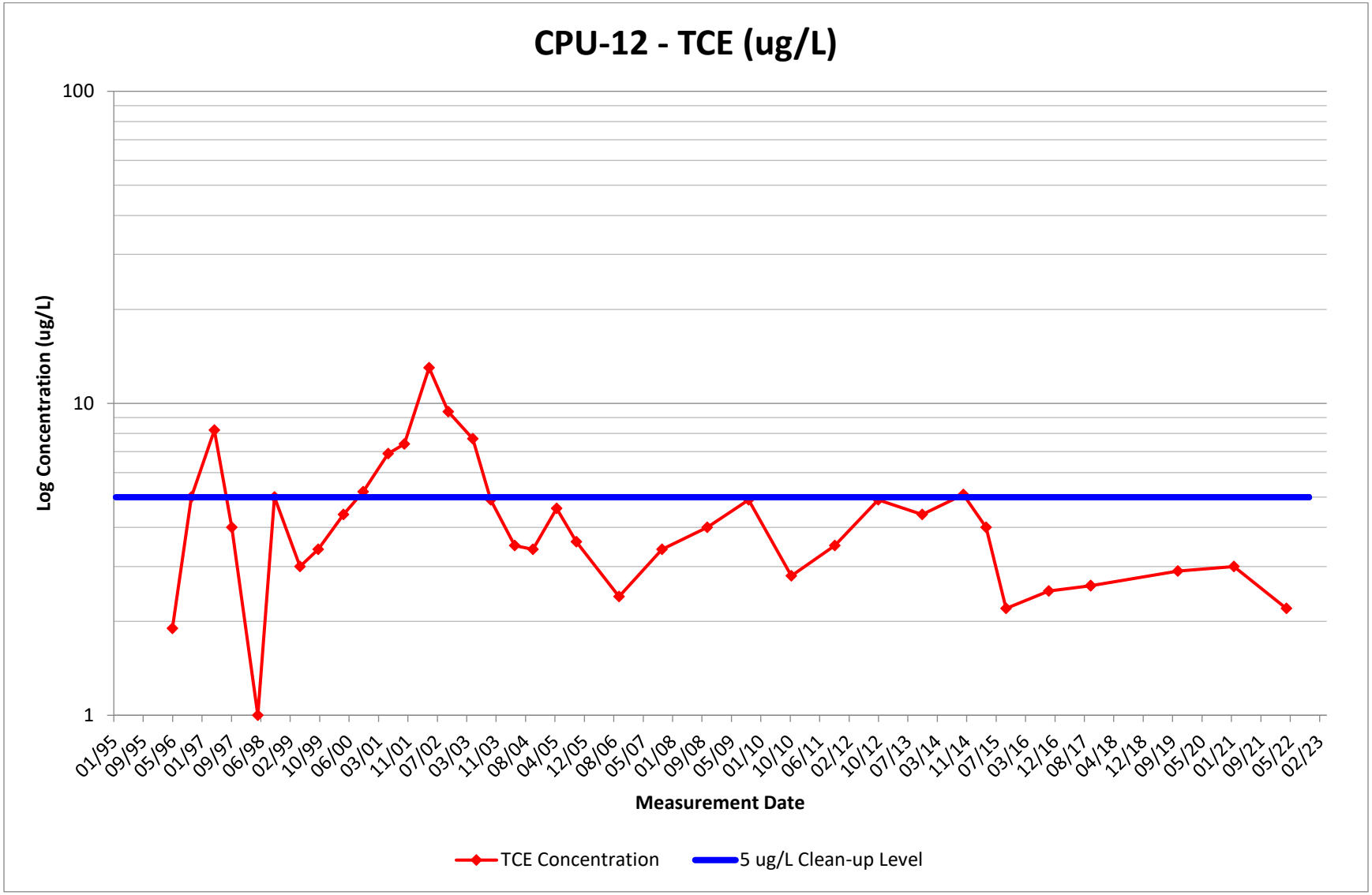

AMW-59 - TCE (ug/L)
1000
100
10
1
0.1
Log Concentration (ug/L)
11/04
05/05
10/05
04/06
10/06
04/07
09/07
03/08
09/08
03/09
08/09
02/10
08/10
02/11
07/11
01/12
07/12
01/13
06/13
12/13
06/14
12/14
05/15
11/15
05/16
11/16
04/17
10/17
04/18
10/18
03/19
09/19
03/20
09/20
02/21
08/21
02/22
08/22
01/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

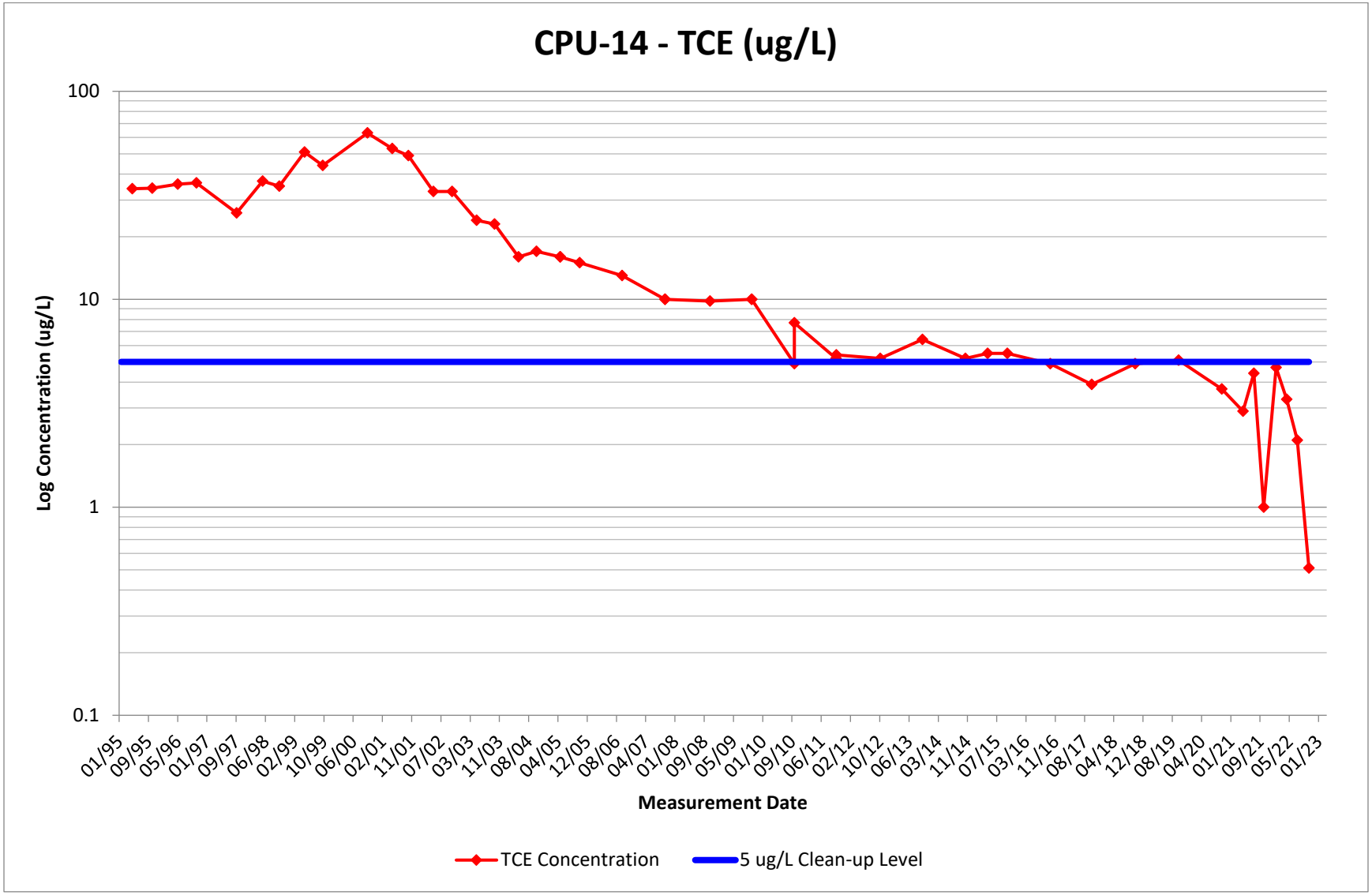

AMW-60 - TCE (ug/L)
10
1
0.1
Log Concentration (ug/L)
08/04
03/05
10/05
05/06
12/06
08/07
03/08
10/08
05/09
01/10
08/10
03/11
10/11
05/12
01/13
08/13
03/14
10/14
06/15
01/16
08/16
03/17
11/17
06/18
01/19
08/19
03/20
11/20
06/21
01/22
08/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

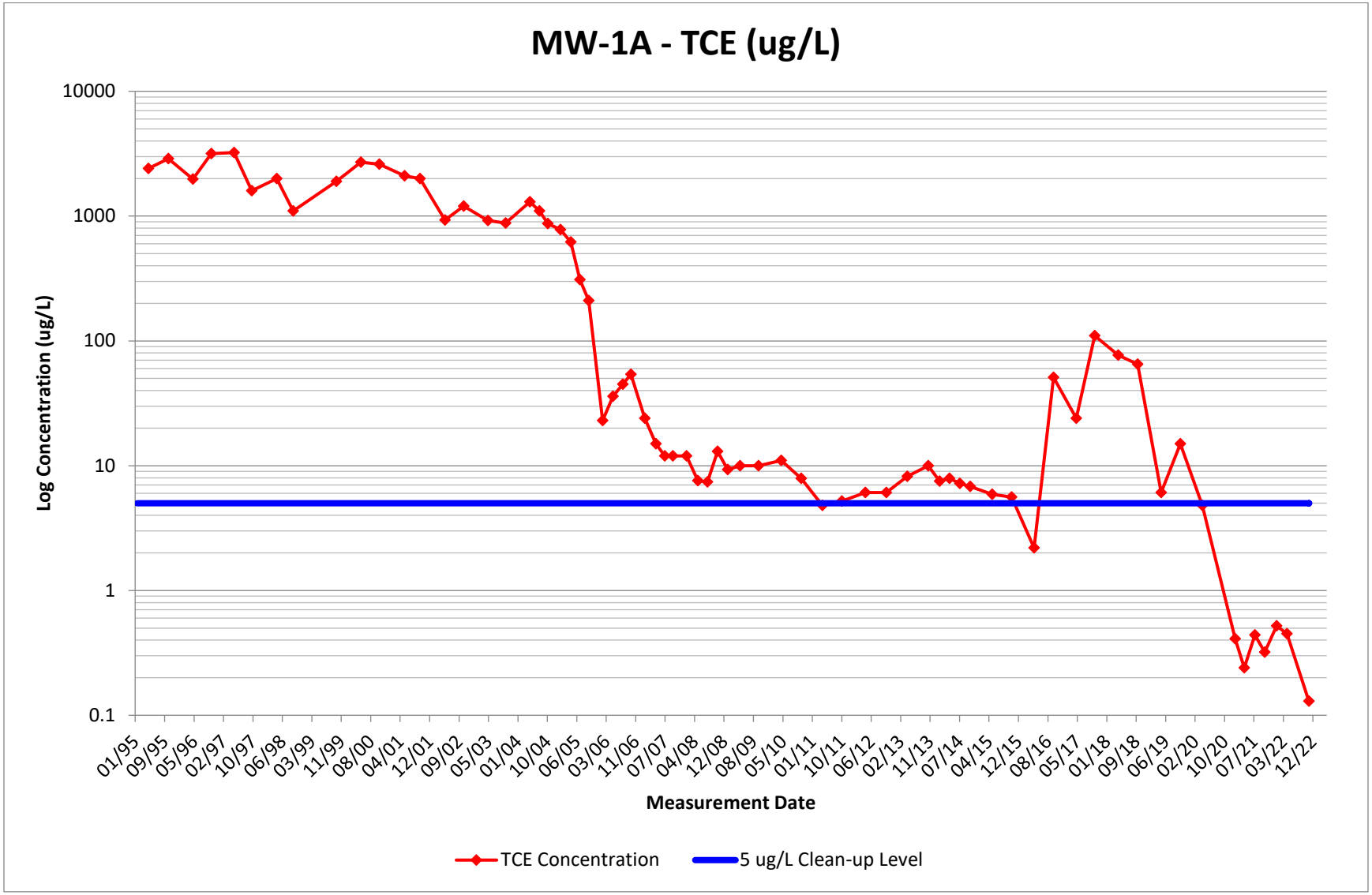

AMW-61 - TCE (ug/L)
100
10
1
Log Concentration (ug/L)
10/04
05/05
12/05
07/06
01/07
08/07
03/08
10/08
04/09
11/09
06/10
12/10
07/11
02/12
09/12
03/13
10/13
05/14
12/14
06/15
01/16
08/16
03/17
09/17
04/18
11/18
06/19
12/19
07/20
02/21
08/21
03/22
10/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

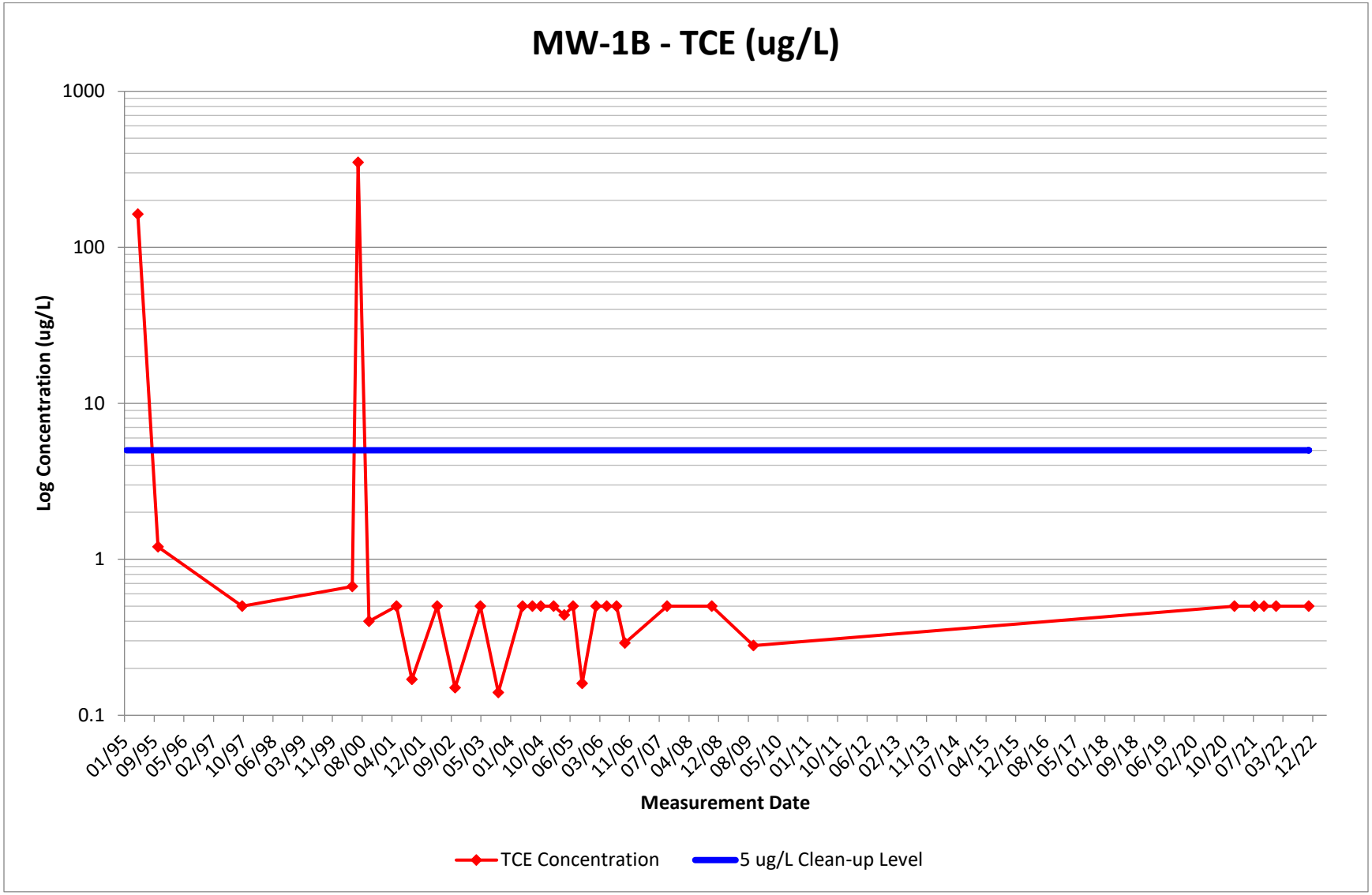

AMW-64 - TCE (ug/L)
1000
100
10
1
Log Concentration (ug/L)
12/11
02/13
03/14
04/15
05/16
06/17
07/18
08/19
10/20
11/21
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

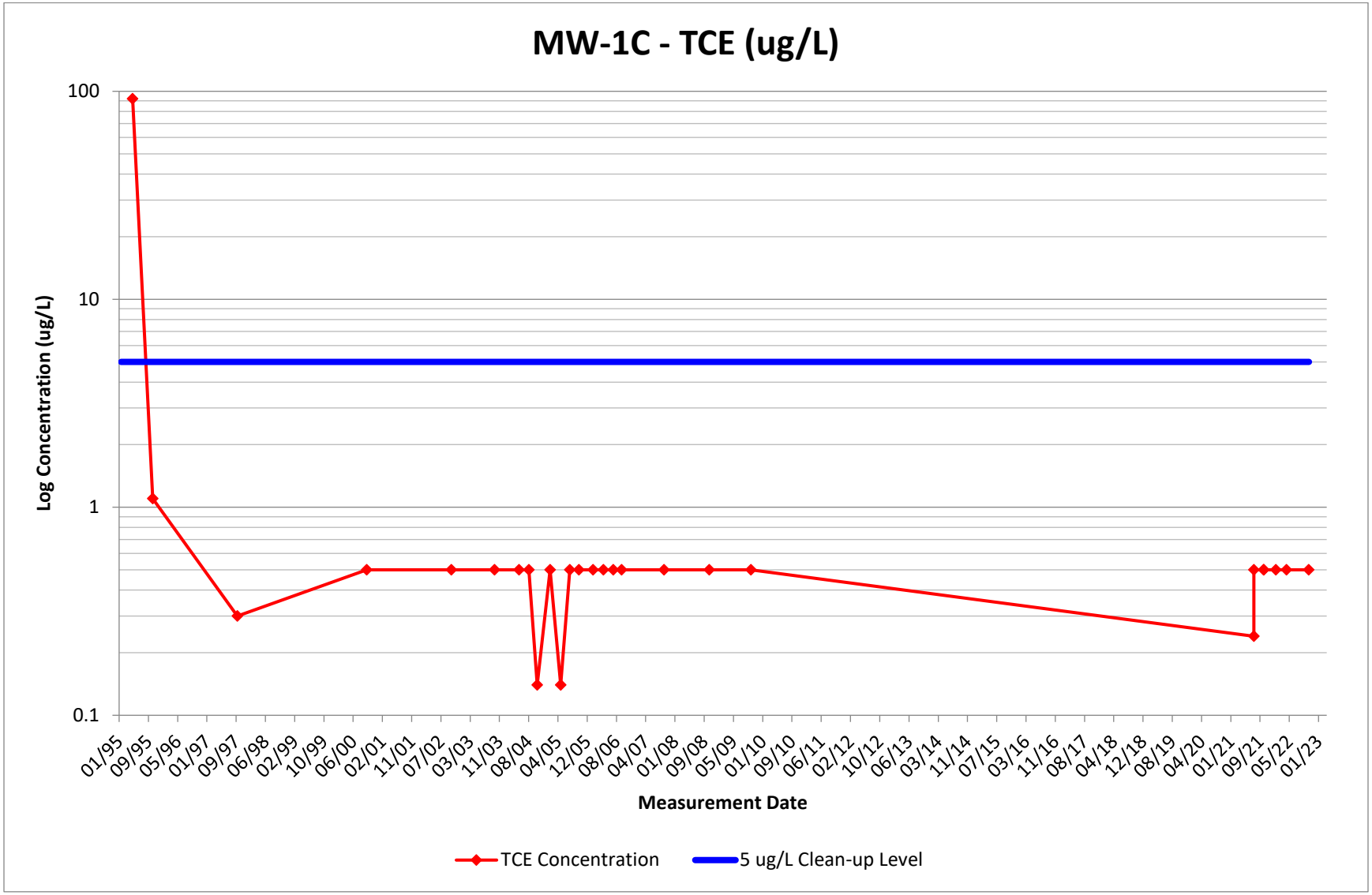

BENNETT - TCE (ug/L)
Log Concentration (ug/L)
10
1
0.1
03/05
11/05
07/06
03/07
12/07
08/08
04/09
12/09
09/10
05/11
01/12
09/12
05/13
02/14
10/14
06/15
02/16
10/16
07/17
03/18
11/18
07/19
04/20
12/20
08/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

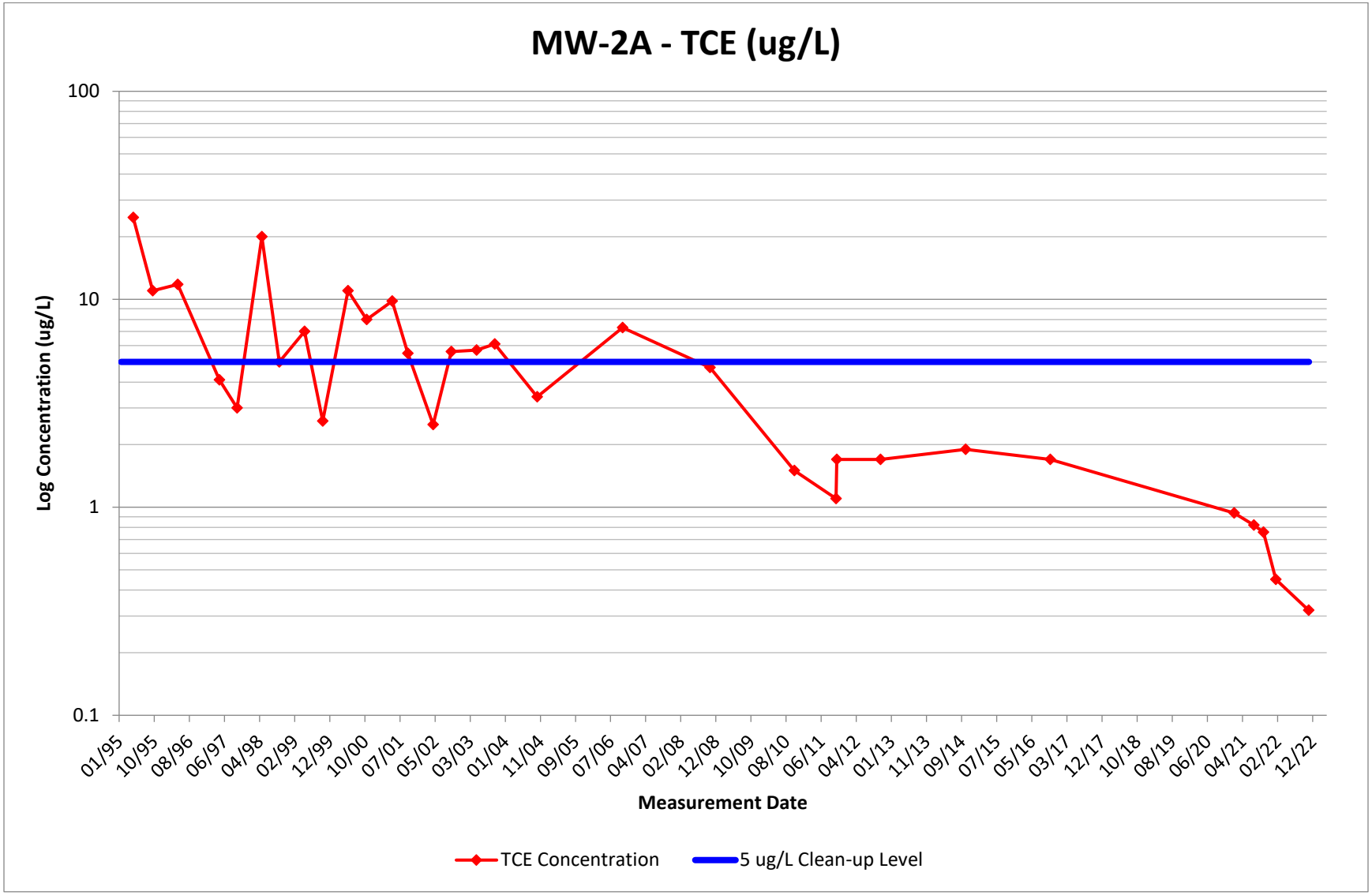

CPU-12 - TCE (ug/L)
100
10
1
Log Concentration (ug/L)
01/95
09/95
05/96
01/97
09/97
06/98
02/99
10/99
06/00
03/01
11/01
07/02
03/03
11/03
08/04
04/05
12/05
08/06
05/07
01/08
09/08
05/09
01/10
10/10
06/11
02/12
10/12
07/13
03/14
11/14
07/15
03/16
12/16
08/17
04/18
12/18
09/19
05/20
01/21
09/21
05/22
02/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

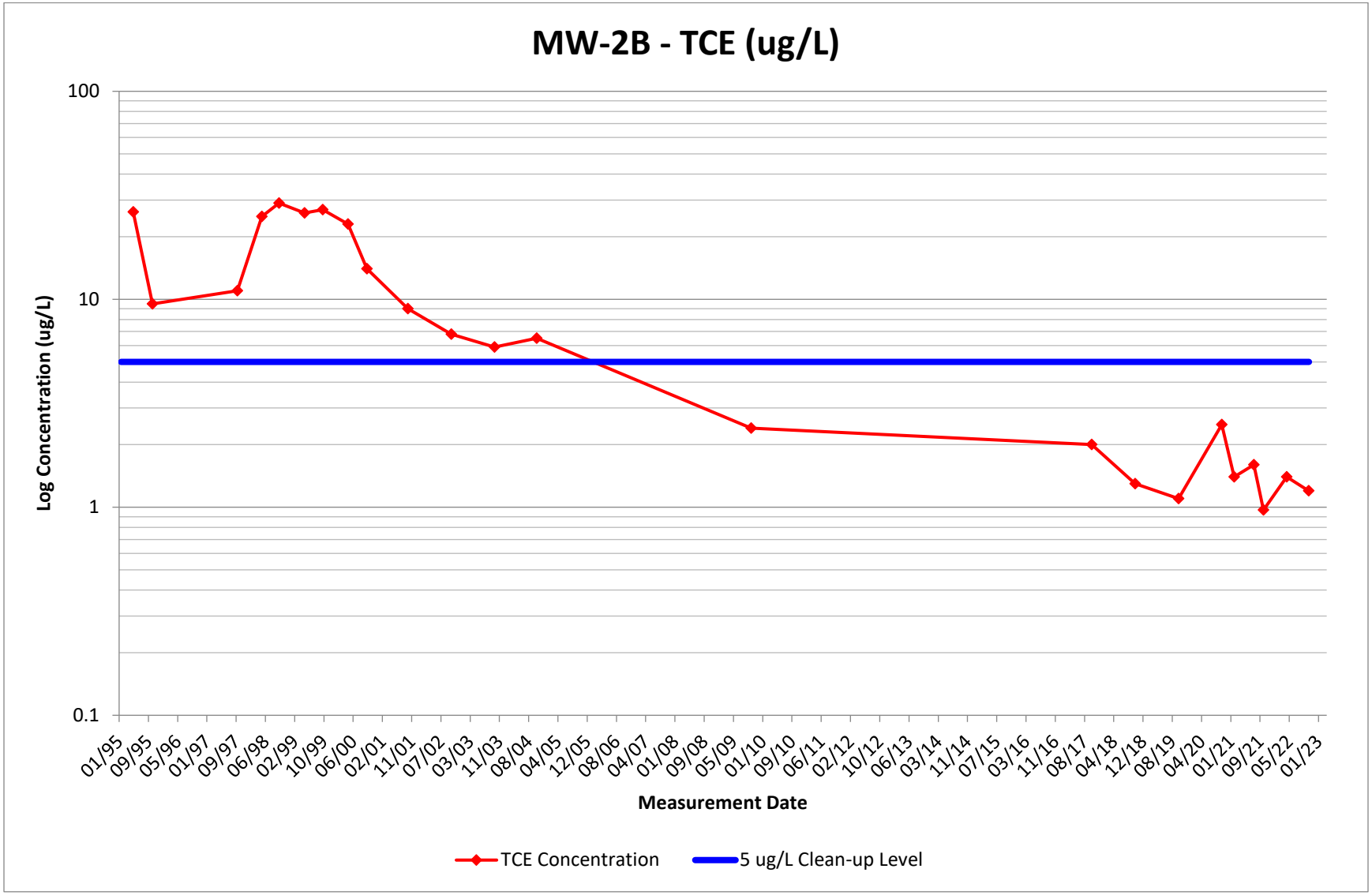

CPU-14 - TCE (ug/L)
100
10
1
0.1
Log Concentration (ug/L)
01/95
09/95
05/96
01/97
09/97
06/98
02/99
10/99
06/00
02/01
11/01
07/02
03/03
11/03
08/04
04/05
12/05
08/06
04/07
01/08
09/08
05/09
01/10
09/10
06/11
02/12
10/12
06/13
03/14
11/14
07/15
03/16
11/16
08/17
04/18
12/18
08/19
04/20
01/21
09/21
05/22
01/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

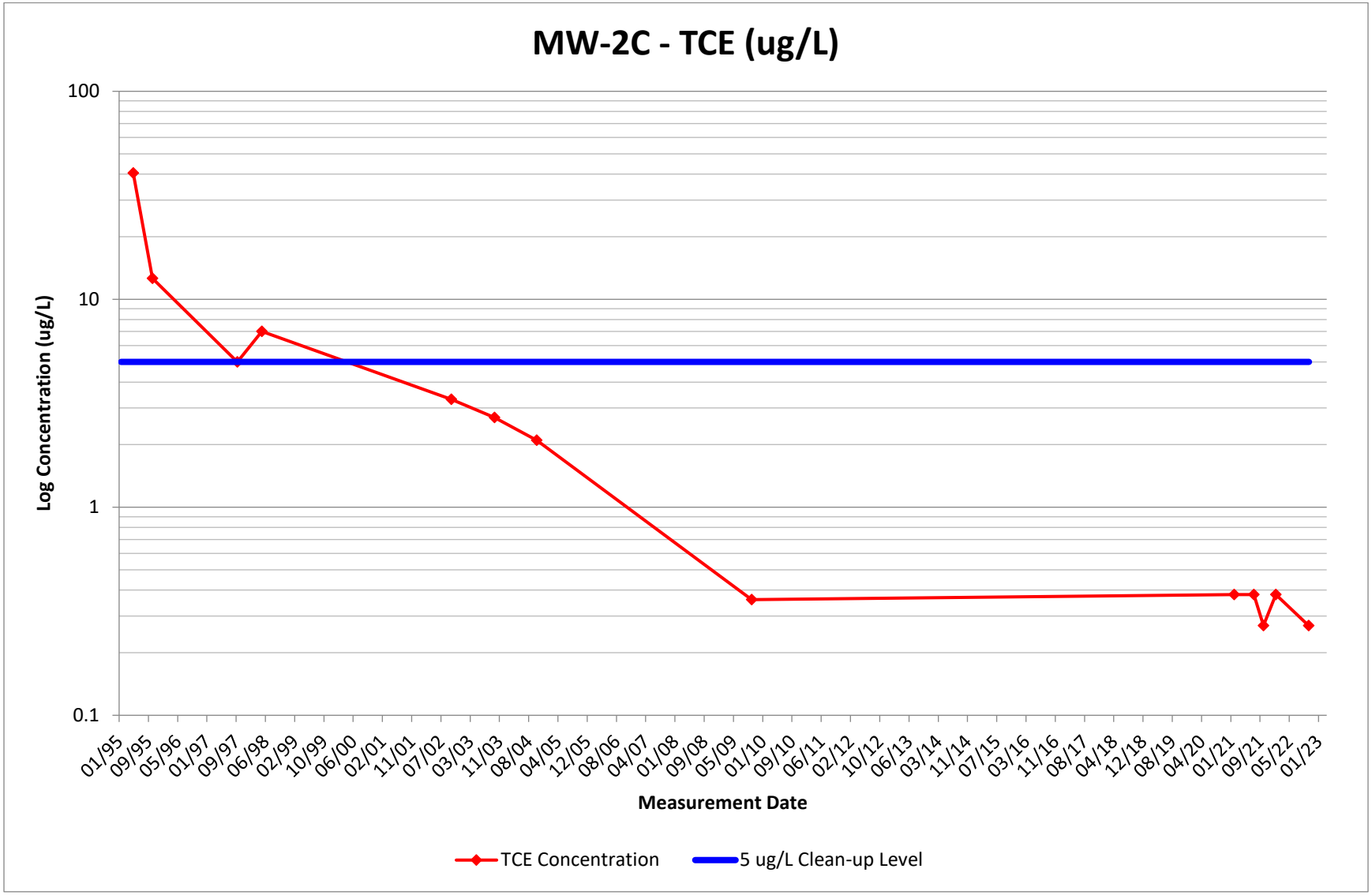

MW-1A - TCE (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
0.1
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
01/04
10/04
06/05
03/06
11/06
07/07
04/08
12/08
08/09
05/10
01/11
10/11
06/12
02/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
09/18
06/19
02/20
10/20
07/21
03/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

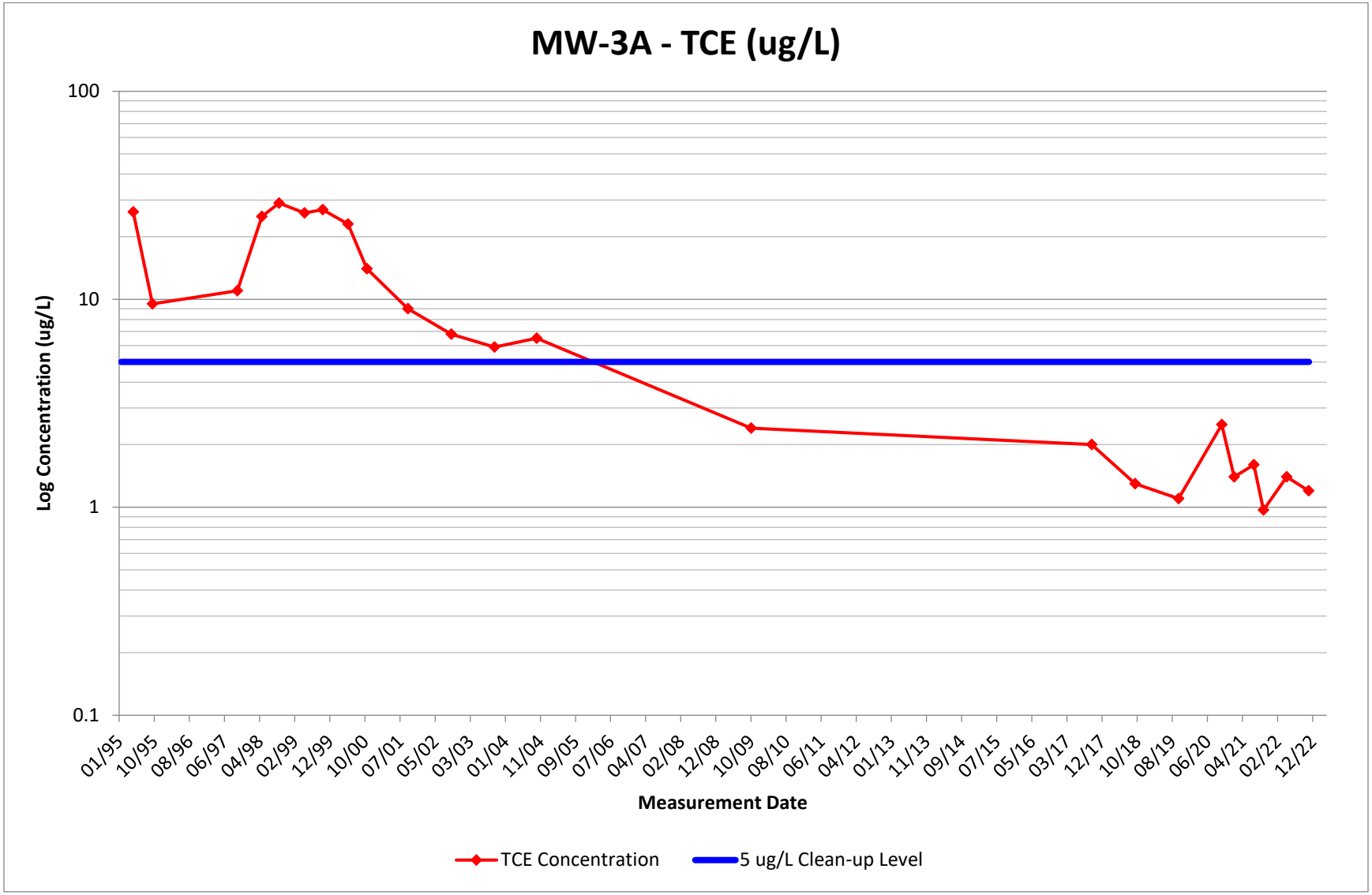

MW-1B - TCE (ug/L)
1000
100
10
1
0.1
Log Concentration (ug/L)
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
01/04
10/04
06/05
03/06
11/06
07/07
04/08
12/08
08/09
05/10
01/11
10/11
06/12
02/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
09/18
06/19
02/20
10/20
07/21
03/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

