

**2012 Annual Status Report
for the Boomsnub/Airco Superfund Site
Hazel Dell, Washington**

Prepared for

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LIST OF ACRONYMS AND ABBREVIATIONS

AFCEE	Air Force Center for Environmental Excellence
Boomsnub	Boomsnub Corporation
CAS/ALS	Columbia Analytical Services/ALS Group
CD	Consent Decree
City	City of Vancouver
COV	Coefficient of variation
1,1-DCE	1,1-Dichloroethene
EA	EA Engineering, Science, and Technology, Inc.
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ft	Feet
IWS	In-well stripping
Linde	Linde LLC (formally known as BOC Gases)
MAROS	Monitoring and Remediation Optimization System
MDL	Method detection limit
MRL	Method reporting limit
N/C	Not conducted
O&M	Operation and Maintenance
OU	Operable Unit
QASP	Quality Assurance and Sampling Plan
ROD	Record of Decision
SCADA	Supervisory Control and Data Acquisition
Site	Boomsnub/Airco Superfund Site
SVE	Soil vapor extraction
TCE	Trichloroethene
TOPPS	Toe-of-Plume Pilot Study

µg/L	Micrograms per liter
URS	URS Group, Inc.
VOC	Volatile organic compound

EXECUTIVE SUMMARY

Introduction

This Annual Status Report summarizes information on activities that took place during 2012 at the Boomsnub/Airco Superfund Site (Site) in Hazel Dell, Washington. EA Engineering, Science, and Technology, Inc. (EA), under contract to Linde, LLC (Linde; formerly known as BOC Gases), is currently operating and maintaining a Site-wide groundwater extraction and treatment system and a volatile organic compound (VOC) source removal system. Work at the Site is currently conducted under a Consent Decree (CD) between the U.S. Environmental Protection Agency (EPA) and Linde (Docket No. CO7-5163FDB), which was entered by the court on 29 June 2007.

Site Background and Operating Objectives

In 1987, the Washington State Department of Ecology (Ecology) determined that a plume of chromium-contaminated groundwater was emanating from the Boomsnub Corporation (Boomsnub) manufacturing facility. In 1991, during cleanup activities at the Boomsnub facility, a second plume containing VOCs was detected and determined to be coming from the Linde industrial gas production facility, located east of the Boomsnub facility. The two contaminant plumes overlap and become commingled downgradient of the source areas.

The Site is divided into three operable units (OUs) to manage cleanup activities: OU-1 (Boomsnub Soil); OU-2 (Linde Soil); and OU-3 (Site-wide Groundwater). The primary VOC of concern is trichloroethene (TCE), which serves as an indicator of VOC presence at the Site. The operating objectives are to remove sources of VOCs and chromium that may be acting as the source to groundwater, remove VOCs and chromium from the groundwater, halt the off-property migration of VOCs and chromium in groundwater, and reduce contaminant migration into the deeper Troutdale aquifer which serves as the drinking water source for the area.

In 1994 and 2001 EPA conducted removal actions at OU-1 to remove the majority of the hexavalent chromium contaminated soils which were serving as a source for groundwater contamination.

The OU-2 selected remedial action was a combination of in-well stripping (IWS) and soil vapor extraction (SVE) systems to remove VOCs from both the soil and groundwater. 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 is still in operation.

The OU-3 groundwater extraction and treatment system is designed to operate continuously with minimal operator supervision. The treatment system is composed of an ion-exchange system to remove chromium from extracted groundwater; and a granular activated carbon air stripper system to remove TCE and other volatile contaminants from groundwater. The treatment facility is located on the Boomsnub property. Treated groundwater is discharged to an infiltration

gallery located on the Linde property. The groundwater treatment system has been in operation since 1990.

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. 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. The Northern Plume continues to be monitored along with the OU-3 plume to evaluate potential impacts to the Site and treatment system (EA 2012a). The source of this plume is unknown; however, it does not appear to be due to activities on the Boomsnub or Linde properties.

2012 OU-2 Systems Operations

The IWS system is operating within the performance standards established for the Site. Groundwater sampling and analyses were conducted to monitor the OU-2 systems in accordance with the EPA-approved Site Operation and Maintenance (O&M) Manual. Minimal periods of down time occurred due to maintenance and system alarms; the system was in operation more than 99 percent of the reporting period.

The IWS system has removed more than 95% of the mass of TCE since start-up; however, asymptotic removal rates have been reached and TCE concentrations have not been significantly reduced in recent years. Potential shut down of the IWS system, with continued monitoring, was discussed with EPA. EPA will consider the request following submittal of a plan for shut down. The plan will be submitted in 2013.

2012 OU-3 System Operations

During the 2012 reporting period, 82,510,492 gallons of groundwater were treated and discharged to the Linde infiltration gallery. The groundwater extraction and treatment system operated within the performance standards established for the Site. The system was in operation approximately 99 percent of the reporting period. Routine monitoring of the treatment system influent and effluent was conducted throughout the year and included monthly sampling and analysis of TCE, chromium, and pH. In addition, semiannual site-wide groundwater monitoring was conducted in Spring 2012 and Fall 2012. Contaminant concentrations continue on an overall decreasing trend in Site wells. The mass of contaminants removed during the reporting period continued to decline compared to the previous reporting period. This is consistent with a continuing downward trend and is due to the decrease in groundwater concentrations in the average influent concentrations of chromium and TCE at the Site.

Annual Screening of Groundwater Monitoring Data

Annual screening of groundwater monitoring data is conducted for each alluvial aquifer monitoring and extraction well currently sampled. The data are used to determine what changes, if any, should be made to current system operations and the well sampling schedule. The Air

Force Center for Environmental Excellence (AFCEE) Monitoring and Remediation Optimization System (MAROS), a computer program that was developed to optimize long-term groundwater monitoring, determine when to terminate groundwater treatment, and determine if concentrations in groundwater are statistically below the cleanup level, was used to evaluate the data.

Based on the results of the 2012 annual screening of the groundwater monitoring data, the following conclusions are made:

- Several changes to sampling frequencies are recommended based on the results of the MAROS evaluation and on the qualitative review.
- Although the MAROS evaluation does not indicate concentrations statistically below the cleanup levels, TCE and chromium concentrations in most of the Church-of-God wells are below the cleanup levels, and have been for several years. Discontinuation of pumping of most of the extraction wells in this area is recommended, with continued monitoring for potential contaminant rebound.

Status of 2012 Recommendations

In order to meet the operating objectives for OU-2 and OU-3, planned activities for 2012 were recommended in the 2011 Annual Status report. The status of these planned activities is summarized below:

- **New Northern Plume Well** – 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. The new well is being sampled on a quarterly basis.
- **System Modifications on Church of God Property** – Chromium and TCE concentrations in groundwater from most of the Church-of-God area extraction wells are below the Site cleanup levels. The Site groundwater model was used to evaluate the impact of proposed extraction system pumping rate changes on groundwater flow and contaminant capture. A groundwater modeling technical memo was submitted to EPA detailing this effort.
- **Toe of Plume Residual Contamination** – The use of in-situ treatment, similar to that used in the successful TOPPS program, was evaluated for reducing contaminant concentrations in the MW-35 and AMW-27 areas. A Work Plan for In Situ-Treatment of Areas of Residual Contamination was submitted to EPA in November 2012.
- **Easements and Access Agreements** – Work continued on obtaining easements and access agreements.
- **Well Sampling** – Wells were sampled in accordance with the updated sampling schedule.
- **Survey Well Elevations on the Clark County Property** – Elevations of wells on the Clark County property were resurveyed, as necessary, following development of that

property into sports fields and well modifications needed to accommodate the development.

- **IWS System Rebound Testing** – The IWS system has removed more than 95% of the mass of TCE since start-up; however, asymptotic removal rates have been reached and TCE concentrations have not been significantly reduced in recent years. Potential shut down of the IWS system, with continued monitoring, was discussed with EPA. EPA will consider this request following submittal of a plan for shut down. The plan will be submitted in 2013.

Recommendations and Planned Activities for 2013

The following activities are planned for the 2013 reporting period:

- **Well Sampling** – Sample wells in accordance with the updated sampling schedule.
- **Infrastructure Removal** – Following receipt of EPA approval, implement the recommendations regarding infrastructure removal on Parcel No. 144718-000, as provided to EPA in a letter dated 21 August 2012. The pipelines and wells recommended for decommissioning in this area are no longer needed for Site remediation or monitoring. These structures will be removed to allow re-development of the parcel by the owner.
- **In Situ Treatments** – Following receipt of EPA approval of the work plan, and approval of an Explanation of Significant Differences, implement *in situ* treatments in the area of wells MW-35 and AMW-27, as described in the Draft Work Plan for In Situ Treatment of Areas of Residual Contamination, which is currently being reviewed by EPA..
- **Modify System Pumping Rates** – Following receipt of EPA approval, implement extraction system pumping rate modifications, as described in Groundwater Modeling Technical Memorandum No. 5.
- **IWS System Shutdown and Rebound Testing** – Prepare a letter to EPA to address proposed shutdown of the IWS system and continued groundwater monitoring at OU-2.
- **Easements and Access Agreements** – Continue efforts toward obtaining easement agreements and restrictive covenants with neighboring property owners. EPA assistance has been requested with this.

1. INTRODUCTION

This Annual Status Report summarizes information on activities that took place during 2012 at the Boomsnub/Airco Superfund Site (Site) in Hazel Dell, Washington. EA Engineering, Science, and Technology, Inc. (EA), under contract to Linde LLC (Linde; formerly known as BOC Gases), is currently operating and maintaining a Site-wide groundwater extraction and treatment system and a volatile organic compound (VOC) source removal system. Work at the Site is currently conducted under a Consent Decree (CD) between the U.S. Environmental Protection Agency (EPA) and Linde (Docket No. CO7-5163FDB), which was entered by the court on 29 June 2007 (EPA 2007a).

1.1 Background

The Site is located in Hazel Dell, Washington, just north of the city limits of Vancouver, Washington (Figure 1). It includes two adjacent facilities, the former Boomsnub Corporation (Boomsnub) chrome plating facility and the Linde industrial gas production facility. The Linde 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, VOCs were detected in groundwater samples and were suspected to be coming from the Linde property. Linde 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 VOC of concern is trichloroethene (TCE), which serves as an indicator of VOC presence at the Site. The groundwater contaminant plumes overlap and are commingled down gradient 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 Soil); OU-2 (Linde Soil); and OU-3 (Site-wide Groundwater). EPA conducted soil removal actions at OU-1 in 1994 and 2001 to remove the majority of the hexavalent chromium-contaminated soils serving as a source for groundwater contamination. Linde has conducted numerous site investigations, performed groundwater treatment, and conducted a removal action on their property at OU-2.

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. 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 known to contain elevated concentrations of chemicals detected at the Site.

A groundwater extraction and treatment system is used to capture and treat Site groundwater. The groundwater extraction and treatment system has been operational since 1990 and was constructed along the axis of the chromium plume. Since 1990, the system has been modified, upgraded, and expanded several times to handle the VOCs and chromium, to increase pumping and treatment capacity, and to increase removal efficiency. On the basis of monitoring data collected since 1995, the constituents of concern have not migrated past the monitoring well network. The monitoring and extraction well network for the Site is presented on Figure 2.

Chromium is removed from the extracted groundwater using an ion-exchange system. VOCs are removed from the extracted groundwater using air stripping with granular activated carbon treatment of the off-gases. The treatment facility is located on the Boomsnub property. Treated groundwater is discharged to an infiltration gallery located on the Linde property. The infiltration gallery was constructed during September and October 2005 and began receiving water in February 2006 (EA 2006). Prior to the construction of the infiltration gallery, the treated groundwater was discharged to the City sanitary sewer system.

The Record of Decision (ROD) for OU-1 and OU-3, dated February 2000, identified the remedy for the Site 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 ($\mu\text{g/L}$) and the reduction of TCE to below 5 $\mu\text{g/L}$.

An Action Memorandum, dated September 2001, was issued by EPA identifying the requirements for remediation activities for OU-2 (EPA 2001). On 18 September 2002, Linde and EPA entered into 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.

On 1 April 2002, Linde assumed interim responsibility for the operation and maintenance (O&M) of the groundwater extraction and treatment system.