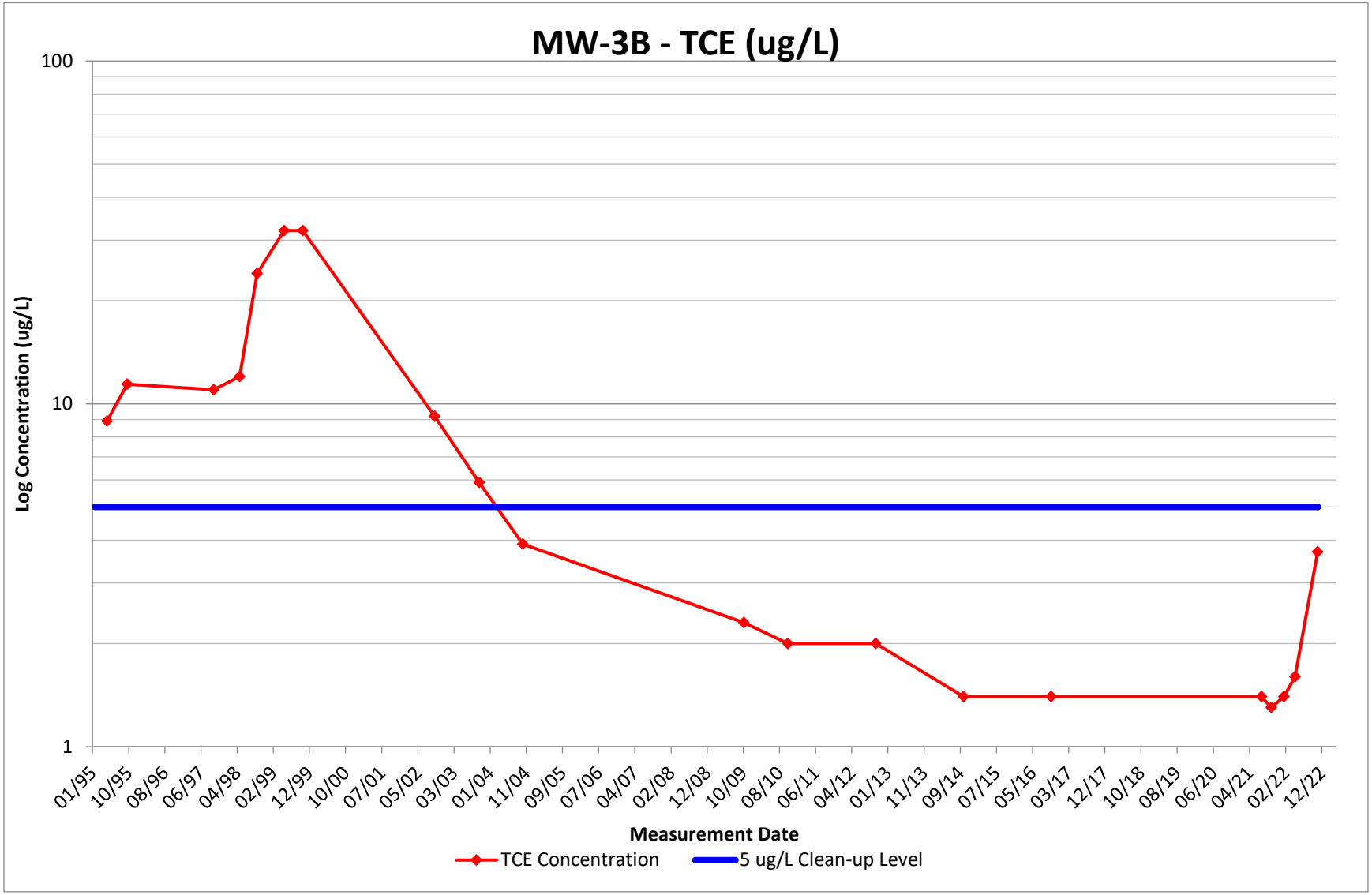

MW-1C - TCE (ug/L)
Log Concentration (ug/L)
100
10
1
0.1
01/95
09/95
05/96
01/97
09/97
06/98
02/99
10/99
06/00
02/01
11/01
07/02
03/03
11/03
08/04
04/05
12/05
08/06
04/07
01/08
09/08
05/09
01/10
09/10
06/11
02/12
10/12
06/13
03/14
11/14
07/15
03/16
11/16
08/17
04/18
12/18
08/19
04/20
01/21
09/21
05/22
01/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

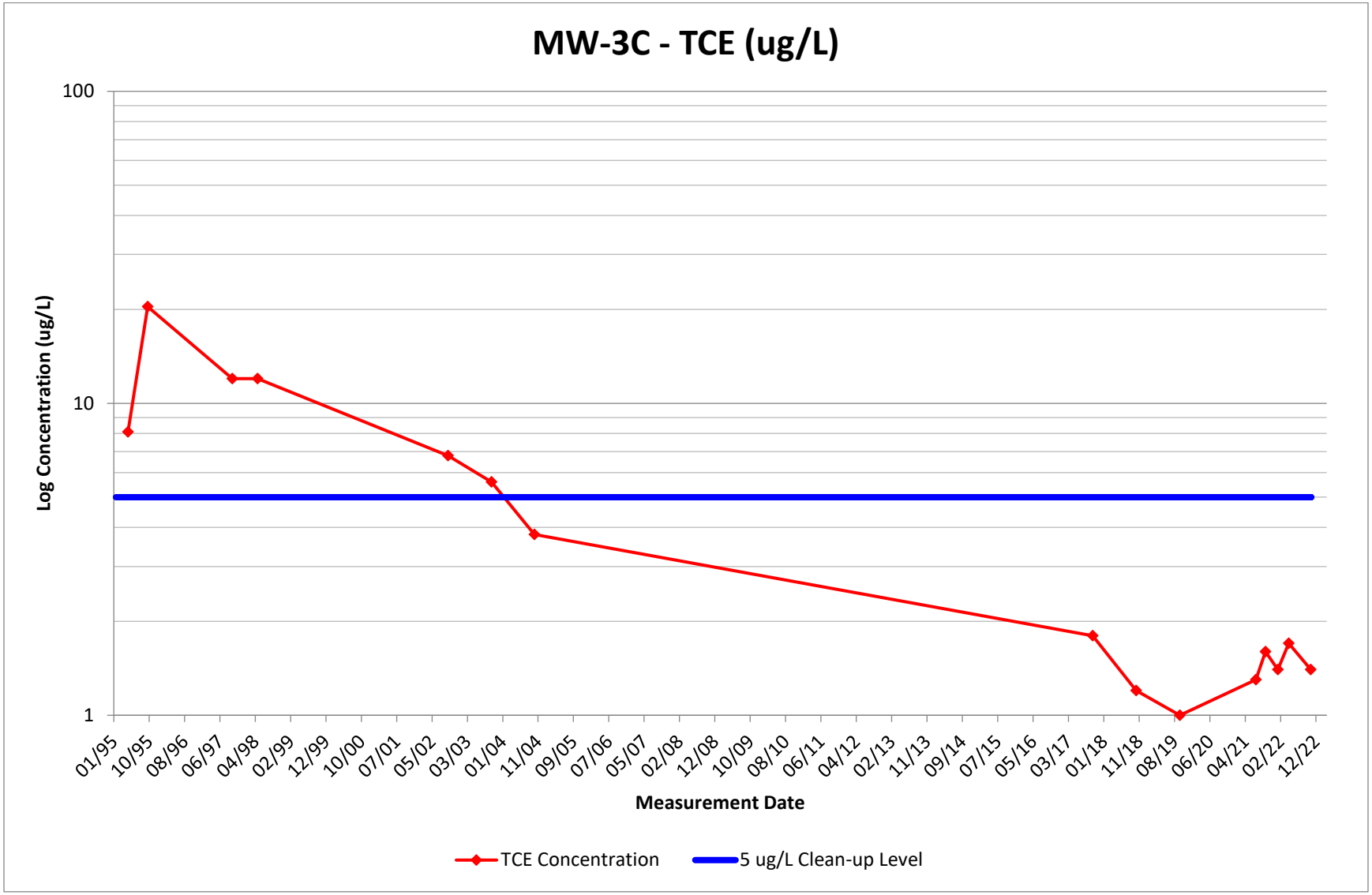

MW-2A - TCE (ug/L)
100
10
1
0.1
Log Concentration (ug/L)
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

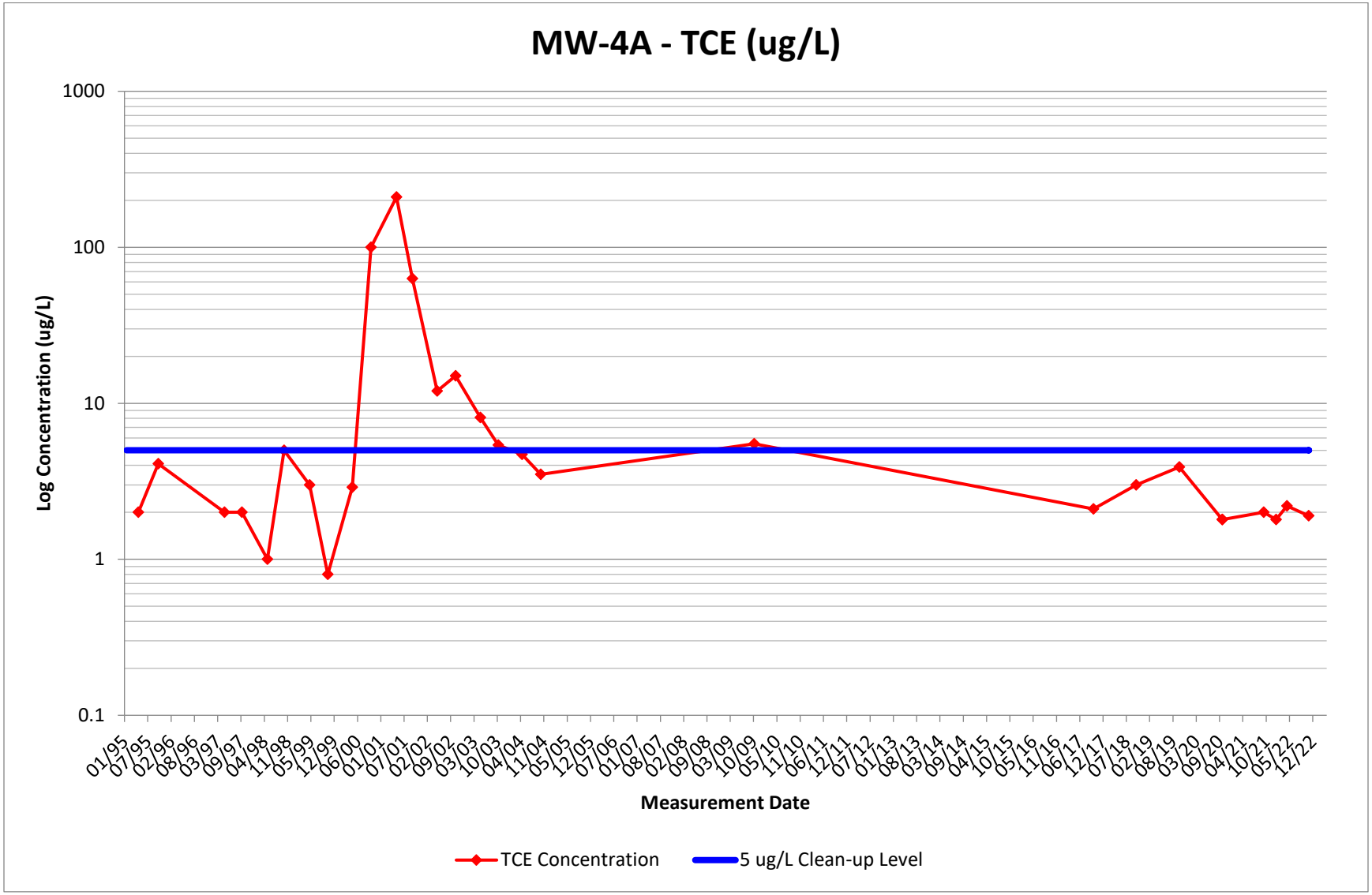

MW-2B - TCE (ug/L)
100
10
1
0.1
Log Concentration (ug/L)
01/95
09/95
05/96
01/97
09/97
06/98
02/99
10/99
06/00
02/01
11/01
07/02
03/03
11/03
08/04
04/05
12/05
08/06
04/07
01/08
09/08
05/09
01/10
09/10
06/11
02/12
10/12
06/13
03/14
11/14
07/15
03/16
11/16
08/17
04/18
12/18
08/19
04/20
01/21
09/21
05/22
01/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

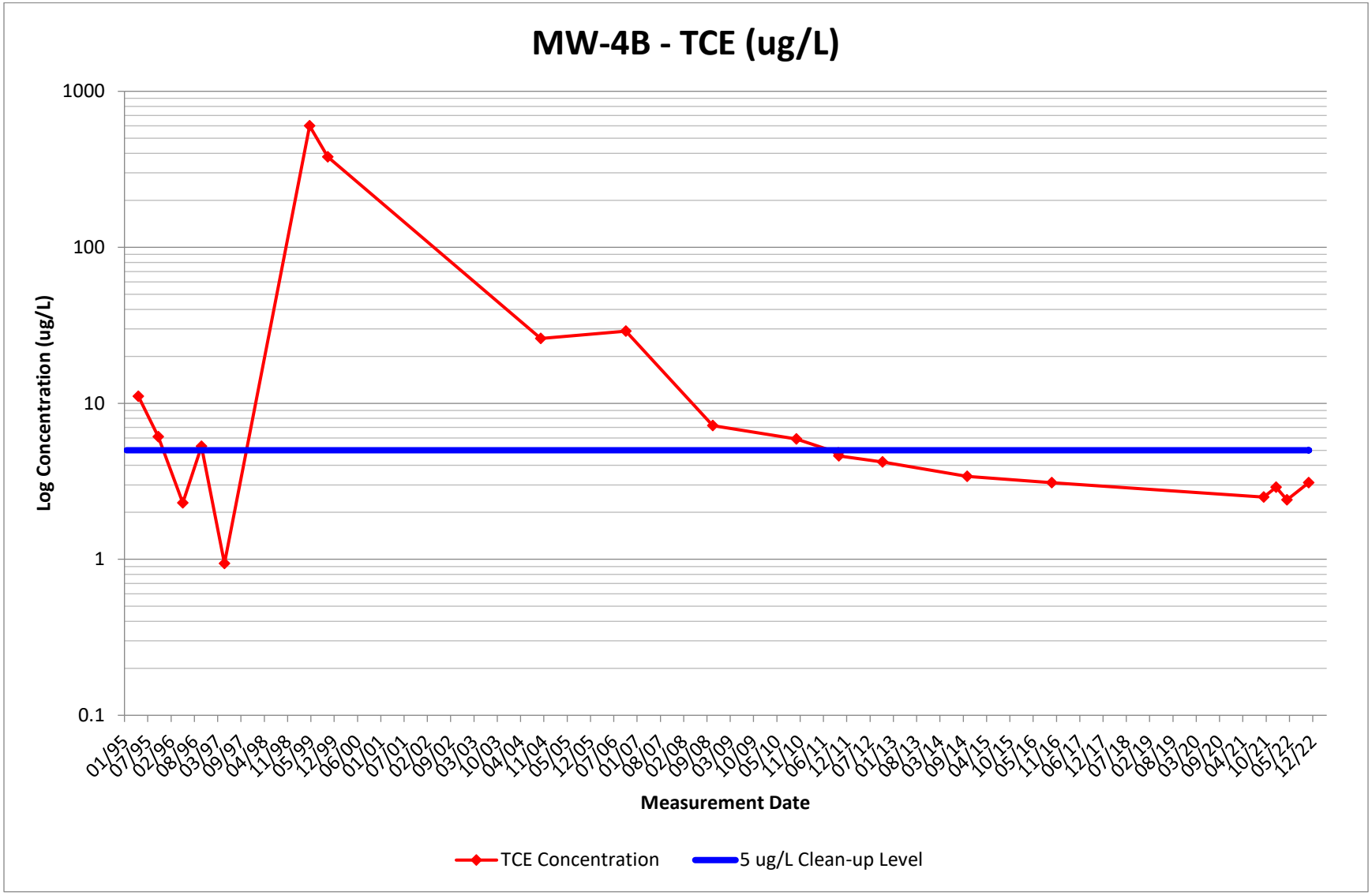

MW-2C - TCE (ug/L)
100
10
1
0.1
Log Concentration (ug/L)
01/95
09/95
05/96
01/97
09/97
06/98
02/99
10/99
06/00
02/01
11/01
07/02
03/03
11/03
08/04
04/05
12/05
08/06
04/07
01/08
09/08
05/09
01/10
09/10
06/11
02/12
10/12
06/13
03/14
11/14
07/15
03/16
11/16
08/17
04/18
12/18
08/19
04/20
01/21
09/21
05/22
01/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

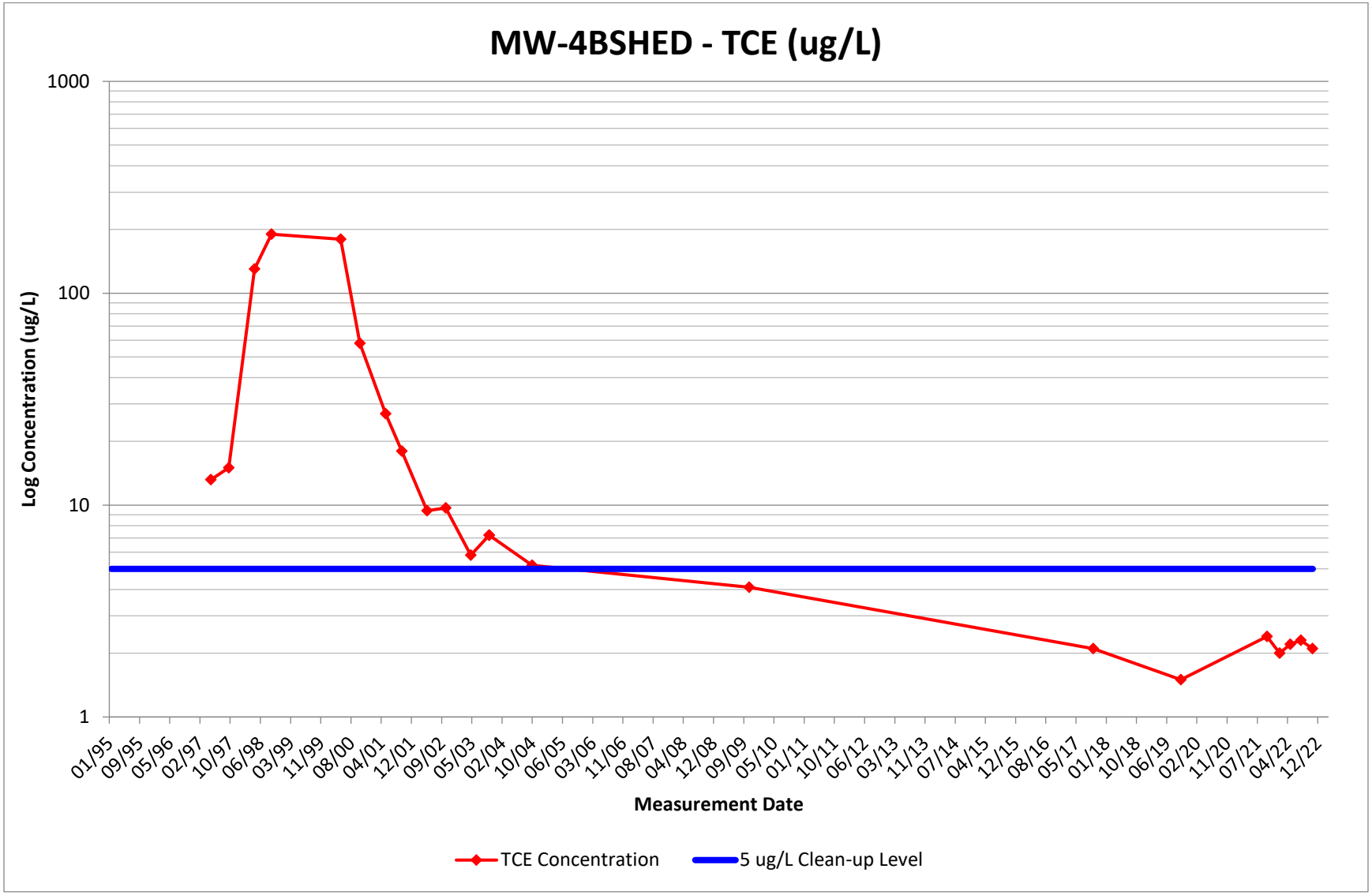

MW-3A - TCE (ug/L)
100
10
1
0.1
Log Concentration (ug/L)
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

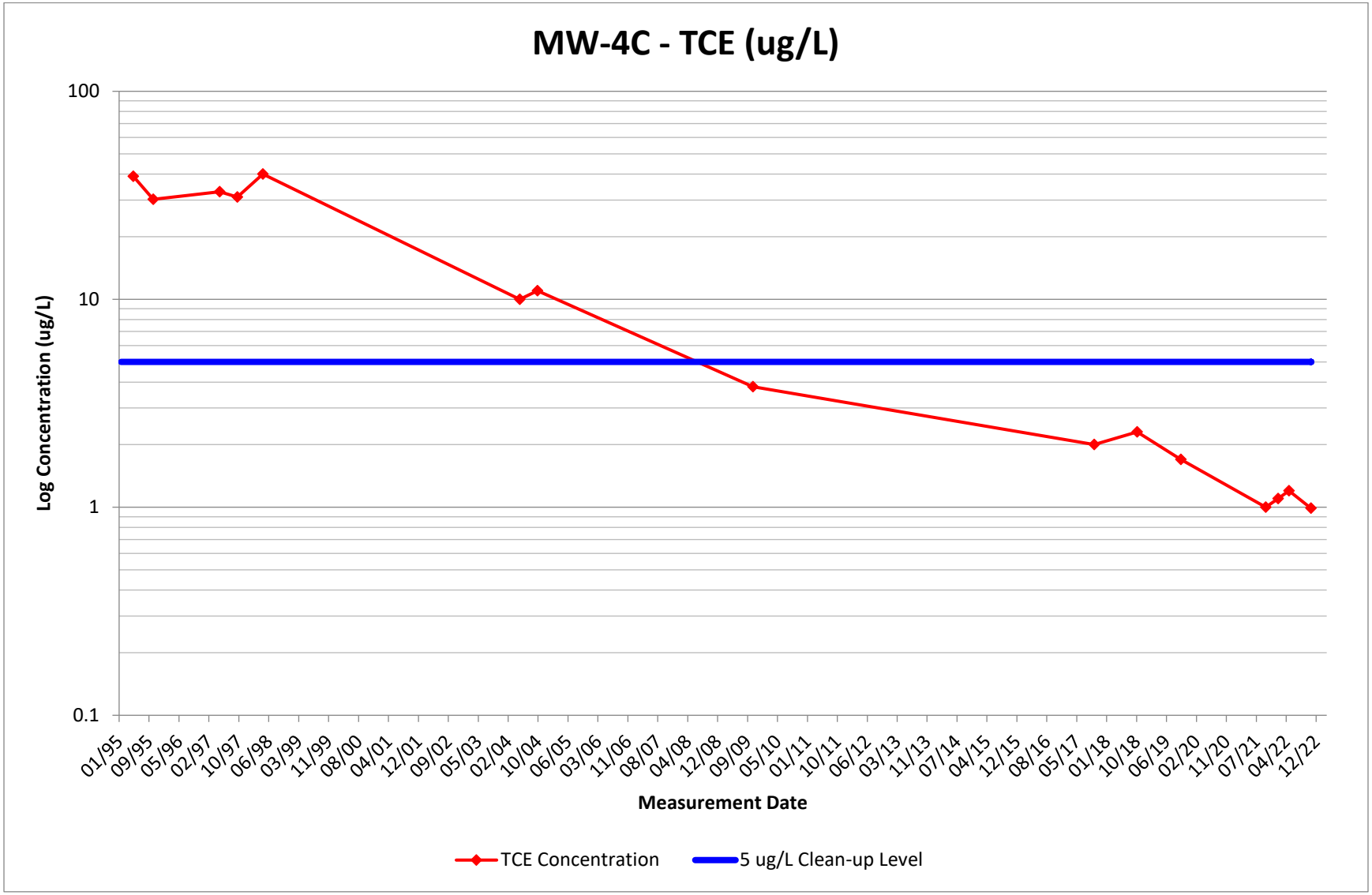

MW-3B - TCE (ug/L)
100
10
1
Log Concentration (ug/L)
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

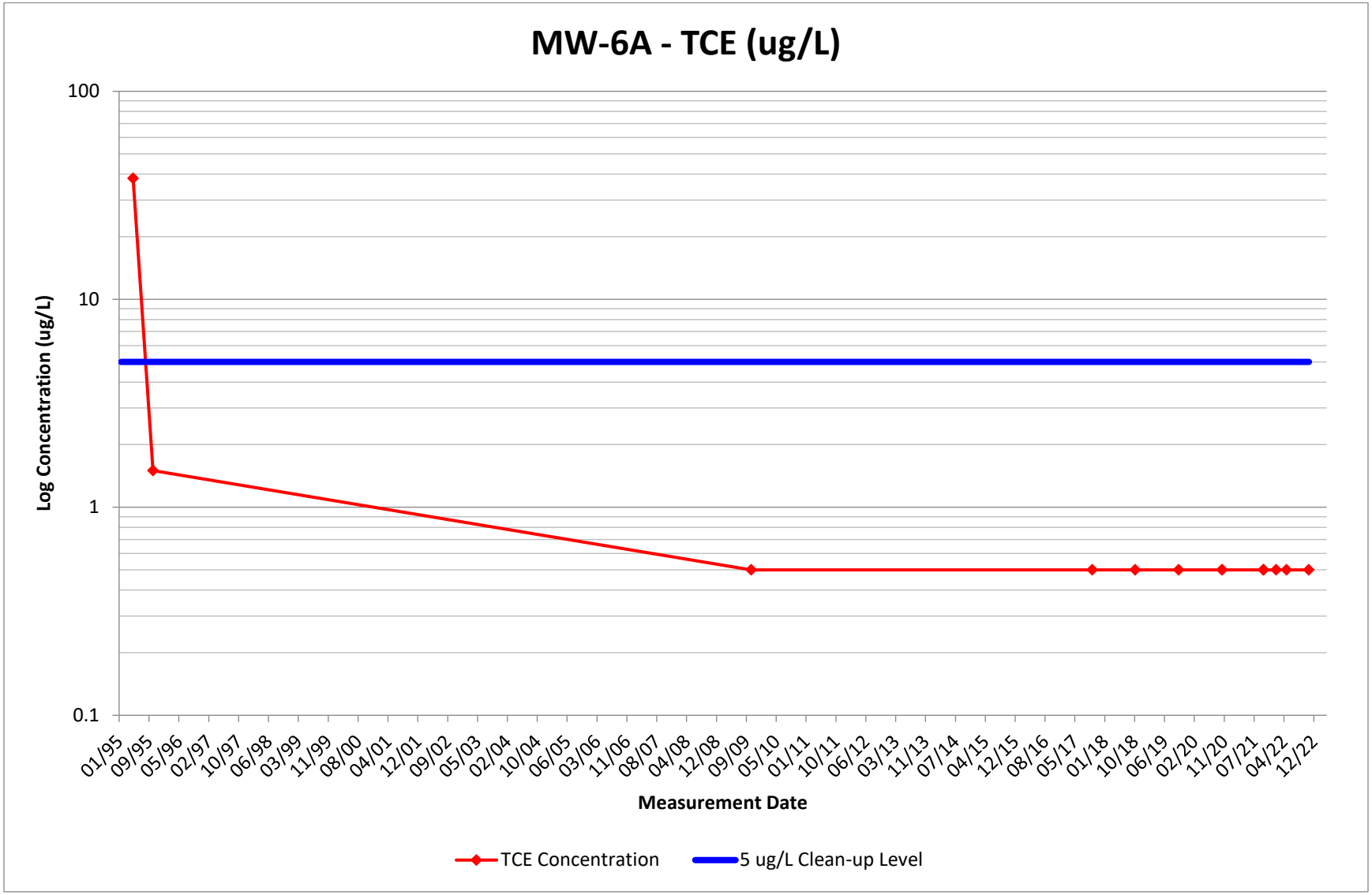

MW-3C - TCE (ug/L)
100
10
1
Log Concentration (ug/L)
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
05/07
02/08
12/08
10/09
08/10
06/11
04/12
02/13
11/13
09/14
07/15
05/16
03/17
01/18
11/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

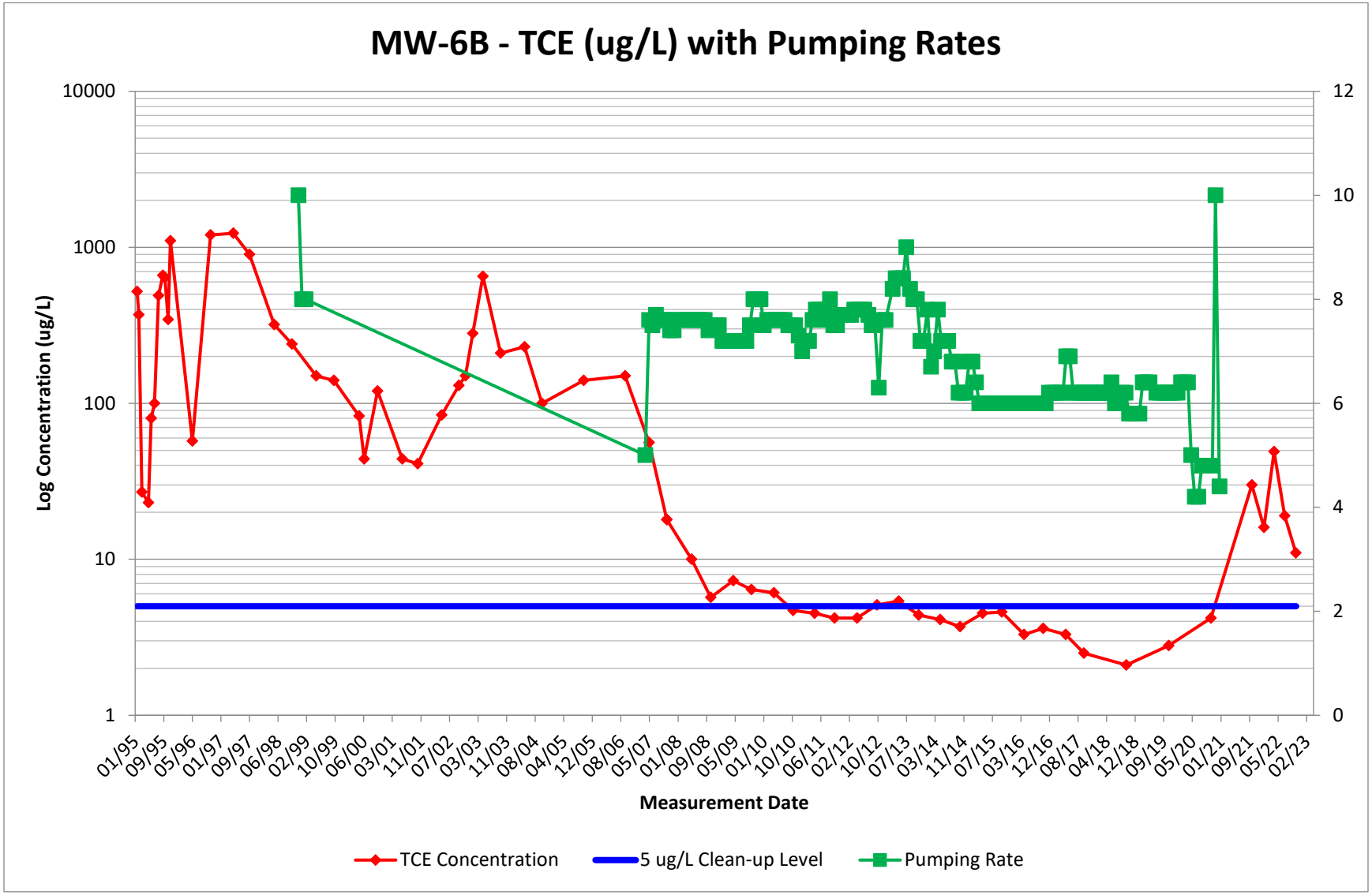

MW-4A - TCE (ug/L)
Log Concentration (ug/L)
1000
100
10
1
0.1
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
11/04
05/05
12/05
07/06
01/07
08/07
02/08
09/08
03/09
10/09
05/10
11/10
06/11
12/11
07/12
01/13
08/13
03/14
09/14
04/15
10/15
05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

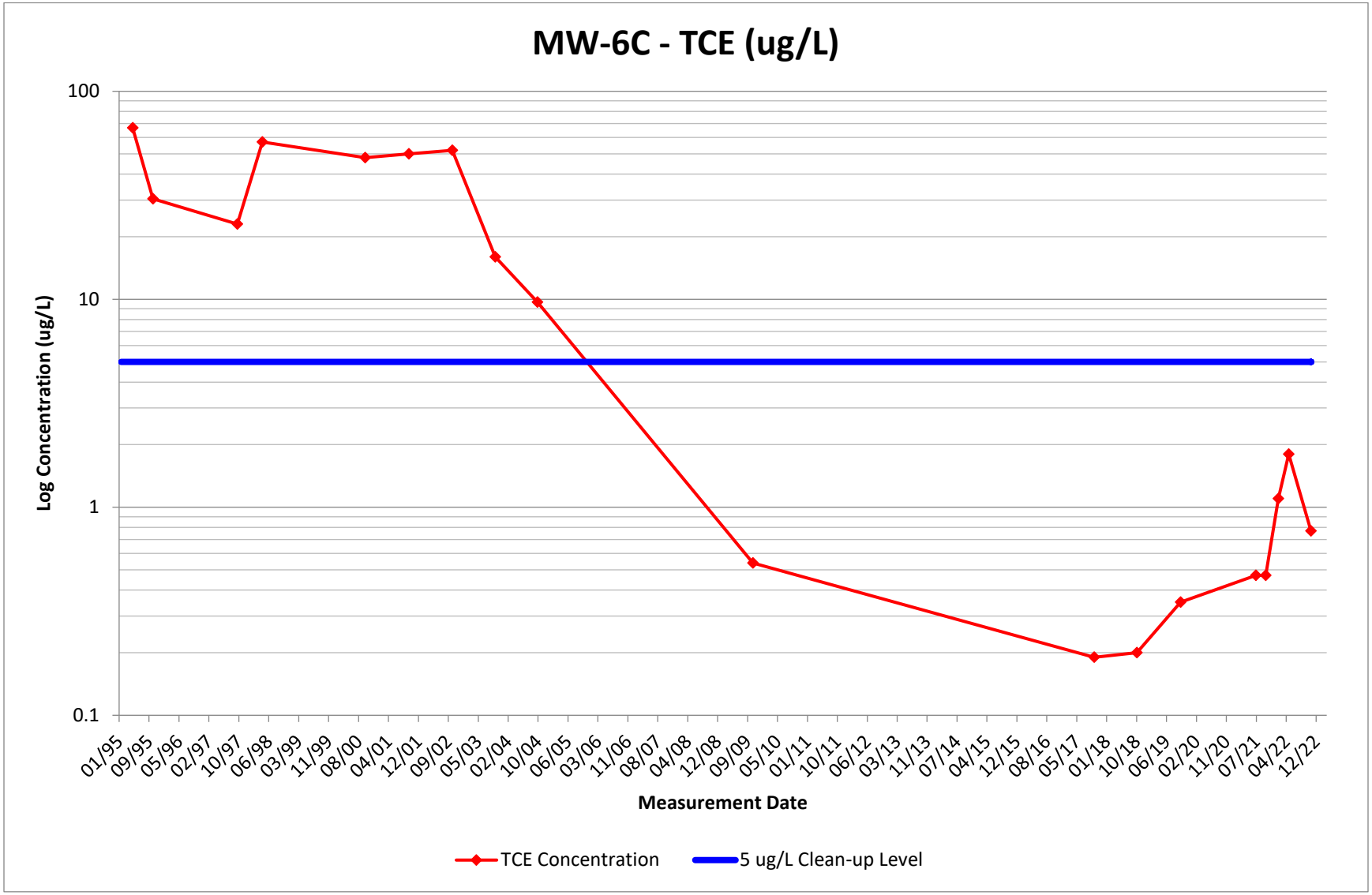

MW-4B - TCE (ug/L)
1000
100
10
1
0.1
Log Concentration (ug/L)
01/95
07/95
02/96
08/96
03/97
09/97
04/98
11/98
05/99
12/99
06/00
01/01
07/01
02/02
09/02
03/03
10/03
04/04
11/04
05/05
12/05
07/06
01/07
08/07
02/08
09/08
03/09
10/09
05/10
11/10
06/11
12/11
07/12
01/13
08/13
03/14
09/14
04/15
10/15
05/16
11/16
06/17
12/17
07/18
02/19
08/19
03/20
09/20
04/21
10/21
05/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

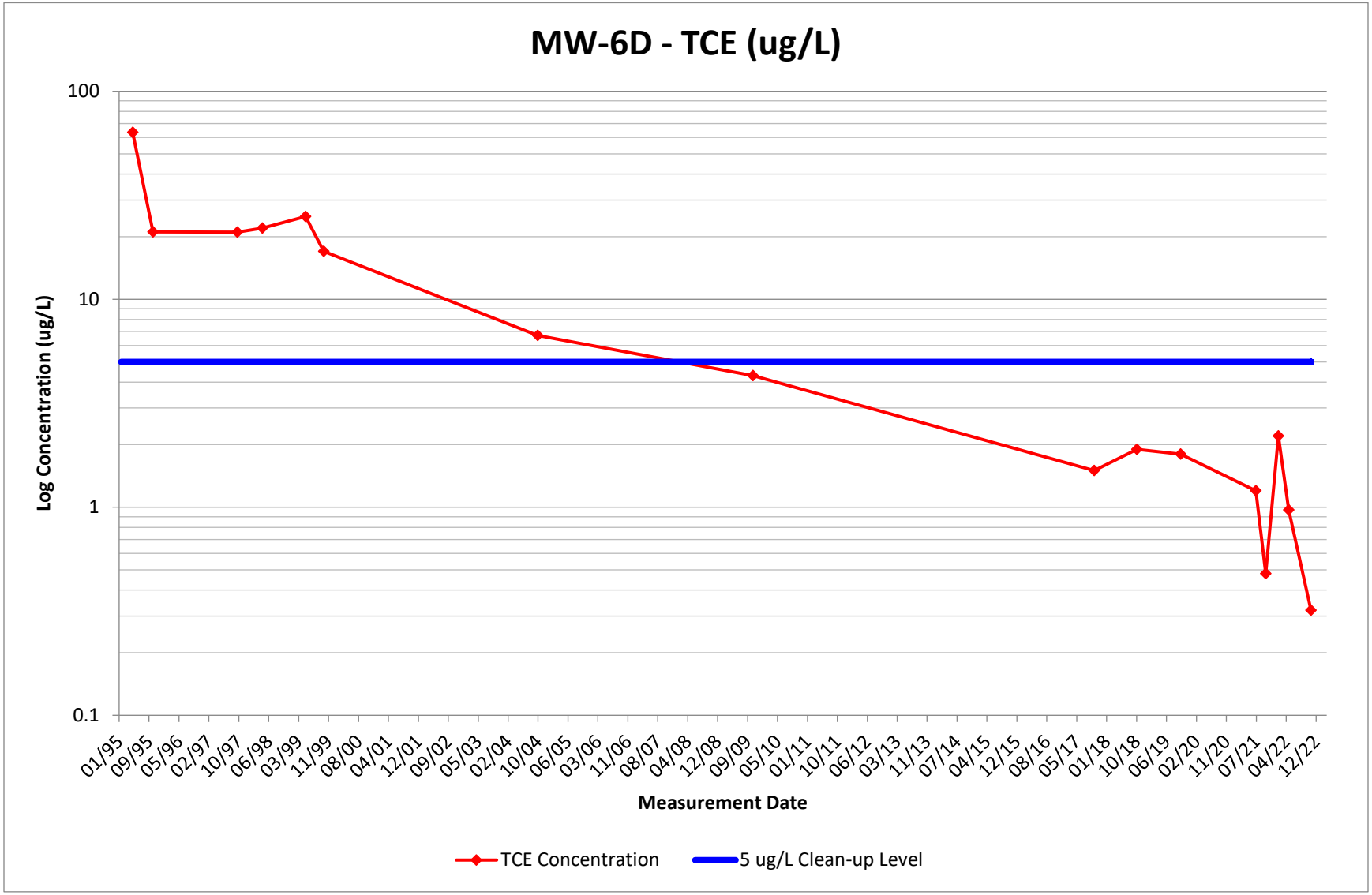

MW-4BSHED - TCE (ug/L)
Log Concentration (ug/L)
1000
100
10
1
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