In October 2002, URS Group, Inc. (URS), working under contract to EPA and in cooperation with representatives from the EPA Environmental Services Assistance Team, conducted additional soil characterization activities on 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 or less deep) 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 2003).

In September 2003, Linde began construction of the Non-Time Critical Removal Action at their facility to address the VOC source area (OU-2). The 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. 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 Toe-of-Plume Pilot Study (TOPPS), an *in situ* treatment program, was performed in 2006 to treat an area of recalcitrant contamination. Chromium and TCE concentrations in the TOPPS monitoring wells have remained below the cleanup level since that time, indicating that the TOPPS 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. 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. The Northern Plume continues to be monitored along with the OU-3 plume to evaluate potential impacts to the Site and treatment system (EA 2012a). The source of this plume is unknown; however, it does not appear to be due to activities on the Boomsnub or Linde properties.

1.2 Purpose

The purpose of this report is to provide an overview of Site activities at OU-2 and OU-3. The reporting period is 1 January through 31 December 2012.

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 Linde 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).
- Limit the potential for impacted groundwater to migrate beyond current limits and to maximize mass removal.
- Continue mass removal activities.
- Reduce contaminant migration into the Troutdale aquifer.

1.4 Organization of this Document

This report is divided into eight sections and three appendices:

- Section 1 provides the background, purpose, and operating objectives.
- Sections 2 and 3 present summaries of the system operations for OU-2 and OU-3, respectively.
- Section 4 discusses groundwater monitoring results and trends.
- Section 5 summarizes additional Site activities conducted during the reporting period.
- Section 6 presents the results of the annual screening of groundwater monitoring data to determine what changes, if any, should be made to current system operations and/or the well sampling schedule.
- Section 7 summarizes the status of recommended activities for 2012 and presents recommendations and planned activities for 2013.
- Section 8 lists the references cited in this document.

Information on chromium and TCE concentrations in groundwater is presented in Appendices A and B, respectively. The information is presented both by well groupings and by individual wells. Only wells sampled during the reporting period are included. Appendices A and B are organized in sections, as follows:

- Tables reporting chromium and TCE groundwater concentrations for the last four semiannual sampling events are provided in Appendices A-1 and B-1, respectively. For wells sampled on a biennial frequency, results from the previous biennial event are provided.
- Graphs showing chromium and TCE concentration trends by well grouping are presented in Appendices A-2 and B-2, respectively. 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 A-3 and B-3, respectively. Additional information obtained as part of the annual screening of groundwater monitoring data is included with each graph for alluvial aquifer wells. Data provided in the graphs for the alluvial aquifer wells have been consolidated and are presented as the geometric mean for each year.

Tables and outputs created during the annual evaluation of groundwater monitoring data are included in Appendix C. Appendix C-1 contains the well evaluation tables; and C-2 contains a summary of wells requiring no further sampling for TCE and/or chromium.

2. OU-2 SYSTEM OPERATIONS

This section provides a summary of the OU-2 IWS system operations and monitoring conducted between 1 January and 31 December 2012. Groundwater sampling and analyses were conducted to monitor the OU-2 systems in accordance with the procedures in EA's EPA-approved *Operation and Maintenance Manual, Combined In-Well Stripping and Soil Vapor Extraction System* (EA 2004a). Locations of the OU-2 treatment and monitoring wells are shown on Figure 3.

2.1 IWS System Operations

The IWS system is operating within the performance standards established for the Site. System operations were manually checked by the Site operator weekly to confirm that the IWS system was operating within the design parameters. In addition, the operator remotely verified IWS operations periodically using the Supervisory Control and Data Acquisition (SCADA) system. The SCADA system is programmed to notify the operator of system malfunctions. Information specific to the IWS system is presented in the Progress Reports (EA 2012c and EA 2012f) which are submitted on a semiannual basis.

Since startup, the IWS system has been running 24 hours per day, with the exception of downtime to perform routine maintenance activities. The system was in operation over 99 percent of the reporting period, exceeding the 90 percent availability specified in the CD. Minimal periods of downtime were due to maintenance and system alarms. Modifications and/or repairs that were made to the system during the reporting period are presented the Progress Reports (EA 2012c and EA 2012f).

2.2 IWS System Monitoring

To monitor the IWS System performance, groundwater samples were collected from OU-2 monitoring wells in Spring and Fall 2012. The samples were submitted to Columbia Analytical Services/ALS Group (CAS/ALS) of Kelso, Washington and analyzed for VOCs using EPA Method 8260C.

Table 1 presents the TCE data from OU-2 wells sampled during the 2012 reporting period and includes data from 2011 for comparison purposes. For wells sampled on a biennial frequency, data from the previous biennial sampling event are provided. During Fall 2012, groundwater samples from five of the 14 wells sampled had TCE concentrations above the cleanup level of 5 µg/L: AMW-1A, AMW-2A, AMW-12A, AMW-53A, and MW-1A. Compared to results from the Spring 2012 sampling event, the TCE concentrations from these five wells increased or remained the same. TCE concentrations were the highest in groundwater from well AMW-1A at 44 µg/L during the Fall sampling event. The TCE concentrations in wells in this area tend to fluctuate. While there may be some correlation between lower water levels and increased TCE concentrations, this does not appear to be consistent.

The concentration of TCE in groundwater was measured from wells within the radius of influence of operating IWS wells IWS-3, IWS-4, IWS-5, IWS-6 and IWS-8. The following table presents these IWS wells and associated monitoring wells within the radius of influence and downgradient of the IWS system. This information is also shown on Figure 3. Note that some of the monitoring wells in the vicinity of the operating IWS wells are no longer monitored because TCE concentrations have consistently been below the cleanup level.

IWS Well	Monitoring Wells Within Radius of Influence of the IWS System	Downgradient Monitoring Wells
IWS-3	AMW-12A , AMW-56A	AMW-54, MW-1A
IWS-4	AMW-12A , AMW-56A	AMW-54, MW-1A
IWS-5	AMW-19A	AMW-54
IWS-6	AMW-1A , AMW-1B, AMW-2A , AMW-2B	MW-1A, AMW-53A
IWS-8	AMW-1A , AMW-1B, AMW-26	AMW-52A, AMW-53A

Notes: **Bolded** wells had TCE concentrations above the cleanup level of 5 µg/L in 2012. Not all of these wells were sampled during 2012.

3. OU-3 SYSTEM OPERATIONS

This section provides a summary of OU-3 system operations, system performance, and plume monitoring conducted from 1 January to 31 December 2012. Groundwater sampling and analyses were conducted in accordance with the procedures in the EPA-approved Site Quality Assurance and Sampling Plan (QASP; EA 2004b), and subsequent EPA-approved QASP addenda.

3.1 System Operations

Routine system operation details are presented in the Progress Reports (EA 2012c and EA 2012f) submitted to EPA twice a year.

3.1.1 *Groundwater Extraction System*

The groundwater extraction and treatment system operated within the performance standards established for the Site. The extraction well pumping rates were recorded once a month during the reporting period. The recorded pumping rates are shown in Table 2.

3.1.2 *Groundwater Treatment System*

Routine monitoring of the treatment system influent and effluent was conducted throughout the year including monthly sampling and analysis of TCE, chromium, and pH. Treatment system components are briefly described in the following sections.

3.1.2.1 *Ion-Exchange and Air Stripper Systems*

During the reporting period, the ion-exchange system had an average chromium removal rate of approximately 97 percent and the air stripper system an average TCE removal rate of approximately 97 percent.

3.1.2.2 *Linde Infiltration Gallery*

Treated groundwater from the Site treatment system is discharged back into the alluvial aquifer through an infiltration gallery. The infiltration gallery is located in the southeast corner of the Linde property and is designed to accept treated water at 160 gallons per minute. No modifications or significant repairs were made to the infiltration gallery during the reporting period.

TCE and Chromium concentrations in effluent discharged to the infiltration gallery during 2012 were consistently below the maximum allowable effluent concentrations of 1.9 µg/L for TCE and 19.2 µg/L for chromium. Effluent monitoring results are provided in the Progress Reports (EA 2012c and EA 2012f).

3.2 System Performance

OU-3 system performance for 2012 is provided on the following table.

Month	Hours/Month	Hours of Operation/Month	Availability	Flow
January	744	740.14	99.48%	6,951,522
February	672	665.93	99.10%	6,499,220
March	744	742.06	99.74%	6,611,808
April	720	716.00	99.44%	6,656,913
May	744	740.33	99.51%	7,010,609
June	720	720.00	100.00%	6,843,276
July	744	743.78	99.97%	7,097,279
August	744	744.00	100.00%	7,036,276
September	720	720.00	100.00%	6,859,810
October	744	743.53	99.94%	6,996,285
November	720	720.00	100.00%	6,866,295
December	744	743.11	99.88%	6,997,116
2012 Availability	8760	8738.88	99.76%	82,426,409

3.2.1 Water Treated

During the reporting period, 82,426,409 gallons of groundwater were treated and discharged to the Linde infiltration gallery.

3.2.2 System Availability

The treatment system was operational for 8739 hours, or approximately 99 percent of the reporting period, exceeding the 90 percent requirement of the CD. The availability did not drop below 99 percent for any month in 2012. The percent availability includes actual minutes of operation and scheduled down time. Details are provided in the Progress Reports (EA 2012c and EA 2012f).

3.2.3 Mass Removal

The following table presents cumulative chromium and TCE removed in 2012, along with monthly influent data and flow.

Date	Monthly Flow (Gallons)	Influent Chromium (µg/L)	Influent TCE (µg/L)	Monthly Chromium Removal (lbs)	Monthly TCE Removal (lbs)	Cumulative Chromium Removed (lbs)	Cumulative TCE Removed (lbs)
January	6,951,522	53.3	16	3.1	0.9	22,269.9	2,176.1
February	6,499,220	54.3	17	2.9	0.9	22,272.8	2,177.1
March	6,611,808	50.8	15	2.8	0.8	22,275.7	2,177.9
April	6,656,913	47.9	16	2.7	0.9	22,278.3	2,178.8
May	7,010,609	50.7	16	3.0	0.9	22,281.3	2,179.7
June	6,843,276	51.9	16	3.0	0.9	22,284.2	2,180.6
July	7,097,279	52.4	18	3.1	1.1	22,287.4	2,181.7
August	7,036,276	45.9	18	2.7	1.1	22,290.0	2,182.8
September	6,859,810	44.7	17	2.6	1.0	22,292.6	2,183.7
October	6,996,285	48.4	18	2.8	1.1	22,295.4	2,184.8
November	6,866,295	45.7	17	2.6	1.0	22,298.1	2,185.8
December	6,997,116	47.2	18	2.8	1.1	22,300.8	2,186.8

On the basis of measured influent and effluent concentrations and the total monthly treatment system flow, approximately 34 pounds of chromium and 12 pounds of TCE were removed by the groundwater extraction and treatment system during 2012. This brings the cumulative total mass of chromium and TCE removed to approximately 22,301 and 2,187 pounds, respectively, since initiating operations in 1990. The mass of contaminants removed during the reporting period continued to decline compared to the previous reporting period. This is due to the continuing downward trend in contaminant concentrations in Site groundwater, as reflected in the average influent concentrations of chromium and TCE at the Site over the years.

Figure 4 shows the cumulative removal amounts for total chromium and TCE since June 1999. Figure 5 depicts the total chromium and TCE concentrations in the treatment system influent and effluent since 1999. Figure 6 provides an annual comparison of influent chromium and TCE concentrations over the past ten years.

3.3 Plume Monitoring

3.3.1 Semiannual Site-wide Groundwater Monitoring

Semiannual Site-wide groundwater monitoring was conducted in Spring and Fall 2012, following EPA approval of the associated QASP addenda (EA 2012b and EA 2012e). The semiannual sampling events were conducted as planned and no significant issues or problems were encountered.

Groundwater samples were submitted to CAS/ALS of Kelso, Washington for analysis. The samples were analyzed for chromium using EPA Method 200.7 and/or VOCs using EPA Method 8260C. Groundwater monitoring results and concentration trends are discussed in Section 4.

3.3.2 Water Level Gauging Program

Depth-to-groundwater measurements were collected from monitoring and extraction wells at the Site during the Spring and Fall semiannual sampling events. Groundwater level data are collected to determine the groundwater flow direction and gradient. During both semiannual events in 2012, the measurements were made while the groundwater treatment system was actively pumping to assess groundwater flow under drawdown conditions.

Generalized groundwater elevation contour maps for the alluvial and Troutdale aquifers for the Fall 2012 water level gauging event are presented in Figures 7 and 8, respectively. The flow direction and horizontal gradient in both aquifers were similar to those observed previously. The alluvial aquifer groundwater elevations measured in Fall 2012 were generally two to three feet lower than those measured in Spring 2012, reflecting the seasonal variation in rainfall. In the deeper, semiconfined Troutdale aquifer, the groundwater elevations measured in Fall 2012 were generally one to three feet lower than those measured in Spring 2012.

The horizontal gradients for the alluvial and Troutdale aquifers were determined using data from the Fall 2012 water level gauging event. Because the groundwater extraction system was actively pumping during water level gauging, the vertical gradient could not be determined accurately. For the alluvial aquifer, the gradient across the Linde property was approximately 0.008 ft/ft; this area is impacted by the infiltration gallery. Downgradient, within the plume area, (using an average from just west of the Linde property to the toe of the plume) the gradient was approximately 0.004 ft/ft. The flow direction within the alluvial aquifer is generally to the west-northwest.

In the Troutdale aquifer, the average hydraulic gradient across the Site area was approximately 0.006 ft/ft. The flow direction in this aquifer is generally to the west-southwest.

Water level gauging and groundwater monitoring results indicate that hydraulic containment of the plumes has been maintained.

4. GROUNDWATER MONITORING RESULTS AND TRENDS

This section presents the concentration trends observed in groundwater since 1995, when EPA assumed regulatory responsibility for the Site, with a focus on data collected during 2012. More detailed presentations of the 2012 groundwater monitoring data are provided in the Spring and Fall Semiannual Groundwater Monitoring reports (EA 2012d and EA 2013c).

Groundwater sampling and analyses were conducted to monitor the groundwater quality in extraction and monitoring wells in accordance with the procedures in the Site QASP (EA 2004b). Groundwater sampling and analysis of the OU-2 monitoring wells on the Linde property was conducted in accordance with the OU-2 O&M Manual (EA 2004a). Task-specific QASP addenda are prepared for each semiannual sampling event to be compliant with the schedule established in the Long-Term Monitoring Plan (EA 2007) and subsequent updates. The sampling schedule is reviewed and updated annually. The sampling schedule for 2012 was presented in the 2011 Annual Status Report (EA 2013a).

Table 3 presents the 2012 well sampling frequencies along with the recommended changes for 2013, based on the annual screening of groundwater monitoring data (see Section 6). Also included in Table 3 are well construction details, historic maximum concentrations of TCE and chromium in each well (using data from 1995 through 2012), and the most recent concentrations of TCE and chromium in each well.

4.1 Well Groupings

To facilitate analysis of contaminant concentrations across the Site, sampling data are grouped by aquifer and geographical location as follows:

- Alluvial aquifer wells
 - Upgradient wells
 - TCE Source wells (includes OU-2 monitoring wells)
 - Proximal wells
 - Intermediate wells
 - Church of God wells
 - Toe-of-Plume wells (including Sentinel and Other toe wells)

- Troutdale aquifer wells.

The aquifer and geographic well groupings are presented on Figure 9. All wells except those identified as Troutdale aquifer wells are screened within or slightly below the alluvial aquifer.

4.2 Groundwater Trends

4.2.1 Overview

Groundwater monitoring results indicate that the current pumping scheme is maintaining control of the plume and that overall concentrations for both chromium and TCE are on decreasing trends. The extent of impacted groundwater, as determined from groundwater sampling data obtained in 1995 and Fall 2012, is presented on Figure 10 for chromium and on Figure 11 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.

Chromium and TCE concentrations detected in groundwater during sampling in 2012 are presented in Appendices A-1 and B-1, respectively. The highest concentration of chromium during the 2012 reporting period was detected in the sample collected from well MW-4B (407 µg/L), located within the Proximal well group, during the Fall 2012 sampling event. The highest concentration of TCE was detected in the sample collected from Northern Plume well AMW-17 (210 D µg/L) during the Fall 2012 event. The highest concentration of TCE detected within the OU-3 plume was in the groundwater sample from well MW-18E (170 µg/L) during the Fall 2012 event. Wells with 2012 groundwater sampling results exceeding the Site cleanup levels of 80 µg/L for chromium and 5 µg/L TCE are highlighted on Figures 12 and 13, respectively.

For this report, tables, figures, and graphs were used to assist in evaluating groundwater trends across the Site. Chromium and TCE concentration trends are presented in Appendices A and B, respectively. The information is presented both by well groupings and by individual wells. Data provided for the individual alluvial aquifer wells have been consolidated and are presented as the geometric mean for each year. Concentration trend charts for individual alluvial aquifer wells include additional statistical information obtained from the MAROS evaluation. This is discussed further in Section 6.

Specific information on trends observed within each well grouping is discussed in the following sections. Analytical results for 2012 are provided along with prior results for comparison purposes; these data are reproduced from Appendices A-1 (Cr) and B-1 (TCE) for ease of discussion. In the following tables, analytical results shown in bold are above the cleanup level of 5 µg/L for TCE and/or 80 µg/L chromium. For duplicate samples, the higher of the two results is reported.

4.2.2 Alluvial Aquifer

4.2.2.1 Upgradient Wells

The Upgradient wells are located near the upgradient (eastern) Site boundary. Five wells were sampled for TCE and four for chromium during the reporting period. There were no chromium or TCE concentrations above their respective cleanup levels.

4.2.2.2 TCE Source Wells

The TCE Source wells are located on the western half of the Linde property (Figure 9), in the vicinity of the TCE-impacted soil. These wells are typically sampled for TCE only, as part of the OU-2 monitoring program. Analytical results for these wells during the 2012 reporting period are presented on the following table.

TCE Source Well TCE Concentrations, in µg/L					
Well ID	Biennial Well Data, Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
AMW-1A	--	1.7	44	5.7	44
AMW-2A	--	18	55	6.1	14
AMW-2B	0.49 J	--	--	--	0.40 J
AMW-3A	0.85	--	--	--	0.48 J
AMW-12A	--	30	38	27	33
AMW-13A	0.5 U	--	--	--	0.17 J
AMW-19A	--	--	1.5	--	1.2
AMW-26	0.24 J	--	--	--	0.52
AMW-52A	0.16 J	--	--	--	0.50 U
AMW-53A	--	0.86	6.0	1.8	12
AMW-54A	2.3	--	--	--	1.8
AMW-55A	0.95	--	--	--	1.3
AMW-56A	2.3	--	--	--	2.7
MW-1A	--	4.8	5.2	6.1	6.1

Five wells had TCE concentrations above the cleanup level of 5 µg/L during the 2012 reporting period: these wells are all “A” level wells. “A” level wells are the shallowest wells of a well cluster and are the most impacted wells in this area. The TCE concentrations in these five wells remained the same or increased in comparison to the last time they were sampled. However, TCE concentrations in the area have been on an overall decreasing trend (Appendix B-2).

4.2.2.3 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 9). These wells are proximal to the chromium source. All four extraction wells in this group (MW-6B, MW-10B, MW-10C, and PW-1B) were actively pumping when they were sampled during both the Spring and Fall 2012 sampling events. Additional wells were sampled during the Fall 2012 event.

Chromium

During the reporting period, chromium concentrations were above the 80 µg/L cleanup level in groundwater samples collected from four wells, as presented on the following table.

Proximal Well Chromium Concentrations, in µg/L				
Well	Spring 2011	Fall 2011	Spring 2012	Fall 2012
MW-2A	--	81.3	--	190
MW-3A	--	342	--	75.4
MW-4A	--	741	--	362
MW-4B	--	617	--	407
MW-6B	50.9	18	48.1	17.8
MW-10B	46.4	34.7	39.6	36.2
MW-10C	99.9	70	116	93.6
PW-1B	46.8	61.9	49.7	34.1

Groundwater samples from wells MW-4A and MW-4B, located near the chromium source, continue to have some of the highest concentrations of chromium in groundwater at the Site. With the exception of well MW-2A, chromium concentrations decreased in all wells sampled in this area. Chromium concentrations in well MW-2A increased from 81.3 µg/L in Fall 2011 to 190 µg/L in Fall 2012. Notably, concentrations in MW-3A decreased significantly from 342 µg/L in Fall 2011 to 75.4 µg/L in Fall 2012 dropping below the cleanup level for the first time. Wells in this area have historically had large fluctuations in chromium concentrations with an overall decreasing trend (Appendix A-2).

TCE

During the reporting period, TCE concentrations were above the 5 µg/L cleanup level in groundwater samples collected from three wells (MW-6B, MW-10B, and MW-13C), as presented on the following table.

Proximal Well TCE Concentrations, in µg/L					
Well	Biennial Well Data, Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
AMW-58	0.15 J	--	--	--	0.1 J
MW-2A	--	--	1.7	--	1.7
MW-3B	2.0	--	--	--	2.0
MW-4B	--	--	4.6	--	4.2
MW-6B	--	4.5	4.2	4.2	5.1
MW-8B	3.3	--	--	--	2.4
MW-9B	5.7	--	--	--	3.7
MW-10B	--	21	18	16	16
MW-10C	--	3.6	3.3	2.5	3.0
MW-12C	24	--	--	--	1.4
MW-13C	5.6	--	--	--	5.8
PW-1B	--	3.1	2.9	2.6	3.1

Notably, TCE concentrations were below the cleanup level for the first time in samples from wells MW-9B and MW-12C. Historically, TCE concentrations in groundwater samples from this area have been on an overall decreasing trend (Appendix B-2).

4.2.2.4 Intermediate Wells

The Intermediate wells are located west of NE St. Johns Road, north and south of NE 78th Street (Figure 9). All five extraction wells in this area were actively pumping during both the Spring and Fall 2012 sampling events (MW-14C, MW-14E, MW-18D, MW-19D, and MW-20D).

Chromium

During the reporting period, chromium concentrations were above the 80 µg/L cleanup level in groundwater samples collected from two wells (MW-18D and MW-19D), as presented on the following table.

Intermediate Well Chromium Concentrations, in µg/L				
Well	Spring 2011	Fall 2011	Spring 2012	Fall 2012
CPU-14	--	41.4	--	37.1
MW-14C	91.9	77	77.1	69.6
MW-14E	57.1	48.3	42.1	41.1
MW-18D	133	128	109	107
MW-19D	140	126	113	102
MW-20D	75.3	78.1	72.8	63.5

Chromium concentrations in groundwater samples from wells in this area decreased in comparison to previous sampling results. Historically, chromium concentrations in groundwater from wells in this area have been on a decreasing trend (Appendix A-2).

TCE

Intermediate Well TCE Concentrations, in µg/L					
Well	Biennial Well Data, Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
AMW-16	--	--	1.6	0.17 J	1.8
AMW-59	76	--	--	--	92
CPU-14	--	--	5.4	--	5.2
MW-14C	--	24	15	11	19
MW-14E	--	83	78	72	67
MW-15E	--	5.5	5.1	4.5	4.2
MW-16E	0.92 UJ	--	--	--	0.42 J
MW-18D	--	63	52	47	49

Intermediate Well TCE Concentrations, in µg/L					
Well	Biennial Well Data, Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
MW-18E	--	--	170	--	170
MW-19D	--	34	32	30	34
MW-20D	--	50	58	47	45
MW-38	--	11	9.8	--	7.4
PZ-39	--	56	56	56	54
Northern Plume Monitoring Wells					
AMW-17	--	29	140	160	210
AMW-18	--	75	68	52	39
AMW-64		--	--	160	110

TCE concentrations exceeded the groundwater cleanup level of 5 µg/L in samples from 13 of the 16 wells sampled for TCE in this area. Sampling in this area included three monitoring wells (AMW-17, AMW-18, and AMW-64) which are impacted by the Northern Plume. The TCE concentration in groundwater from well AMW-17 has been increasing since Spring 2010 (1.1 µg/L) to 210 µg/L in Fall 2012, indicating the continued migration of the Northern Plume to this well. TCE concentrations in the other two Northern Plume monitoring wells, decreased since the previous sampling event.