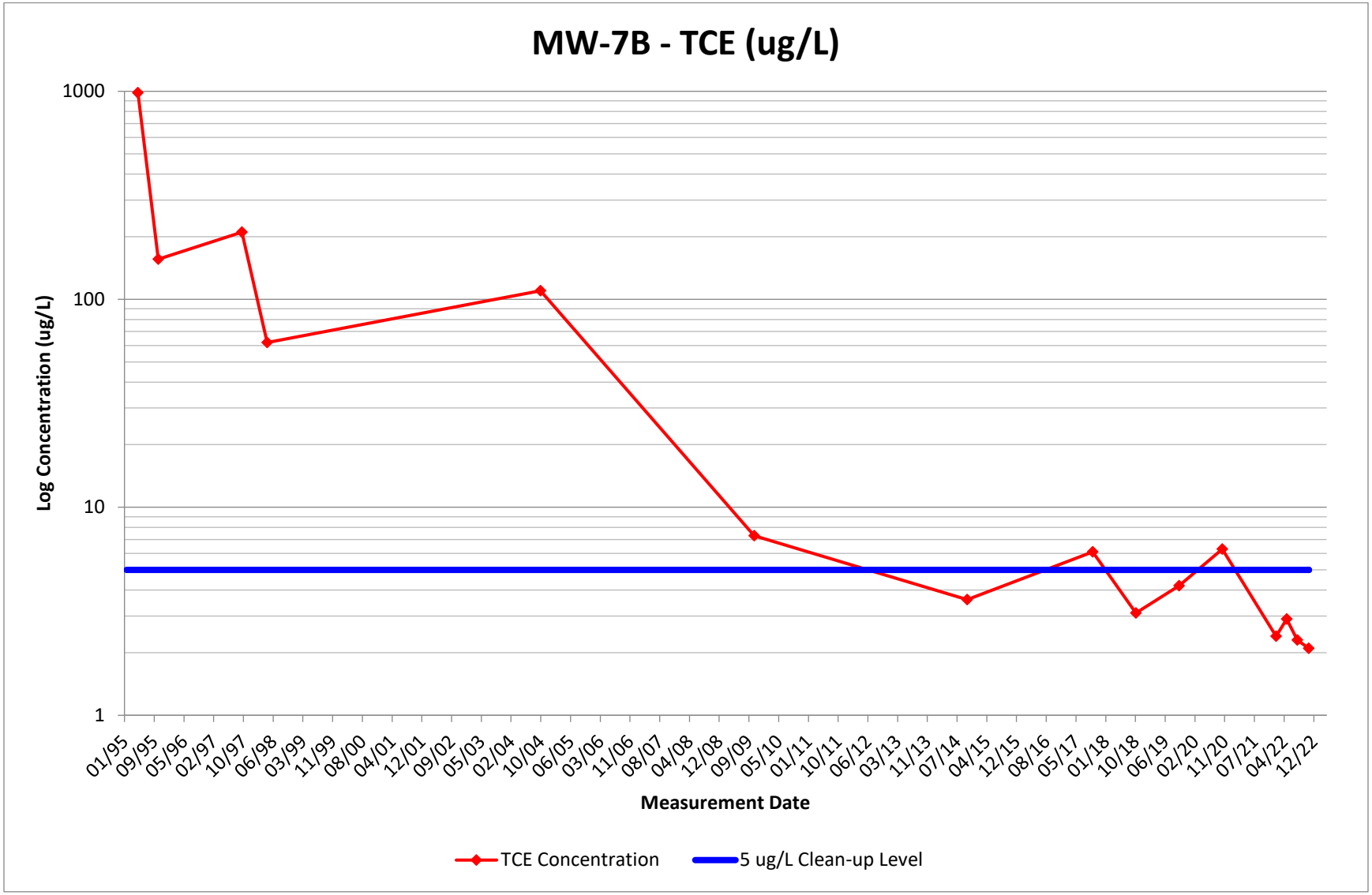

MW-4C - TCE (ug/L)
100
10
1
0.1
Log Concentration (ug/L)
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

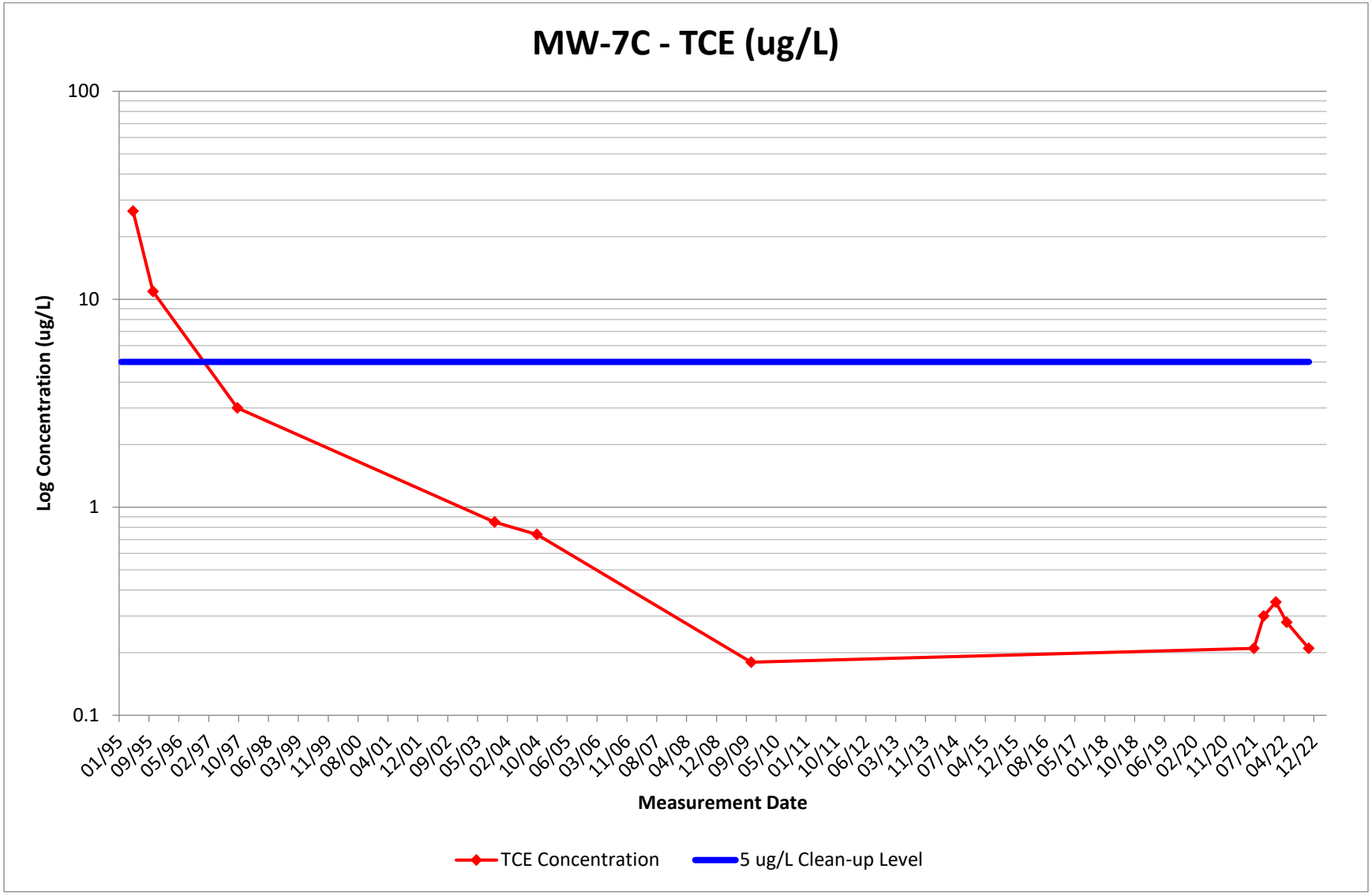

MW-6A - TCE (ug/L)
Log Concentration (ug/L)
100
10
1
0.1
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

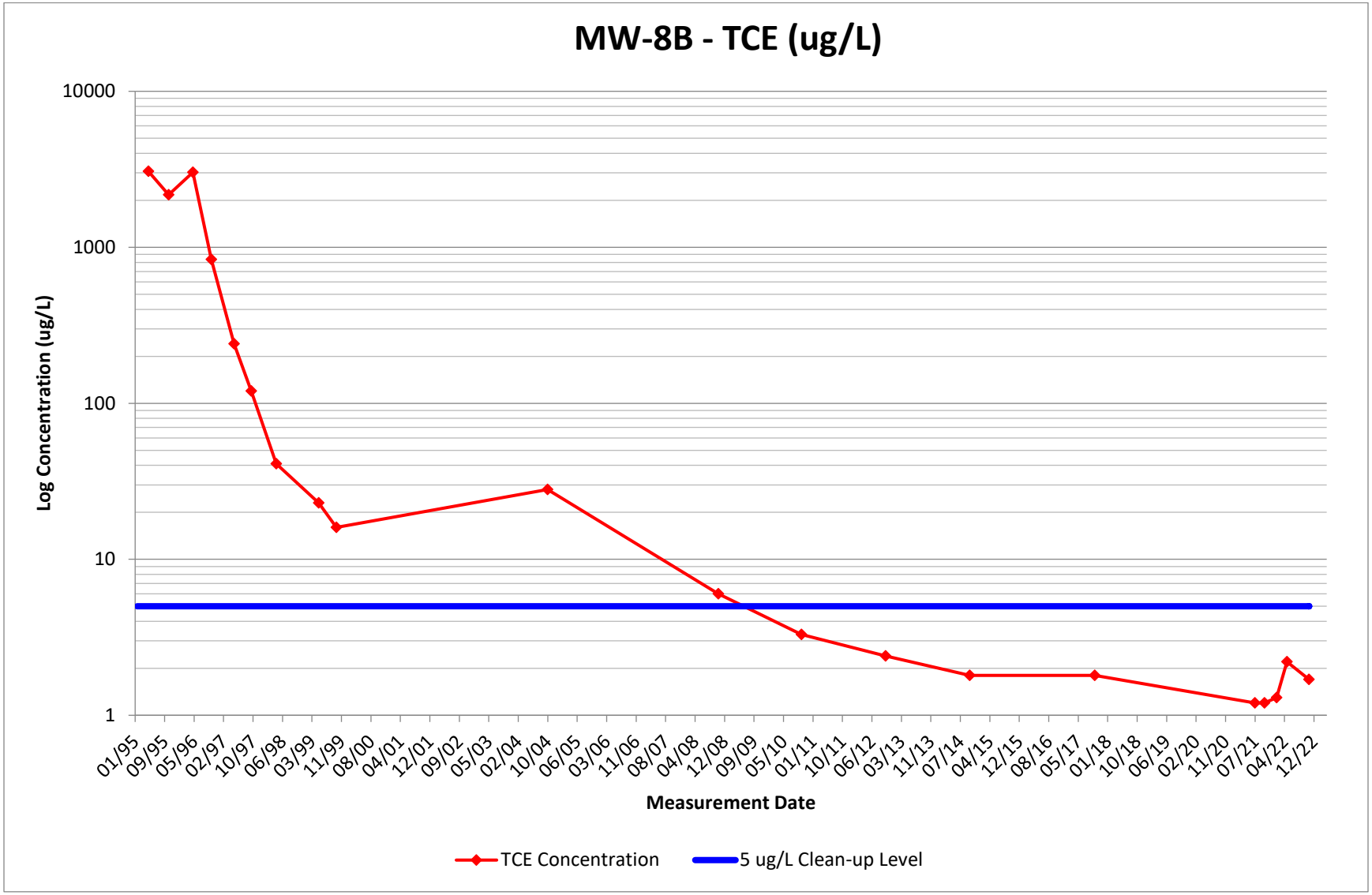

MW-6B - TCE (ug/L) with Pumping Rates
Log Concentration (ug/L)
10000
1000
100
10
1
12
10
8
6
4
2
0
01/95
09/95
05/96
01/97
09/97
06/98
02/99
10/99
06/00
03/01
11/01
07/02
03/03
11/03
08/04
04/05
12/05
08/06
05/07
01/08
09/08
05/09
01/10
10/10
06/11
02/12
10/12
07/13
03/14
11/14
07/15
03/16
12/16
08/17
04/18
12/18
09/19
05/20
01/21
09/21
05/22
02/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level
Pumping Rate

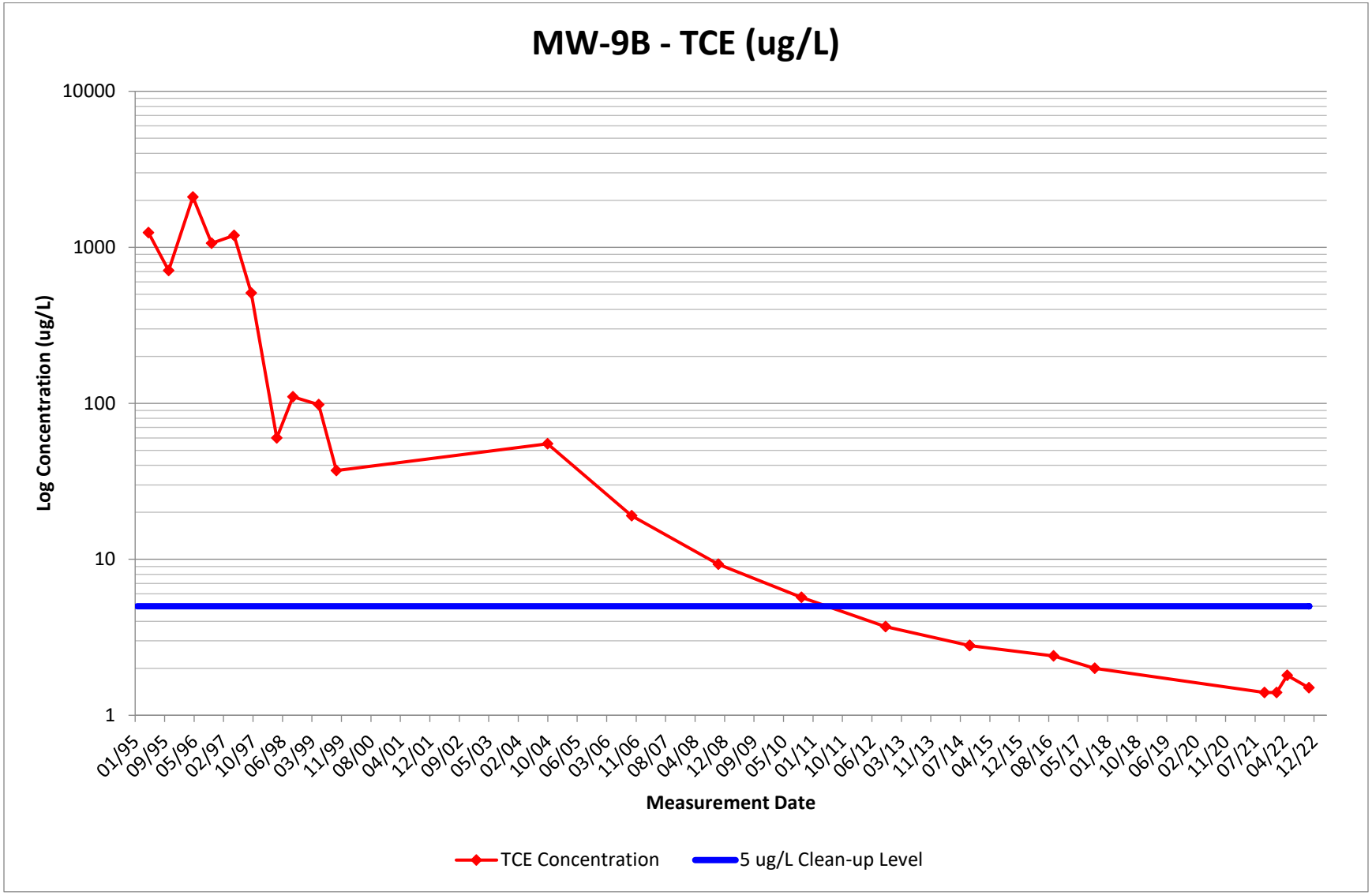

MW-6C - TCE (ug/L)
Log Concentration (ug/L)
100
10
1
0.1
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

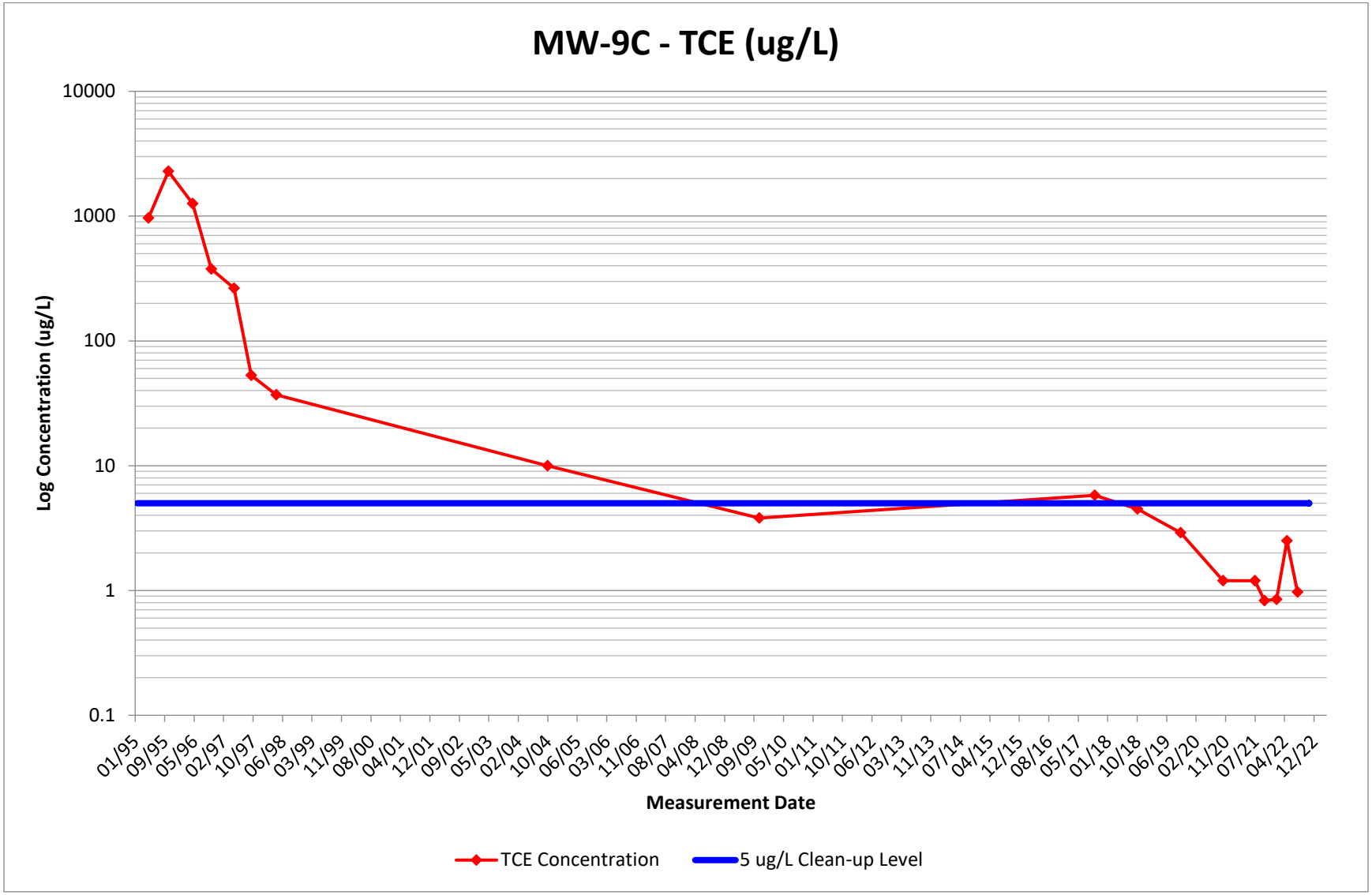

MW-6D - TCE (ug/L)
100
10
1
0.1
Log Concentration (ug/L)
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

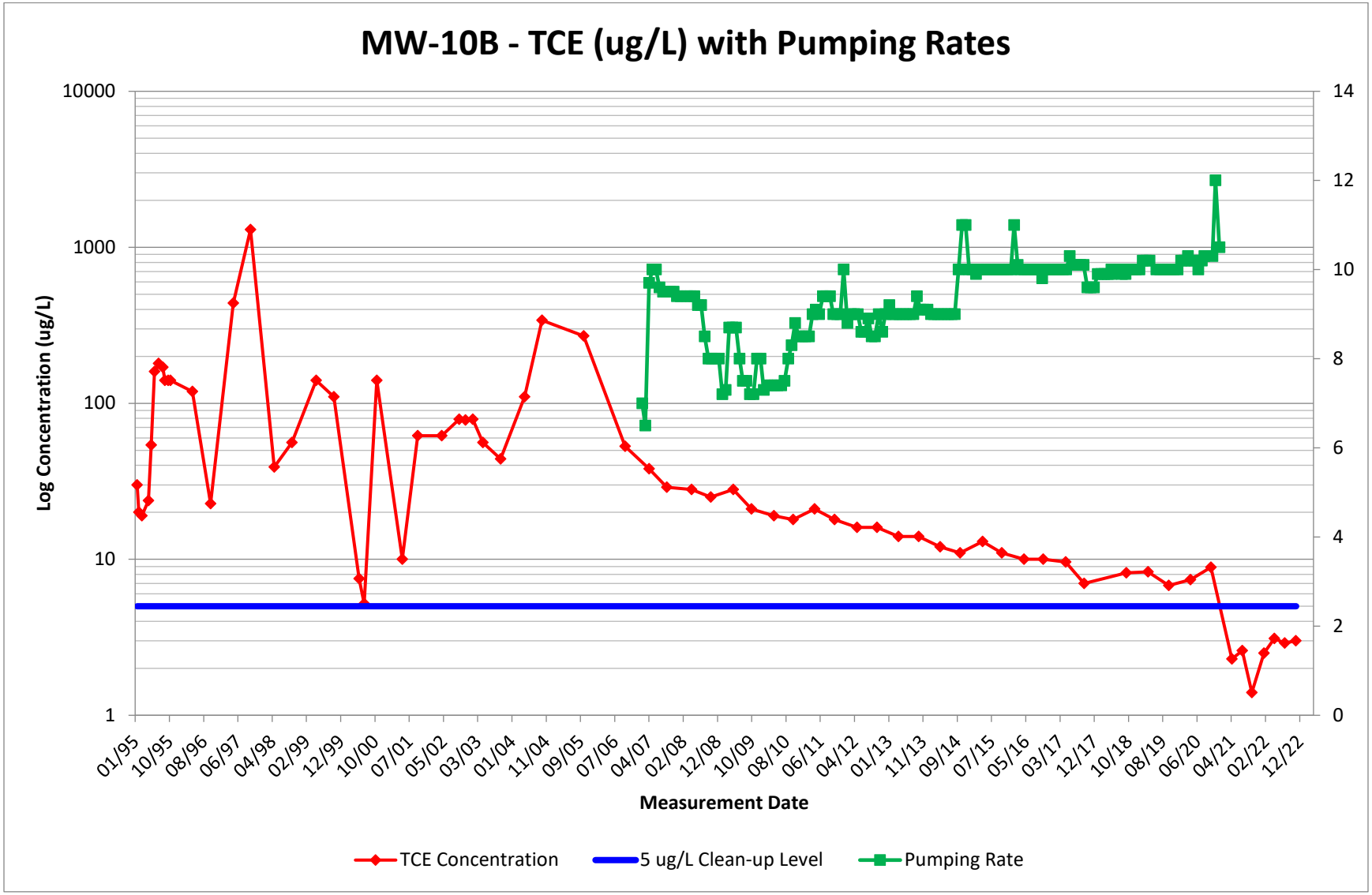

MW-7B - TCE (ug/L)
Log Concentration (ug/L)
1000
100
10
1
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

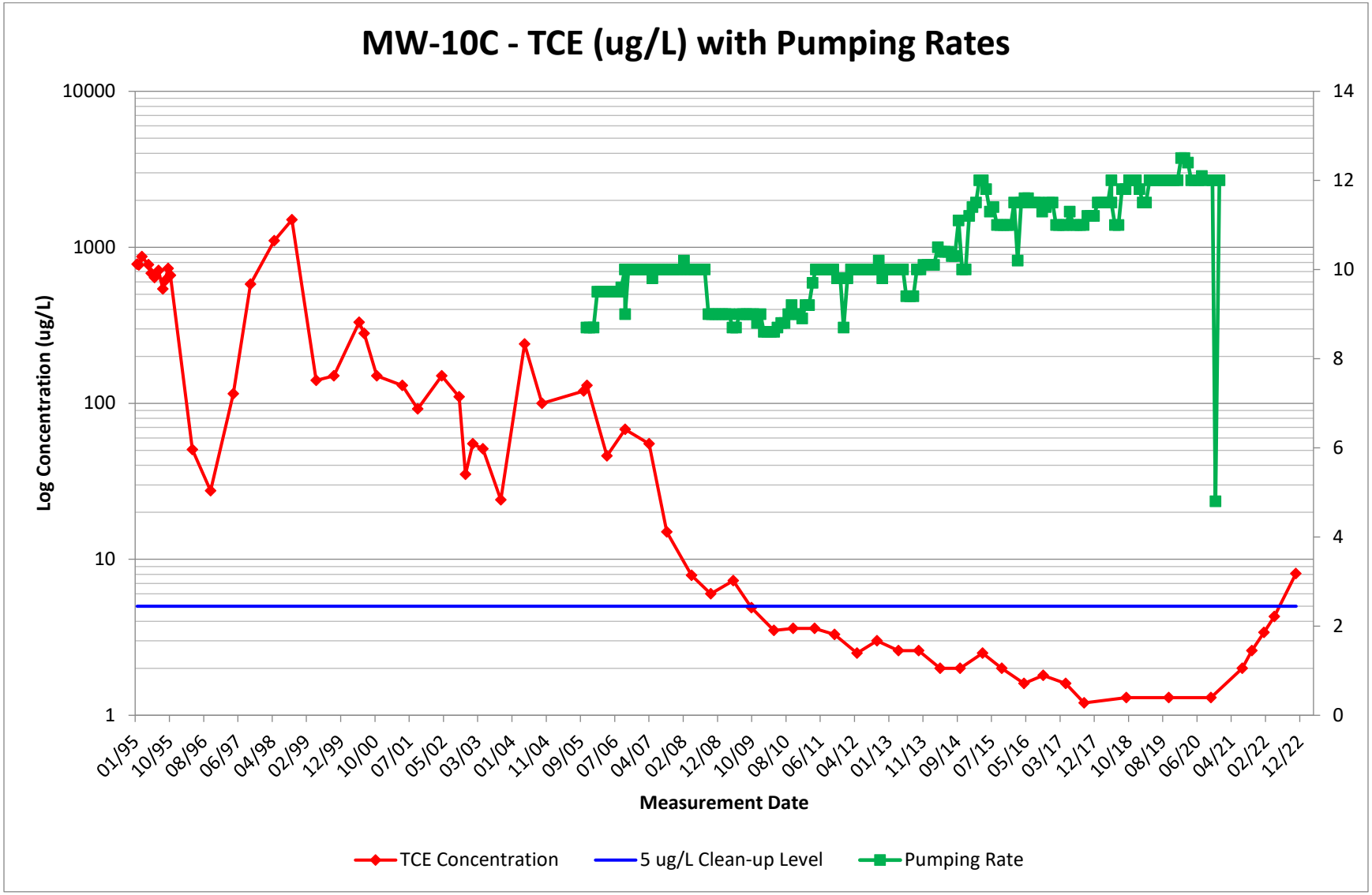

MW-7C - TCE (ug/L)
100
10
1
0.1
Log Concentration (ug/L)
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

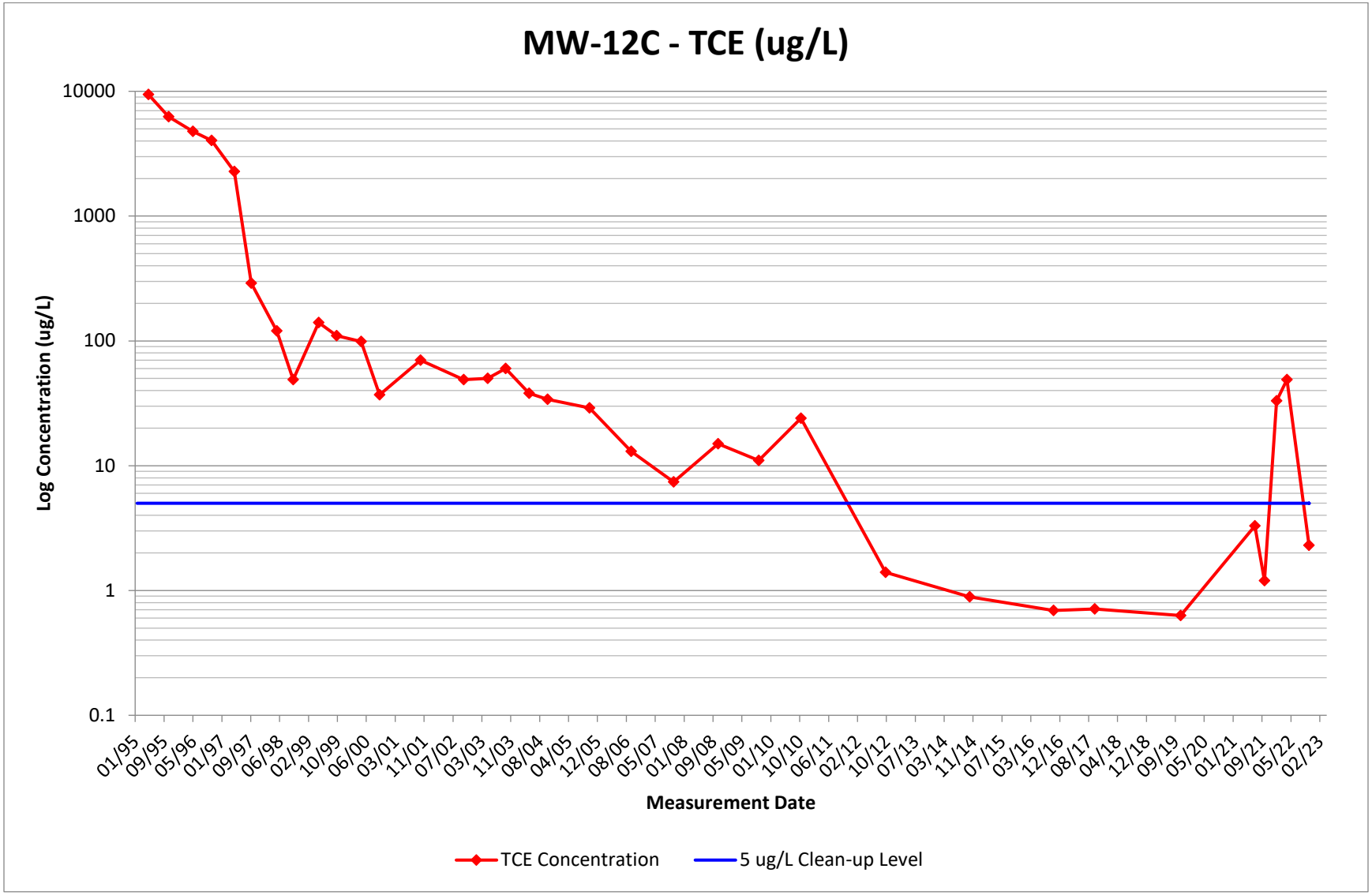

MW-8B - TCE (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

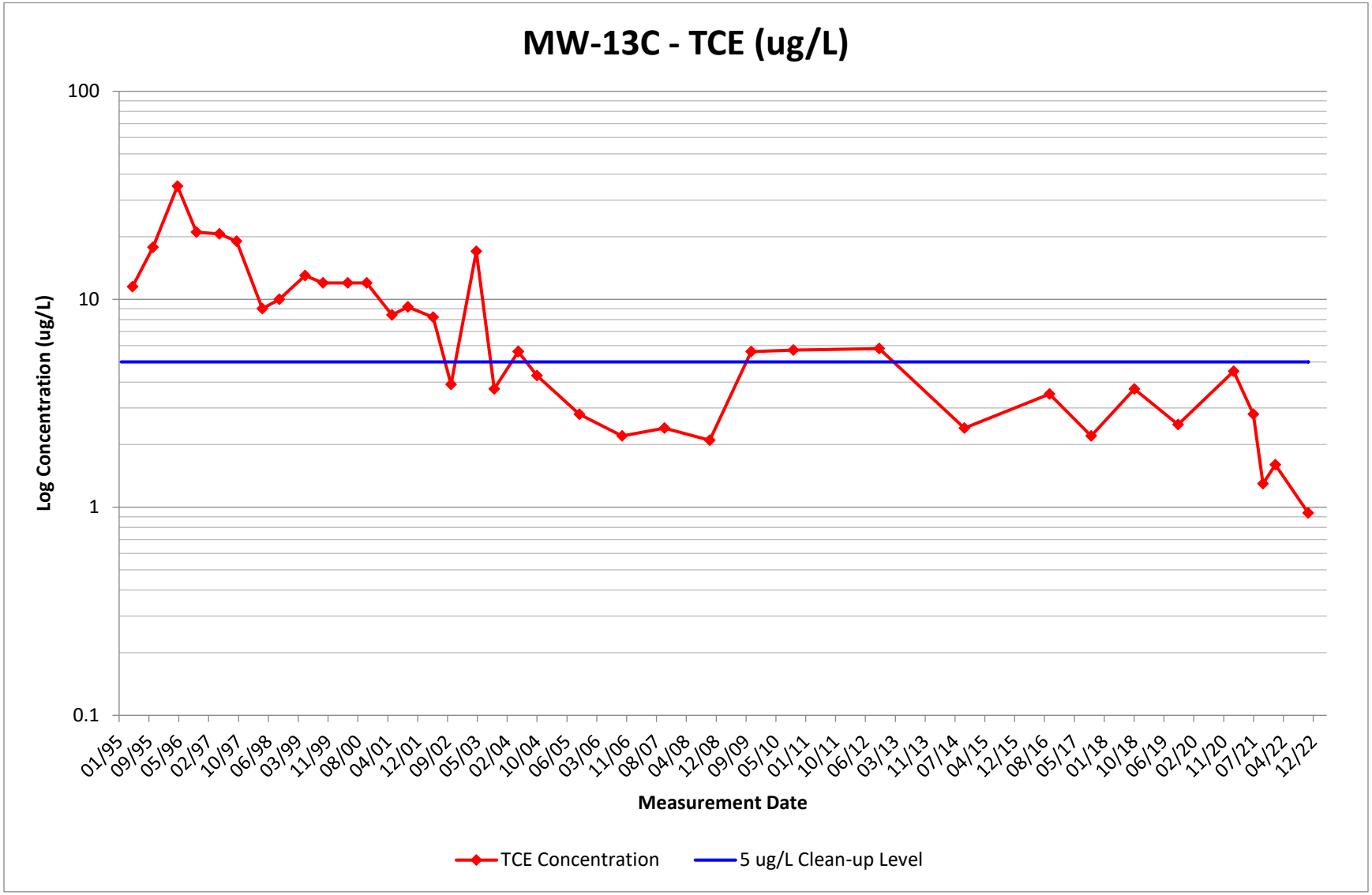

MW-9B - TCE (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

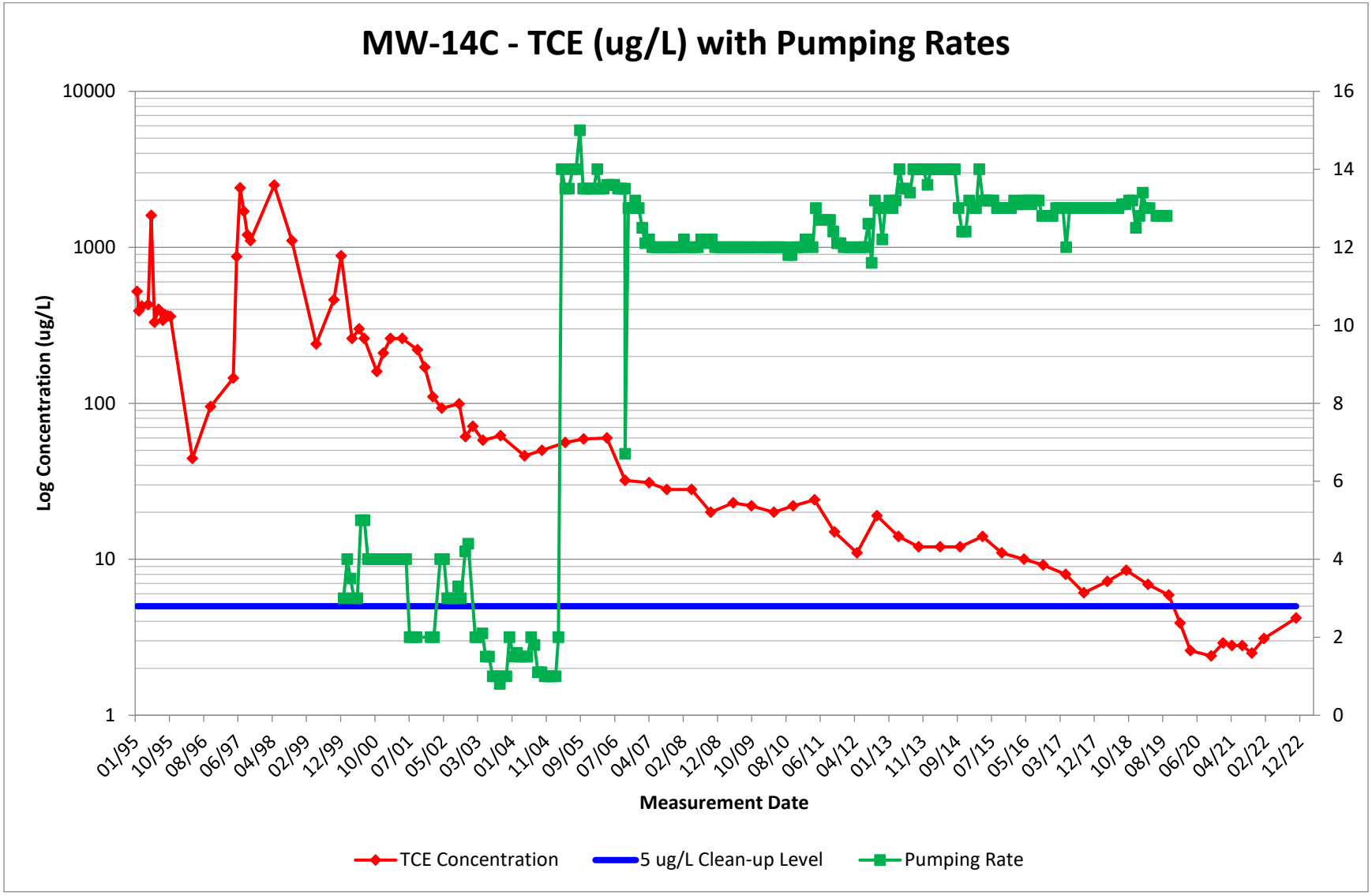

MW-9C - TCE (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
0.1
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