TCE concentrations in samples collected from the OU-3 plume remain above the 5 µg/L cleanup level in 10 out of the 13 wells sampled in this area. Notably, TCE concentrations in well MW-15E dropped below the cleanup level for the first time during 2012. TCE concentrations in groundwater samples collected from wells in this area remained relatively constant or decreased in comparison to previous sampling results. Historically, TCE concentrations in groundwater samples from wells in this area have been stable or on a decreasing trend (Appendix B-2).

4.2.2.5 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 9). Seven extraction wells in this area were actively pumping during both the Spring and Fall 2012 sampling events (AMW-27, CPU-13, MW-21D, MW-22D, MW-25D, MW-26D, and MW-49). Monitoring wells AMW-14 and AMW-15 were sampled during Spring 2012, at the request of EPA, prior to decommissioning of these two wells. The wells were decommissioned due to development of that area of the Church of God property.

Chromium

Chromium was not detected above the 80 µg/L cleanup level in any of the groundwater samples collected during 2012 from Church of God wells, as presented on the following table.

Church of God Well Chromium Concentrations, in µg/L					
Well	Previous Sample	Spring 2011	Fall 2011	Spring 2012	Fall 2012
AMW-14	--	--	45.3	26	--
AMW-15	5.0 U (Spring 2004)	--	--	5.0 U	--
AMW-27	--	82.9 J	38.6	28.9	2.9 J
CPU-13	--	18.8	18.4	19.5	16.4
MW-21D	--	13.5	12.8	6.7	12
MW-22D	--	44	35.9	28.5	25.4
MW-25D	--	2.1 J	5.0 U	3.4 J	2.7 J
MW-26D	--	7.6	10.7	6.6	11.7
MW-27D	--	--	5.7	--	12.9 UJ
MW-49	--	11.9	11.9	9.5	9.3

TCE

During the reporting period, TCE concentrations were above the 5 µg/L cleanup level in groundwater samples collected from four wells (AMW-27, AMW-61, MW-21D and MW-22D), as presented on the following table.

Church of God Well TCE Concentrations, in µg/L					
Well	Previous Sample	Spring 2011	Fall 2011	Spring 2012	Fall 2012
AMW-14	--	--	0.64	0.53	--
AMW-15	0.5 U (Spring 2004)	--	--	0.50 U	--
AMW-27	--	15	14	12	6.8
AMW-61	6.0 (Fall 2010)	--	--	--	5.4
CPU-12	--	--	3.5	--	4.9
CPU-13	--	1.8	1.5	1.4	1.5
MW-21D	--	7.3	6.2	5.4	5.3
MW-22D	--	8.4	6.5	6.8	5.6
MW-23D	--	--	1.6	--	1.4
MW-25D	--	1.3	1.5	1.3	1.3
Church of God Well TCE Concentrations, in µg/L					
Well	Previous Sample	Spring 2011	Fall 2011	Spring 2012	Fall 2012
MW-26D	--	0.79	0.72	0.76	0.84
MW-27D	--	--	0.63	--	0.89
MW-49	--	1.7	1.4	1.4	1.1

TCE concentrations continued to decrease in groundwater samples collected from the four wells with TCE concentrations above the TCE cleanup level. Historically, chromium and TCE

concentrations in groundwater samples collected from wells in this area have been on a decreasing trend (Appendix B-2).

4.2.2.6 Toe-of-Plume Wells

The Toe-of Plume wells are located west of the Church of God building (Figure 9). These wells are divided into two groups for discussion purposes: Sentinel wells and Other Toe wells. The Sentinel wells are monitoring wells located at or beyond the historical leading edge of the chromium plume. No Sentinel wells were sampled during the reporting period. Other Toe wells are located west of the Church of God property and east of the Sentinel wells. Three Other Toe wells were sampled during the reporting period, as presented on the following table.

Toe of Plume Well Concentrations, in µg/L					
Well	Biennial Well Data, Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Chromium					
AMW-42	18.2	--	--	--	21.3
MW-31	8.1	--	--	--	11.4
MW-35	--	--	16.5	--	16.5 UJ
TCE					
AMW-42	0.82	--	--	--	1.2
MW-31	0.2 J	--	--	--	0.26 J
MW-35	--	--	5.4	--	5.4

With one exception, chromium and TCE concentrations in groundwater samples collected from the Other Toe wells were below the cleanup levels in 2012. The TCE concentration in well MW-35 was slightly above the 5 µg/L cleanup level during the Fall 2012 sampling event. TCE concentrations in groundwater from well MW-35 have been fluctuating above and below the cleanup level since 2004.

4.2.3 Troutdale Aquifer Wells

The Troutdale aquifer serves as a municipal water supply for the City and Clark County. Groundwater samples were collected from 11 Troutdale aquifer wells, including the Bennett private well, during the Fall 2012 event.

Chromium

Chromium concentrations were below the 80 µg/L cleanup level in all 11 wells sampled, as presented on the following table.

Troutdale Aquifer Well Chromium Concentrations, in $\mu\text{g/L}$					
Well	Biennial Well Data, Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
AMW-24	--	--	3.5 J	--	8.8
AMW-25	1.9 J	--	--	--	1.9 J
AMW-50	1.8 J	--	--	--	2.1 J
AMW-51	4.3 J	--	--	--	2.1 J
AMW-62	0.5 U	--	--	--	1.5 J
BENNETT	--	5.0 U	5.0 U	5.0 U	5.0 U
CPU-10		--	--	--	1.0 UJ*
CPU-2	2.4 J	--	--	--	2.0 J
CPU-3D	3.1 J	--	--	--	1.8 J
MW-33	--	--	2.8 J	--	3.2 J
MW-34	5.0 U	--	--	--	0.8 J

* Dissolved chromium result.

TCE

During the reporting period, TCE concentrations were above the 5 $\mu\text{g/L}$ cleanup level in groundwater samples collected from three wells (AMW-24, Bennett, and MW-33), as presented on the following table.

Troutdale Aquifer Well TCE Concentrations, in $\mu\text{g/L}$					
Well	Biennial Well Data, Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
AMW-24	--	--	12	--	11
AMW-25	0.5 U	--	--	--	0.50 U
AMW-50	0.5 U	--	--	--	0.50 U
AMW-51	0.17 J	--	--	--	0.24 J
AMW-62	0.5 U	--	--	--	0.50 U
BENNETT	--	4.0	6.2	3.8	6.9
CPU-2	0.5 U	--	--	--	0.50 U
CPU-3D	0.5 U	--	--	--	0.50 U
CPU-10	0.5 U	--	--	--	0.50 U
MW-33	--	--	13	--	11
MW-34	0.5 U	--	--	--	0.50 U

Historically, TCE concentrations in groundwater from these three wells have fluctuated somewhat but generally have remained above the cleanup level. Concentrations detected in 2012 are similar to those reported for the past several years Appendix B-2).

4.2.4 TCE as a VOC Indicator

In addition to chromium and TCE, groundwater samples were also analyzed for additional VOCs as listed in the ROD (EPA 2000). Of these additional parameters only 1,1-dichloroethene (1,1-DCE) exceeded the cleanup level during the reporting period.

TCE analytical results are used as a surrogate for the other VOCs in order to streamline data reporting. TCE continues to be an effective indicator of VOCs. In wells where TCE is below the cleanup level, the associated VOCs are also below the cleanup level. Concentrations of 1,1-DCE above the cleanup level were only found in wells where TCE was detected above the cleanup level. For comparison purposes, the following table presents results from the Fall 2012 sampling event for TCE and 1,1-DCE in wells where 1,1-DCE exceeded the cleanup level during that event. Wells where only TCE concentrations exceeded the cleanup level are not included on the table.

Well Group	Well	TCE (µg/L)	1,1-DCE (µg/L)
Intermediate	AMW-59	92	11
	MW-14E	67	3.7
	MW-18E	170	14
	MW-19D	34	1.7
	MW-20D	45	3.2
	PZ-39	54	4.5
Northern Plume	AMW-17	210	1.2
	AMW-64	110	1.5
Church of God	MW-21D	5.3	1.0
Troutdale	AMW-24	11	1.6
	Bennett	6.9	1.1
	MW-33	11	1.4
Cleanup or Guidance Level		5	1

5. OTHER ACTIVITIES

During the 2012 reporting period, the following additional activities were performed.

5.1 Access Agreements and Easements

EA, on behalf of Linde, continued pursuing access agreements and restrictive covenants for non-Linde owned properties, as required by Sections 25 and 26 of the CD (EPA 2007a). An easement agreement was recorded in June 2012 between Linde and the First Church of God. EA has requested help from, and continues to work with EPA to gain access agreements and restrictive covenants from non-responsive property owners.

5.2 Sports Field Modifications

The First Church of God has been constructing sports fields on their property, both east and north of the Church and school buildings. To allow for this development, modifications to the extraction system pipeline and to several monitoring and extraction wells were required. All modifications were made with prior approval by EPA. The following modifications were made during the 2012 reporting period:

- Wells AMW-14 and AMW-15 were decommissioned by a licensed driller.
- The pipeline between extraction wells MW-21D and MW-27D was decommissioned by grouting in place.
- Well MW-27D was converted from an extraction well to a monitoring well.
- The pipeline between control vaults CV-12 and CV-13 was abandoned and replaced with a pipeline at a higher elevation to follow the revised land contour. The new pipeline was connected directly from CV-12 to MW-21D.
- Control vault CV-13 was decommissioned.
- The electrical lines between control vault CV-12 and well MW-21D were replaced, and the electrical lines between control vault CV-12 and well CPU-13 were lowered.
- The well and vault at extraction well MW-21D were raised.

5.3 Sustainability Practices

Linde 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. In addition, the following monitoring and O&M activities are in place:

- Using passive PDBs or dedicated pumps for groundwater sampling wherever possible to eliminate the use of disposable tubing.
- Using the infiltration gallery to discharge treated groundwater from the OU-3 treatment system back into the alluvial aquifer instead of the sanitary sewer, eliminating the processing of millions of gallons per year of clean water through the sewage treatment plant.
- Upgrading the groundwater treatment system to minimize energy usage by; using variable frequency drives, smaller pumps, optimizing water flow to minimize head loss, removing redundant tanks (and pumps), and replacing air stripper packing.

6. ANNUAL SCREENING OF GROUNDWATER MONITORING DATA

This section summarizes the annual screening of groundwater monitoring data for the Site, conducted in accordance with the revised Draft Closure Plan (EA 2009). The annual screening evaluates data collected at the Site since 1995 (the year the Site was placed on the National Priorities List) for each alluvial aquifer monitoring and extraction well currently sampled. The data are used to determine what changes, if any, should be made to current system operations and the well sampling schedule.

A combination of quantitative and qualitative evaluations of the Site data was used to derive the recommendations for the annual screening. The Air Force Center for Environmental Excellence (AFCEE) MAROS version 2.2 was used for the quantitative evaluation for alluvial aquifer wells. MAROS is a computer program developed to optimize long-term groundwater monitoring (AFCEE 2006). Using statistical analyses, MAROS is capable of making recommendations on sampling frequencies and is able to determine if groundwater concentrations are statistically below cleanup levels. Both TCE and chromium data were evaluated using MAROS. The qualitative evaluation consisted of professional judgment based on Site experience. The quantitative and qualitative evaluations do not always reach the same conclusions. When this occurs, professional judgment takes priority.

Annual screening recommendations fall into five categories:

- Redundancy: Determines if a well provides duplicate data or unique data on a constituent (TCE and/or chromium) that cannot be seen in other wells.
- System Operations: Determines if modifications to operations are necessary to achieve concentrations below cleanup levels.
- Termination: Determines whether constituents detected in groundwater samples from wells are statistically below cleanup levels. Aids in the decision to terminate treatment and/or discontinue monitoring.
- Sampling Frequency: Determines sampling frequencies for wells that require continued monitoring.
- Attainment: Determines if TCE and chromium concentrations in groundwater from a well are statistically below cleanup levels, as determined by the MAROS evaluation. Note that the MAROS definition of attainment does not correspond to EPA's definition of attainment.

Factors used in the quantitative evaluation are presented in the 2012 MAROS Results Summary Table (Table C-1). In the table, wells are presented by well groupings (as presented in Section 4.1) to demonstrate what is happening in specific areas of the plume. Note that wells designated for no further sampling in the 2011 Annual Report, or prior, are not included in this evaluation. Statistical summaries for each alluvial aquifer well are included in Appendices A-3

(chromium) and B-3 (TCE). Outputs created by MAROS during the evaluation are included in Appendix C.

The following sections describe how the five categories are evaluated, and also include the results of the evaluation for each category.

6.1 Redundancy

Monitoring of a well may be discontinued based on the redundancy analysis in MAROS. This analysis evaluates whether or not a well provides unique information and recommends elimination of wells that do not provide unique information. According to MAROS, if the evaluation indicates a well is statistically redundant for both TCE and chromium, it may be eliminated from future monitoring because there will be no statistically significant loss of information.

The MAROS redundancy analysis is based on the Delaunay method. “The well redundancy analysis using the Delaunay method is designed to select the minimum number of sampling locations based on the spatial analysis of the relative importance of each sampling location in the monitoring network. The approach allows elimination of sampling locations that have little impact on the historical characterization of a contaminant plume” (EPA 2007b).

The slope factor determines the relative importance of a sample location. The slope factor is the standardized difference between the concentration measured at a location and the concentration estimated for that location based on concentrations at nearby wells. The magnitude of slope factors ranges from 0 to 1, with 0 meaning the concentration at a location can be exactly estimated by the surrounding wells (EPA 2007b).

One well was identified as redundant during the analysis. With an average slope factor of 0.097 at Intermediate well MW-19D, the MAROS evaluation determined that MW-19D was redundant for TCE (See Appendix C-3, MAROS Sampling Location Optimization Results). However, well MW-19D will continue to be monitored for both TCE and chromium because it is an active extraction well. No other wells were found to be redundant for TCE or chromium during the evaluation (Table C-1).

6.2 System Operations

If contaminant concentration trends in a well are increasing or fluctuating above and below cleanup levels, modifications to the extraction system operations may be necessary. Trend analysis was conducted using MAROS and graphs of contaminant concentrations. Professional judgment was used to determine if continued operations would bring the well into compliance with cleanup levels or if modifications to system operations are necessary.

MAROS uses the Mann-Kendall nonparametric evaluation to determine the concentration trend (Mann-Kendall trend) for each well. The Mann-Kendall evaluation is considered to be an efficient way to evaluate concentration trends because it handles data variation well and it does

not assume the data fits into a specific distribution (EPA 2007b). Some wells do not have sufficient data for the Mann-Kendall evaluation to output a trend and MAROS indicates that the well concentration has no trend.

The Mann-Kendall trends for TCE and chromium are presented in Table C-1. In some cases where the Mann-Kendall trend indicates an increasing or a possibly increasing concentration trend, the trend is due to data outliers or different detection limits and may not be a true representation of the trend. For these wells, a qualitative evaluation of the trend graphs was used to determine if any action needed to be taken. In some cases, the increasing or possibly increasing trends were due to recently reported “J” flagged (estimated) concentrations, between the method detection limit (MDL) and the method reporting limit (MRL). MAROS interprets these results as higher than “U” flagged concentrations, or concentrations reported below the MRL. For example, MAROS would interpret a result of 0.32 J (estimated) µg/L as higher than 0.5 U (not detected) µg/L. In a few cases, contaminant concentrations have fluctuated somewhat over time, or have increased slightly but remain below the cleanup level.

As shown in Table C-1, an increasing trend was indicated for three wells; AMW-7A (TCE), MW-1A (chromium), and AMW-18 (TCE). In well AMW-7A, low levels of TCE have been detected since the start of use of the adjacent infiltration gallery; however recent TCE concentrations have been below the MRL. In well MW-1A, chromium concentrations have fluctuated but have remained well below the cleanup level. In well AMW-18, TCE concentrations have been on a decreasing trend since they peaked in early 2008. TCE contamination in well AMW-18 is related to the Northern Plume and is separate from the OU-3 plume (EA 2011). No system modifications are currently recommended based on the trend analysis.

6.3 Termination

“Termination”, in this annual screening process, refers to the shutdown of an extraction well or the discontinuation of monitoring of a well. The MAROS Data Sufficiency module uses the sequential T-test to determine if contaminants in groundwater are statistically below cleanup levels (AFCEE 2006). This aids in the decision to terminate treatment and/or discontinue monitoring.

The sequential T-test outputs two “cleanup statuses” per well, one for data with a normal distribution and one for a lognormal distribution. The coefficient of variation (COV) was used to determine which distribution best represents the data collected from each well. The COV is a measure of the variation of data points from the mean. If the COV was less than 1.00, the data showed little scatter and the normal distribution results were used. If the COV was greater than 1.00, the lognormal distribution results were used.

The sequential T-test classifies wells as Attained, Continue Sampling, or Not Conducted (N/C). “Attained indicates the mean concentration is significantly below the cleanup goal, and has achieved the *TargetLevel*” (AFCEE 2006). The *TargetLevel* default value is 0.8 times the cleanup goal. MAROS recommends continuing sampling for wells that need more data to be

considered attained and statistically below cleanup levels. The sequential T-test was not conducted on wells with a cleanup status N/C due to their small sample size (less than four samples).

The cleanup status, shown on Table C-1, was used to determine if the contaminant concentration was statistically below cleanup levels. For extraction wells that are actively pumping when MAROS indicates cleanup has been achieved for TCE and chromium, pumping may be terminated. Monitoring will continue at these wells to ensure that cleanup levels are maintained as the well returns to equilibrium.

For some monitoring wells, the most recent MAROS evaluation concluded that TCE and/or chromium concentrations are statistically below the cleanup level and no further sampling is required. These wells are indicated on Tables 3 and C-2. Wells for which previous MAROS evaluations concluded that TCE and/or chromium concentrations were statistically below the cleanup level, and which were previously designated for no further sampling, are also listed in Table C-2.

Although MAROS recommended no further sampling for the four infiltration gallery monitoring wells (AMW-6A, AMW-7A, AMW-10A and AMW-11A), these wells will continue to be sampled to monitor potential impacts of the use of the infiltration gallery. Additionally, although the MAROS evaluation concluded that TCE and chromium concentrations are statistically below the cleanup level for Toe-of-Plume wells AMW-63 and MW-41, these wells will continue to be monitored at the request of EPA.

6.4 Sampling Frequency

As part of the annual screening, 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, the MAROS recommended sampling frequency, the use of the well at the Site, and whether the constituents of concern are statistically below the cleanup levels. These factors are presented in the Wells and Recommended Sampling Frequencies Table (Table 3).

For wells with groundwater concentrations statistically below cleanup levels for TCE and/or chromium, sampling will be discontinued for TCE and/or chromium unless the qualitative analysis identifies a need for data from the well. For wells that are not identified for discontinuing sampling, MAROS uses a Modified Cost Effective Sampling Method to propose sampling frequencies for individual wells (AFCEE 2006). The resulting frequencies are “based on the magnitude, direction, and uncertainty of its concentration trends” (EPA 2007b). The recommendations made by MAROS are considered preliminary since they are the lowest frequencies needed to provide the adequate amount of data to reach statistical cleanup and may not correspond with the monitoring objectives for that well. For example, if MAROS recommends annual sampling, but the well is used to monitor treatment system performance, sampling may be conducted more frequently until the treatment is complete. In some cases, MAROS may recommend more sampling than is necessary for the Site objectives.

A number of Site monitoring wells are part of alluvial aquifer well clusters. Well clusters may include wells with designations of A, B, C, D, and E. These alphabetical designations represent different well screen depths, with A being the shallowest and E being the deepest. In each well cluster, typically the most impacted well is sampled the most frequently. In some well clusters, this means that chromium is sampled more frequently in one well while TCE is sampled more frequently in another well. In several cases, one or more of the wells in a cluster is an extraction well and is sampled according to the schedule for extraction wells. Following many years of sampling well cluster wells, the most impacted wells have typically remained the same. Sampling of wells screened at less impacted depths in a cluster does not provide any additional data of use in site decision making; therefore, those wells may be recommended for no further sampling.

Table 3 shows the current (2012) sampling frequency for each well, along with the MAROS recommended sampling frequency. These were evaluated for each well and sampling frequency recommendations for 2013 were determined using professional judgment. Recommended changes to the sampling frequencies (2013 recommendations) are included in Table 3 and summarized in Table 4. More detailed descriptions of the reasoning behind the recommended changes are provided in Table 5.

Since the OU-3 groundwater pump and treat system treats the alluvial aquifer and not the Troutdale aquifer, the MAROS analysis was not used on Troutdale wells. A qualitative analysis was completed to re-evaluate the sampling frequencies for the Troutdale wells. No changes in sampling frequency were recommended for these wells. General information for Troutdale aquifer wells is provided in Table 3.

Wells designated for no further sampling as of the previous (2011) Annual Status Report have been removed from the MAROS evaluation tables and sampling frequency tables. These wells, along with a brief description of the basis for their removal from sampling, are listed in Table C-2.

Wells designated for no further sampling as of this report are included in the MAROS evaluation tables and sample frequency tables, and are further described in Table C-2. Wells for which one of the parameters (chromium or VOCs) is being sampled but the other has been discontinued, are also listed in the MAROS evaluation tables and sample frequency tables, as well as in Table C-2.

TCE and chromium concentrations continue to decrease at the Site (excluding wells impacted by TCE from the offsite Northern Plume). The most important data continues to be that from the active remediation areas, including the OU-3 extraction wells and wells in the OU-2 source removal area. These data are critical to decision making at the site. Frequent sampling of wells with no detectable TCE or chromium, or with TCE and chromium concentrations consistently below the cleanup levels does not aid in decision making. If increases in contaminant concentrations are noted in a sampled well, additional samples may be collected from nearby wells. Wells recommended for no further sampling will still be available for future sampling, if needed.

6.5 Attainment

The MAROS Data Sufficiency module uses the sequential T-test to classify wells as attained for the constituents of concern (see Table C-1). Attained means that contaminant concentrations in a specific well are statistically below the cleanup level. Once the MAROS evaluation indicates that a well and constituent are “attained”, that well and constituent are typically recommended for no further sampling.

Wells in the Sentinel Toe well grouping are monitoring wells located at or beyond the historical leading edge of the chromium plume and are a part of the Toe-of-Plume wells. Chromium concentrations in groundwater samples collected from the Sentinel Toe well grouping have remained consistently below the cleanup level. TCE has never been detected in the Sentinel Toe well grouping. The 2008 MAROS analysis determined that the groundwater samples from wells in the Sentinel Toe well group attained (per the MAROS definition) the cleanup levels. With EPA approval, this area of the plume is no longer monitored. The “Other Toe of Plume” area is now the most downgradient plume area being monitored.

6.6 Annual Well Screening Conclusions and Recommendations

Based on the results of the 2012 annual screening of the groundwater monitoring data, the following conclusions are made:

- Several changes to sampling frequencies are recommended on Table 5 based on the results of the MAROS evaluation and on the qualitative review. Well sampling frequency recommendations for 2012 are provided in Table 3 and summarized in Table 4. Further description of the reason for the changes is provided in Table 5.
- Although the MAROS evaluation does not indicate concentrations statistically below the cleanup levels, TCE and chromium concentrations in most of the Church-of-God wells are below the cleanup levels, and have been for several years. Discontinuation of pumping of most of the extraction wells in this area is recommended, with continued monitoring for potential contaminant rebound. Recommendations for these activities were provided to EPA in Groundwater Modeling Technical Memorandum Number 5 (EA 2013b).

7. RECOMMENDATIONS AND PLANNED ACTIVITIES

The following sections summarize activities conducted in the 2012 reporting period, as well as recommendations and planned activities for 2013.