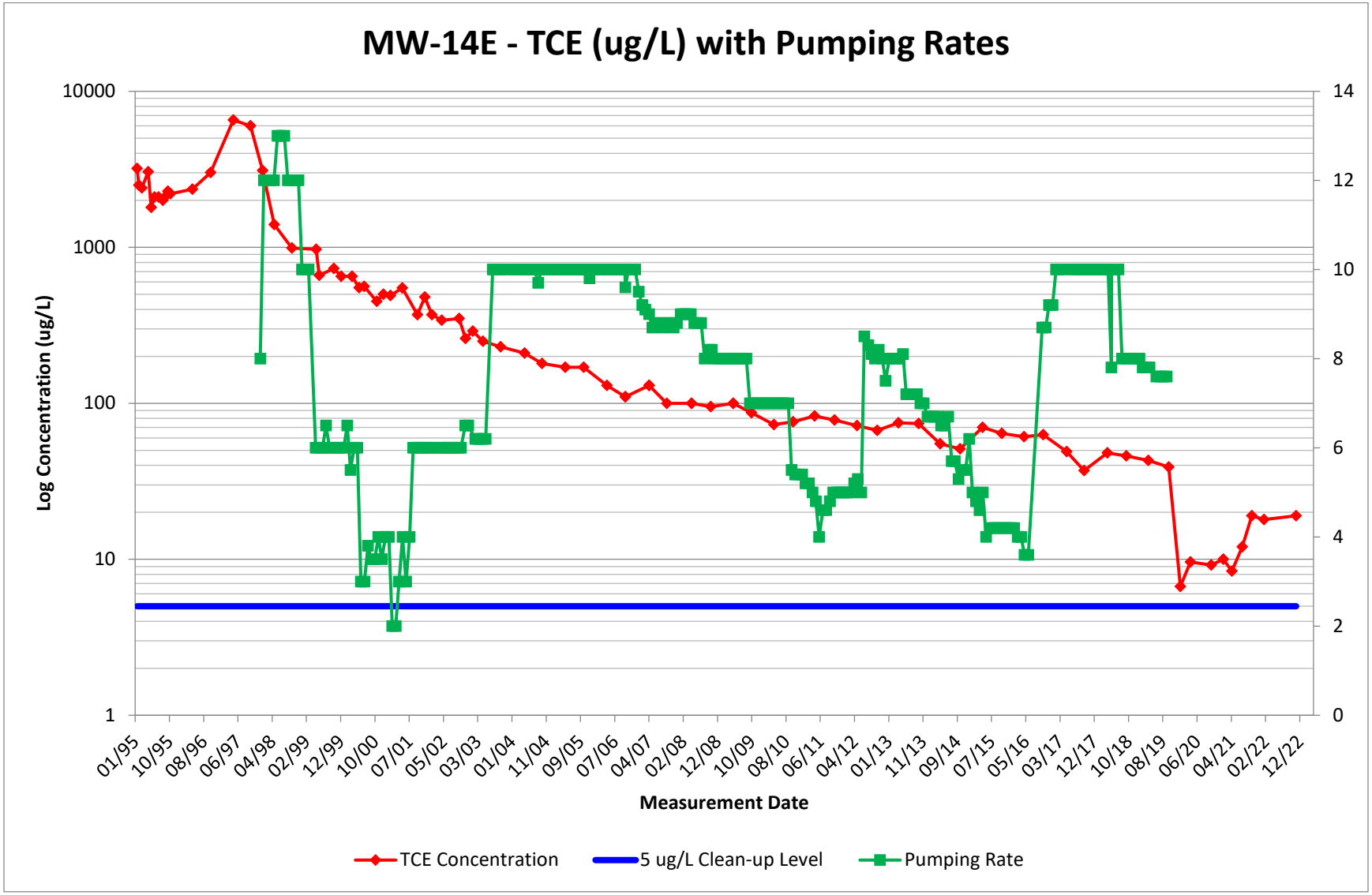

MW-10B - TCE (ug/L) with Pumping Rates
Log Concentration (ug/L)
10000
1000
100
10
1
14
12
10
8
6
4
2
0
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level
Pumping Rate

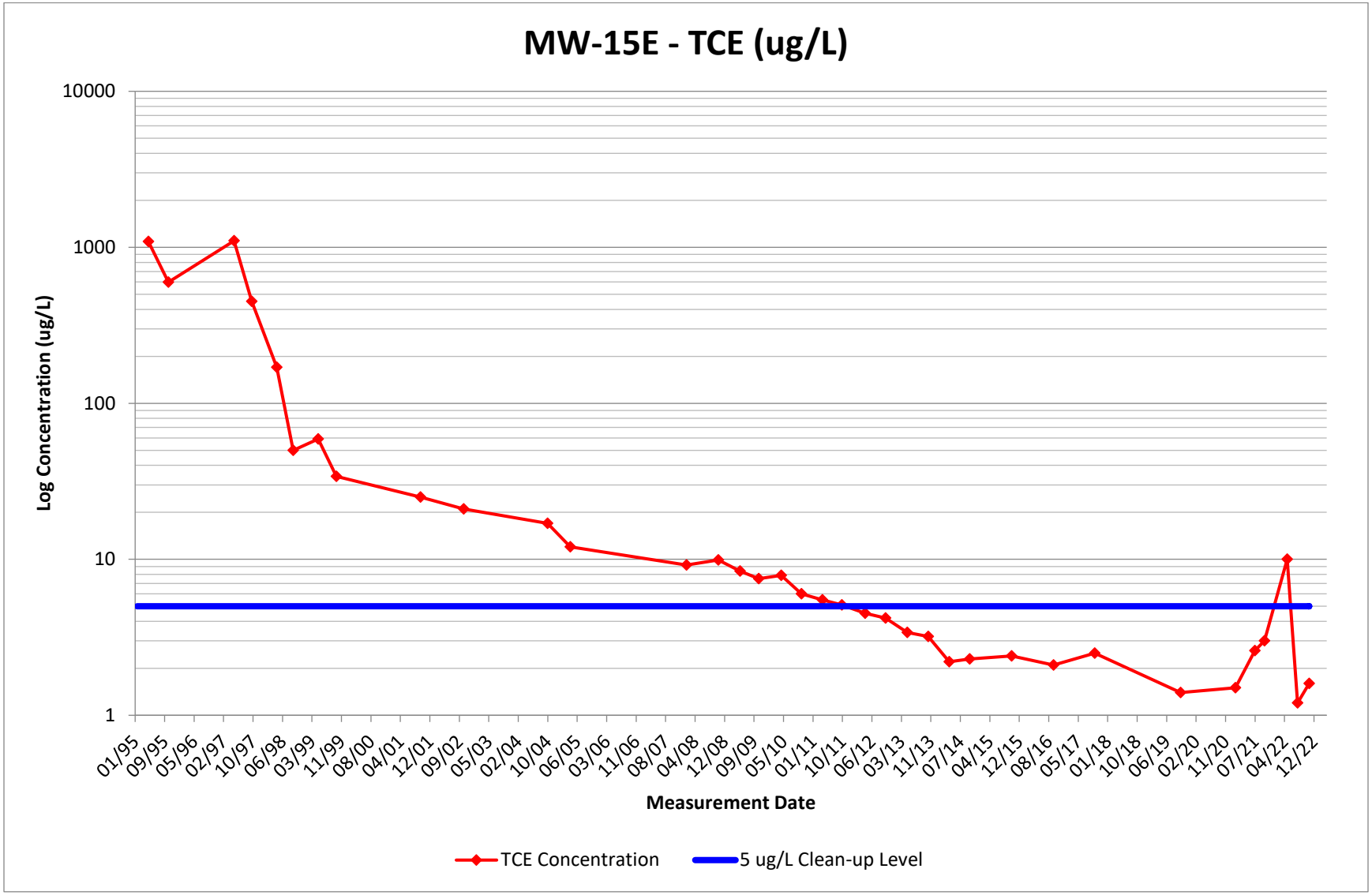

MW-10C - TCE (ug/L) with Pumping Rates
Log Concentration (ug/L)
10000
1000
100
10
1
14
12
10
8
6
4
2
0
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level
Pumping Rate

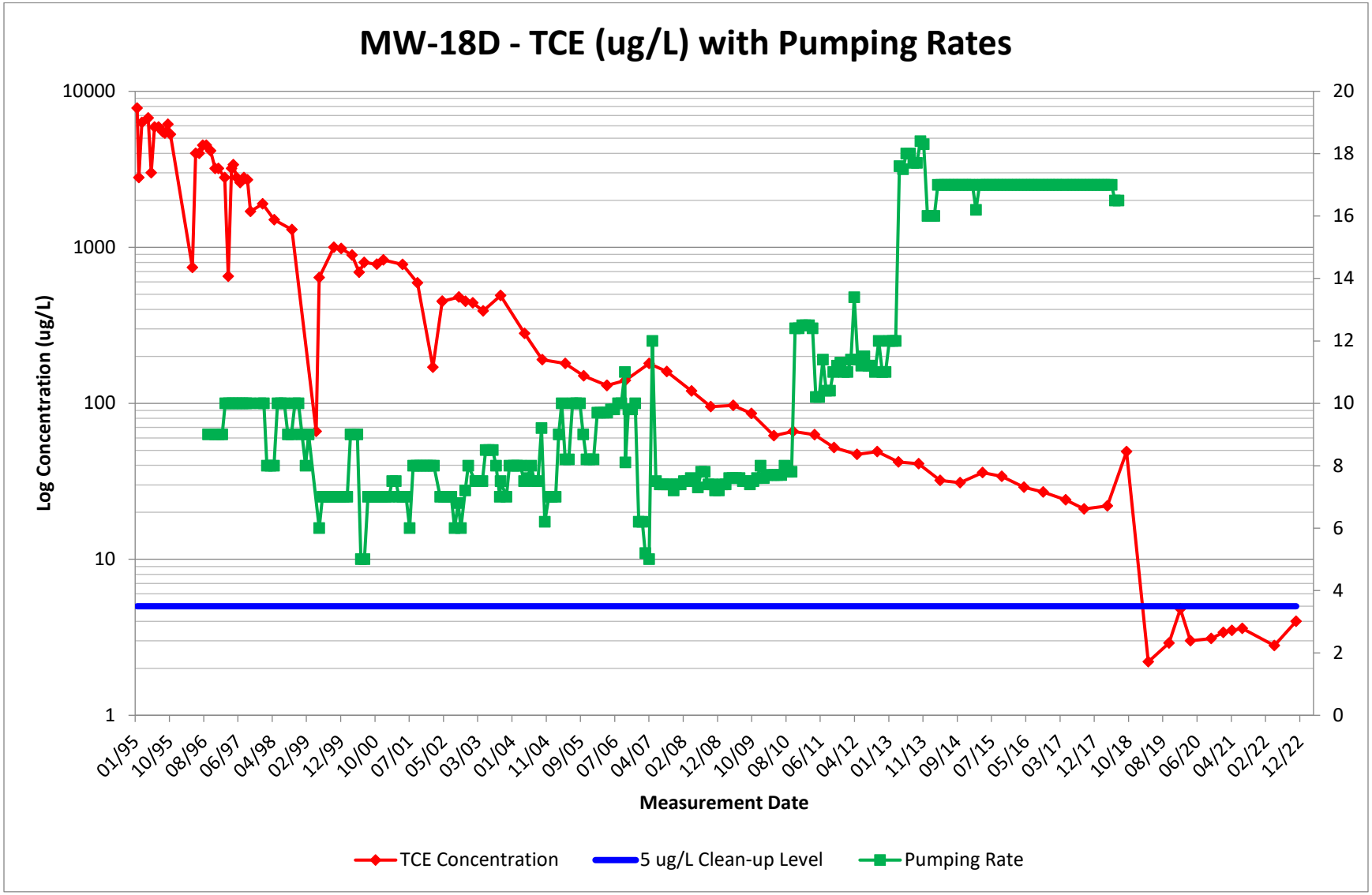

MW-12C - TCE (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
0.1
01/95
09/95
05/96
01/97
09/97
06/98
02/99
10/99
06/00
03/01
11/01
07/02
03/03
11/03
08/04
04/05
12/05
08/06
05/07
01/08
09/08
05/09
01/10
10/10
06/11
02/12
10/12
07/13
03/14
11/14
07/15
03/16
12/16
08/17
04/18
12/18
09/19
05/20
01/21
09/21
05/22
02/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

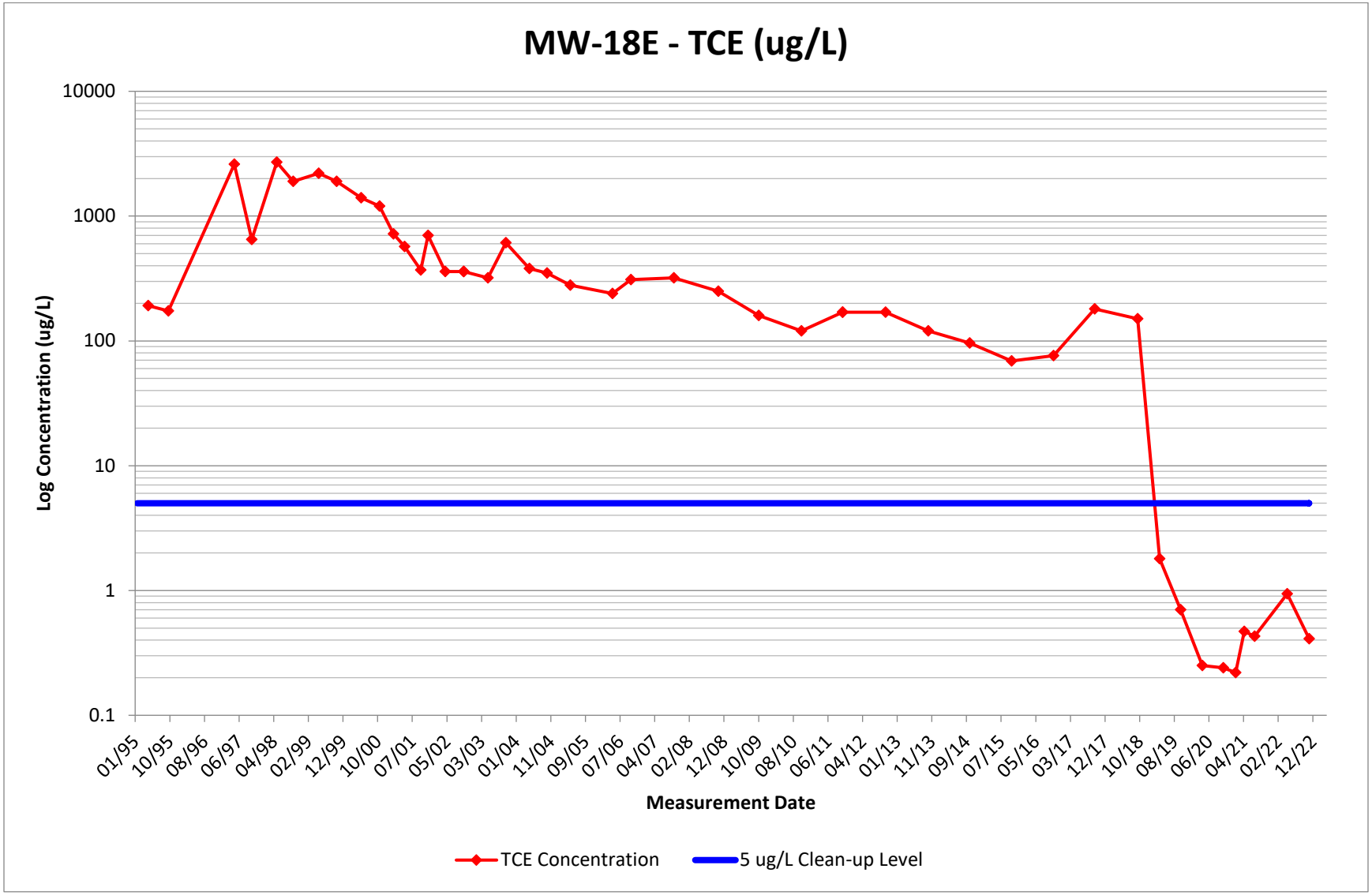

MW-13C - TCE (ug/L)
Log Concentration (ug/L)
100
10
1
0.1
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

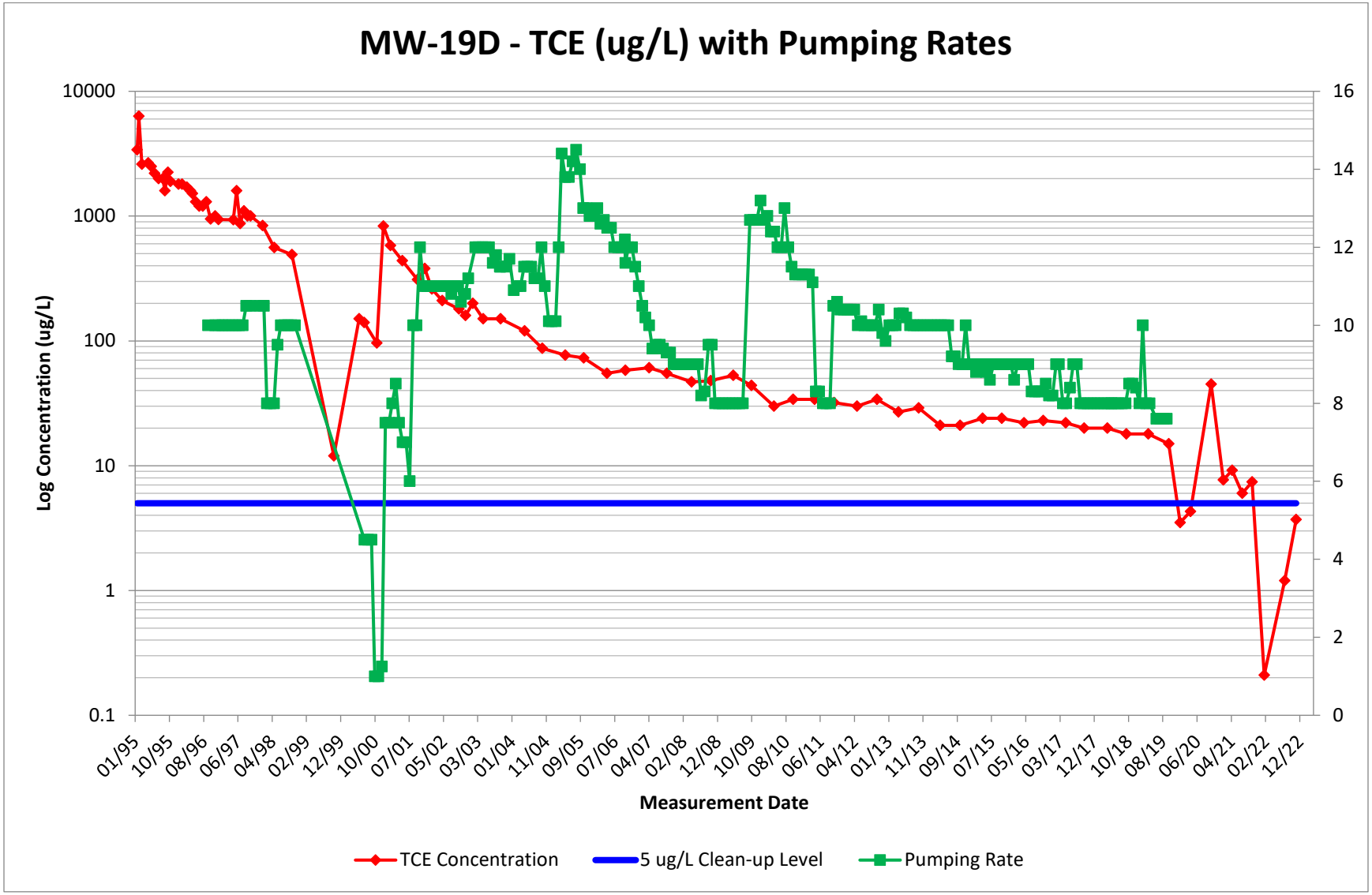

MW-14C - TCE (ug/L) with Pumping Rates
Log Concentration (ug/L)
10000
1000
100
10
1
16
14
12
10
8
6
4
2
0
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level
Pumping Rate

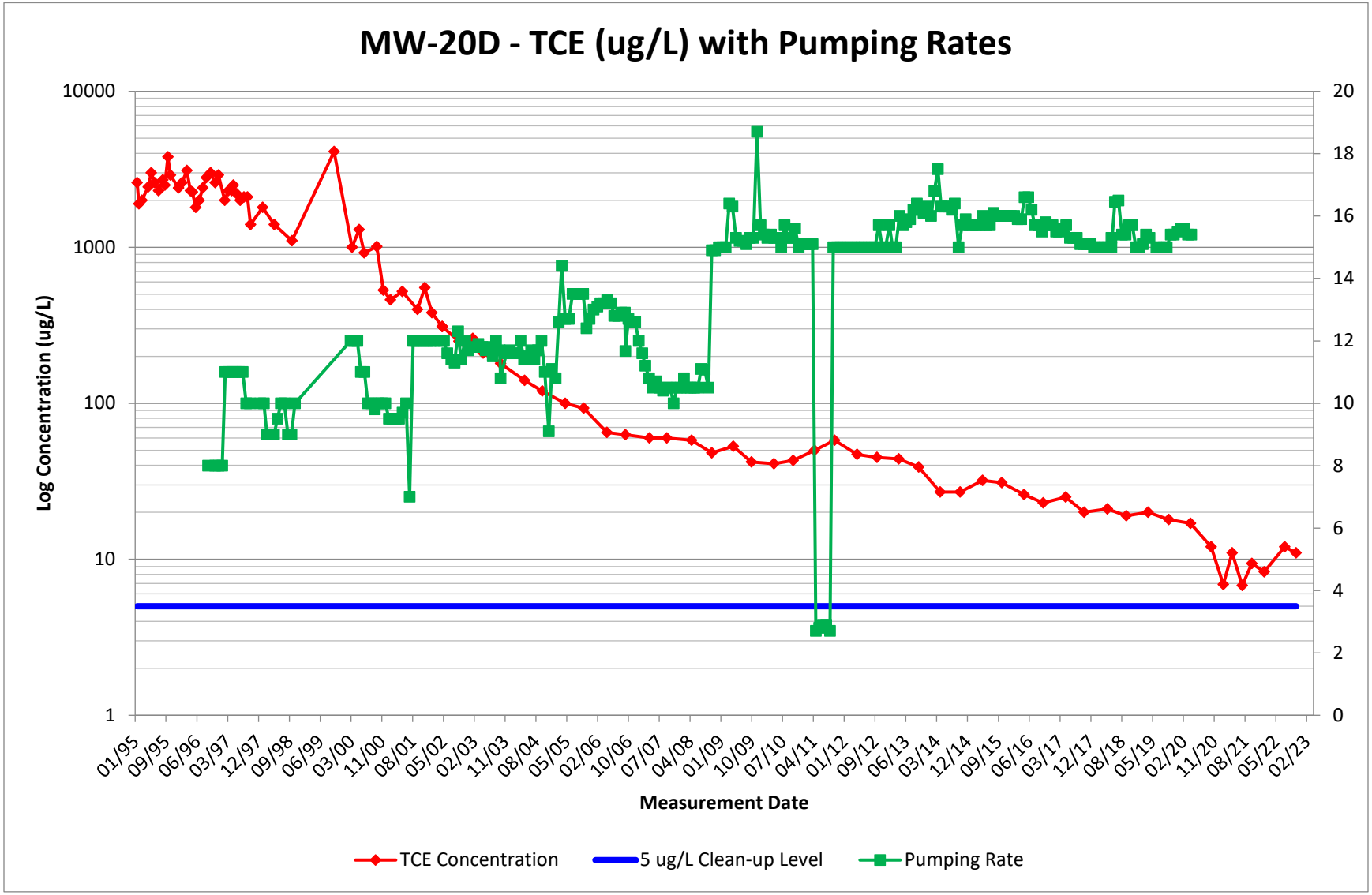

MW-14E - TCE (ug/L) with Pumping Rates
Log Concentration (ug/L)
10000
1000
100
10
1
14
12
10
8
6
4
2
0
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level
Pumping Rate

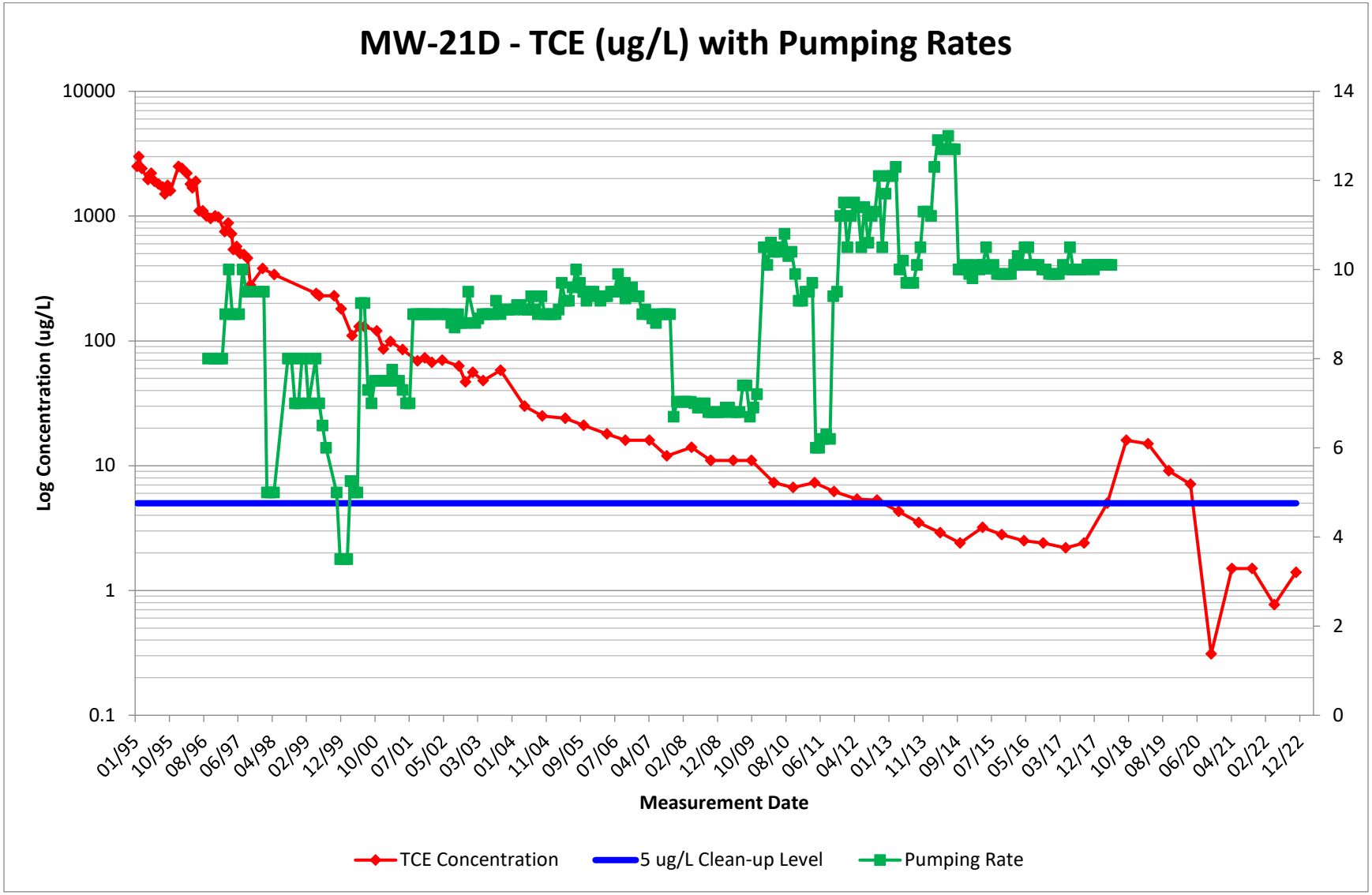

MW-15E - TCE (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
01/95
09/95
05/96
02/97
10/97
06/98
03/99
11/99
08/00
04/01
12/01
09/02
05/03
02/04
10/04
06/05
03/06
11/06
08/07
04/08
12/08
09/09
05/10
01/11
10/11
06/12
03/13
11/13
07/14
04/15
12/15
08/16
05/17
01/18
10/18
06/19
02/20
11/20
07/21
04/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

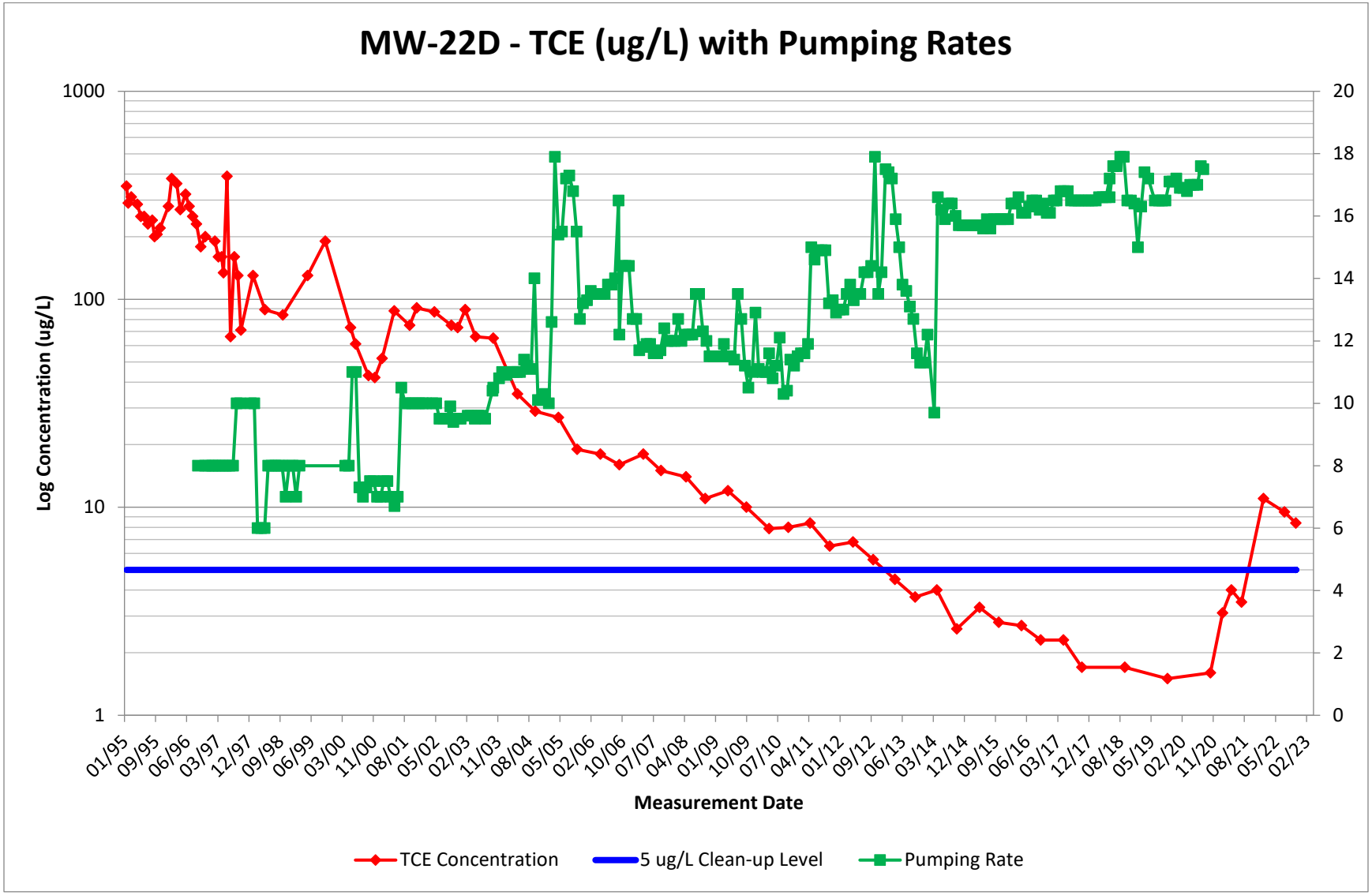

MW-18D - TCE (ug/L) with Pumping Rates
Log Concentration (ug/L)
10000
1000
100
10
1
20
18
16
14
12
10
8
6
4
2
0
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level
Pumping Rate

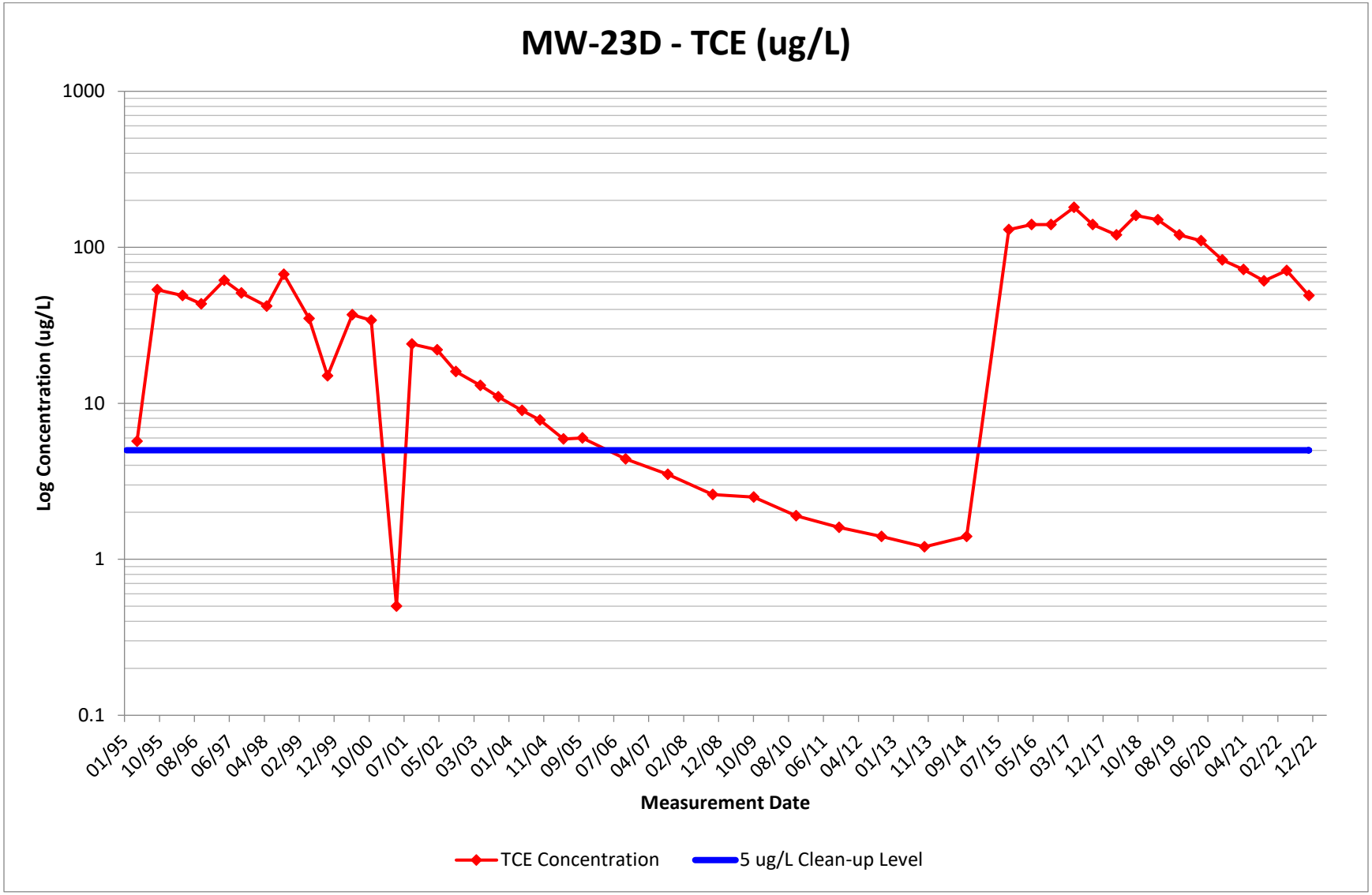

MW-18E - TCE (ug/L)
Log Concentration (ug/L)
10000
1000
100
10
1
0.1
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

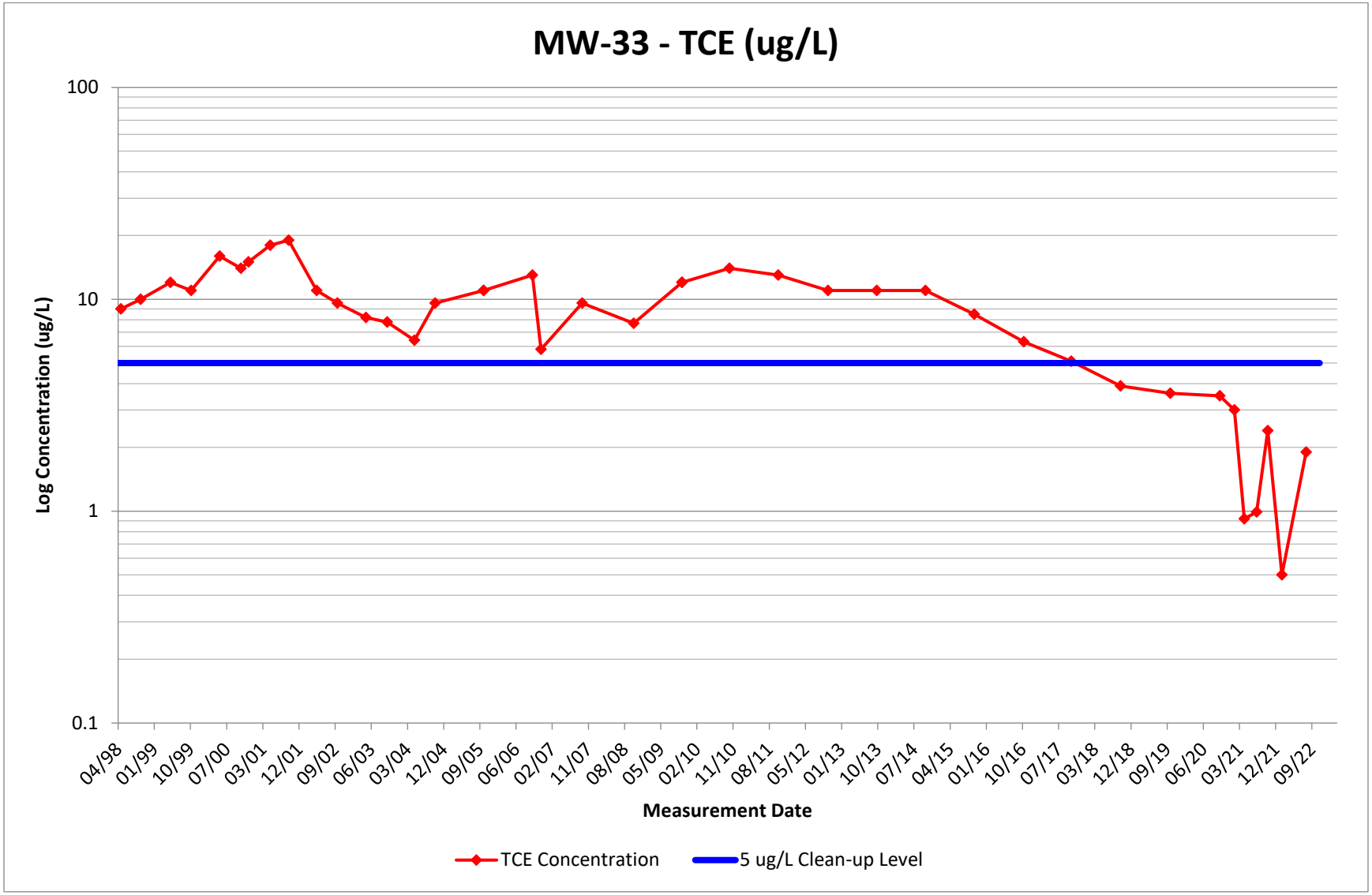

MW-19D - TCE (ug/L) with Pumping Rates
Log Concentration (ug/L)
10000
1000
100
10
1
0.1
16
14
12
10
8
6
4
2
0
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level
Pumping Rate