7.1 Status of Previous Recommendations From 2012

In order to meet the operating objectives for OU-2 and OU-3, planned activities for 2012 were recommended in the 2011 Annual Status report. The status of those planned activities is summarized below:

- **New Northern Plume Well** – 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. The new well is being sampled on a quarterly basis.
- **System Modifications on Church of God Property** – Chromium and TCE concentrations in groundwater from most of the Church-of-God area extraction wells are below the Site cleanup levels. The Site groundwater model was used to evaluate the impact of proposed extraction system pumping rate changes on groundwater flow and contaminant capture. The evaluation, which included recommendations for discontinuing pumping of selected wells on the Church of God property and moving system capacity to extraction wells with higher contaminant concentrations, was provided to EPA in Groundwater Modeling Technical Memorandum #5 (EA 2013b). EPA is currently reviewing the document.
- **Toe of Plume Residual Contamination** – The use of an *in situ* treatment, similar to that used in the successful TOPPS program, was evaluated for reducing contamination in the MW-35 and AMW-27 areas. A Work Plan for In Situ Treatment of Areas of Residual Contamination (EA 2012g) was submitted to EPA in November 2012. EPA is currently reviewing the document.
- **Easements and Access Agreements** – Work continued on obtaining easements and access agreements.
- **Well Sampling** – Wells were sampled in accordance with the updated sampling schedule.
- **Survey Well Elevations on the Clark County Property** – Elevations of wells on the Clark County property were resurveyed, as necessary, following development of the sports fields on property and well modifications completed to accommodate the development.
- **IWS System Rebound Testing** – The IWS system has removed more than 95% of the mass of TCE since start-up; however, asymptotic removal rates have been reached and TCE concentrations have not been significantly reduced in recent years. Potential shut down of the IWS system, with continued monitoring, was discussed with EPA. EPA will

consider this following submittal of a plan for shut down. The plan for shutting the IWS system will be submitted in 2013.

7.2 Recommendations and Planned Activities for 2013

The following activities are planned for the 2013 reporting period:

- **Well Sampling** – Sample wells in accordance with the updated sampling schedule.
- **Infrastructure Removal** – Following receipt of EPA approval, implement the recommendations regarding infrastructure removal on Parcel No. 144718-000, as provided to EPA in a letter dated 21 August 2012. The pipelines and wells recommended for decommissioning are no longer needed for Site remediation or monitoring, and are planned for removal to allow development of the parcel by the owner.
- **In Situ Treatments** – Following receipt of EPA approval of the work plan, and approval of an Explanation of Significant Differences, implement *in situ* treatments in the area of wells MW-35 and AMW-27, as described in the Work Plan for In Situ Treatment of Areas of Residual Contamination (EA 2012g).
- **Modify System Pumping Rates** – Following receipt of EPA approval, implement extraction system pumping rate modifications, as described in Groundwater Modeling Technical Memorandum No. 5.
- **IWS System Shutdown and Rebound Testing** – Prepare a letter to EPA to address proposed shutdown of the IWS system and continued groundwater monitoring at OU-2.
- **Easements and Access Agreements** – Continue efforts toward obtaining easement agreements and restrictive covenants with neighboring property owners. EPA assistance has been requested with this.

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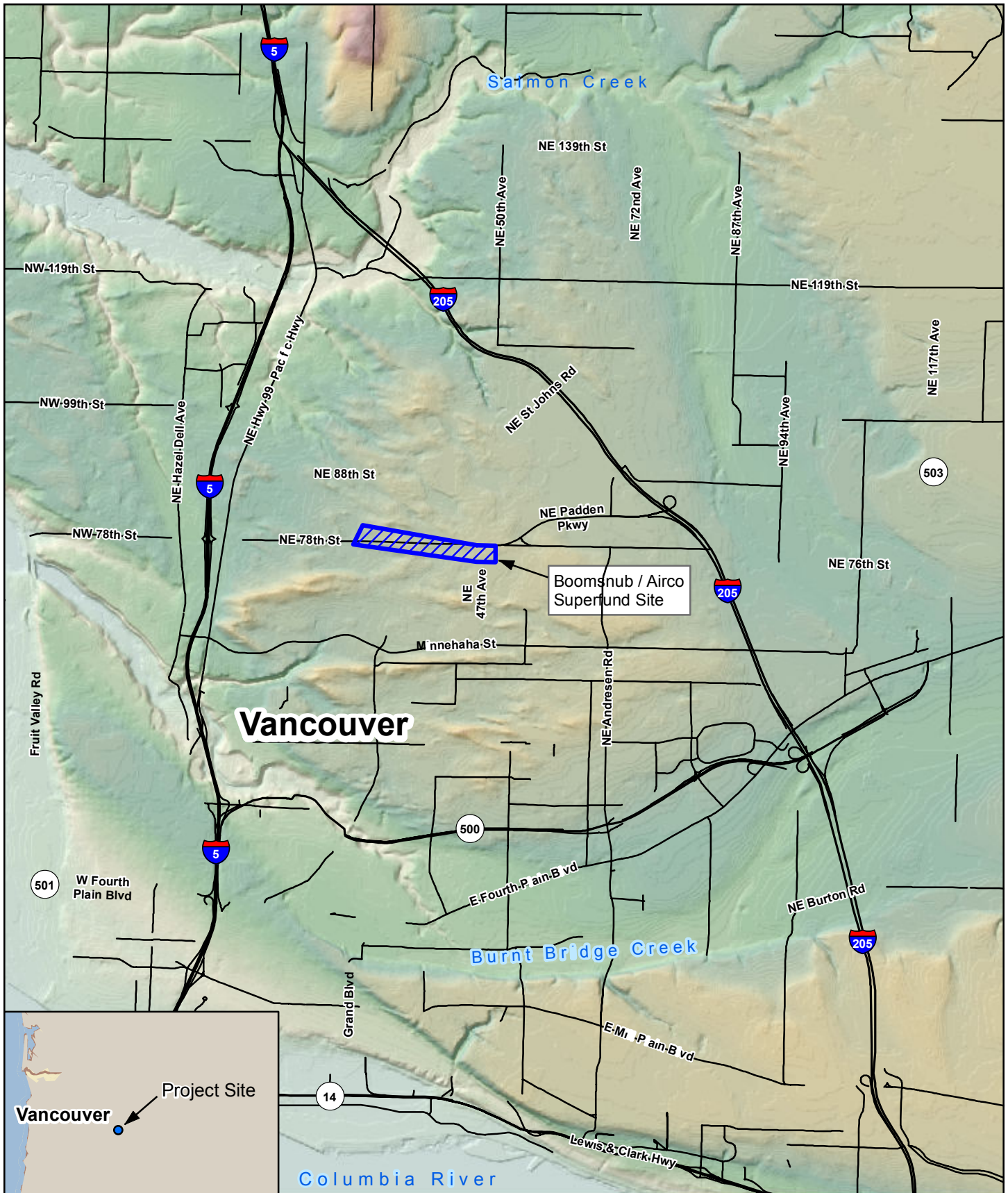
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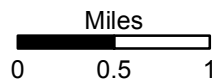
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FIGURES



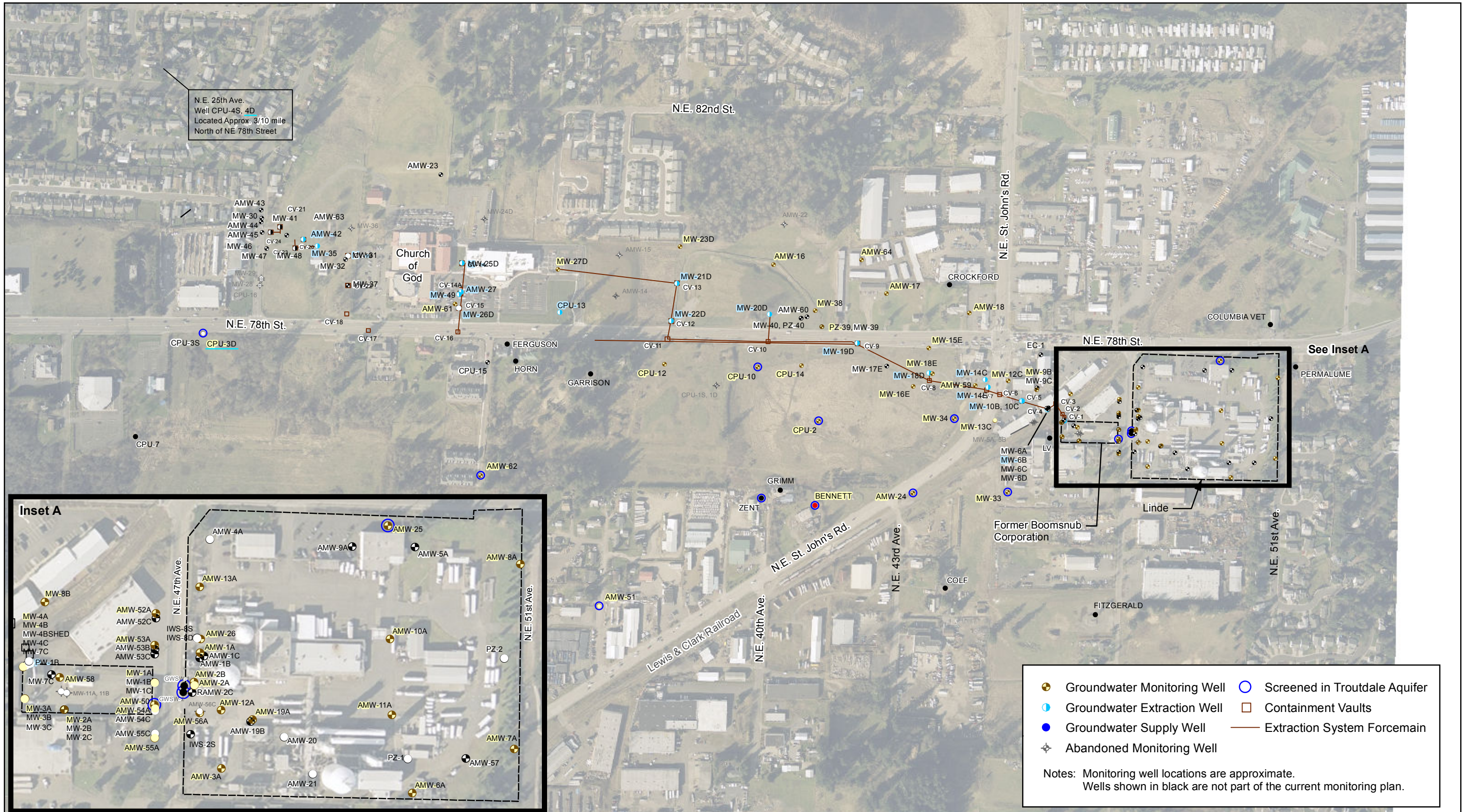
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FIGURE 1
 SITE LOCATION MAP

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N.E. 25th Ave.
Well CPU-4S, 4D
Located Approx. 3/10 mile
North of NE 78th Street

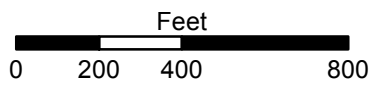
Inset A

See Inset A

- Groundwater Monitoring Well
- Groundwater Extraction Well
- Groundwater Supply Well
- ◆ Abandoned Monitoring Well
- Containment Vaults
- Extraction System Forcemain
- Screened in Troutdale Aquifer

Notes: Monitoring well locations are approximate.
Wells shown in black are not part of the current monitoring plan.

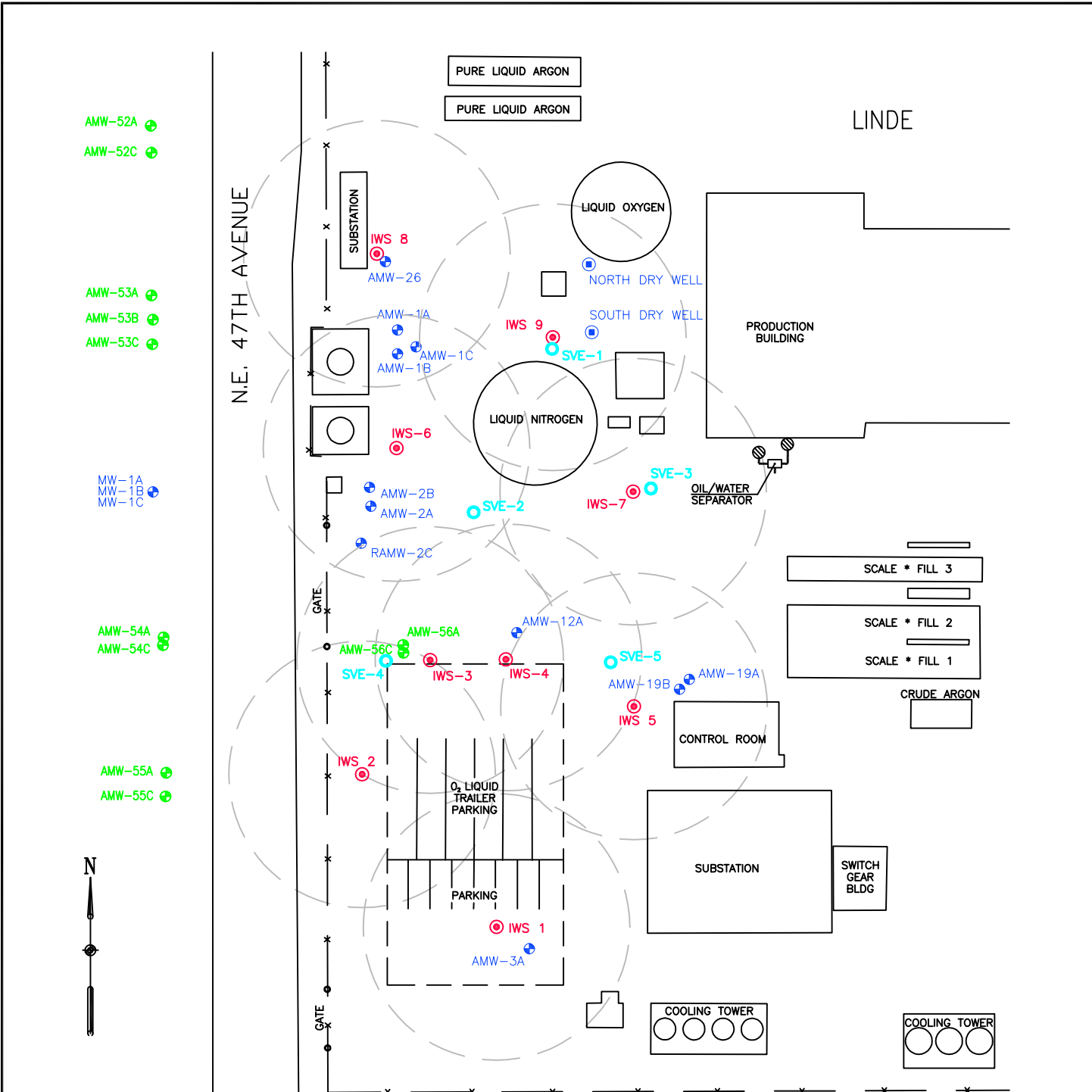
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**FIGURE 2
MONITORING AND EXTRACTION WELL
NETWORK**



LINDE

NE. 47TH AVENUE

AMW-52A
AMW-52C

AMW-53A
AMW-53B
AMW-53C

MW-1A
MW-1B
MW-1C

AMW-54A
AMW-54C

AMW-55A
AMW-55C



PURE LIQUID ARGON

PURE LIQUID ARGON

LIQUID OXYGEN

NORTH DRY WELL

SOUTH DRY WELL

PRODUCTION BUILDING

LIQUID NITROGEN

OIL/WATER SEPARATOR

SCALE * FILL 3

SCALE * FILL 2

SCALE * FILL 1

CRUDE ARGON

CONTROL ROOM

SUBSTATION

SWITCH GEAR BLDG

COOLING TOWER

COOLING TOWER

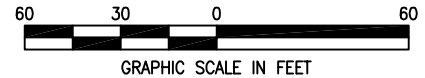
LEGEND

- DRY WELL
- AMW-3A SOURCE AREA MONITORING WELL
- AMW-55C DOWNGRAIDENT MONITORING WELL
- IWS IN WELL STRIPPING WELL
- SVE-5 SOIL VAPOR EXTRACTION WELL



IN WELL STRIPPING WELL WITH ESTIMATED 55 FEET IN WELL STRIPPING RADIUS OF INFLUENCE

- 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



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FIGURE 3
OU-2 TREATMENT AND MONITORING WELLS



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NOTE: WELL LOCATIONS ARE APPROXIMATE

FIGURE 4. CUMULATIVE REMOVAL OVER TIME

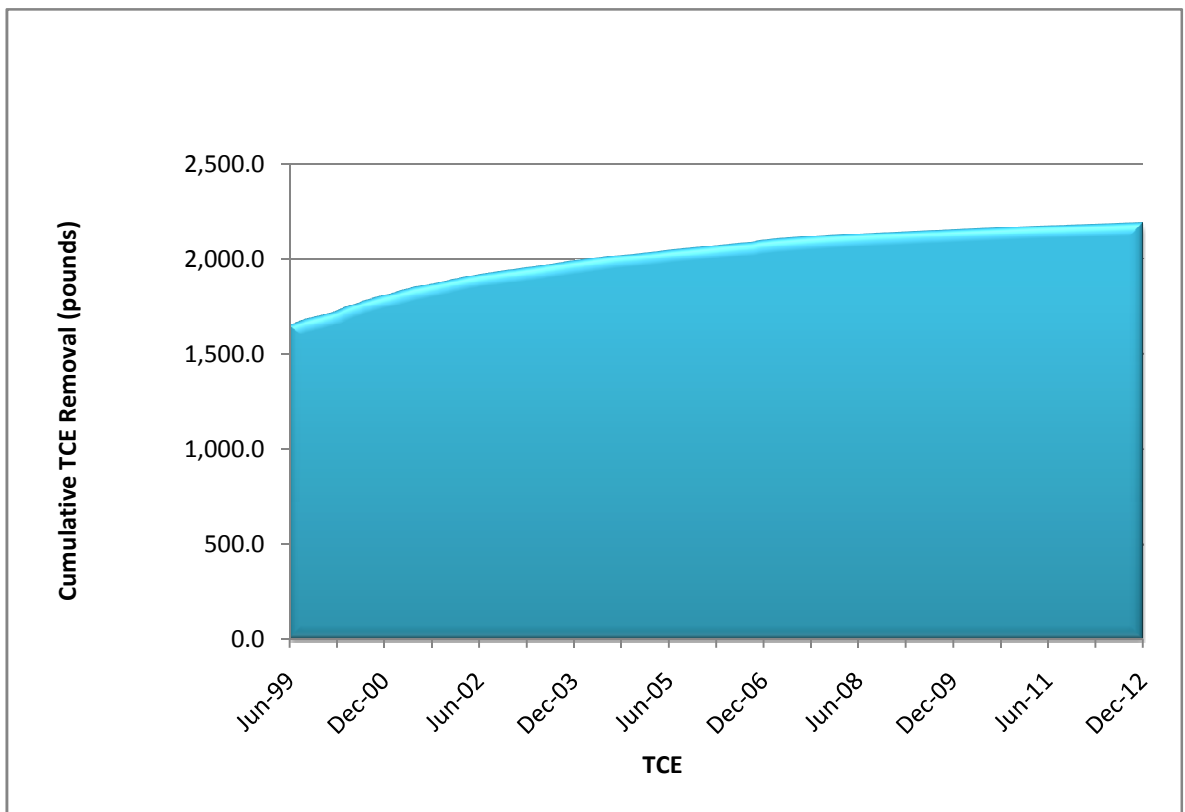
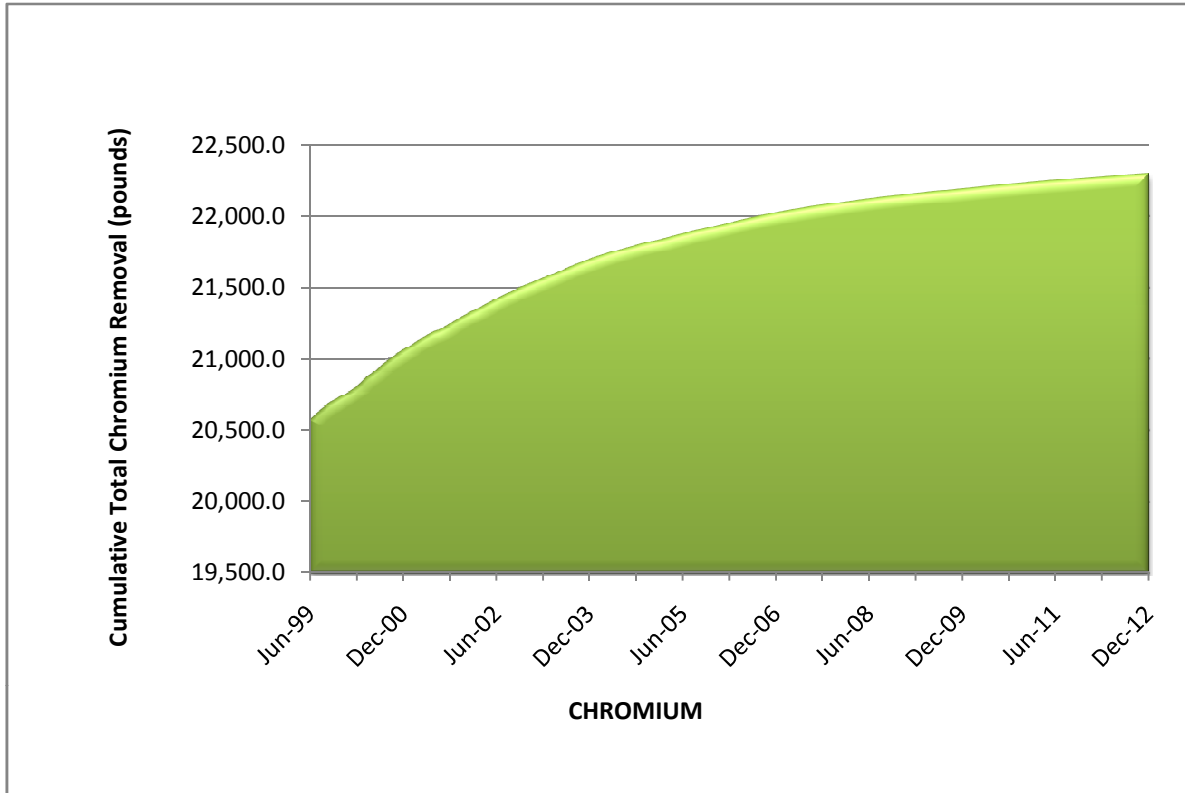