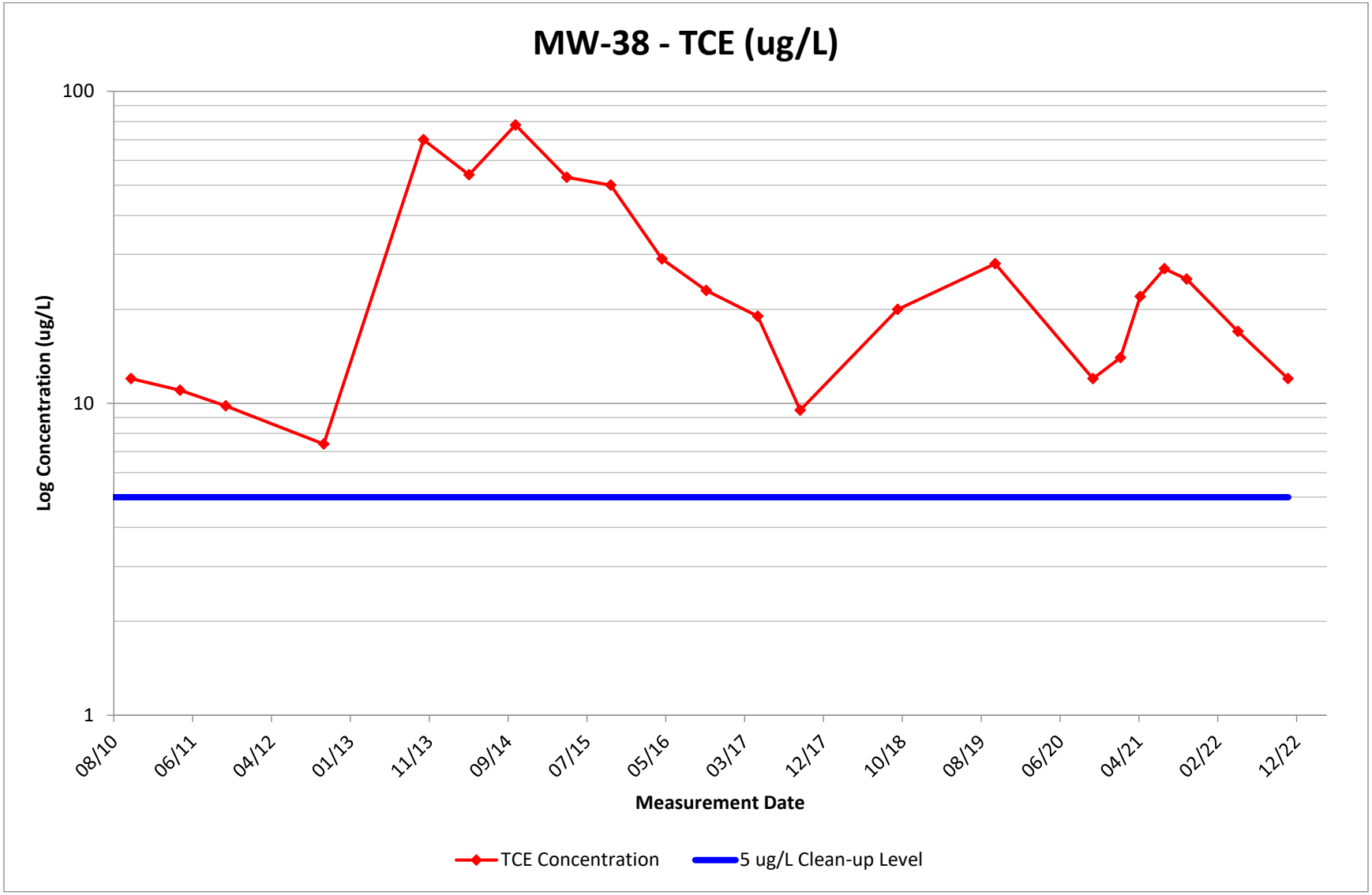

MW-20D - TCE (ug/L) with Pumping Rates
Log Concentration (ug/L)
10000
1000
100
10
1
20
18
16
14
12
10
8
6
4
2
0
01/95
09/95
06/96
03/97
12/97
09/98
06/99
03/00
11/00
08/01
05/02
02/03
11/03
08/04
05/05
02/06
10/06
07/07
04/08
01/09
10/09
07/10
04/11
01/12
09/12
06/13
03/14
12/14
09/15
06/16
03/17
12/17
08/18
05/19
02/20
11/20
08/21
05/22
02/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level
Pumping Rate

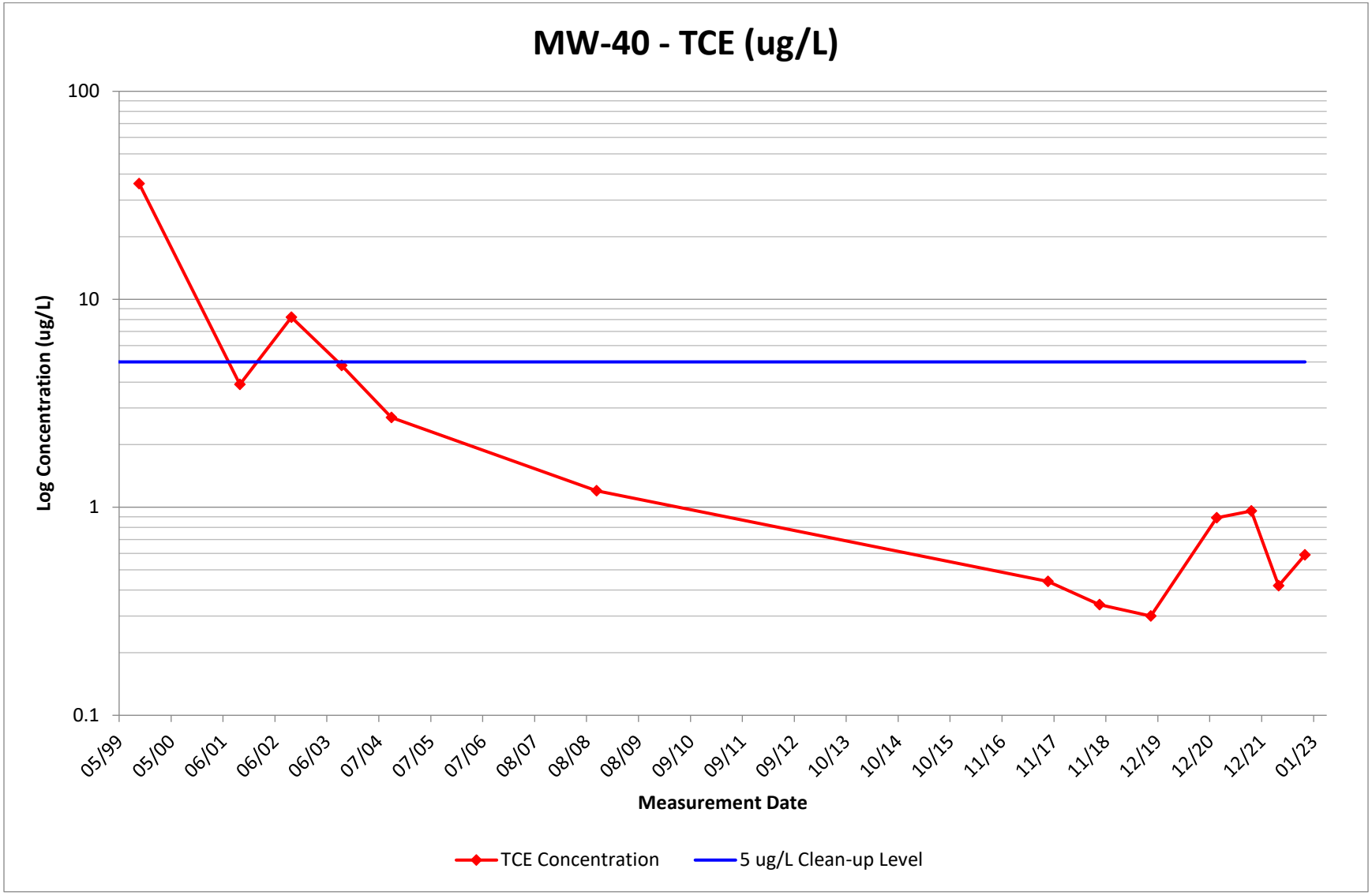

MW-21D - TCE (ug/L) with Pumping Rates
Log Concentration (ug/L)
10000
1000
100
10
1
0.1
14
12
10
8
6
4
2
0
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level
Pumping Rate

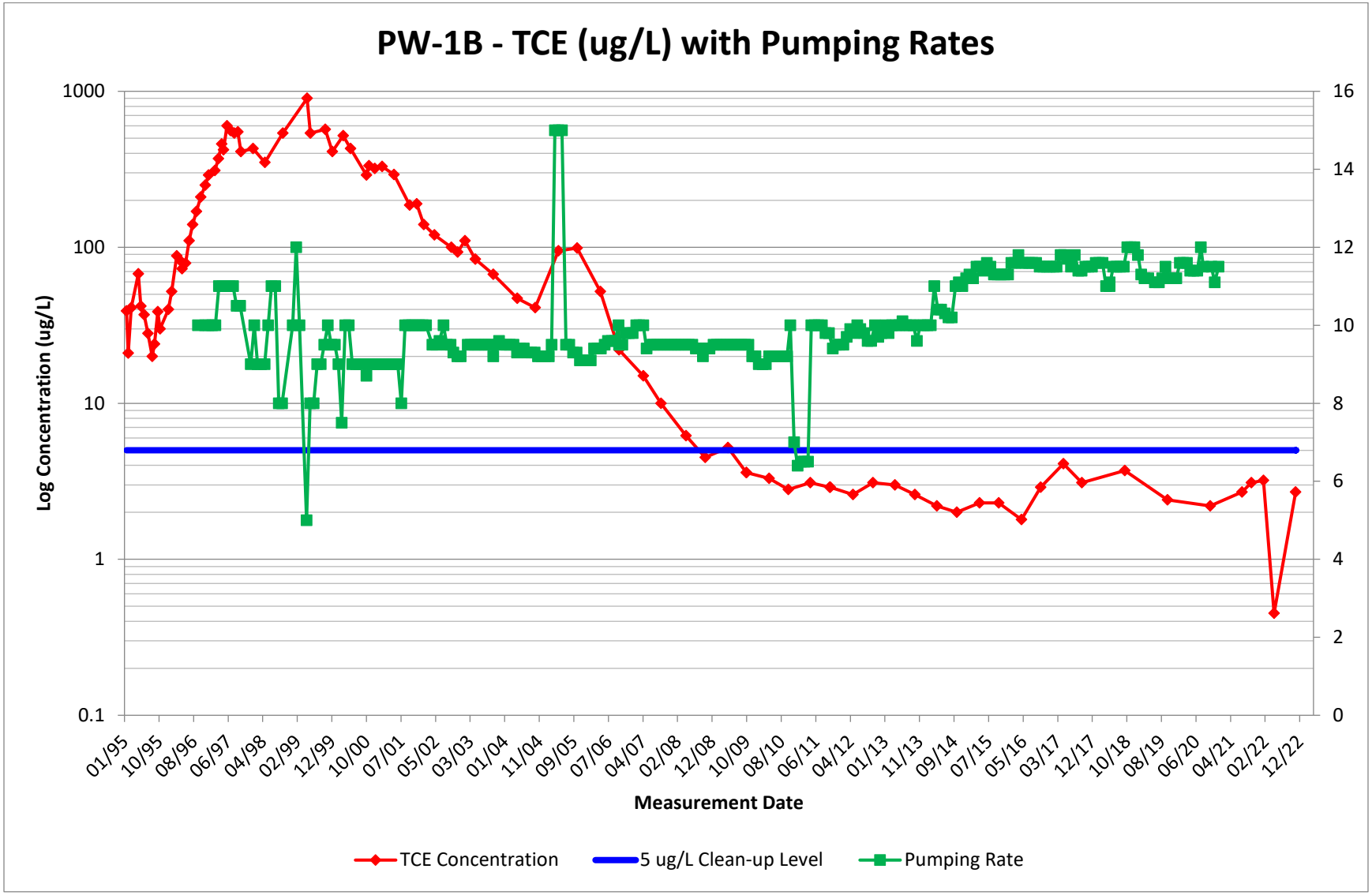

MW-22D - TCE (ug/L) with Pumping Rates
Log Concentration (ug/L)
1000
100
10
1
20
18
16
14
12
10
8
6
4
2
0
01/95
09/95
06/96
03/97
12/97
09/98
06/99
03/00
11/00
08/01
05/02
02/03
11/03
08/04
05/05
02/06
10/06
07/07
04/08
01/09
10/09
07/10
04/11
01/12
09/12
06/13
03/14
12/14
09/15
06/16
03/17
12/17
08/18
05/19
02/20
11/20
08/21
05/22
02/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level
Pumping Rate

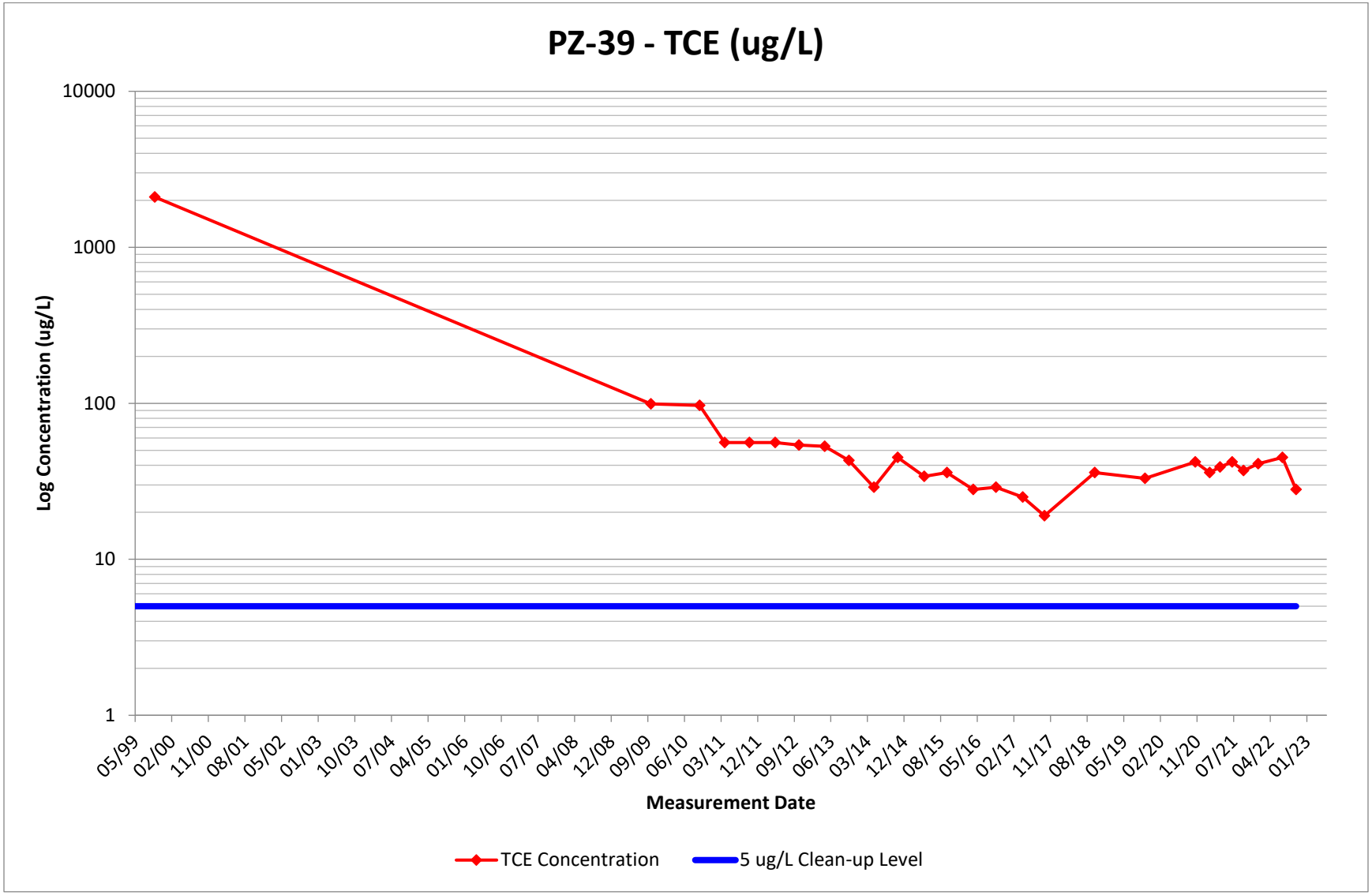

MW-23D - TCE (ug/L)
1000
100
10
1
0.1
Log Concentration (ug/L)
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level


MW-33 - TCE (ug/L)
100
10
1
0.1
Log Concentration (ug/L)
04/98
01/99
10/99
07/00
03/01
12/01
09/02
06/03
03/04
12/04
09/05
06/06
02/07
11/07
08/08
05/09
02/10
11/10
08/11
05/12
01/13
10/13
07/14
04/15
01/16
10/16
07/17
03/18
12/18
09/19
06/20
03/21
12/21
09/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level


MW-38 - TCE (ug/L)
100
10
1
Log Concentration (ug/L)
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level


MW-40 - TCE (ug/L)
100
10
1
0.1
Log Concentration (ug/L)
05/99
05/00
06/01
06/02
06/03
07/04
07/05
07/06
08/07
08/08
08/09
09/10
09/11
09/12
10/13
10/14
10/15
11/16
11/17
11/18
12/19
12/20
12/21
01/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level


PW-1B - TCE (ug/L) with Pumping Rates
Log Concentration (ug/L)
1000
100
10
1
0.1
16
14
12
10
8
6
4
2
0
01/95
10/95
08/96
06/97
04/98
02/99
12/99
10/00
07/01
05/02
03/03
01/04
11/04
09/05
07/06
04/07
02/08
12/08
10/09
08/10
06/11
04/12
01/13
11/13
09/14
07/15
05/16
03/17
12/17
10/18
08/19
06/20
04/21
02/22
12/22
Measurement Date
TCE Concentration
5 ug/L Clean-up Level
Pumping Rate


PZ-39 - TCE (ug/L)
10000
1000
100
10
1
Log Concentration (ug/L)
05/99
02/00
11/00
08/01
05/02
01/03
10/03
07/04
04/05
01/06
10/06
07/07
04/08
12/08
09/09
06/10
03/11
12/11
09/12
06/13
03/14
12/14
08/15
05/16
02/17
11/17
08/18
05/19
02/20
11/20
07/21
04/22
01/23
Measurement Date
TCE Concentration
5 ug/L Clean-up Level

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# Appendix G

# Data for Closure Monitoring

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# Appendix G-1

# Wells Excluded from Closure Monitoring

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## Appendix G-1. Wells Excluded from the Closure Monitoring Program

| Well Name | Justification | Well ID | Justification |
|---|---|---|---|
| RAMW-2C | COC never detected above CUL | IWS-1 | Remediation Well |
| AMW-5A | COC never detected above CUL | IWS-1PZ | Remediation Well |
| AMW-6A* | COC never detected above CUL | IWS-2 | Remediation Well |
| AMW-7A* | COC never detected above CUL | IWS-2PZ | Remediation Well |
| AMW-9A | COC never detected above CUL | IWS-3 | Remediation Well |
| AMW-10A* | COC never detected above CUL | IWS-3PZ | Remediation Well |
| AMW-11A* | COC never detected above CUL | IWS-4 | Remediation Well |
| AMW-14 | Abandoned | IWS-4PZ | Remediation Well |
| AMW-15 | Abandoned | IWS-5 | Remediation Well |
| AMW-16 | Impacted by Northern Plume | IWS-5PZ | Remediation Well |
| AMW-17 | Impacted by Northern Plume | IWS-6 | Remediation Well |
| AMW-18 | Impacted by Northern Plume | IWS-6PZ | Remediation Well |
| AMW-19B | COC never detected above CUL | IWS-7 | Remediation Well |
| AMW-20 | COC never detected above CUL | IWS-7PZ | Remediation Well |
| AMW-21 | COC never detected above CUL | IWS-8 | Remediation Well |
| AMW-22 | Abandoned | IWS-8PZ | Remediation Well |
| AMW-23 | Impacted by Northern Plume | IWS-9 | Remediation Well |
| AMW-25 | COC never detected above CUL | IWS-9PZ | Remediation Well |
| AMW-43 | COC never detected above CUL | LAVALLEY | Never in monitoring program |
| AMW-44 | COC never detected above CUL | LV | Never in monitoring program |
| AMW-45 | COC never detected above CUL | MILLER | Never in monitoring program |
| AMW-50 | COC never detected above CUL | MW-1 | Never in monitoring program (Clark County well) |
| AMW-51 | COC never detected above CUL | MW-2 | Never in monitoring program (Clark County well) |
| AMW-52C | COC never detected above CUL | MW-3 | Never in monitoring program (Clark County well) |
| AMW-53B | COC never detected above CUL | MW-4 | Never in monitoring program (Clark County well) |
| AMW-53C | COC never detected above CUL | MW-5 | Never in monitoring program (Clark County well) |
| AMW-54C | COC never detected above CUL | MW-5A | Abandoned |
| AMW-55C | COC never detected above CUL | MW-5B | Abandoned |
| AMW-56C | COC never detected above CUL | MW-11A | Abandoned |
| AMW-57 | COC never detected above CUL | MW-11B | Abandoned |
| AMW-62 | COC never detected above CUL | MW-17E | COC never detected above CUL |
| AMW-63 | COC never detected above CUL | MW-21D | Impacted by Northern Plume |
| AMW-64 | Impacted by Northern Plume | MW-23D | Impacted by Northern Plume |
| COLF | Never in monitoring program | MW-24D | Abandoned |
| COLUMBIA VE | Never in monitoring program | MW-28 | Abandoned |
| CPU-1D | Abandoned | MW-29 | Abandoned |
| CPU-1S | Abandoned | MW-30 | COC never detected above CUL |
| CPU-2 | COC never detected above CUL | MW-31 | Abandoned |
| CPU-3D | COC never detected above CUL | MW-32 | Abandoned |
| CPU-3S | COC never detected above CUL | MW-34 | COC never detected above CUL |
| CPU-4D | Water levels only, never sampled | MW-35 | Abandoned |
| CPU-4S | Water levels only, COC never detected above CUL | MW-36 | Abandoned |
| CPU-10 | COC never detected above CUL | MW-37 | Abandoned |
| CPU-15 | COC never detected above CUL | MW-38 | Impacted by Northern Plume |
| CPU-16 | Abandoned | MW-39 | Never in monitoring program; pilot study well |
| CROCKFORD | Never in monitoring program | MW-46 | COC never detected above CUL |
| EC-1 | COC never detected above CUL | MW-47 | COC never detected above CUL |
| FERGUSON | Never in monitoring program | PERMALUME | Never in monitoring program/abandoned |
| FITZGERALD | Never in monitoring program | PZ-1 | Water levels only, COC never detected above CUL |
| GARRISON | Never in monitoring program | PZ-2 | Water levels only, COC never detected above CUL |
| GRIMM | Never in monitoring program | PZ-40 | Water levels only, COC never detected above CUL |
| GWSW-1 | Production well, COC never detected above CUL | SW-1 | Abandoned |
| GWSW-2 | Production well, COC never detected above CUL | WELCH | Never in monitoring program |
| HASTAY | Never in monitoring program | WILLIAMS | Never in monitoring program |
| HORN | Never in monitoring program | WOODAEGE | Never in monitoring program |
| | | ZENT | Never in monitoring program |

Notes:
COC = Contaminant of Concern identified for the Site.
CUL = Cleanup level identified in the Site Record of Decision.
* = Well sampled as part of the Messer infiltration gallery monitoring.

# Appendix G-2

# Remediation Monitoring Analysis

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**Appendix G-2.1 - Remediation Monitoring Analysis**
**CHLORODIBROMOMETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Closure Monitoring Program Wells** | | | | | | | | | |
| **Upgradient Wells** | | | | | | | | | |
| AMW-8A | M | 38 | 10/2016 | 10/2021 | U | U | U | 4 | YES |
| **TCE Source Wells** | | | | | | | | | |
| AMW-1A | M | 65 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-1B | M | 32 | 05/2009 | 10/2021 | U | U | U | 4 | YES |
| AMW-1C | M | 25 | 01/2008 | 10/2021 | U | U | U | 4 | YES |
| AMW-2A | M | 68 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-2B | M | 37 | 10/2013 | 10/2021 | U | U | U | 4 | YES |
| AMW-3A | M | 48 | 10/2017 | 07/2021 | U | U | U | 4 | YES |
| AMW-4A | M | 19 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| AMW-12A | M | 68 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-13A | M | 46 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| AMW-19A | M | 45 | 10/2015 | 10/2021 | U | U | U | 4 | YES |
| AMW-26 | M | 31 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| AMW-52A | M | 30 | 10/2014 | 10/2021 | U | 0.29 | U | 4 | YES |
| AMW-53A | M | 53 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-54A | M | 30 | 10/2013 | 10/2017 | U | U | U | 4 | YES |
| AMW-55A | M | 23 | 10/2012 | 10/2015 | U | U | U | 4 | YES |
| AMW-56A | M | 29 | 10/2013 | 10/2017 | U | U | U | 4 | YES |
| MW-1A | M | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-1B | M | 28 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-1C | M | 22 | 10/2008 | 10/2021 | U | U | U | 4 | YES |
| **Proximal Wells** | | | | | | | | | |
| AMW-58 | M | 11 | 10/2010 | 10/2021 | U | U | U | 4 | YES |
| MW-2A | M | 29 | 10/2016 | 10/2021 | U | 0.32 | U | 4 | YES |
| MW-2B | M | 20 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-2C | M | 11 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-3A | M | 18 | 05/2004 | 10/2008 | U | U | U | 4 | YES |
| MW-3B | M | 17 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| MW-3C | M | 12 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-4A | M | 23 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-4B | M | 17 | 10/2012 | 10/2021 | U | U | U | 4 | YES |
| MW-4BSHED | M | 17 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-4C | M | 12 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-6A | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6B | E | 53 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6C | M | 15 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6D | M | 13 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-7B | M | 11 | 10/2017 | 10/2020 | U | 0.22 | U | 4 | YES |
| MW-7C | M | 8 | 10/2004 | 10/2021 | U | U | U | 4 | YES |
| MW-8B | M | 17 | 10/2014 | 10/2021 | U | 0.19 | U | 4 | YES |

**Appendix G-2.1 - Remediation Monitoring Analysis**
**CHLORODIBROMOMETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed? [a] |
|---|---|---|---|---|---|---|---|---|---|
| MW-9B | M | 19 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| MW-9C | M | 15 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-10B | E | 57 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-10C | E | 56 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-12C | M | 30 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-13C | M | 34 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| PW-1B | E | 64 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| **Intermediate Wells** | | | | | | | | | |
| AMW-59 | E/O | 22 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-60 | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| CPU-14 | M | 41 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-14C* | E/M | 67 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-14E* | E/M | 69 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-15E | M | 33 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-18D* | E/M | 66 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-18E | E/O | 42 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-19D | E/M | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-20D | E | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-38 | M | 20 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-40 | M | 11 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| PZ-39 | PZ | 24 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| **Church of God Wells** | | | | | | | | | |
| AMW-27 | M | 53 | 04/2016 | 07/2021 | U | U | U | 4 | YES |
| AMW-61 | M | 18 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| CPU-12 | M | 36 | 10/2016 | 02/2021 | U | U | U | 4 | YES |
| CPU-13 | E/O | 52 | 04/2013 | 10/2014 | U | U | U | 4 | YES |
| MW-21D | E/O | 66 | 04/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-22D | E | 60 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-25D | E/O | 52 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| MW-26D | E/O | 51 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| MW-27D | E/M | 43 | 10/2011 | 10/2014 | U | U | U | 4 | YES |
| MW-49 | E/O | 30 | 10/2012 | 10/2014 | U | U | U | 4 | YES |

**Appendix G-2.1 - Remediation Monitoring Analysis**
**CHLORODIBROMOMETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Toe Wells** | | | | | | | | | |
| AMW-42 | M | 38 | 10/2009 | 10/2014 | U | U | U | 4 | YES |
| MW-31 | M | 25 | 10/2008 | 10/2012 | U | U | U | 4 | YES |
| MW-35 | M | 42 | 10/2015 | 04/2017 | U | U | U | 4 | YES |
| MW-41 | M | 44 | 10/2010 | 10/2017 | U | U | U | 4 | YES |
| MW-48 | M | 30 | 10/2006 | 10/2009 | U | U | U | 4 | YES |
| **Troutdale Wells** | | | | | | | | | |
| AMW-24 | M/D | 31 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-33 | M/D | 34 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| BENNETT | M | 29 | 10/2019 | 07/2021 | U | U | U | 4 | YES |

NOTES:

[a] The "Remediation Monitoring Phase is Completed" determinations are per EPA Guidance (EPA 2013) based on the most recent four sample data points for each COC. The remediation monitoring phase is completed when the last four sample concentrations are lower than the cleanup level.

* The pumps in wells MW-14C and MW14E were turned off and removed on 10/16/2019; and the pump in well MW-19D was turned off and removed 10/14/2019.

COC = Contaminant of Concern.
E = Extraction well.
E/M = Extraction well with pump pulled; now sampled as a monitoring well.
E/O = Extraction well with pump turned off; pump is turned on for sampling.
EPA = U.S. Environmental Protection Agency.
M = Monitoring well.
M/D = Monitoring well with dedicated pump installed.
U = Analyte not detected above the specified reporting limit.
µg/L = Micrograms per liter.

**Appendix G-2.2 - Remediation Monitoring Analysis**
**1,1-DICHLOROETHENE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Closure Monitoring Program Wells** | | | | | | | | | |
| **Upgradient Wells** | | | | | | | | | |
| AMW-8A | M | 39 | 10/2016 | 10/2021 | U | U | U | 4 | YES |
| **TCE Source Wells** | | | | | | | | | |
| AMW-1A | M | 66 | 02/2021 | 10/2021 | U | 0.43 | U | 4 | YES |
| AMW-1B | M | 32 | 05/2009 | 10/2021 | U | U | U | 4 | YES |
| AMW-1C | M | 25 | 01/2008 | 10/2021 | U | U | U | 4 | YES |
| AMW-2A | M | 69 | 02/2021 | 10/2021 | U | 0.13 | U | 4 | YES |
| AMW-2B | M | 37 | 10/2013 | 10/2021 | U | U | U | 4 | YES |
| AMW-3A | M | 49 | 10/2017 | 07/2021 | U | U | U | 4 | YES |
| AMW-4A | M | 19 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| AMW-12A | M | 68 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-13A | M | 47 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| AMW-19A | M | 45 | 10/2015 | 10/2021 | U | U | U | 4 | YES |
| AMW-26 | M | 31 | 10/2014 | 10/2021 | U | 0.2 | U | 4 | YES |
| AMW-52A | M | 30 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| AMW-53A | M | 53 | 02/2021 | 10/2021 | U | 0.26 | U | 4 | YES |
| AMW-54A | M | 30 | 10/2013 | 10/2017 | U | U | U | 4 | YES |
| AMW-55A | M | 23 | 10/2012 | 10/2015 | U | U | U | 4 | YES |
| AMW-56A | M | 29 | 10/2013 | 10/2017 | U | 0.037 | 0.037 | 4 | YES |
| MW-1A | M | 67 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-1B | M | 29 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-1C | M | 22 | 10/2008 | 10/2021 | U | U | U | 4 | YES |
| **Proximal Wells** | | | | | | | | | |
| AMW-58 | M | 11 | 10/2010 | 10/2021 | U | U | U | 4 | YES |
| MW-2A | M | 30 | 10/2016 | 10/2021 | U | U | U | 4 | YES |
| MW-2B | M | 21 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-2C | M | 11 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-3A | M | 19 | 05/2004 | 10/2008 | U | U | U | 4 | YES |
| MW-3B | M | 17 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| MW-3C | M | 12 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-4A | M | 24 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-4B | M | 17 | 10/2012 | 10/2021 | U | U | U | 4 | YES |
| MW-4BSHED | M | 17 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-4C | M | 12 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-6A | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6B | E | 54 | 10/2018 | 10/2021 | U | 0.3 | 0.3 | 4 | YES |
| MW-6C | M | 15 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6D | M | 13 | 10/2018 | 10/2021 | U | 0.32 | U | 4 | YES |
| MW-7B | M | 11 | 10/2017 | 10/2020 | U | 0.1 | U | 4 | YES |
| MW-7C | M | 8 | 10/2004 | 10/2021 | U | U | U | 4 | YES |

**Appendix G-2.2 - Remediation Monitoring Analysis**
**1,1-DICHLOROETHENE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| MW-8B | M | 17 | 10/2014 | 10/2021 | U | 0.079 | U | 4 | YES |
| MW-9B | M | 19 | 10/2014 | 10/2021 | U | 0.066 | U | 4 | YES |
| MW-9C | M | 15 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-10B | E | 58 | 10/2020 | 10/2021 | U | 0.08 | U | 4 | YES |
| MW-10C | E | 57 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-12C | M | 31 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-13C | M | 35 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| PW-1B | E | 65 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| **Intermediate Wells** | | | | | | | | | |
| AMW-59 | E/O | 22 | 02/2021 | 10/2021 | 0.27 | 2.4 | 0.27 | 1 | NO |
| AMW-60 | M | 9 | 10/2018 | 10/2021 | 1.5 | 3.8 | 3.8 | None | NO |
| CPU-14 | M | 42 | 10/2020 | 10/2021 | U | 0.11 | U | 4 | YES |
| MW-14C* | E/M | 68 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-14E* | E/M | 70 | 02/2021 | 10/2021 | U | 0.16 | U | 4 | YES |
| MW-15E | M | 33 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-18D | E/M | 66 | 10/2020 | 07/2021 | U | 0.13 | 0.13 | 4 | YES |
| MW-18E | E/O | 43 | 10/2020 | 07/2021 | U | 0.08 | U | 4 | YES |
| MW-19D* | E/M | 66 | 02/2021 | 10/2021 | U | 0.29 | U | 4 | YES |
| MW-20D | E | 66 | 02/2021 | 10/2021 | U | 0.16 | 0.16 | 4 | YES |
| MW-38 | M | 20 | 02/2021 | 10/2021 | U | 0.11 | 0.08 | 4 | YES |
| MW-40 | M | 11 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| PZ-39 | PZ | 24 | 02/2021 | 10/2021 | 1.5 | 2.1 | 1.7 | None | NO |
| **Church of God Wells** | | | | | | | | | |
| AMW-27 | M | 54 | 04/2016 | 07/2021 | U | 0.11 | U | 4 | YES |
| AMW-61 | M | 18 | 10/2018 | 10/2021 | 0.14 | 0.23 | 0.14 | 4 | YES |
| CPU-12 | M | 37 | 10/2016 | 02/2021 | U | 0.029 | U | 4 | YES |
| CPU-13 | E/O | 53 | 04/2013 | 10/2014 | U | U | U | 4 | YES |
| MW-21D | E/O | 67 | 04/2020 | 10/2021 | U | 0.47 | U | 4 | YES |
| MW-22D | E | 61 | 10/2020 | 07/2021 | U | 0.1 | U | 4 | YES |
| MW-25D | E/O | 53 | 10/2012 | 10/2014 | 0.15 | 0.33 | 0.15 | 4 | YES |
| MW-26D | E/O | 52 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| MW-27D | E/M | 44 | 10/2011 | 10/2014 | U | U | U | 4 | YES |
| MW-49 | E/O | 30 | 10/2012 | 10/2014 | U | 0.08 | U | 4 | YES |
| **Toe Wells** | | | | | | | | | |
| AMW-42 | M | 39 | 10/2009 | 10/2014 | U | U | U | 4 | YES |
| MW-31 | M | 26 | 10/2008 | 10/2012 | U | U | U | 4 | YES |
| MW-35 | M | 43 | 10/2015 | 04/2017 | U | 0.09 | 0.09 | 4 | YES |
| MW-41 | M | 45 | 10/2010 | 10/2017 | U | U | U | 4 | YES |
| MW-48 | M | 31 | 10/2006 | 10/2009 | U | U | U | 4 | YES |

**Appendix G-2.2 - Remediation Monitoring Analysis**
**1,1-DICHLOROETHENE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Troutdale Wells** | | | | | | | | | |
| AMW-24 | M/D | 32 | 10/2018 | 10/2021 | 0.48 | 0.77 | 0.48 | 4 | YES |
| MW-33 | M/D | 35 | 02/2021 | 10/2021 | U | 0.3 | 0.3 | 4 | YES |
| BENNETT | 0 | 29 | 10/2019 | 07/2021 | U | 0.28 | 0.28 | 4 | YES |

NOTES:

[a] The "Remediation Monitoring Phase is Completed" determinations are per EPA Guidance (EPA 2013) based on the most recent four sample data points for each COC. The remediation monitoring phase is completed when the last four sample concentrations are lower than the cleanup level.

* The pumps in wells MW-14C and MW14E were turned off and removed on 10/16/2019; and the pump in well MW-19D was turned off and removed 10/14/2019.

COC = Contaminant of Concern.
E = Extraction well.
E/O = Extraction well with pump turned off; pump is turned on for sampling.
E/M = Extraction well with pump pulled; now sampled as a monitoring well.
EPA = U.S. Environmental Protection Agency.
M = Monitoring well.
M/D = Monitoring well with dedicated pump installed.
U = Analyte not detected above the specified reporting limit.
µg/L = Micrograms per liter.

**Appendix G-2.3 - Remediation Monitoring Analysis**
**1,2-DICHLOROETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (5 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Closure Monitoring Program Wells** | | | | | | | | | |
| **Upgradient Wells** | | | | | | | | | |
| AMW-8A | M | 39 | 10/2016 | 10/2021 | U | U | U | 4 | YES |
| **TCE Source Wells** | | | | | | | | | |
| AMW-1A | M | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-1B | M | 32 | 05/2009 | 10/2021 | U | U | U | 4 | YES |
| AMW-1C | M | 25 | 01/2008 | 10/2021 | U | U | U | 4 | YES |
| AMW-2A | M | 69 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-2B | M | 37 | 10/2013 | 10/2021 | U | U | U | 4 | YES |
| AMW-3A | M | 49 | 10/2017 | 07/2021 | U | U | U | 4 | YES |
| AMW-4A | M | 19 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| AMW-12A | M | 68 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-13A | M | 47 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| AMW-19A | M | 45 | 10/2015 | 10/2021 | U | U | U | 4 | YES |
| AMW-26 | M | 31 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| AMW-52A | M | 30 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| AMW-53A | M | 53 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-54A | M | 30 | 10/2013 | 10/2017 | U | U | U | 4 | YES |
| AMW-55A | M | 23 | 10/2012 | 10/2015 | U | U | U | 4 | YES |
| AMW-56A | M | 29 | 10/2013 | 10/2017 | U | U | U | 4 | YES |
| MW-1A | M | 67 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-1B | M | 29 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-1C | M | 22 | 10/2008 | 10/2021 | U | U | U | 4 | YES |
| **Proximal Wells** | | | | | | | | | |
| AMW-58 | M | 11 | 10/2010 | 10/2021 | U | U | U | 4 | YES |
| MW-2A | M | 30 | 10/2016 | 10/2021 | U | U | U | 4 | YES |
| MW-2B | M | 21 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-2C | M | 11 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-3A | M | 19 | 05/2004 | 10/2008 | U | U | U | 4 | YES |
| MW-3B | M | 17 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| MW-3C | M | 12 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-4A | M | 24 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-4B | M | 17 | 10/2012 | 10/2021 | U | U | U | 4 | YES |
| MW-4BSHED | M | 17 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-4C | M | 12 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-6A | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6B | E | 54 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6C | M | 15 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6D | M | 13 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-7B | M | 11 | 10/2017 | 10/2020 | U | U | U | 4 | YES |
| MW-7C | M | 8 | 10/2004 | 10/2021 | U | U | U | 4 | YES |
| MW-8B | M | 17 | 10/2014 | 10/2021 | U | U | U | 4 | YES |

**Appendix G-2.3 - Remediation Monitoring Analysis**
**1,2-DICHLOROETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (5 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| MW-9B | M | 19 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| MW-9C | M | 15 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-10B | E | 58 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-10C | E | 57 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-12C | M | 31 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-13C | M | 35 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| PW-1B | E | 65 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| **Intermediate Wells** | | | | | | | | | |
| AMW-59 | E/O | 22 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-60 | M | 9 | 10/2018 | 10/2021 | U | 0.14 | U | 4 | YES |
| CPU-14 | M | 42 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-14C | E/M | 68 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-14E* | E/M | 70 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-15E* | M | 33 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-18D | E/M | 66 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-18E | E/O | 43 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-19D* | E/M | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-20D | E | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-38 | M | 20 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-40 | M | 11 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| PZ-39 | PZ | 24 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| **Church of God Wells** | | | | | | | | | |
| AMW-27 | M | 54 | 04/2016 | 07/2021 | U | U | U | 4 | YES |
| AMW-61 | M | 18 | 10/2018 | 10/2021 | U | 0.08 | U | 4 | YES |
| CPU-12 | M | 37 | 10/2016 | 02/2021 | U | U | U | 4 | YES |
| CPU-13 | E/O | 53 | 04/2013 | 10/2014 | U | U | U | 4 | YES |
| MW-21D | E/O | 67 | 04/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-22D | E | 61 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-25D | E/O | 53 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| MW-26D | E/O | 52 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| MW-27D | E/M | 44 | 10/2011 | 10/2014 | U | 0.09 | U | 4 | YES |
| MW-49 | E/O | 30 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| **Toe Wells** | | | | | | | | | |
| AMW-42 | M | 39 | 10/2009 | 10/2014 | U | U | U | 4 | YES |
| MW-31 | M | 26 | 10/2008 | 10/2012 | U | U | U | 4 | YES |
| MW-35 | M | 43 | 10/2015 | 04/2017 | U | 0.08 | U | 4 | YES |
| MW-41 | M | 45 | 10/2010 | 10/2017 | U | U | U | 4 | YES |
| MW-48 | M | 31 | 10/2006 | 10/2009 | U | U | U | 4 | YES |

**Appendix G-2.3 - Remediation Monitoring Analysis**
**1,2-DICHLOROETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (5 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Troutdale Wells** | | | | | | | | | |
| AMW-24 | M/D | 32 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-33 | M/D | 35 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| BENNETT | M | 29 | 10/2019 | 07/2021 | U | U | U | 4 | YES |

NOTES:

[a] The "Remediation Monitoring Phase is Completed" determinations are per EPA Guidance (EPA 2013) based on the most recent four sample data points for each COC. The remediation monitoring phase is completed when the last four sample concentrations are lower than the cleanup level.

* The pumps in wells MW-14C and MW14E were turned off and removed on 10/16/2019; and the pump in well MW-19D was turned off and removed 10/14/2019.

COC = Contaminant of Concern.
E = Extraction well.
E/O = Extraction well with pump turned off; pump is turned on for sampling.
E/M = Extraction well with pump pulled; now sampled as a monitoring well.
EPA = U.S. Environmental Protection Agency.
M = Monitoring well.
M/D = Monitoring well with dedicated pump installed.
U = Analyte not detected above the specified reporting limit.
µg/L = Micrograms per liter.

**Appendix G-2.4 - Remediation Monitoring Analysis**
**1,1,1-TRICHLOROETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (200 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Closure Monitoring Program Wells** | | | | | | | | | |
| **Upgradient Wells** | | | | | | | | | |
| AMW-8A | M | 39 | 10/2016 | 10/2021 | U | U | U | 4 | YES |
| **TCE Source Wells** | | | | | | | | | |
| AMW-1A | M | 66 | 02/2021 | 10/2021 | 0.65 | 2.5 | 2.5 | 4 | YES |
| AMW-1B | M | 32 | 05/2009 | 10/2021 | U | U | U | 4 | YES |
| AMW-1C | M | 25 | 01/2008 | 10/2021 | U | U | U | 4 | YES |
| AMW-2A | M | 69 | 02/2021 | 10/2021 | U | 2.3 | 2.3 | 4 | YES |
| AMW-2B | M | 37 | 10/2013 | 10/2021 | U | U | U | 4 | YES |
| AMW-3A | M | 49 | 10/2017 | 07/2021 | U | U | U | 4 | YES |
| AMW-4A | M | 19 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| AMW-12A | M | 68 | 02/2021 | 10/2021 | 0.24 | 0.63 | 0.28 | 4 | YES |
| AMW-13A | M | 47 | 10/2014 | 10/2021 | U | 0.11 | U | 4 | YES |
| AMW-19A | M | 45 | 10/2015 | 10/2021 | U | 0.16 | 0.15 | 4 | YES |
| AMW-26 | M | 31 | 10/2014 | 10/2021 | 0.13 | 1.3 | 0.74 | 4 | YES |
| AMW-52A | M | 30 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| AMW-53A | M | 53 | 02/2021 | 10/2021 | 0.81 | 4 | 0.88 | 4 | YES |
| AMW-54A | M | 30 | 10/2013 | 10/2017 | U | 0.19 | 0.19 | 4 | YES |
| AMW-55A | M | 23 | 10/2012 | 10/2015 | U | U | U | 4 | YES |
| AMW-56A | M | 29 | 10/2013 | 10/2017 | U | 0.23 | 0.23 | 4 | YES |
| MW-1A | M | 67 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-1B | M | 29 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-1C | M | 22 | 10/2008 | 10/2021 | U | U | U | 4 | YES |
| **Proximal Wells** | | | | | | | | | |
| AMW-58 | M | 11 | 10/2010 | 10/2021 | U | U | U | 4 | YES |
| MW-2A | M | 30 | 10/2016 | 10/2021 | U | U | U | 4 | YES |
| MW-2B | M | 21 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-2C | M | 11 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-3A | M | 19 | 05/2004 | 10/2008 | U | U | U | 4 | YES |
| MW-3B | M | 17 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| MW-3C | M | 12 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-4A | M | 24 | 10/2018 | 10/2021 | U | 0.15 | U | 4 | YES |
| MW-4B | M | 17 | 10/2012 | 10/2021 | U | 0.11 | 0.11 | 4 | YES |
| MW-4BSHED | M | 17 | 10/2009 | 10/2021 | U | 0.039 | U | 4 | YES |
| MW-4C | M | 12 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-6A | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6B | E | 54 | 10/2018 | 10/2021 | 0.13 | 1.8 | 1.8 | 4 | YES |
| MW-6C | M | 15 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6D | M | 13 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-7B | M | 11 | 10/2017 | 10/2020 | U | 0.27 | 0.19 | 4 | YES |
| MW-7C | M | 8 | 10/2004 | 10/2021 | U | U | U | 4 | YES |

**Appendix G-2.4 - Remediation Monitoring Analysis**
**1,1,1-TRICHLOROETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (200 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| MW-8B | M | 17 | 10/2014 | 10/2021 | U | 0.3 | 0.1 | 4 | YES |
| MW-9B | M | 19 | 10/2014 | 10/2021 | 0.14 | 0.29 | 0.14 | 4 | YES |
| MW-9C | M | 15 | 10/2019 | 10/2021 | U | 0.14 | U | 4 | YES |
| MW-10B | E | 58 | 10/2020 | 10/2021 | U | 0.12 | 0.12 | 4 | YES |
| MW-10C | E | 57 | 10/2019 | 10/2021 | U | 0.12 | U | 4 | YES |
| MW-12C | M | 31 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-13C | M | 35 | 10/2019 | 10/2021 | U | 0.1 | U | 4 | YES |
| PW-1B | E | 65 | 10/2019 | 10/2021 | U | 0.11 | 0.11 | 4 | YES |
| **Intermediate Wells** | | | | | | | | | |
| AMW-59 | E/O | 22 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-60 | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| CPU-14 | M | 42 | 10/2020 | 10/2021 | U | 0.14 | U | 4 | YES |
| MW-14C* | E/M | 68 | 02/2021 | 10/2021 | U | 0.11 | U | 4 | YES |
| MW-14E* | E/M | 70 | 02/2021 | 10/2021 | 0.08 | 0.18 | 0.16 | 4 | YES |
| MW-15E | M | 33 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-18D | E/M | 66 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-18E | E/O | 43 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-19D* | E/M | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-20D | E | 66 | 02/2021 | 10/2021 | U | 0.16 | 0.1 | 4 | YES |
| MW-38 | M | 20 | 02/2021 | 10/2021 | 0.08 | 0.09 | 0.09 | 4 | YES |
| MW-40 | M | 11 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| PZ-39 | PZ | 24 | 02/2021 | 10/2021 | 0.51 | 0.65 | 0.65 | 4 | YES |
| **Church of God Wells** | | | | | | | | | |
| AMW-27 | M | 54 | 04/2016 | 07/2021 | U | 0.16 | U | 4 | YES |
| AMW-61 | M | 18 | 10/2018 | 10/2021 | U | 0.12 | 0.08 | 4 | YES |
| CPU-12 | M | 37 | 10/2016 | 02/2021 | U | 0.12 | U | 4 | YES |
| CPU-13 | E/O | 53 | 04/2013 | 10/2014 | U | U | U | 4 | YES |
| MW-21D | E/O | 67 | 04/2020 | 10/2021 | U | 0.21 | U | 4 | YES |
| MW-22D | E | 61 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-25D | E/O | 53 | 10/2012 | 10/2014 | 0.11 | 0.17 | 0.11 | 4 | YES |
| MW-26D | E/O | 52 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| MW-27D | E/M | 44 | 10/2011 | 10/2014 | U | 0.1 | U | 4 | YES |
| MW-49 | E/O | 30 | 10/2012 | 10/2014 | U | 0.09 | U | 4 | YES |
| **Toe Wells** | | | | | | | | | |
| AMW-42 | M | 39 | 10/2009 | 10/2014 | U | 0.14 | U | 4 | YES |
| MW-31 | M | 26 | 10/2008 | 10/2012 | U | 0.26 | U | 4 | YES |
| MW-35 | M | 43 | 10/2015 | 04/2017 | U | 0.12 | 0.12 | 4 | YES |
| MW-41 | M | 45 | 10/2010 | 10/2017 | U | U | U | 4 | YES |
| MW-48 | M | 31 | 10/2006 | 10/2009 | U | U | U | 4 | YES |

**Appendix G-2.4 - Remediation Monitoring Analysis**
**1,1,1-TRICHLOROETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (200 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Troutdale Wells** | | | | | | | | | |
| AMW-24 | M/D | 32 | 10/2018 | 10/2021 | U | 0.11 | U | 4 | YES |
| MW-33 | M/D | 35 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| BENNETT | M | 29 | 10/2019 | 07/2021 | U | U | U | 4 | YES |

NOTES:

[a] The "Remediation Monitoring Phase is Completed" determinations are per EPA Guidance (EPA 2013) based on the most recent four sample data points for each COC. The remediation monitoring phase is completed when the last four sample concentrations are lower than the cleanup level.

***** The pumps in wells MW-14C and MW14E were turned off and removed on 10/16/2019; and the pump in well MW-19D was turned off and removed 10/14/2019.

COC = Contaminant of Concern.
E = Extraction well.
E/M = Extraction well with pump pulled; now sampled as a monitoring well.
E/O = Extraction well with pump turned off; pump is turned on for sampling.
EPA = U.S. Environmental Protection Agency.
M = Monitoring well.
M/D = Monitoring well with dedicated pump installed.
U = Analyte not detected above the specified reporting limit.
µg/L = Micrograms per liter.

**Appendix G-2.5 - Remediation Monitoring Analysis**
**CARBON TETRACHLORIDE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Closure Monitoring Program Wells** | | | | | | | | | |
| **Upgradient Wells** | | | | | | | | | |
| AMW-8A | M | 39 | 10/2016 | 10/2021 | U | U | U | 4 | YES |
| **TCE Source Wells** | | | | | | | | | |
| AMW-1A | M | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-1B | M | 32 | 05/2009 | 10/2021 | U | U | U | 4 | YES |
| AMW-1C | M | 25 | 01/2008 | 10/2021 | U | U | U | 4 | YES |
| AMW-2A | M | 69 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-2B | M | 37 | 10/2013 | 10/2021 | U | U | U | 4 | YES |
| AMW-3A | M | 49 | 10/2017 | 07/2021 | U | U | U | 4 | YES |
| AMW-4A | M | 19 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| AMW-12A | M | 68 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-13A | M | 47 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| AMW-19A | M | 45 | 10/2015 | 10/2021 | U | U | U | 4 | YES |
| AMW-26 | M | 31 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| AMW-52A | M | 30 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| AMW-53A | M | 53 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-54A | M | 30 | 10/2013 | 10/2017 | U | U | U | 4 | YES |
| AMW-55A | M | 23 | 10/2012 | 10/2015 | U | U | U | 4 | YES |
| AMW-56A | M | 29 | 10/2013 | 10/2017 | U | U | U | 4 | YES |
| MW-1A | M | 67 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-1B | M | 29 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-1C | M | 22 | 10/2008 | 10/2021 | U | U | U | 4 | YES |
| **Proximal Wells** | | | | | | | | | |
| AMW-58 | M | 11 | 10/2010 | 10/2021 | U | U | U | 4 | YES |
| MW-2A | M | 30 | 10/2016 | 10/2021 | U | U | U | 4 | YES |
| MW-2B | M | 21 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-2C | M | 11 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-3A | M | 19 | 05/2004 | 10/2008 | U | U | U | 4 | YES |
| MW-3B | M | 17 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| MW-3C | M | 12 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-4A | M | 24 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-4B | M | 17 | 10/2012 | 10/2021 | U | U | U | 4 | YES |
| MW-4BSHED | M | 17 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-4C | M | 12 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-6A | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6B | E | 54 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6C | M | 15 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6D | M | 13 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-7B | M | 11 | 10/2017 | 10/2020 | U | U | U | 4 | YES |
| MW-7C | M | 8 | 10/2004 | 10/2021 | U | U | U | 4 | YES |
| MW-8B | M | 17 | 10/2014 | 10/2021 | U | U | U | 4 | YES |

**Appendix G-2.5 - Remediation Monitoring Analysis**
**CARBON TETRACHLORIDE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| MW-9B | M | 19 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| MW-9C | M | 15 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-10B | E | 58 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-10C | E | 57 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-12C | M | 31 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-13C | M | 35 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| PW-1B | E | 65 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| **Intermediate Wells** | | | | | | | | | |
| AMW-59 | E/O | 22 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-60 | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| CPU-14 | M | 42 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-14C* | E/M | 68 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-14E* | E/M | 70 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-15E | M | 33 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-18D | E/M | 66 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-18E | E/O | 43 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-19D* | E/M | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-20D | E | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-38 | M | 20 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-40 | M | 11 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| PZ-39 | PZ | 24 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| **Church of God Wells** | | | | | | | | | |
| AMW-27 | M | 54 | 04/2016 | 07/2021 | U | U | U | 4 | YES |
| AMW-61 | M | 18 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| CPU-12 | M | 37 | 10/2016 | 02/2021 | U | U | U | 4 | YES |
| CPU-13 | E/O | 53 | 04/2013 | 10/2014 | U | U | U | 4 | YES |
| MW-21D | E/O | 67 | 04/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-22D | E | 61 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-25D | E/O | 53 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| MW-26D | E/O | 52 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| MW-27D | E/M | 44 | 10/2011 | 10/2014 | U | U | U | 4 | YES |
| MW-49 | E/O | 30 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| **Toe Wells** | | | | | | | | | |
| AMW-42 | M | 39 | 10/2009 | 10/2014 | U | U | U | 4 | YES |
| MW-31 | M | 26 | 10/2008 | 10/2012 | U | U | U | 4 | YES |
| MW-35 | M | 43 | 10/2015 | 04/2017 | U | U | U | 4 | YES |
| MW-41 | M | 45 | 10/2010 | 10/2017 | U | U | U | 4 | YES |
| MW-48 | M | 31 | 10/2006 | 10/2009 | U | U | U | 4 | YES |

**Appendix G-2.5 - Remediation Monitoring Analysis**
**CARBON TETRACHLORIDE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Troutdale Wells** | | | | | | | | | |
| AMW-24 | M/D | 32 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-33 | M/D | 35 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| BENNETT | M | 29 | 10/2019 | 07/2021 | U | U | U | 4 | YES |

NOTES:

[a] The "Remediation Monitoring Phase is Completed" determinations are per EPA Guidance (EPA 2013) based on the most recent four sample data points for each COC. The remediation monitoring phase is completed when the last four sample concentrations are lower than the cleanup level.

* The pumps in wells MW-14C and MW14E were turned off and removed on 10/16/2019; and the pump in well MW-19D was turned off and removed 10/14/2019.

COC = Contaminant of Concern.
E = Extraction well.
E/M = Extraction well with pump pulled; now sampled as a monitoring well.
E/O = Extraction well with pump turned off; pump is turned on for sampling.
EPA = U.S. Environmental Protection Agency.
M = Monitoring well.
M/D = Monitoring well with dedicated pump installed.
U = Analyte not detected above the specified reporting limit.
µg/L = Micrograms per liter.

**Appendix G-2.6 - Remediation Monitoring Analysis**
**BROMODICHLOROMETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Closure Monitoring Program Wells** | | | | | | | | | |
| **Upgradient Wells** | | | | | | | | | |
| AMW-8A | M | 38 | 10/2016 | 10/2021 | U | U | U | 4 | YES |
| **TCE Source Wells** | | | | | | | | | |
| AMW-1A | M | 65 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-1B | M | 32 | 05/2009 | 10/2021 | U | U | U | 4 | YES |
| AMW-1C | M | 25 | 01/2008 | 10/2021 | U | 0.25 | U | 4 | YES |
| AMW-2A | M | 68 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-2B | M | 37 | 10/2013 | 10/2021 | U | U | U | 4 | YES |
| AMW-3A | M | 48 | 10/2017 | 07/2021 | U | 0.18 | U | 4 | YES |
| AMW-4A | M | 19 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| AMW-12A | M | 68 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-13A | M | 46 | 10/2014 | 10/2021 | U | 0.28 | U | 4 | YES |
| AMW-19A | M | 45 | 10/2015 | 10/2021 | U | 0.12 | 0.1 | 4 | YES |
| AMW-26 | M | 31 | 10/2014 | 10/2021 | U | 0.16 | U | 4 | YES |
| AMW-52A | M | 30 | 10/2014 | 10/2021 | U | 0.71 | U | 4 | YES |
| AMW-53A | M | 53 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-54A | M | 30 | 10/2013 | 10/2017 | U | U | U | 4 | YES |
| AMW-55A | M | 23 | 10/2012 | 10/2015 | U | U | U | 4 | YES |
| AMW-56A | M | 29 | 10/2013 | 10/2017 | U | 0.24 | 0.24 | 4 | YES |
| MW-1A | M | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-1B | M | 28 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-1C | M | 22 | 10/2008 | 10/2021 | U | U | U | 4 | YES |
| **Proximal Wells** | | | | | | | | | |
| AMW-58 | M | 11 | 10/2010 | 10/2021 | U | U | U | 4 | YES |
| MW-2A | M | 29 | 10/2016 | 10/2021 | U | 0.65 | U | 4 | YES |
| MW-2B | M | 20 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-2C | M | 11 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-3A | M | 18 | 05/2004 | 10/2008 | U | U | U | 4 | YES |
| MW-3B | M | 17 | 10/2014 | 10/2021 | U | U | U | 4 | YES |
| MW-3C | M | 12 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-4A | M | 23 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-4B | M | 17 | 10/2012 | 10/2021 | U | 0.1 | 0.1 | 4 | YES |
| MW-4BSHED | M | 17 | 10/2009 | 10/2021 | U | 0.048 | U | 4 | YES |
| MW-4C | M | 12 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-6A | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6B | E | 53 | 10/2018 | 10/2021 | U | 0.13 | 0.1 | 4 | YES |
| MW-6C | M | 15 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6D | M | 13 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-7B | M | 11 | 10/2017 | 10/2020 | U | 0.46 | U | 4 | YES |
| MW-7C | M | 8 | 10/2004 | 10/2021 | U | U | U | 4 | YES |
| MW-8B | M | 17 | 10/2014 | 10/2021 | U | 0.56 | U | 4 | YES |

**Appendix G-2.6 - Remediation Monitoring Analysis**
**BROMODICHLOROMETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| MW-9B | M | 19 | 10/2014 | 10/2021 | U | 0.1 | U | 4 | YES |
| MW-9C | M | 15 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-10B | E | 57 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-10C | E | 56 | 10/2019 | 10/2021 | U | 0.14 | U | 4 | YES |
| MW-12C | M | 30 | 10/2017 | 10/2021 | U | U | U | 4 | YES |
| MW-13C | M | 34 | 10/2019 | 10/2021 | U | 0.32 | U | 4 | YES |
| PW-1B | E | 64 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| **Intermediate Wells** | | | | | | | | | |
| AMW-59 | E/O | 22 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-60 | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| CPU-14 | M | 41 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-14C* | E/M | 67 | 02/2021 | 10/2021 | U | 0.31 | U | 4 | YES |
| MW-14E* | E/M | 69 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-15E | M | 33 | 10/2019 | 10/2021 | U | U | U | 4 | YES |
| MW-18D* | E/M | 66 | 10/2020 | 07/2021 | U | 0.12 | U | 4 | YES |
| MW-18E | E/O | 42 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-19D | E/M | 66 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-20D | E | 66 | 02/2021 | 10/2021 | U | 0.2 | U | 4 | YES |
| MW-38 | M | 20 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-40 | M | 11 | 10/2018 | 10/2021 | U | 0.54 | 0.54 | 4 | YES |
| PZ-39 | PZ | 24 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| **Church of God Wells** | | | | | | | | | |
| AMW-27 | M | 53 | 04/2016 | 07/2021 | U | U | U | 4 | YES |
| AMW-61 | M | 18 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| CPU-12 | M | 36 | 10/2016 | 02/2021 | U | 0.03 | U | 4 | YES |
| CPU-13 | E/O | 52 | 04/2013 | 10/2014 | U | 0.1 | U | 4 | YES |
| MW-21D | E/O | 66 | 04/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-22D | E | 60 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-25D | E/O | 52 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| MW-26D | E/O | 51 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| MW-27D | E/M | 43 | 10/2011 | 10/2014 | U | U | U | 4 | YES |
| MW-49 | E/O | 30 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| **Toe Wells** | | | | | | | | | |
| AMW-42 | M | 38 | 10/2009 | 10/2014 | U | U | U | 4 | YES |
| MW-31 | M | 25 | 10/2008 | 10/2012 | U | U | U | 4 | YES |
| MW-35 | M | 42 | 10/2015 | 04/2017 | U | U | U | 4 | YES |
| MW-41 | M | 44 | 10/2010 | 10/2017 | U | U | U | 4 | YES |
| MW-48 | M | 30 | 10/2006 | 10/2009 | U | U | U | 4 | YES |

**Appendix G-2.6 - Remediation Monitoring Analysis**
**BROMODICHLOROMETHANE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (1 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Troutdale Wells** | | | | | | | | | |
| AMW-24 | M/D | 31 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-33 | M/D | 34 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| BENNETT | M | 29 | 10/2019 | 07/2021 | U | U | U | 4 | YES |

NOTES:

[a] The "Remediation Monitoring Phase is Completed" determinations are per EPA Guidance (EPA 2013) based on the most recent four sample data points for each COC. The remediation monitoring phase is completed when the last four sample concentrations are lower than the cleanup level.

* The pumps in wells MW-14C and MW14E were turned off and removed on 10/16/2019; and the pump in well MW-19D was turned off and removed 10/14/2019.

COC = Contaminant of Concern.
E = Extraction well.
E/M = Extraction well with pump pulled; now sampled as a monitoring well.
E/O = Extraction well with pump turned off; pump is turned on for sampling.
EPA = U.S. Environmental Protection Agency.
M = Monitoring well.
M/D = Monitoring well with dedicated pump installed.
U = Analyte not detected above the specified reporting limit.
µg/L = Micrograms per liter.

**Appendix G-2.7 - Remediation Monitoring Analysis**
**TETRACHLOROETHENE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (5 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Closure Monitoring Program Wells** | | | | | | | | | |
| **Upgradient Wells** | | | | | | | | | |
| AMW-8A | M | 39 | 10/2016 | 10/2021 | U | 0.025 | U | 4 | YES |
| **TCE Source Wells** | | | | | | | | | |
| AMW-1A | M | 66 | 02/2021 | 10/2021 | 0.2 | 0.82 | 0.38 | 4 | YES |
| AMW-1B | M | 32 | 05/2009 | 10/2021 | U | U | U | 4 | YES |
| AMW-1C | M | 25 | 01/2008 | 10/2021 | U | U | U | 4 | YES |
| AMW-2A | M | 69 | 02/2021 | 10/2021 | 0.86 | 1.1 | 1.1 | 4 | YES |
| AMW-2B | M | 37 | 10/2013 | 10/2021 | U | U | U | 4 | YES |
| AMW-3A | M | 49 | 10/2017 | 07/2021 | 0.3 | 0.51 | 0.49 | 4 | YES |
| AMW-4A | M | 19 | 10/2020 | 10/2021 | U | U | U | 4 | YES |
| AMW-12A | M | 68 | 02/2021 | 10/2021 | 0.34 | 0.47 | 0.34 | 4 | YES |
| AMW-13A | M | 47 | 10/2014 | 10/2021 | U | 0.11 | U | 4 | YES |
| AMW-19A | M | 45 | 10/2015 | 10/2021 | 0.29 | 0.33 | 0.29 | 4 | YES |
| AMW-26 | M | 31 | 10/2014 | 10/2021 | 0.1 | 0.42 | 0.38 | 4 | YES |
| AMW-52A | M | 30 | 10/2014 | 10/2021 | U | 0.12 | U | 4 | YES |
| AMW-53A | M | 53 | 02/2021 | 10/2021 | 0.43 | 1.3 | 0.88 | 4 | YES |
| AMW-54A | M | 30 | 10/2013 | 10/2017 | 0.14 | 0.4 | 0.16 | 4 | YES |
| AMW-55A | M | 23 | 10/2012 | 10/2015 | 0.21 | 0.34 | 0.34 | 4 | YES |
| AMW-56A | M | 29 | 10/2013 | 10/2017 | 0.43 | 0.61 | 0.43 | 4 | YES |
| MW-1A | M | 67 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| MW-1B | M | 29 | 10/2009 | 10/2021 | U | U | U | 4 | YES |
| MW-1C | M | 22 | 10/2008 | 10/2021 | U | U | U | 4 | YES |
| **Proximal Wells** | | | | | | | | | |
| AMW-58 | M | 11 | 10/2010 | 10/2021 | U | U | U | 4 | YES |
| MW-2A | M | 30 | 10/2016 | 10/2021 | 0.35 | 1.1 | 0.35 | 4 | YES |
| MW-2B | M | 21 | 10/2020 | 10/2021 | 0.29 | 0.41 | 0.29 | 4 | YES |
| MW-2C | M | 11 | 10/2009 | 10/2021 | U | 0.29 | U | 4 | YES |
| MW-3A | M | 19 | 05/2004 | 10/2008 | 0.21 | 0.4 | 0.21 | 4 | YES |
| MW-3B | M | 17 | 10/2014 | 10/2021 | 0.45 | 0.67 | 0.45 | 4 | YES |
| MW-3C | M | 12 | 10/2018 | 10/2021 | U | 0.39 | 0.39 | 4 | YES |
| MW-4A | M | 24 | 10/2018 | 10/2021 | 0.44 | 0.6 | 0.6 | 4 | YES |
| MW-4B | M | 17 | 10/2012 | 10/2021 | 0.49 | 0.64 | 0.49 | 4 | YES |
| MW-4BSHED | M | 17 | 10/2009 | 10/2021 | 0.51 | 1.4 | 0.56 | 4 | YES |
| MW-4C | M | 12 | 10/2017 | 10/2021 | 0.33 | 0.36 | 0.36 | 4 | YES |
| MW-6A | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-6B | E | 60 | 10/2018 | 10/2021 | 0.35 | 0.46 | 0.46 | 4 | YES |
| MW-6C | M | 15 | 10/2018 | 10/2021 | U | 0.11 | U | 4 | YES |
| MW-6D | M | 13 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| MW-7B | M | 11 | 10/2017 | 10/2020 | 0.39 | 0.63 | 0.63 | 4 | YES |
| MW-7C | M | 8 | 10/2004 | 10/2021 | U | 0.28 | U | 4 | YES |
| MW-8B | M | 17 | 10/2014 | 10/2021 | 0.43 | 0.81 | 0.43 | 4 | YES |

**Appendix G-2.7 - Remediation Monitoring Analysis**
**TETRACHLOROETHENE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (5 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| MW-9B | M | 19 | 10/2014 | 10/2021 | 0.53 | 1.2 | 0.53 | 4 | YES |
| MW-9C | M | 15 | 10/2019 | 10/2021 | 0.16 | 0.6 | 0.16 | 4 | YES |
| MW-10B | E | 64 | 10/2020 | 10/2021 | 0.25 | 0.71 | 0.25 | 4 | YES |
| MW-10C | E | 63 | 10/2019 | 10/2021 | 0.38 | 0.49 | 0.38 | 4 | YES |
| MW-12C | M | 31 | 10/2017 | 10/2021 | 0.25 | 0.33 | 0.25 | 4 | YES |
| MW-13C | M | 35 | 10/2019 | 10/2021 | 0.63 | 0.91 | 0.63 | 4 | YES |
| PW-1B | E | 89 | 10/2019 | 10/2021 | 0.29 | 0.58 | 0.52 | 4 | YES |
| **Intermediate Wells** | | | | | | | | | |
| AMW-59 | E/O | 22 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| AMW-60 | M | 9 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| CPU-14 | M | 42 | 10/2020 | 10/2021 | U | 0.1 | U | 4 | YES |
| MW-14C* | E/M | 79 | 02/2021 | 10/2021 | 0.58 | 0.71 | 0.58 | 4 | YES |
| MW-14E* | E/M | 77 | 02/2021 | 10/2021 | 2.4 | 3.3 | 3.3 | 4 | YES |
| MW-15E | M | 33 | 10/2019 | 10/2021 | 0.26 | 0.35 | 0.29 | 4 | YES |
| MW-18D | E/M | 87 | 10/2020 | 07/2021 | 0.48 | 0.61 | 0.56 | 4 | YES |
| MW-18E | E/O | 43 | 10/2020 | 07/2021 | U | U | U | 4 | YES |
| MW-19D* | E/M | 87 | 02/2021 | 10/2021 | 1 | 1.3 | 1.1 | 4 | YES |
| MW-20D | E | 90 | 02/2021 | 10/2021 | 0.6 | 1.2 | 1.2 | 4 | YES |
| MW-38 | M | 20 | 02/2021 | 10/2021 | 0.51 | 0.9 | 0.84 | 4 | YES |
| MW-40 | M | 11 | 10/2018 | 10/2021 | U | U | U | 4 | YES |
| PZ-39 | PZ | 24 | 02/2021 | 10/2021 | 0.62 | 0.91 | 0.91 | 4 | YES |
| **Church of God Wells** | | | | | | | | | |
| AMW-27 | M | 54 | 04/2016 | 07/2021 | 0.39 | 1.1 | 0.39 | 4 | YES |
| AMW-61 | M | 18 | 10/2018 | 10/2021 | 1.9 | 2.2 | 2 | 4 | YES |
| CPU-12 | M | 37 | 10/2016 | 02/2021 | U | U | U | 4 | YES |
| CPU-13 | E/O | 59 | 04/2013 | 10/2014 | 0.68 | 0.87 | 0.87 | 4 | YES |
| MW-21D | E/O | 91 | 04/2020 | 10/2021 | U | U | U | 4 | YES |
| MW-22D | E | 84 | 10/2020 | 07/2021 | 1.3 | 1.9 | 1.9 | 4 | YES |
| MW-25D | E/O | 77 | 10/2012 | 10/2014 | U | U | U | 4 | YES |
| MW-26D | E/O | 76 | 10/2012 | 10/2014 | 0.2 | 0.86 | 0.2 | 4 | YES |
| MW-27D | E/M | 50 | 10/2011 | 10/2014 | U | U | U | 4 | YES |
| MW-49 | E/O | 35 | 10/2012 | 10/2014 | 0.27 | 0.49 | 0.49 | 4 | YES |
| **Toe Wells** | | | | | | | | | |
| AMW-42 | M | 52 | 10/2009 | 10/2014 | U | U | U | 4 | YES |
| MW-31 | M | 40 | 10/2008 | 10/2012 | U | 0.19 | 0.12 | 4 | YES |
| MW-35 | M | 70 | 10/2015 | 04/2017 | 0.41 | 0.51 | 0.41 | 4 | YES |
| MW-41 | M | 58 | 10/2010 | 10/2017 | U | U | U | 4 | YES |
| MW-48 | M | 38 | 10/2006 | 10/2009 | U | U | U | 4 | YES |

**Appendix G-2.7 - Remediation Monitoring Analysis**
**TETRACHLOROETHENE (Last 4 Samples)**

| Well Name | Well Type | Total Number of Datapoints | Date of First of the Most Recent Four Samples | Most Recent Sample Date | Min. Conc. (ug/L) | Max. Conc. (ug/L) | Most Recent Conc. (ug/L) | Number of Conc. < Cleanup Goal (5 ug/L) | Remediation Monitoring Phase is Completed ? [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Troutdale Wells** | | | | | | | | | |
| AMW-24 | M/D | 33 | 10/2018 | 10/2021 | U | 0.1 | U | 4 | YES |
| MW-33 | M/D | 36 | 02/2021 | 10/2021 | U | U | U | 4 | YES |
| BENNETT | M | 29 | 10/2019 | 07/2021 | U | U | U | 4 | YES |

NOTES:

[a] The "Remediation Monitoring Phase is Completed" determinations are per EPA Guidance (EPA 2013) based on the most recent four sample data points for each COC. The remediation monitoring phase is completed when the last four sample concentrations are lower than the cleanup level.

* The pumps in wells MW-14C and MW14E were turned off and removed on 10/16/2019; and the pump in well MW-19D was turned off and removed 10/14/2019.

COC = Contaminant of Concern.
E = Extraction well.
E/M = Extraction well with pump pulled; now sampled as a monitoring well.
E/O = Extraction well with pump turned off; pump is turned on for sampling.
EPA = U.S. Environmental Protection Agency.
M = Monitoring well.
M/D = Monitoring well with dedicated pump installed.
U = Analyte not detected above the specified reporting limit.
µg/L = Micrograms per liter.

# Appendix H

# Northern Plume Monitoring Summary

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# APPENDIX H
# NORTHERN PLUME MONITORING SUMMARY

## 1. INTRODUCTION

This summary presents the analytical results from the latest round of sampling of monitoring wells in the area of the Northern Plume. This plume is north of the Boomsnub/Airco Superfund Site (Site) Operable Unit (OU)-3 trichloroethene (TCE) and chromium plumes, which are referred to collectively as the OU-3 plume. Previous sampling results for wells in the Northern Plume area were reported in *Appendix H of Annual Status Reports for the Boomsnub/Airco Superfund Site* [1]. Northern Plume monitoring well locations are shown on Figure H-1.

Monitoring data indicate that the OU-3 TCE and chromium plumes had shown significant decreases in concentration and size since 1995[1]. In 2007 and 2008, however, routine monitoring data showed an unexpected increase in the TCE concentration in groundwater samples from well AMW-18, located north of the boundary of the OU-3 plume.

In May 2008, a direct push drilling and sampling investigation was performed to evaluate the depth and concentration of TCE in groundwater in the vicinity of well AMW-18, and to evaluate possible source areas for the TCE detected in this well. The source of the TCE groundwater contamination in this area was not identified; however, based on the data, it was concluded that the source was not from the same source as the OU-3 plume[2]. The Work Plan[3] for this investigation noted that an offsite source of TCE originating from the Permalume property immediately east and upgradient of the Messer gas plant property impacted monitoring well AMW-8A, which is located at the eastern boundary of the Messer Property and is approximately 700 feet northeast of the Boomsnub/Airco Site TCE Source Area. AMW-8A and the Permalume property are located upgradient of Northern Plume well AMW-18, and the results of the AMW-18 Area Investigation support a finding of the Permalume property as the source of the Northern Plume.

Well AMW-17 is located approximately 400 feet downgradient of well AMW-18. TCE concentrations in this well had been below the Site-specific cleanup level of 5 micrograms per liter (µg/L) since 1999. However, in Fall 2010, TCE in groundwater from this well increased to a concentration exceeding the cleanup level, indicating the apparent arrival of the Northern Plume at the AMW-17 location.

The U.S. Environmental Protection Agency (EPA) and Messer LLC (Messer), formerly Linde LLC (Linde) performed a joint investigation of the Northern Plume area in May 2011 to get a better understanding of the source, extent, and concentrations of volatile organic compounds (VOCs) in this plume. Results were provided in a separate report[4]. The report concluded that the Northern Plume contamination is not the result of actions by Messer or its predecessors. Therefore, EPA is leading efforts to characterize and remediate the Northern Plume.

[1] 2021 *Annual Status Report for the Boomsnub/Airco Superfund Site,* Revision 0. March 2022.
[2] *AMW-18 Area Investigation Report, Boomsnub/Airco Superfund Site*. Revision 0. August 2008.
[3] *Work Plan, AMW-18 Area Investigation, Boomsnub/Airco Superfund Site,* Revision 0. April 2008.
[4] *Northern Plume Investigation Report, Hazel Dell, Washington*. Revision 1. December 2011.

A new monitoring well (AMW-64) was installed in February 2012, at the request of the EPA, to monitor the Northern Plume northwest of well AMW-17. Analytical results for groundwater samples collected from this well shortly after installation indicated TCE concentrations above the Site cleanup level.

Well MW-38 is located approximately 400 feet west-southwest (generally downgradient) of well AMW-17. Well MW-38 was installed as part of a groundwater treatment pilot study in 1998; this well has not been sampled historically as part of the OU-3 monitoring. However, beginning in October 2010, EPA requested that Messer sample well MW-38 as part of the Northern Plume investigation/monitoring. TCE concentrations detected in groundwater samples from well MW-38 during October 2010 through October 2012 were above the Site-specific cleanup level, but on a decreasing trend (based on four groundwater samples). However, in October 2013, the TCE concentration increased approximately one order of magnitude, indicating the apparent arrival of the Northern Plume at well MW-38.

Well AMW-16 is located approximately 600 feet west-northwest (downgradient) of well AMW-17, near the northern edge of the historic OU-3 TCE plume. TCE concentrations in groundwater from this well had been on a decreasing trend since the well was first sampled in 1995. TCE concentrations had been below the Site-specific cleanup level since 2005. However, in Spring 2014, TCE in groundwater from this well increased to a concentration exceeding the cleanup level, indicating the apparent arrival of the Northern Plume at the AMW-16 location.

Well MW-23D is located approximately 500 feet west-northwest (downgradient) of well AMW-16, near the northern edge of the historic OU-3 TCE plume. TCE concentrations in groundwater from this well had been on a decreasing trend since the late 1990s. TCE concentrations had been below the Site-specific cleanup level since 2006. However, during the Fall 2015 sampling event, TCE in groundwater from this well increased to a concentration exceeding the cleanup level, indicating the apparent arrival of the Northern Plume at the MW-23D location. AMW-23 is the next well downgradient from MW-23D, located approximately 1,300 feet northwest of MW-23D. Concentrations of TCE in this well were below the cleanup level for TCE until October 2018, when the measured concentration was 8 µg/L. The TCE concentration in this well was below the cleanup level again in 2019 and 2020.

Well MW-21D is located approximately 200 feet south of well MW-23D. TCE concentrations in groundwater from this were on a decreasing trend from 1995 to 2017, with concentrations dropping below the 5 µg/L MCL in 2013. In 2018, concentrations began rising above the MCL, indicating the arrival of the Northern Plume at the MW-21D location.

The Northern Plume continues to be monitored along with the OU-3 plume to evaluate potential impacts to the Site and treatment system. Wells AMW-16, AMW-17, AMW-18, AMW-64, MW-21D, MW-23D, and MW-38 are currently being sampled using passive diffusion bag samplers.

Well construction details, along with water level measurements during the Fall 2022 sampling event, are summarized in Table H-1. Water levels measured during Fall 2022 were approximately 1 to 3 feet higher than those measured during Fall 2021.

# 2. ANALYTICAL RESULTS

A summary of the VOCs detected in Fall (October-November) 2022 Northern Plume area monitoring well groundwater samples is provided in Table H-2. Four of the six Northern Plume impacted monitoring wells (AMW-16, AMW-18, AMW-64, and MW-23D) and two wells potentially impacted by the Northern Plume (MW-38 and MW-21D) were sampled during the 2022 reporting period. TCE concentrations exceeded the Site-specific cleanup level of 5 µg/L in groundwater samples from all four of the Northern Plume impacted monitoring wells (AMW-16, AMW-18, AMW-64, and MW-23D) in 2022.

MW-38 and MW-21D both experienced rising TCE values between 2017 and 2019, and then decreasing TCE values between 2019 and 2020. Given their location at the edge of the Northern Plume, it was determined that incursion of the Northern Plume into these wells was the logical and most-probable cause of the observed trends, and after discussion with the EPA these wells were moved into the Northern Plume monitoring program in October 2020. Well MW-38 was positively affected by upgradient injection of an in-situ treatment intended to address the Boomsnub OU-3 plume for a limited time in 2020, but the TCE concentration increased in 2021. TCE concentrations have since shown a gradual decrease in concentration during late 2021 and 2022. In-situ treatments and MW-38 are discussed in greater detail in Section 3.3.5 of the 2022 Annual Status Report. TCE concentrations in well MW-21D remained below the cleanup level in 2022. Reduction of TCE below the MCL at MW-21D is potentially due to the cessation of active pumping in MW-22D, which may have been "pulling" the Northern Plume towards MW-21D.

Historical VOC analytical results for Northern Plume wells and wells potentially impacted by the Northern Plume are summarized in Tables H-3 (AMW-16), H-4 (AMW-17), H-5 (AMW-18), H-6 (AMW-23), H-7 (AMW-64), H-8 (MW-21D), H-9 (MW-23D), and H-10 (MW-38). The Fall 2022 TCE results for the seven wells sampled are also indicated on Figure H-1. No quality assurance/quality control issues were noted which would impact the analytical results.

## 2.1 Well AMW-16

TCE was detected at a concentration of 23 µg/L in the groundwater sample collected from well AMW-16 in Fall 2020. Concentration of TCE increased in 2021 (27 µg/L in Fall 2021) and continued to increase to 46 µg/L in Spring 2022 and 54 µg/L during the Fall 2022 sampling event (Table H-3). Tetrachloroethylene (PCE), 1,1,1-Trichloroethane (TCA) and 1,1-dichloroethene (DCE) were the other VOCs detected, but at concentrations below the cleanup levels.

## 2.2 Well AMW-17

AMW-17 was not sampled during 2022 sampling events. It has shown a decreasing trend during the 2020 and 2021 sampling events.

## 2.3 Well AMW-18

TCE concentrations in groundwater collected from well AMW-18 dropped below the cleanup level (5 µg/L) in Fall 2018 (Table H-5) for the first time since it exceeded the cleanup level in

Fall 2006, and then increased above cleanup level in Fall 2019 (18 µg/L). The TCE concentration has remained above the cleanup level during Spring 2022 (13 µg/L) and Fall 2022 (9.7 µg/L), but has shown a decreasing trend from 2021. No other VOCs were detected in Fall 2022.

## 2.4 Well AMW-23

Concentrations in well AMW-23 exceeded the cleanup level for TCE for the first time in October 2018 at 8 µg/L, potentially indicating the arrival of the Northern Plume. Well AMW-23 had TCE concentrations below the cleanup level and near or below the detection limit in Spring and Fall 2019 and remained below the cleanup level in Fall 2022.

## 2.5 Well AMW-64

TCE was detected at a concentration of 13 µg/L in the groundwater sample collected from well AMW-64 in Spring 2018, significantly increased to a concentration of 71 µg/L in Fall 2018, then significantly decreased to 9.9 µg/L in Fall 2019(Table H-7). The reported concentration in Fall 2022 was similar to 2020, at 8.3 µg/L. Historically, concentrations in this well have steadily decreased. 1,1,1-TCA was the only other VOCs detected, but at concentrations below the cleanup levels.

## 2.6 Well MW-21D

TCE was detected at a concentration of 16 µg/L in the groundwater sample collected from well MW-21D in in October 2018, potentially indicating influence of the Northern Plume in this well. TCE concentrations decreased to 0.031 J µg/L in the groundwater sample collected in Fall 2020 and remained below the cleanup level in Spring and Fall 2022 at 0.77 µg/L and 1.4 µg/L , respectively (Table H-8). No other VOCs were detected in Fall 2022.

## 2.7 Well MW-23D

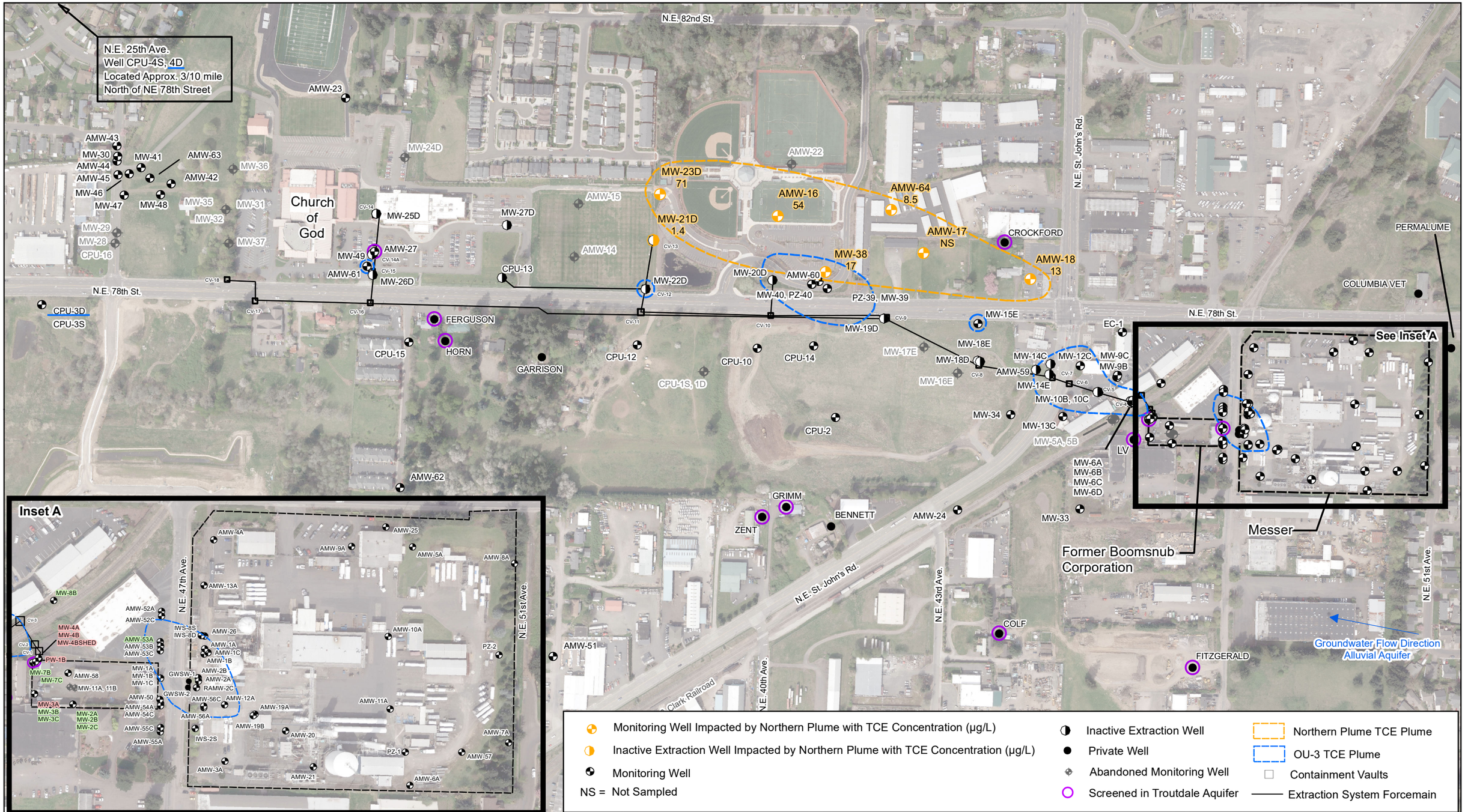
TCE was detected at a concentration of 71 µg/L and 49 µg/L in the groundwater sample collected from well MW-23D in Spring 2022 and Fall 2022, respectively (Table H-9). This is a decrease from the concentration detected in Fall 2020 (83 µg/L). Concentrations of 1,1-DCE were detected slightly above the cleanup level of 1 µg/L during Spring 2022 (1.5 µg/L) and Fall 2022 (1.4 µg/L), and 1,1,1-TCA was detected, but at concentrations below the cleanup levels.

## 2.8 Well MW-38

TCE was detected at a concentration of 17 µg/L and 12 µg/L in the groundwater sample collected from well MW-38 in Spring 2022 and Fall 2022, respectively (Table H-10). This is a decrease from the concentration detected in Fall 2021 (25µg/L). In 2022, concentrations of TCE were above the cleanup level in each of the quarterly sampling events. PCE was the only other VOC detected, but at concentrations below the cleanup levels.

# Figures

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FIGURE H-1
NORTHERN PLUME MONITORING WELL LOCATIONS AND TRICHLOROETHENE

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# Tables

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## Table H-1. Summary of Water Level Gauging Data and Groundwater Surface Elevations – Fall 2022

| Well ID | Well Type | Total Depth (ft btoc) | Screened Interval (ft btoc) | Screen Length (ft) | PDB Sampler Interval (ft btoc) | TOC Elevation (ft MSL) | Depth to Water (ft btoc) | Groundwater Surface Elevation (ft MSL) |
|---|---|---|---|---|---|---|---|---|
| AMW-16 | M | 91.28 | 81.13 – 91.13 | 10 | 81.13 – 91.13 | 266.11 | 16.83 | 249.28 |
| AMW-17 | M/D | 90.38 | 81 – 91 | 10 | 79.55 – 89.38 | 260.42 | 11.34 | 250.17 |
| AMW-18 | M | 103.65 | 92.65 – 102.65 | 10 | 92.65 -102.65 | 278.80 | 27.17 | 251.63 |
| AMW-23 | M | 85 | 75 – 85 | 10 | 79 – 81.06 | 278.26 | 38.17 | 240.09 |
| AMW-64 | M | 98.7 | 88.4 – 98.4 | 10 | 92.9 – 94.9 | 266.13 | 16.33 | 249.80 |
| MW-23D | M | 88.10 | 71.86 – 86.86 | 15 | 71.86 – 86.86 | 265.33 | 19.13 | 246.20 |
| MW-21D | M | 75.4 | 64.4 – 74.4 | 10 | 64.4 – 74.40 | 265.98 | 19.82 | 246.16 |
| MW-38 | M | 81.92 | 76.92 – 81.92 | 5 | 78 – 80 | 263.92 | 14.50 | 249.42 |

NOTES:

btoc = Below top of casing
ft = Feet
E = Extraction Well
M = Monitoring well
M/D = Monitoring well with dedicated pump
MSL = Mean sea level
NA = Not applicable
PDB = Passive diffusion bag
TOC = Top of casing

Wells that are shaded are potentially impacted by the Northern Plume.
Groundwater surface elevation is determined by subtracting the depth to water from the top-of-casing elevation.

## Table H-2. Volatile Organic Compounds Detected in Groundwater Samples (in µg/L) Fall 2022

| Well ID | Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|---|
| AMW-16 | Fall 2022 | **54** | 0.11 J | 0.24 J | 0.26 J | < 0.50 U | < 0.50 U |
| AMW-18 | Fall 2022 | **9.7** | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| AMW-23 | Fall 2022 | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| AMW-64 | Fall 2022 | **8.3** | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U | < 0.50 U |
| MW-21D | Fall 2022 | 1.4 | < 0.50 U | < 0.50 U | < 0.50 U | 0.14 J | < 0.50 U |
| MW-23D | Fall 2022 | **49** | < 0.50 U | 0.24 J | **1.4** | 0.49 J | < 0.50 U |
| MW-38 | Fall 2022 | **12** | 0.57 | < 0.50 U | < 0.50 U | < 0.50 U | 0.22 J |
| Cleanup Level | | 5 | 5 | 200 | 1 | 70 | 2400 |

NOTES:

Only detected compounds are shown.

Results shown in **blue bold** exceed the Boomsnub/Airco Site-specific cleanup level.

CFC-11 = Trichlorofluoromethane

cis-1,2-DCE = cis-1,2-Dichloroethene

1,1-DCE = 1,1-Dichloroethene

J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.

PCE = Tetrachloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

TCE = Trichloroethene

U = The analyte was not detected above the specified reporting limit.

µg/L = Micrograms per liter

**Table H-3. Historical VOC Concentrations in Well AMW-16 Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Apr-95 | **87** | 1 U | 7.7 | **16.6** | 23.4 | 365 J |
| Oct-95 | **68.7** | 1 U | 7.2 | **16.8** | 29.5 | 345 J |
| May-96 | **73.8** | 1 U | 5.8 | **12.2** | 24.5 | 243 |
| Oct-96 | **65.2** | 1 U | 5 | **8.8** | 29.5 | 70.7 |
| May-97 | **50.4** | 1 U | 3.1 | **4.8** | 29.2 | 88.6 J |
| Oct-97 | **52** | 0.4 U | 2 | 0.4 U | -- | 50 |
| May-98 | **47** | 0.6 U | 2 U | **2** | 15 | 20 |
| Sep-98 | **37** | 0.6 UJ | 2 U | **3** | 14 | 14 |
| May-00 | **31** | 0.5 U | 3.5 | **1.8** | 4.5 | 15 |
| Oct-00 | **23** | 0.5 U | 2.3 | **1.4** | 2.9 | 6.4 |
| Oct-01 | **13** | 0.5 U | 2.4 | 0.99 | 0.84 | 1.3 |
| Oct-02 | **9** | 0.5 U | 1.2 | 0.97 | 0.56 | 0.58 |
| Oct-03 | **7** | 0.5 U | 0.69 | 0.91 | 0.59 | 0.53 |
| Oct-04 | **5.1** | 0.5 U | 0.63 | 0.64 | 0.5 | 0.29 J |
| Oct-05 | 5 | 0.5 U | 0.38 J | 0.49 J | 0.52 | 0.33 J |
| Oct-06 | 3.6 | 0.5 U | 0.17 J | 0.38 J | 0.36 J | 0.26 J |
| Oct-07 | 2.7 | 0.5 U | 0.12 J | 0.26 J | 0.31 J | 0.5 U |
| Oct-08 | 2.7 | 0.5 U | 0.1 J | 0.22 J | 0.27 J | 0.12 J |
| Oct-09 | 2.2 | 0.5 U | 0.09 J | 0.25 J | 0.23 J | 0.23 J |
| Oct-10 | 1.7 | 0.5 U | 0.5 U | 0.5 U | 0.19 J | 0.5 U |
| Oct-11 | 1.6 | 0.5 U | 0.13 J | 0.14 J | 0.12 J | 0.5 U |
| Apr-12 | 0.17 J | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-12 | 1.8 | 0.5 U | 2.2 | 0.66 | 0.23 J | 0.5 U |
| Apr-13 | 2 | 0.5 U | 2.8 | **1.4** | 0.16 J | 0.5 U |
| Oct-13 | 4.4 | 0.5 U | 1.9 | **2** | 0.15 J | 0.5 U |
| Apr-14 | **27** | 0.5 U | 1.1 | **1.2** | 0.11 J | 0.5 U |
| Oct-14 | **72** | 0.5 U | 1.1 | **1.3** | 0.15 J | 0.5 U |
| Apr-15 | **94** | 0.5 U | 0.53 | 0.85 | 0.11 J | 0.5 U |
| Oct-15 | **80** | 0.5 U | 0.34 J | 0.65 | 0.12 J | 0.5 U |
| Apr-16 | **71** | 0.5 U | 0.20 J | 0.47 J | 0.1 J | 0.5 U |
| Oct-16 | **67** | 0.5 U | 0.19 J | 0.48 J | 0.08 J | 0.5 U |
| Apr-17 | **53** | 0.5 U | 0.16 J | 0.43 J | 0.09 J | 0.5 U |
| Oct-17 | **41** | 0.083 J | 0.15 J | 0.36 J | 0.5 U | 0.5 U |
| Apr-18 | **45** | 0.5 U | 0.12 J | 0.35 J | 0.07 J | 0.5 U |
| Oct-18 | **13** | 0.5 U | 0.5 U | 0.5 U | 0.17 J | 0.5 U |
| Apr-19 | **39** | 0.5 U | 0.23 J | 0.35 J | 0.12 J | 0.5 U |
| Oct-19 | **36** | 0.5 U | 0.19 J | 0.35 J | 0.09 J | 0.5 U |
| Oct-20 | **23** | 0.5 U | 0.29 J | 0.22 J | 0.5 U | 0.5 U |
| Apr-21 | **22** | 0.11 J | 0.21 J | 0.20 J | 0.10 J | 0.5 U |

**Table H-3. Historical VOC Concentrations in Well AMW-16 Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Oct-21 | **27** | 0.5 U | 0.25 J | 0.21 J | 0.5 U | 0.5 U |
| Apr-22 | **46** | 0.5 U | 0.25 J | 0.28 J | 0.090 J | 0.5 U |
| Oct-22 | **54** | 0.11 J | 0.24 J | 0.26 J | 0.5 U | 0.5 U |
| Cleanup Level | 5 | 5 | 200 | 1 | 70 | 2,400 |

NOTES:

Only detected compounds are included in this table.

Results shown in **blue bold** exceed the Boomsnub/Airco Site-specific cleanup level.

Concentrations presented are the highest of the sample and duplicate results, where applicable.

-- = Not available

CFC-11 = Trichlorofluoromethane

cis-1,2-DCE = cis-1,2-Dichloroethene

1,1-DCE = 1,1-Dichloroethene

J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.

PCE = Tetrachloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

TCE = Trichloroethene

U = The analyte was not detected above the specified reporting limit.

UJ = The analyte was not detected, but the associated limit of quantitation is estimated.

µg/L = Micrograms per liter

VOC = Volatile organic compound

**Table H-4. Historical VOC Concentrations in Well AMW-17 Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Apr-95 | **66.9** | 1 U | 5.8 | **1.6 J** | 21 | 10.6 |
| Oct-95 | **42.5** | 1 U | 36.1 | **5.4** | 12.7 | 19.2 J |
| May-96 | **39.6** | 1 U | 52.6 | **9.7** | 9.2 | 10.1 |
| Oct-96 | **20.5** | 1 U | 169 | **25.9** | 3.5 | 19.7 |
| May-97 | **17.3** | 1 U | 89.6 | **23.8** | 2.1 | 23.3 |
| Oct. 97 | **12** | 0.4 U | 67 | **9** | -- | 14 |
| May-98 | **7** | 0.6 U | 48 | **9** | 0.7 U | 9 |
| Sep-98 | **8** | 0.6 U | 52 | **9** | 0.7 U | 6 |
| May-99 | **5** | 0.6 UJ | 12 J | **8.0 J** | 0.7 UJ | 5 J |
| Oct-99 | 3.4 | 0.5 U | 3 | **1.2** | 0.5 U | 0.5 |
| Oct-01 | 2.7 | 0.5 U | 4.2 | **1.8** | 0.39 J | 0.52 |
| Oct-02 | 2.3 | 0.5 U | 2.2 | 0.74 | 0.22 J | 0.35 J |
| Oct-03 | 2.2 | 0.5 U | 1.1 | 0.45 J | 0.12 J | 0.25 J |
| Oct-04 | 1.8 | 0.5 U | 0.9 | 0.32 J | 0.5 U | 0.19 J |
| Oct-05 | 1.9 | 0.5 U | 0.85 | 0.29 J | 0.5 U | 0.5 U |
| Oct-06 | 1.5 | 0.5 U | 0.69 | 0.23 J | 0.5 U | 0.5 U |
| Oct-07 | 1.5 | 0.5 U | 1.1 | 0.5 U | 0.5 U | 0.5 U |
| Oct-08 | 1.2 | 0.09 J | 0.2 J | 0.5 U | 0.5 U | 0.5 U |
| Jan-09 | 1.1 | 0.09 J | 0.17 J | 0.5 U | 0.5 U | 0.5 U |
| May-09 | 1.3 | 0.08 J | 0.31 J | 0.13 J | 0.5 U | 0.5 U |
| Oct-09 | 1.2 | 0.07 J | 0.8 | 0.22 J | 0.5 U | 0.5 U |
| Apr-10 | 1.1 | 0.09 J | 1 | 0.33 J | 0.5 U | 0.5 U |
| Oct-10 | **28** | 0.21 J | 2.6 | **1.4** | 0.5 U | 0.5 U |
| Apr-11 | **29** | 0.27 J | 1.3 | 0.89 | 0.5 U | 0.5 U |
| Oct-11 | **140** | 0.68 | 2.3 | 1 | 0.5 U | 0.5 U |
| Mar-12 | **160** | 0.81 | 1.5 | 0.82 | 0.5 U | 0.5 U |
| Apr-12 | **160** | 0.85 | 1.3 | 0.76 | 0.5 U | 0.5 U |
| Jul-12 | **210** | 1 | 2.3 | **1.1** | 0.5 U | 0.5 U |
| Oct-12 | **210** | 0.90 | 2.5 | **1.2** | 0.5 U | 0.5 U |
| Jan-13 | **220** | 0.87 | 1.8 | **1.1** | 0.5 U | 0.5 U |
| Apr-13 | **240** | 0.83 | 2 | 1 | 0.5 U | 0.5 U |
| Jul-13 | **230** | 0.82 | 2 | 0.94 | 0.5 U | 0.5 U |
| Oct-13 | **180** | 0.59 | 1.4 | 0.69 | 0.5 U | 0.5 U |
| Jan-14 | **180** | 0.54 | 0.97 | 0.55 | 0.5 U | 0.5 U |
| Apr-14 | **130** | 0.46 J | 0.82 | 0.34 J | 0.5 U | 0.5 U |
| Jul-14 | **150** | 0.67 | 1.1 | 0.54 | 0.5 U | 0.5 U |
| Oct-14 | **120** | 0.57 | 0.86 | 0.41 J | 0.5 U | 0.5 U |
| Apr-15 | **120** | 0.49 J | 0.75 | 0.33 J | 0.5 U | 0.5 U |

**Table H-4. Historical VOC Concentrations in Well AMW-17 Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Oct-15 | **110** | 0.40 J | 0.57 | 0.29 J | 0.5 U | 0.5 U |
| Apr-16 upper[a] | **63** | 0.34 J | 0.35 J | 0.17 J | 0.5 U | 0.5 U |
| Apr-16 lower[a] | **64** | 0.35 J | 0.34 J | 0.17 J | 0.5 U | 0.5 U |
| Oct-16 upper[a] | **74** | 0.35 J | 0.28 J | 0.15 J | 0.5 U | 0.5 U |
| Oct-16 lower[a] | **96** | 0.44 J | 0.34 J | 0.27 J | 0.5 U | 0.5 U |
| Apr-17 | **70** | 0.38 J | 0.39 J | 0.12 J | 0.5 U | 0.5 U |
| Oct-17 | **79** | 0.37 J | 0.25 J | 0.12 J | 0.5 U | 0.5 U |
| Apr-18 | **65** | 0.3 J | 0.22 J | 0.1 J | 0.5 U | 0.5 U |
| Oct-18 | **23** | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Apr-19 | **66** | 0.32 J | 0.29 J | 0.11 J | 0.5 U | 0.5 U |
| Oct-19 | **48** | 0.18 J | 0.19 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-20 | **55** | 0.25 J | 0.11 J | 0.5 U | 0.5 U | 0.5 U |
| Apr-21 | **46** | 0.22 J | 0.09 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-21 | **42** | 0.23 J | 0.08 J | 0.5 U | 0.5 U | 0.5 U |
| Apr-22 | Not Sampled | | | | | |
| Oct-22 | Not Sampled | | | | | |
| Cleanup Level | 5 | 5 | 200 | 1 | 70 | 2,400 |

NOTES:

Results shown in **blue bold** exceed the Boomsnub/Airco Site-specific cleanup level.

Only detected compounds are included in this table.

Concentrations presented are the highest of the sample and duplicate results, where applicable.

[a] = Two samplers were deployed in April and October 2016 - one near the top of the screened interval (upper) and one near the bottom (lower).

-- = Not available

CFC-11 = Trichlorofluoromethane

cis-1,2-DCE = cis-1,2-Dichloroethene

1,1-DCE = 1,1-Dichloroethene

J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.

PCE = Tetrachloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

TCE = Trichloroethene

U = The analyte was not detected above the specified reporting limit.

UJ = The analyte was not detected, but the associated limit of quantitation is estimated.

µg/L = Micrograms per liter

VOC = Volatile organic compound

**Table H-5. Historical VOC Concentrations in Well AMW-18 Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Apr-95 | 0.73 J | 1 U | 2.9 | 0.87 J | 1 U | 1 UJ |
| Oct-95 | 0.3 J | 1 U | 1 | 0.53 J | 1 U | 1 U |
| May-96 | 1 U | 1 U | 0.52 J | 1 U | 1 U | 1 U |
| Oct-96 | 0.31 J | 1 U | 0.48 J | 1 U | 1 U | 1 U |
| May-97 | 0.43 J | 1 U | 0.44 J | 1 U | 1 U | 1 UJ |
| Oct. 97 | 0.3 U | 0.4 U | 0.4 U | 0.4 U | -- | 0.5 U |
| May-98 | 0.5 U | 0.6 U | 2 U | 1 U | 0.7 U | 2 U |
| Oct-01 | 1.1 | 0.15 J | 0.19 J | 0.12 J | 0.5 U | 0.5 U |
| Oct-02 | 1.1 | 0.26 J | 0.25 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-03 | 0.95 | 0.29 J | 0.17 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-04 | 0.64 | 0.28 J | 0.17 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-05 | 0.62 | 0.24 J | 0.78 | 0.13 J | 0.5 U | 0.5 U |
| Oct-06 | **5.1** | 0.43 J | 2.4 | 0.78 | 0.5 U | 0.5 U |
| Oct-07 | **330** | 1.6 | 6.5 | **2.7** | 0.5 U | 0.5 U |
| Dec-07 | **410** | 2.1 | 7.5 | **2.9** | 0.5 U | 0.5 U |
| Jan-08 upper [a] | **430** | 1.9 | 6.9 | **2.6** | 1 U | 1.0 U |
| Jan-08 lower [a] | **460** | 1.9 | 6.9 | **2.7** | 1 U | 1 U |
| May-08 | **460** | 2.3 | 6 | **2.4** | 0.5 U | 0.5 U |
| Jul-08 | **410** | 1.4 | 4.8 | **1.7** | 1 U | 1 U |
| Oct-08 [b] | **390** | 1.4 | 4.5 | **1.4** | 1 U | 1 U |
| Jan-09 | **300** | 1.5 | 3.2 | **1.3** | 0.5 U | 0.5 U |
| May-09 | **320** | 1.4 | 2.6 | **1.1** | 0.5 U | 0.5 U |
| Oct-09 | **210** | 0.75 | 1.8 | 0.75 | 0.5 U | 0.5 U |
| Apr-10 | **200** | 0.66 | 2.1 | 0.61 | 0.5 U | 0.5 U |
| Oct-10 | **130** | 0.47 J | 0.85 | 0.35 J | 0.5 U | 0.5 U |
| Apr-11 | **75** | 0.31 J | 0.71 | 0.18 J | 0.5 U | 0.5 U |
| Oct-11 | **68** | 0.29 J | 0.56 | 0.18 J | 0.5 U | 0.22 J |
| Mar-12 | **52** | 0.2 J | 0.37 J | 0.09 J | 0.5 U | 1 |
| Apr-12 | **52** | 0.19 J | 0.29 J | 0.09 J | 0.5 U | 0.53 |
| Jul-12 | **53** | 0.22 J | 0.3 J | 0.5 U | 0.5 U | 0.6 |
| Oct-12 | **39** | 0.15 J | 0.16 J | 0.5 U | 0.5 U | 0.43 J |
| Jan-13 | **48** | 0.17 J | 0.1 J | 0.5 U | 0.5 U | 0.4 J |
| Apr-13 | **44** | 0.15 J | 0.08 J | 0.5 U | 0.5 U | 0.26 J |
| Jul-13 | **36** | 0.2 J | 0.11 J | 0.5 U | 0.5 U | 0.19 J |
| Oct-13 | **34** | 0.15 J | 0.11 J | 0.5 U | 0.5 U | 0.15 J |
| Jan-14 | **36** | 0.11 J | 0.09 J | 0.5 U | 0.5 U | 0.5 U |
| Apr-14 | **27** | 0.5 U | 0.08 J | 0.5 U | 0.5 U | 0.5 U |
| Jul-14 | **30** | 0.18 J | 0.16 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-14 | **34** | 0.12 J | 0.16 J | 0.5 U | 0.5 U | 0.5 U |

**Table H-5. Historical VOC Concentrations in Well AMW-18 Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Apr-15 | **34** | 0.11 J | 0.18 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-15 | **42** | 0.11 J | 0.17 J | 0.5 U | 0.5 U | 0.5 U |
| Apr-16 | **40** | 0.14 J | 0.1 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-16 | **40** | 0.1 J | 0.09 J | 0.5 U | 0.5 U | 0.5 U |
| Apr-17 | **43** | 0.14 J | 0.13 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-17 | **28** | 0.13 J | 0.081 J | 0.5 U | 0.5 U | 0.062 J |
| Apr-18 | **28** | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-18 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Apr-19 | **20** | 0.11 J | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-19 | **18** | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-20 | **16** | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Apr-21 | **17** | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-21 | **16** | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Apr-22 | **13** | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-22 | **9.7** | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Cleanup Level | 5 | 5 | 200 | 1 | 70 | 2,400 |

NOTES:

Results shown in **blue bold** exceed the Boomsnub/Airco Site-specific cleanup level.

Only detected compounds are included in this table.

Concentrations presented are the highest of the sample and duplicate results.

[a] = Two samplers were deployed in January 2008 - one near the top of the screened interval (upper) and one near the bottom (lower).

-- = Not available

CFC-11 = Trichlorofluoromethane

cis-1,2-DCE = cis-1,2-Dichloroethene

1,1-DCE = 1,1-Dichloroethene

J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.

PCE = Tetrachloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

TCE = Trichloroethene

U = The analyte was not detected above the specified reporting limit.

UJ = The analyte was not detected, but the associated limit of quantitation is estimated.

µg/L = Micrograms per liter

VOC = Volatile organic compound

**Table H-6. Historical VOC Concentrations in Well AMW-23 Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Oct. 97 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | NA | 0.5 U |
| May-98 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Sep-98 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| May-99 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-99 | 0.5 U | 0.5 U | 0.3 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-00 | 0.5 U | 0.5 U | 0.5 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-01 | 0.5 U | 0.5 U | 0.74 | 0.5 U | 0.5 U | 0.5 U |
| Oct-02 | 0.5 U | 0.5 U | 0.78 | 0.5 U | 0.5 U | 0.5 U |
| Oct-03 | 0.5 U | 0.5 U | 0.57 | 0.5 U | 0.5 U | 0.5 U |
| Oct-16 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-17 | 0.1 J | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-18 | **8** | 0.85 | 0.5 U | 0.5 U | 0.8 J | 0.13 J |
| Apr-19 | 0.15 J | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-19 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-20 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-22 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Cleanup Level | 5 | 5 | 200 | 1 | 70 | 2,400 |

NOTES:
Results shown in **blue bold** exceed the Boomsnub/Airco Site-specific cleanup level.
Only detected compounds are included in this table.
Concentrations presented are the highest of the sample and duplicate results.
-- = Not available
CFC-11 = Trichlorofluoromethane
cis-1,2-DCE = cis-1,2-Dichloroethene
1,1-DCE = 1,1-Dichloroethene
J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.
PCE = Tetrachloroethene
1,1,1-TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
U = The analyte was not detected above the specified reporting limit.
UJ = The analyte was not detected, but the associated limit of quantitation is estimated.
µg/L = Micrograms per liter
VOC = Volatile organic compound

**Table H-7. Historical VOC Concentrations in Well AMW-64 Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Mar-12 | **190** | 0.27 J | 3.5 | **2.7** | 0.11 J | 0.5 U |
| Apr-12 | **160** | 0.31 J | 1.7 | **2.5** | 0.43 J | 0.5 U |
| Jul-12 | **170** | 0.4 J | 2.4 | **2.7** | 0.68 | 0.5 U |
| Oct-12 | **110** | 0.27 J | 1.2 | **1.5** | 1 | 0.5 U |
| Jan-13 | **110** | 0.24 J | 0.79 | **1.7** | 1.2 | 0.5 U |
| Apr-13 | **94** | 0.23 J | 0.57 | **1.4** | 1.4 | 0.5 U |
| Jul-13 | **84** | 0.26 J | 0.33 J | **1.1** | 1.5 * | 0.5 U |
| Oct-13 | **75** | 0.29 J | 0.24 J | 1 | 1.5 | 0.5 U |
| Jan-14 | Not Sampled (well inaccessible) | | | | | |
| Apr-14 | **61** | 0.18 J | 0.1 J | 0.59 | 1.6 * | 0.5 U |
| Jul-14 | **67** | 0.26 J | 0.16 J | 0.65 | 1.8 * | 0.5 U |
| Oct-14 | **55** | 0.2 J | 0.16 J | 0.46 J | 1.6 * | 0.5 U |
| Apr-15 | **53** | 0.21 J | 0.12 J | 0.35 J | 1.3 * | 0.5 U |
| Oct-15 | **45** | 0.21 J | 0.09 J | 0.2 J | 1.2 * | 0.5 U |
| Apr-16 | **28** | 0.18 J | 0.5 U | 0.11 J | 0.65 | 0.5 U |
| Oct-16 | **24** | 0.18 J | 0.5 U | 0.09 J | 0.61 | 0.5 U |
| Apr-17 | **22** | 0.17 J | 0.13 J | 0.5 U | 0.39 J | 0.5 U |
| Oct-17 | **15** | 0.15 J | 0.5 U | 0.034 J | 0.35 J | 0.5 U |
| Apr-18 | **13** | 0.5 U | 0.11 J | 0.5 U | 0.22 J | 0.5 U |
| Oct-18 | **71** | 0.24 J | 0.16 J | 0.17 J | 0.5 U | 0.23 J |
| Apr-19 | **11** | 0.11 J | 0.14 J | 0.5 U | 0.07 J | 0.5 U |
| Oct-19 | **9.9** | 0.1 U | 0.11 J | 0.5 U | 0.09 J | 0.5 U |
| Oct-20 | **7.1** | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Apr-21 | **8.4** | 0.5 U | 0.10 J | 0.5 U | 0.07 J | 0.12 J |
| Oct-21 | **9.3** | 0.5 U | 0.10 J | 0.5 U | 0.07 J | 0.5 U |
| Apr-22 | **8.5** | 0.5 U | 0.080 J | 0.5 U | 0.5 U | 0.5 U |
| Oct-22 | **8.3** | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Cleanup Level | 5 | 5 | 200 | 1 | 70 | 2,400 |

NOTES:

Results shown in **blue bold** exceed the Boomsnub/Airco Site-specific cleanup level.

Concentrations presented are the highest of the sample and duplicate results, where applicable.

* Trans-1,2-dichloroethene was also detected during the following events: July 2013 at 0.28 J µg/L, April 2014 at 0.30 J µg/L, July 2014 at 0.32 J µg/L, October 2014 at 0.21 J µg/L, April 2015 at 0.15 J µg/L, and October 2015 at 0.080 J µg/L.

CFC-11 = Trichlorofluoromethane

cis-1,2-DCE = cis-1,2-Dichloroethene

1,1-DCE = 1,1-Dichloroethene

J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.

PCE = Tetrachloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

TCE = Trichloroethene

U = The analyte was not detected above the specified reporting limit.

µg/L = Micrograms per liter

VOC = Volatile organic compound

**Table H-8. Historical VOC Concentrations in Well MW-21D Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Jan-95 | **2,500 J** | 200 U | 200 U | **46 J** | -- | -- |
| Feb-95 | **3,000 J** | **33 J** | 38 J | **78** | -- | -- |
| Mar-95 | **2,400** | **28** | 40 | **50** | -- | -- |
| Apr-95 | **1,960** | **35.5** | 46.3 | **57.7 J** | 2.9 | 6.1 |
| May-95 | **2,200 J** | **31** | -- | -- | -- | -- |
| Jun-95 | **1,900** | **27** | -- | -- | -- | -- |
| Jul-95 | **1,800** | **24** | -- | -- | -- | -- |
| Aug-95 | **1,700** | **14** | -- | -- | -- | -- |
| Sep-95 | **1,500** | **22** | -- | -- | -- | -- |
| Oct-95 | **1,760** | **24.8** | 34.6 | **52.7** | 2.8 | 18.8 J |
| Nov-95 | **1,600** | **21** | -- | -- | -- | -- |
| Jan-96 | **2,500** | **23** | -- | -- | -- | -- |
| Feb-96 | **2,400** | **33** | -- | -- | -- | -- |
| Mar-96 | **2,200** | **24** | -- | -- | -- | -- |
| Apr-96 | **1,800** | **17** | -- | -- | -- | -- |
| May-96 | **1,680** | **26.3** | 25.8 | **50.7** | 3.1 | 24.3 J |
| Jun-96 | **1,900** | **18** | -- | -- | -- | -- |
| Jul-96 | **1,100** | **13** | -- | -- | -- | -- |
| Aug-96 | **1,100** | **12** | -- | -- | -- | -- |
| Sep-96 | **1,000** | **11** | -- | -- | -- | -- |
| Oct-96 | **958** | **13.8** | 15.6 | **19** | 10 U | 90.4 |
| Dec-96 | **1,000** | **12** | -- | -- | -- | -- |
| Dec-96 | **980** | **14** | -- | -- | -- | -- |
| Feb-97 | **750** | **10** | -- | -- | -- | -- |
| Mar-97 | **880** | **15** | -- | -- | -- | -- |
| Apr-97 | **720** | **12** | -- | -- | -- | -- |
| May-97 | **540** | 2.9 J | 20 U | **1.7 J** | 20 U | 127 |
| Jun-97 | **570** | **8** | -- | -- | -- | -- |
| Jul-97 | **500** | **10** | -- | -- | -- | -- |
| Aug-97 | **490** | **9** | -- | -- | -- | -- |
| Sep-97 | **460** | **8** | -- | -- | -- | -- |
| Oct-97 | **280** | 4 | 8 | **13** | 1 | 91 |
| Jan-98 | **380** | **6** | -- | -- | -- | -- |
| May-98 | **340** | 2 | 6 | **21** | 0.7 U | 150 |
| Oct-98 | **320 J** | 3 | 10 | **21** | 0.7 U | 120 |
| May-99 | **240 D** | 0.6 UJ | 14 | **46** | 0.7 U | 180 |
| Jun-99 | **220** | 2.7 | 13 | **18** | 1.5 | 68 |
| Oct-99 | **230** | 1.8 | 43 | **18** | 1.7 | 88 |

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Dec-99 | **180** | 1.6 | 20 J | **17** | 1.3 | 74 |
| Mar-00 | **110** | 1.2 | 18 | **12** | 1.2 | 39 |
| May-00 | **130 D** | ND | 23 D | **19 D** | ND | 75 D |
| Jun-00 | **130** | 1.8 | 16 J | **16 J** | 1.4 | 70 |
| Oct-00 | **120** | 1.8 | 15 | **13** | 1.9 | 53 |
| Dec-00 | **86** | 1.2 | 13 | **10** | 1.6 | 53 |
| Feb-01 | **99** | 1.2 | 13 | **13** | 2.2 | 65 |
| May-01 | **85** | 1.3 | 15 | **12** | 2.3 | 64 |
| Oct-01 | **69** | 1.2 | 11 | **9** | 2.1 | 39 |
| Dec-01 | **73** | 0 U | 10 | **7.9** | 1.9 | 45 |
| Feb-02 | **90** | **9.69** | 9.5 | **6.59** | 1.6 | 51 |
| May-02 | **70 D** | 1.1 | 14 | **8.4** | 2.2 | 41 |
| Oct-02 | **75** | 1 | 15 | **8.9** | 2.3 | 39 |
| Oct-02 | **63 D** | 1 | 14 | **8.2** | 2.1 | 34 |
| Dec-02 | **47** | 0.85 | 12 | **7** | 1.8 | 24 |
| Feb-03 | **56 D** | 0.82 | 17 | **11** | 2 | 37 J |
| May-03 | **48** | 0.87 | 15 | **12** | 1.8 | 27 |
| Oct-03 | **58** | 0.65 | 14 | **7.9** | 1.4 | 24 |
| May-04 | **30** | 0.6 | 8.2 | **6.2** | 1.5 | 12 |
| Oct-04 | **25** | 0.48 J | 5.9 | **4.6** | 1.2 | 8.5 |
| Apr-05 | **24** | 0.42 J | 5.1 | **4.6** | 1.3 | 8.2 |
| Oct-05 | **21** | 0.33 J | 3.7 | **3.4** | 1 | 6.4 |
| Apr-06 | **18** | 0.32 J | 2.6 | **3** | 0.87 | 5.4 |
| Oct-06 | **16** | 0.34 J | 2.2 | **2.7** | 0.77 | 3.9 |
| Oct-06 | **15** | 0.33 J | 2 | **2.6** | 0.75 | 3.8 |
| May-07 | **16 J** | 0.28 J | 2.1 | **2.7** | 0.79 | 4.9 J |
| Oct-07 | **12** | 0.23 J | 1.5 | **2.2** | 0.58 | 3.2 |
| May-08 | **14** | 0.21 J | 1.4 | **2.2** | 0.69 | 3.3 |
| Oct-08 | **11** | 0.22 J | 0.8 | **2.1** | 0.55 | 2.7 |
| Oct-08 | **11** | 0.23 J | 0.82 | **2.2** | 0.56 | 2.8 |
| May-09 | **11** | 0.18 J | 0.86 | **2.1** | 0.63 | 2.5 |
| Oct-09 | **11** | 0.21 J | 0.59 J | **2.1 J** | 0.58 | 2.3 J |
| Oct-09 | **9.9** | 0.18 J | 0.53 J | **1.7 J** | 0.49 J | 1.9 J |
| Apr-10 | **7.3** | 0.15 J | 0.31 J | **1.3** | 0.39 J | 1.1 |
| Oct-10 | **7** | 0.16 J | 0.29 J | 1 | 0.41 J | 0.9 |
| Apr-11 | **7.3** | 0.19 J | 0.21 J | **1.3** | 0.49 J | 0.74 |
| Oct-11 | **6.2** | 0.13 J | 0.25 J | **1.1** | 0.48 J | 0.59 |
| Apr-12 | **5.4** | 0.15 J | 0.16 J | 0.99 | 0.48 J | 0.44 J |
| Oct-12 | **5.2** | 0.13 J | 0.20 J | 1 | 0.61 | 0.32 J |
| Oct-12 | **5.3** | 0.13 J | 0.18 J | 1 | 0.61 | 0.32 J |
| Apr-13 | 4.3 | 0.10 J | 0.12 J | 0.85 | 0.44 J | 0.25 J |
| Oct-13 | 3.5 | 0.13 J | 0.13 J | 0.71 | 0.32 J | 0.18 J |
| Apr-14 | 2.9 | 0.5 U | 0.5 U | 0.5 | 0.29 J | 0.14 J |

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Oct-14 | 2.4 | 0.11 J | 0.08 J | 0.43 J | 0.29 J | 0.5 U |
| Apr-15 | 3.2 | 0.10 J | 0.090 J | 0.51 | 0.33 J | 0.5 U |
| Oct-15 | 2.8 | 0.5 U | 0.5 U | 0.44 J | 0.26 J | 0.5 U |
| Apr-16 | 2.5 | 0.5 U | 0.090 J | 0.45 J | 0.27 J | 0.5 U |
| Oct-16 | 2.4 | 0.5 U | 0.10 J | 0.36 J | 0.25 J | 0.5 U |
| Apr-17 | 2.2 | 0.11 J | 0.18 J | 0.41 J | 0.25 J | 0.5 U |
| Oct-17 | 2.4 | 0.11 J | 0.17 J | 0.42 J | 0.24 J | 0.075 J |
| Apr-18 | 5 | 0.5 U | 0.10 J | 0.44 J | 0.21 J | 0.5 U |
| Oct-18 | **16** | 0.50 U | 0.45 J | 0.95 | 0.39 J | 0.14 J |
| Apr-19 | **15** | 0.12 J | 0.48 J | 0.71 | 0.29 J | 0.17 J |
| Oct-19 | **9.1** | 0.50 U | 0.19 J | 0.41 J | 0.22 J | 0.12 J |
| Apr-20 | **7.1** | 0.50 U | 0.21 J | 0.47 J | 0.23 J | 0.12 J |
| Oct-20 | .031 J | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Apr-21 | 1.5 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-21 | 1.5 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Apr-22 | 0.77 | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| Oct-22 | 1.4 | 0.5 U | 0.5 U | 0.5 U | 0.14 J | 0.5 U |
| Cleanup Level | 5 | 5 | 200 | 1 | 70 | 2,400 |

NOTES:

Results shown in **blue bold** exceed the Boomsnub/Airco Site-specific cleanup level.

Only detected compounds are included in this table.

Concentrations presented are the highest of the sample and duplicate results, where applicable.

[a] = Two samplers were deployed in April and October 2016 - one near the top of the screened interval (upper) and one near the bottom (lower).

-- = Not available

CFC-11 = Trichlorofluoromethane

cis-1,2-DCE = cis-1,2-Dichloroethene

1,1-DCE = 1,1-Dichloroethene

J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.

PCE = Tetrachloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

TCE = Trichloroethene

U = The analyte was not detected above the specified reporting limit.

UJ - The analyte was not detected, but the associated limit of quantitation is estimated.

µg/L = Micrograms per liter

VOC = Volatile organic compound

**Table H-9. Historical VOC Concentrations in Well MW-23D Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Apr-95 | **5.7** | 1 U | 37.6 | **56.8** | 6.4 | 1.5 J |
| Oct-95 | **53.4** | 1 U | 24.8 | **55.1** | 12.8 | 3.4 |
| May-96 | **49.1** | 1 U | 24.6 | **52.6** | 8.4 | 25.9 J |
| Oct-96 | **43.3** | 1 U | 20 | **32.6** | 10 | 95.5 |
| May-97 | **61.3 J** | 1 U | 14.4 | **36.4** | 10.7 | 224 J |
| Oct-97 | **51** | 0.4 U | 14 | **30** | -- | 89 |
| May-98 | **42** | 0.6 U | 10 | **28** | 23 | 35 |
| Oct-98 | **67** | 3 J | 3 | 1 U | 3 | 3 |
| May-99 | **35 J** | 0.6 UJ | 6 J | **45 J** | 27 J | 16 J |
| Oct-99 | **15** | 0.5 U | 4.7 | **8.4** | 5.3 | 5.4 |
| May-00 | **37** | 0.5 U | 2.5 | **8.1** | 29 | 2.1 |
| Oct-00 | **34** | 0.5 U | 1.2 | **4.4** | 14 | 1.1 |
| May-01 | 0.5 U | 0.5 U | 0.71 | 0.5 U | 0.5 U | 0.5 U |
| Oct-01 | **24** | 0.5 U | 0.88 | **3.5** | 5 | 0.96 |
| May-02 | **22** | 0.5 U | 1.2 | **4.4** | 4.3 | 1.5 |
| Oct-02 | **16** | 0.5 U | 1.4 | **2.8** | 1.7 | 0.64 |
| May-03 | **13** | 0.5 U | 2.4 | **2.7** | 1.2 | 0.49 J |
| Oct-03 | **11** | 0.5 U | 2.3 | **3.2** | 0.9 | 0.47 J |
| May-04 | **9** | 0.5 U | 1.6 | **2.5** | 0.6 | 0.33 J |
| Oct-04 | **7.8** | 0.5 U | 1.1 | **2.4** | 0.5 | 0.25 J |
| Apr-05 | **5.9** | 0.5 U | 0.74 | **2** | 0.57 | 0.21 J |
| Oct-05 | **6** | 0.5 U | 0.66 | **2** | 0.62 | 0.2 J |
| Oct-06 | 4.4 | 0.5 U | 0.36 J | **1.6** | 0.58 | 0.5 U |
| Oct-07 | 3.5 | 0.5 U | 0.3 J | **1.1** | 0.58 | 0.14 J |
| Oct-08 | 2.6 | 0.5 U | 0.43 J | **1.4** | 0.46 J | 0.2 J |
| Oct-09 | 2.5 | 0.5 U | 0.19 J | 0.77 | 0.29 J | 0.15 J |
| Oct-10 | 1.9 | 0.5 U | 0.13 J | 0.49 J | 0.24 J | 0.5 U |
| Oct-11 | 1.6 | 0.5 U | 0.14 J | 0.5 | 0.18 J | 0.13 J |
| Oct-12 | 1.4 | 0.5 U | 0.27 J | 0.54 | 0.27 J | 0.29 J |
| Oct-13 | 1.2 | 0.5 U | 0.42 J | 0.66 | 0.16 J | 0.25 J |
| Oct-14 | 1.4 | 0.5 U | 2.4 | **2.7** | 0.16 J | 0.24 J |
| Oct-15 | **130** | 0.5 U | 2.7 | **2.7** | 0.12 J | 0.14 J |
| Apr-16 upper[a] | **140** | 0.5 U | 2.1 | **2.3** | 0.08 J | 0.12 J |
| Apr-16 lower[a] | **62** | 0.5 U | 2.5 | **2.3** | 0.10 J | 0.21 J |
| Oct-16 upper[a] | **140** | 0.5 U | 2.5 | **2.9** | 0.08 J | 0.13 J |
| Oct-16 lower[a] | **84** | 0.5 U | 3.6 | **3.3** | 0.12 J | 0.22 J |
| Apr-17 | **180** | 0.5 U | 3.3 | **3.1** | 0.14 J | 0.17 J |
| Oct-17 | **140** | 0.078 J | 1.9 | **1.8** | 0.14 J | 0.1 J |
| Apr-18 | **120** | 0.5 U | 1 | **1.4** | 0.5 U | 0.5 U |

**Table H-9. Historical VOC Concentrations in Well MW-23D Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Oct-18 | **160** | 0.5 U | 2.1 | **2.2** | 0.07 J | 0.5 U |
| Apr-19 | **150 E** | 0.14 J | 1.5 | **1.5** | 0.22 J | 0.12 J |
| Oct-19 | **130** | 0.5 U | 1.1 | **1.5** | 0.08 J | 0.5 U |
| Oct-20 | **83** | 0.5 U | 0.61 | 0.91 | 0.5 U | 0.5 U |
| Apr-21 | **72** | 0.5 U | 0.40 J | 0.8 | 0.25 J | 0.5 U |
| Oct-21 | **61** | 0.5 U | .44 J | 0.8 | 0.27 J | 0.5 U |
| Apr-22 | **71** | 0.5 U | 0.44 J | **1.5** | 0.36 J | 0.5 U |
| Oct-22 | **49** | 0.5 U | 0.24 J | **1.4** | 0.49 J | 0.5 U |
| Cleanup Level | 5 | 5 | 200 | 1 | 70 | 2,400 |

NOTES:

Results shown in **blue bold** exceed the Boomsnub/Airco Site-specific cleanup level.

Only detected compounds are included in this table.

Concentrations presented are the highest of the sample and duplicate results, where applicable.

[a] = Two samplers were deployed in April and October 2016 - one near the top of the screened interval (upper) and one near the bottom (lower).

-- = Not available

CFC-11 = Trichlorofluoromethane

cis-1,2-DCE = cis-1,2-Dichloroethene

1,1-DCE = 1,1-Dichloroethene

J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.

PCE = Tetrachloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

TCE = Trichloroethene

U = The analyte was not detected above the specified reporting limit.

UJ - The analyte was not detected, but the associated limit of quantitation is estimated.

µg/L = Micrograms per liter

VOC = Volatile organic compound

**Table H-10. Historical VOC Concentrations in Well MW-38 Groundwater Samples (in µg/L)**

| Date Sampled | TCE | PCE | 1,1,1-TCA | 1,1-DCE | Cis-1,2-DCE | CFC-11 |
|---|---|---|---|---|---|---|
| Oct-10 | **12** | 0.77 | 0.33 J | 0.68 | 0.21 J | 0.47 J |
| Apr-11 | **11** | 1.0 | 0.21 J | 0.23 J | 0.19 J | 0.19 J |
| Oct-11 | **9.8** | 1.1 | 0.28 J | 0.20 J | 0.14 J | 0.26 J |
| Oct-12 | **7.4** | 1.7 | 0.69 | 0.33 J | 0.24 J | 0.22 J |
| Oct-13 | **70 D** | 2.0 | 1.8 | **1.2** | 0.12 J | 0.32 J |
| Apr-14 | **54** | 1.4 | 0.68 | 0.47 J | 0.080 J | 0.25 J |
| Oct-14 | **78** | 1.9 | 0.64 | 0.43 J | 0.09 J | 0.19 J |
| Apr-15 | **53** | 1.3 | 0.40 J | 0.30 J | 0.070 J | 0.20 J |
| Oct-15 | **50** | 1.3 | 0.40 J | 0.22 J | 0.50 U | 0.15 J |
| Apr-16 | **29** | 1.0 | 0.26 J | 0.19 J | 0.50 U | 0.50 U |
| Oct-16 | **23** | 0.85 | 0.25 J | 0.15 J | 0.50 U | 0.50 U |
| Apr-17 | **19** | 0.75 | 0.33 J | 0.16 J | 0.50 U | 0.50 U |
| Oct-17 | **9.5** | 0.78 | 0.24 J | 0.13 J | 0.50 U | 0.50 U |
| Oct-18 | **20** | 0.6 | 0.19 J | 0.09 J | 0.50 U | 0.50 U |
| Oct-19 | **28** | 0.65 | 0.12 J | 0.08 J | 0.50 U | 0.50 U |
| Apr-19 | **150 E** | 0.14 J | 1.5 | **1.5** | 0.22 J | 0.12 J |
| Oct-20 | **12** | 0.57 | 0.5 U | 0.32 J | 0.5 U | 0.2 J |
| Feb-21 | **14** | 0.51 | 0.09 J | 0.11 J | 0.5 U | 0.19 J |
| Apr-21 | **22** | 0.73 | 0.08 J | 0.5 U | 0.5 U | 0.12 J |
| Jul-21 | **27** | 0.9 | 0.08 J | 0.5 U | 0.5 U | 0.15 J |
| Oct-21 | **25** | 0.84 | 0.09 J | 0.08 J | 0.5 U | 0.17 J |
| Apr-22 | **17** | 0.74 | 0.5 U | 0.5 U | 0.5 U | 0.15 J |
| Oct-22 | **12** | 0.57 | 0.5 U | 0.5 U | 0.5 U | 0.22 J |
| Cleanup Level | 5 | 5 | 200 | 1 | 70 | 2,400 |

NOTES:

Results shown in **blue bold** exceed the Boomsnub/Airco Site-specific cleanup level.

Only detected compounds are included in this table.

Concentrations presented are the highest of the sample and duplicate results, where applicable.

[a] = Two samplers were deployed in April and October 2016 - one near the top of the screened interval (upper) and one near the bottom

-- = Not available

CFC-11 = Trichlorofluoromethane

cis-1,2-DCE = cis-1,2-Dichloroethene

1,1-DCE = 1,1-Dichloroethene

J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.

PCE = Tetrachloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

TCE = Trichloroethene

U = The analyte was not detected above the specified reporting limit.

UJ - The analyte was not detected, but the associated limit of quantitation is estimated.

µg/L = Micrograms per liter

VOC = Volatile organic compound

# Appendix I

# Monitoring Well MW-34 Decommissioning

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**STATE OF WASHINGTON**
**DEPARTMENT OF ECOLOGY**
**Southwest Region Office**
PO Box 47775, Olympia, WA 98504-7775 • 360-407-6300

October 17, 2022

Philipp Sieber – Director of Environmental Management
Messer LLC
200 Somerset Corporate Blvd
Bridgewater, NJ, 08807
Philipp.sieber@messer-us.com

Re: Variance request to Chapter 173-160 Washington Administrative Code (WAC) to decommission a resource protection well (MW-34) at the Boomsnub/Airco Superfund site at approximately 7502 NE St. John Road, Vancouver Washington in the NW ¼ NE¼, Section 12 (within Government Section 58), Township 2 North, Range 1 East W.M., Clark County, (within Tax parcel no. 144527000)

Dear Philipp Sieber:

This letter is in response to your variance request to Ecology on July 27, 2022, concerning decommissioning of a resource protection well. You are requesting a variance to the Minimum Standards for the Construction and Maintenance of Wells, Chapter 173-160 WAC. Specifically, your request is to decommission this well, without perforating or withdrawing the entire casing. The complete method is described in your variance request as follows.

***What construction standard cannot be met?***
*Perforating: 4" nominal Schedule 80 PVC has too narrow an internal diameter for any available perforator. Overdrilling: See description below.*

***Describe the reason why standard cannot be met. Include site map and distances from all known potential sources of contamination if setback variance is being requested.*** *Drilling commenced with Western Soil Conservation Inc. on Wednesday 7/27/22 with a tracked sonic drill rig setting up on a reworked dirt surface on the bottom of PacTrust Development's detention pond, centered over the cut-off inner casing of MW-34. The casing was cut off as the first step in decommissioning due to the original ground surface being approximately 10 feet higher than the current ground surface, leaving the well sticking up in the air. During initial*

*drilling only a small amount of casing material and dirt was collected by the sonic drill rig as it quickly advanced. Groundwater was encountered at 2 ft. below the current ground surface. When attempting to add tooling at approximately 35 ft. bgs, the drill string freely fell further. The drilling string was recovered by the driller with a fishing technique but at this point it became clear to the driller and the EA observer Rick Read that a void space had been encountered. A sink hole started to form at the surface and expanded over the next 30 minutes to a maximum diameter of 8 feet across, at which point it stopped expanding as long as the sonic action of the drill rig was not activated. In the sinkhole groundwater could be seen at 2-foot bgs depth with observable horizontal flow. When the sinkhole first appeared the drilling rig started gently subsiding and the drill crew immediately undertook efforts to stabilize the drill rig, placing a large sheet of metal under the entire drill rig which effectively stabilized the rig and stopped further movement. (see attached pictures and diagram). EA project manager Jonathan Reeve immediately attempted to contact Mr. John Pearch of the Southwest Regional Office to discuss the matter in real-time before implementing an alternative action to address the situation, but Mr. Pearch was out of the office that day.*

***Describe the alternative construction method that will provide equal or greater protections than those provided by the minimum standard***. *The plan we implemented on Wednesday afternoon was to immediately get high-solids bentonite-cement grout on site and fill the casing through the screened interval. The well casing was presumable open and severed around 35 ft. bgs where the drill tooling fell without resistance, and with a static groundwater level of 2 ft. bgs and the well screened in the highly transmissive Troutdale Aquifer this represented a potential cross-aquifer connection. The decision to immediately grout in the inner well casing was made to both protect the Troutdale Aquifer from potential cross-flow and to stop any additional formation material loss to vertical migration. Upon arrival of the grout truck, the drill crew placed a tremie pipe through the 35 ft. deep drill string still attached, advancing it until it bottomed out at approximately 175 ft below the current ground surface. The well was pumped with bentonite grout from the bottom up until reaching the sonic drill tooling at 35 ft. bgs. The drill tooling was then used as a larger tremie pipe as the tooling was pulled out to the surface, filling any remaining casing as well as void spaces around the casing with bentonite grout until the boring refused to accept further material. 25 additional bags of bentonite chips were then used to fill the sinkhole at the surface. This grouting effort sealed off the Troutdale aquifer and also stopped any further subsidence of the ground surface.*

After an investigation, interview, and review of information available, a variance is hereby **granted** to Chapter 173-160-460 WAC. Due to the emergency situation of a sinkhole forming while attempting to overdrill the well casing, a verbal notice of this variance was granted by Ecology on August 2, 2022, the next business day Ecology were available upon receiving the variance request.

1. This variance was granted under the methods proposed by your driller that provides equal or greater protection than provided in the minimum standards.

2. Notice of Intent No. AE74866 to decommission a water well was filed and payment received with Ecology on July 25, 2022.

3. A Decommissioning Well Report describing the decommissioning methods was received by Ecology on August 30, 2022.

4. With the exception of the provisions set forth (above) in this variance, all federal, state, and local requirements shall apply.

**YOUR RIGHT TO APPEAL**

You have a right to appeal this variance to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this variance. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this variance:

- File your appeal and a copy of variance with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this variance on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

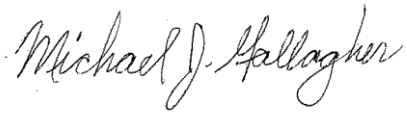
You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

**ADDRESS AND LOCATION INFORMATION**

| Street Addresses | Mailing Addresses |
|---|---|
| **Department of Ecology**<br>Attn: Appeals Processing Desk<br>300 Desmond Drive SE<br>Lacey, WA 98503<br><br>**Pollution Control Hearings Board**<br>1111 Israel RD SW<br>STE 301<br>Tumwater, WA 98501 | **Department of Ecology**<br>Attn: Appeals Processing Desk<br>PO Box 47608<br>Olympia, WA 98504-7608<br><br>**Pollution Control Hearings Board**<br>PO Box 40903<br>Olympia, WA 98504-0903 |

*For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov . To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser.*

SIGNATURE



_____ October 17, 2022

Michael J. Gallagher
Section Manager
Water Resources Program

Date



_____ October 17, 2022

John Pearch, LHG
Well Construction Coordinator
jope461@ecy.wa.gov

Date

cc: David Sordi, Messer, david.sordi@messer-us.com
Nic Stroberger, Stratus Corporation, ns@stratuscorp.net
Jonathan Reeve, EA Engineering, jreeve@eaest.com
Jonathan Williams, EPA, Williams.Jonathan@epa.gov
Andy Smith, TCP
Scott Malone, Ecology

DEPARTMENT OF ECOLOGY
State of Washington

# Water Resources Program
## Variance Request- Minimum Standards for Well Construction

WAC173-160-106(1) allows you to request a variance from the Department of Ecology when strict compliance with state well construction standards is impractical. The variance request must propose comparable alternative specifications that will provide equal or greater human health and resource protection than the minimum standards. You must apply for a variance in writing and receive approval before constructing or decommissioning the well. (All fields must be completed.)

Requested by: Jonathan Reeve

Mailing Address: 2200 6th Ave, Suite 707 City: Seattle State: WA Zip: 98121

Daytime Phone: 206-452-5358 Date: 8/3/2022

Property Owner (if different): Pacific Realty Associates, LP

Site Location: SE¼ SE¼ Section: 58 Township: 2 North Range: 1 East ☐E or ☒WWM

Tax Parcel Number: 986059875

Well Address: NE St. Johns Rd

Well Driller/Company (if known): Holt Drilling (installation), Western States Soil Conservation Inc (decomissioning

Check one: ☐ Water Well ☒ Resource Protection Well ☐ Dewatering Well

What construction standard cannot be met?

Perforating: 4" nominal Schedule 80 PVC has too narrow an internal diameter for any available perforator.

Overdrilling: See description below.

Describe the reason why standard cannot be met. Include site map and distances from all known potential sources of contamination if setback variance is being requested.

Drilling commenced with Western Soil Conservation Inc. on Wednesday 7/27/22 with a tracked sonic drill rig setting up on a reworked dirt surface on the bottom of PacTrust Development's detention pond, centered over the cut-off inner casing of MW-34. The casing was cut off as the first step in decomissioning due to the original ground surface being approximately 10 feet higher than the current ground surface, leaving the well sticking up in the air. During initial drilling only a small amount of casing material and dirt was collected by the sonic drill rig as it quickly advanced. Groundwater was encountered at 2 ft. below the current ground surface. When attempting to add tooling at approximately 35 ft. bgs, the drill string freely fell further. The drilling string was recovered by the driller with a fishing technique but at this point it became clear to the driller and the EA observer Rick Read that a void space had been encountered. A sink hole started to form at the surface and expanded over the next 30 minutes to a maximum diameter of 8 feet across, at which point it stopped expanding as long as the sonic action of the dill rig was not activated. In the sinkhole groundwater could be seen at 2 foot bgs depth with observable horizontal flow. When the sinkhole first appeared the drilling rig started gently subsiding and the drill crew immediately undertook efforts to stabilize the drill rig, placing a large sheet of metal under the entire drill rig which effectively stabilized the rig and stopped further movement. (see attached pictures and diagram). EA project manager Jonathan Reeve immediately attempted to contact Mr. John Pearch of the Southwest Regional Office to discuss the matter in real-time before implementing an alternative action to address the situation but Mr. Pearch was out of the office that day.

Describe the alternative construction method that will provide equal or greater protections than those provided by the minimum standard.

The plan we implemented on Wednesday afternoon was to immediately get high-solids bentonite-cement grout on site and fill the casing through the screened interval. The well casing was presumable open and severed around 35 ft. bgs where the drill tooling fell without resistance, and with a static groundwater level of 2 ft. bgs and the well screened in the highly transmissive Troutdale Aquifer this represented a potential cross-aquifer connection. The decision to immediately grout in the inner well casing was made to both protect the Troutdale Aquifer from potential cross-flow and to stop any additional formation material loss to vertical migration. Upon arrival of the grout truck, the drill crew placed a tremie pipe through the 35 ft. deep drill string still attached, advancing it until it bottomed out at approximately 175 ft below the current ground surface. The well was pumped with bentonite grout from the bottom up until reaching the sonic drill tooling at 35 ft. bgs. The drill tooling was then used as a larger tremie pipe as the tooling was pulled out to the surface, filling any remaining casing as well as void spaces around the casing with bentonite grout until the boring refused to accept further material. 25 additional bags of bentonite chips were then used to fill the sinkhole at the surface. This grouting effort sealed off the Troutdale aquifer and also stopped any further subsidence of the ground surface.

(Attach additional pages if necessary.) Complete and return with your site map to the appropriate regional office:

| Northwest Regional Office | Southwest Regional Office | Eastern Regional Office | Central Regional Office |
|---|---|---|---|
| ATTN: Noel Philip<br>3190 160th Avenue SE<br>Bellevue, WA 98008<br><br>425-649-7044<br>Fax: 425-649-7098<br>nphi461@ecy.wa.gov | ATTN: John Pearch<br><br>PO Box 47775<br>Olympia, WA 98504<br><br>360-407-0297<br>Fax: 360-407-6305<br>jope461@ecy.wa.gov | ATTN: Mark Ader<br>N 4601 Monroe St.<br>Spokane, WA 99205<br><br>509-329-3544<br>Fax: 509-329-3529<br>made461@ecy.wa.gov | ATTN: Avery Richardson<br>1250 W Alder St.<br>Union Gap, WA 98903<br><br>509-575-2639<br>Fax: 509-454-7830<br>aric461@ecy.wa.gov |

DEPARTMENT OF ECOLOGY
State of Washington

# Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:

☐ Construction
☒ Decommission ⇨ Original NOI No. Unknown

Ecology Well ID Tag No. _____

Site Well Name MW34

Consulting Firm EA Engineering

Was a variance approved for this well/boring? ☐ Yes ☒ No

If yes, what was the variance for? In Review John Pearch

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

☒ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) McCann, Alex

Driller/Engineer/Trainee Signature Alex McCann

License No. 2952

Company Name WESTERN STATES SOIL CONSERVATION INC.

If trainee box is checked, sponsor's license number: _____

Sponsor's signature _____

Notice of Intent No. AE73993

Type of Well:

☐ Resource Protection Well ☐ Injection Point
☐ Remediation Well ☐ Grounding Well
☒ Geotechnical Soil Boring ☐ Ground Source Heat Pump
☐ Environmental Boring ☐ Other _____
↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner Owner's Rep EA Engineering

Well Street Address 4409 NE 78th St

City Vancouver County Clark

Tax Parcel No. 144527000

Location (see instructions): WWM ☐ or EWM ☐

NW ¼-¼ NE ¼, Section 58 Town 2N Range 1E

Latitude (Example: 47.12345) 45.678006

Longitude (Example: -120.12345) -122.626158

*(WGS 84 Coordinate System)*

Borehole diameter 12¼ inches Casing diameter 4" inches

Static water level _____ ft below top of casing Date _____

☐ Above-ground completion with bollards ☐ Flush monument

↳ Stick-up of top of well casing _____ ft above ground surface

Start Date 7/27/2022 Completed Date 7/27/2022

| Construction Design | Well Data | Driller's Log |
|---|---|---|
| | Abandoned (1) 205' Monitoring Well.<br><br>Abandoned using (7) 50 lb sacks of bentonite grout by tremie pipe from 205' to 0'.<br><br>Used (25) 50 lb sacks of bentonite chips to fill sink hole surrounding monitoring well caused by sonic drilling from 0' t0 10'. | 0- 205' Previous Well Material |

# WELL NUMBER MW-34



Logo

EA Engineering, Science, and Technology, Inc., PBC

**CLIENT** Messer
**PROJECT NAME** MW-34 Decomissioning
**PROJECT NUMBER** 1611303.0010
**PROJECT LOCATION** Hazel Dell, WA
**DATE STARTED** 7/27/22 **COMPLETED** 7/27/22
**GROUND ELEVATION** 267.33 ft **HOLE SIZE** 12
**DRILLING CONTRACTOR** Western States Soil Conservation Inc.
**GROUND WATER LEVELS:**
**DRILLING METHOD** Sonic Overdrilling
**AT TIME OF DRILLING** 8.33 ft / Elev 259.00 ft GW elevation on 7/27/2022
**LOGGED BY** R. Read **CHECKED BY** J. Reeve
**AT END OF DRILLING** ---
**NOTES** Log details are for decomissioning event.
**AFTER DRILLING** ---

| DEPTH (1994) (ft) | ELEVATION (ft) | GRAPHIC LOG | MATERIAL DESCRIPTION | WELL DIAGRAM |
|---|---|---|---|---|
| 0 | | | | Casing Top Elev: 267.33 (ft)<br>Casing Type: 4 in. dia. Schedule 80 PVC |
| | | | (SP) Alluvial Aquifer | Concrete |
| | | | 2022 Ground Surface | Hole-Plug Bentonite Chips (1994) |
| | 260 | | ▽ 7/27/2022 Water Level | |
| 10 | | | | |
| | 250 | | | |
| 20 | | | | |
| | 240 | | | |
| 30 | | | | Observable void above this line in 2022, possible void below in washed out annular material. |
| | 230 | | | |
| 40 | | | Void verified, casing cut off at 35 ft. below 2022 surface, 226 ft. elev. | |
| | 220 | | | |
| 50 | | | | |
| | 210 | | | |
| 60 | | | | casing and void in annular space pumped with high-solids bentonite grout from 175 ft. below 2022 ground surface to surface on 7/27/2022 |
| | 200 | | | |
| 70 | | | | |
| | 190 | | | |
| 80 | | | | |

GENERAL BH / TP / WELL - GINT STD US.GDT - 10/4/22 16:18 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINTCLI\PROJECTS\MW-34.GPJ

*(Continued Next Page)*

**CLIENT** Messer **PROJECT NAME** MW-34 Decomissioning

**PROJECT NUMBER** 1611303.0010 **PROJECT LOCATION** Hazel Dell, WA

| DEPTH (1994) (ft) | ELEVATION (ft) | GRAPHIC LOG | MATERIAL DESCRIPTION | WELL DIAGRAM |
|---|---|---|---|---|
| 80 | | | (SP) Alluvial Aquifer *(continued)* | |
| | 180 | | | |
| 90 | | | | |
| | 170 | | | Quick Grout |
| 100 | | | | Bentonite Grout (1994) |
| | 160 | | | |
| 110 | | | | |
| | 150 | | | |
| 120 | | | | |
| | 140 | | | |
| 130 | | | | |
| | | | 134.0 | 133.3 |
| | 130 | | (CL-ML) Aquitard | |
| 140 | | | | |
| | | | 144.0 | 123.3 |
| | 120 | | (GM) Troutdale Aquifer | |
| 150 | | | | |
| | 110 | | | |
| 160 | | | | |
| | 100 | | | |
| 170 | | | | |

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*(Continued Next Page)*

Logo

EA Engineering, Science, and Technology, Inc., PBC

# WELL NUMBER MW-34



**CLIENT** Messer **PROJECT NAME** MW-34 Decomissioning

**PROJECT NUMBER** 1611303.0010 **PROJECT LOCATION** Hazel Dell, WA

| DEPTH (1994) (ft) | ELEVATION (ft) | GRAPHIC LOG | MATERIAL DESCRIPTION | WELL DIAGRAM |
|---|---|---|---|---|
| 180 | 90 | | (GM) Troutdale Aquifer *(continued)* | |
| 190 | 80 | | Tremie pipe hit refusal at 175 ft. below 2022 ground surface on 7/27/2022. | Hole-Plug Bentonite Chips (1994) |
| 200 | 70 | | Bottom of well 205 ft. bgs | Colorado 10/20 Silica Sand (1994) 0.010" Slot Wire-Wrapped S.S. Screen Colorado 10/20 Silica Sand (1994) Hole-Plug Bentonite Chips (1994) Cave-In (1994) |
| 210 | 60 | | 212.0 Bottom of borehole at 212.0 feet. | |

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| Project No. 1611303 | Description: | Initial Growth of sinkhole. | Photograph #1 |
|---|---|---|---|
| | Site Name: | Boomsnub/Airco Superfund Site | Date: 27 July 2022 |
| | Client: | Messer LLC | Direction: down |



| Project No. 1611303 | Description: | Sinkhole during backfilling operations. | Photograph #2 |
|---|---|---|---|
| | Site Name: | Boomsnub/Airco Superfund Site | Date: 27 July 2022 |
| | Client: | Messer LLC | Direction: down |



| Project No. 1611303 | Description: | Sinkhole after drilling equipment removed. | Photograph #3 |
|---|---|---|---|
| | Site Name: | Boomsnub/Airco Superfund Site | Date: 28 July 2022 |
| | Client: | Messer LLC | Direction: east |




| Project No. 1611303 | Description: | Restored state of the site. MW-34 decomissioning site is in the middle of this detention pond for PacTrust Corporate Park. | Photograph #4 |
|---|---|---|---|
| | Site Name: | Boomsnub/Airco Superfund Site | Date: 15 August 2022 |
| | Client: | Messer LLC | Direction: south |