FIGURE 5. INFLUENT AND EFFLUENT CONCENTRATIONS OVER TIME

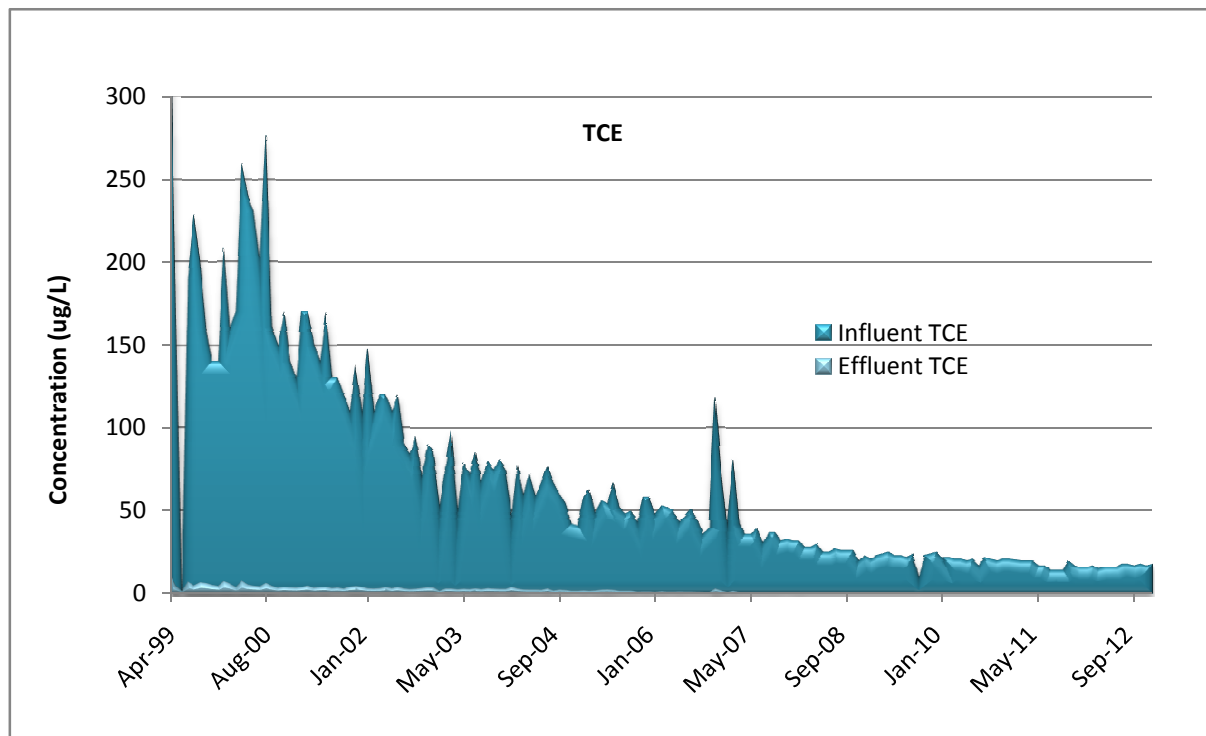
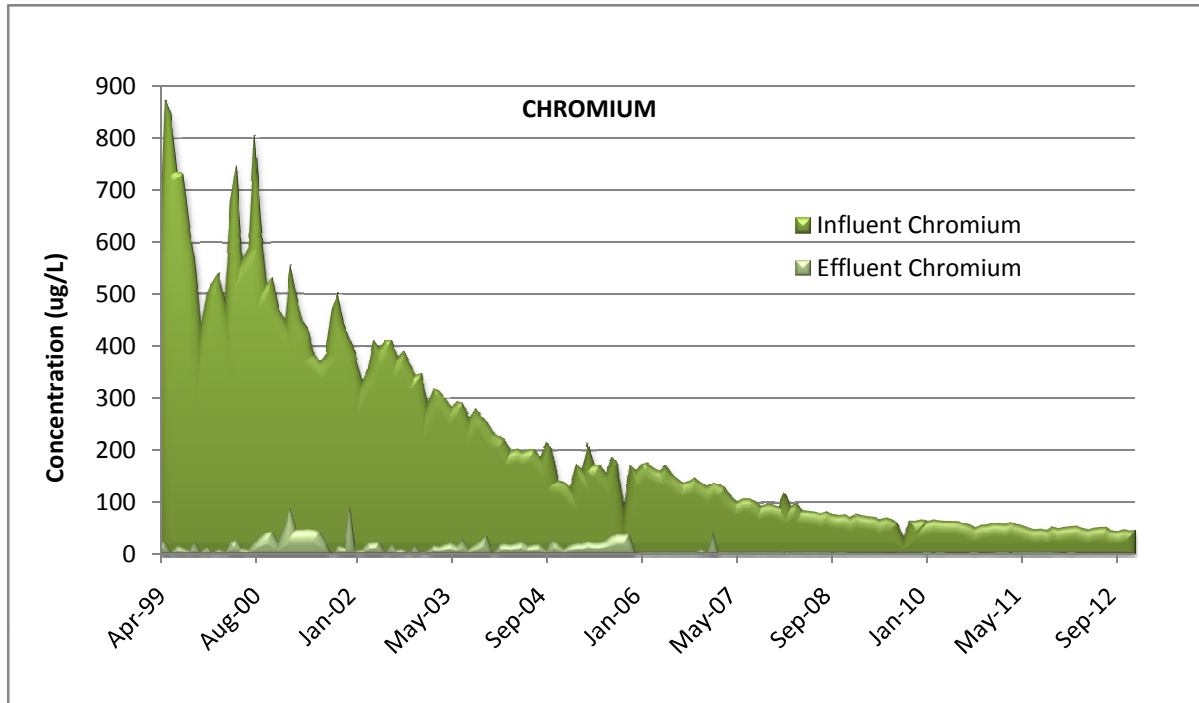
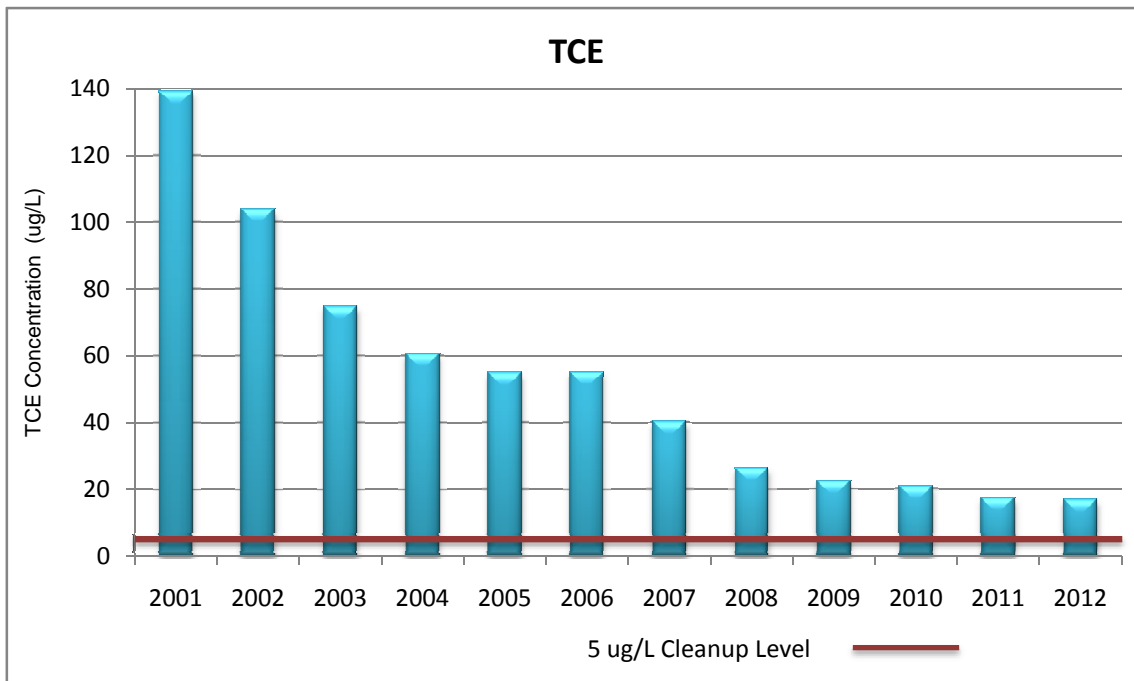
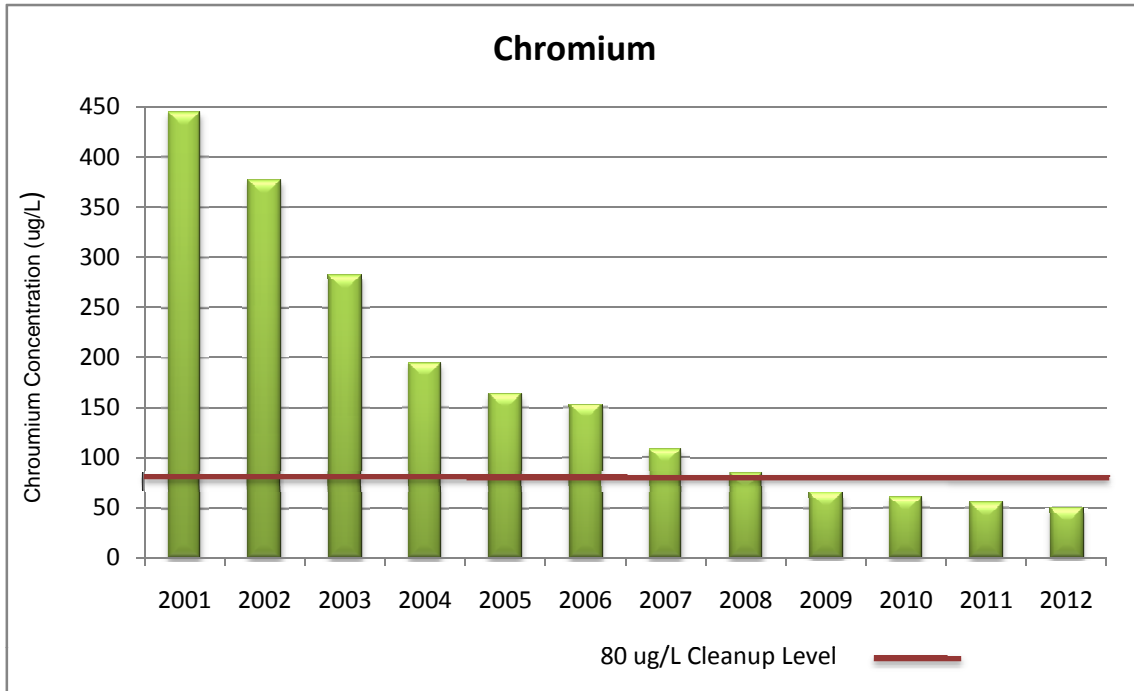
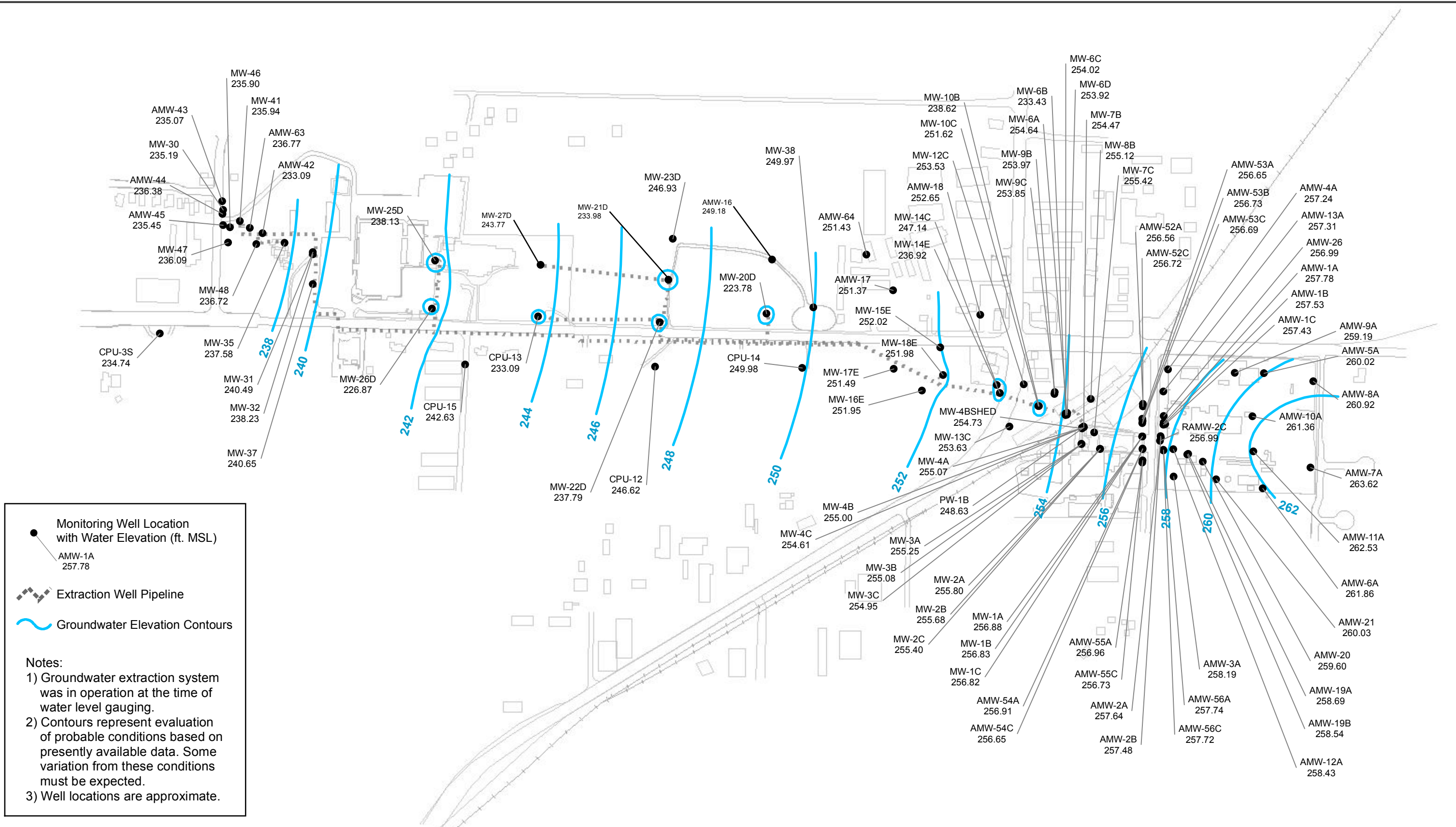
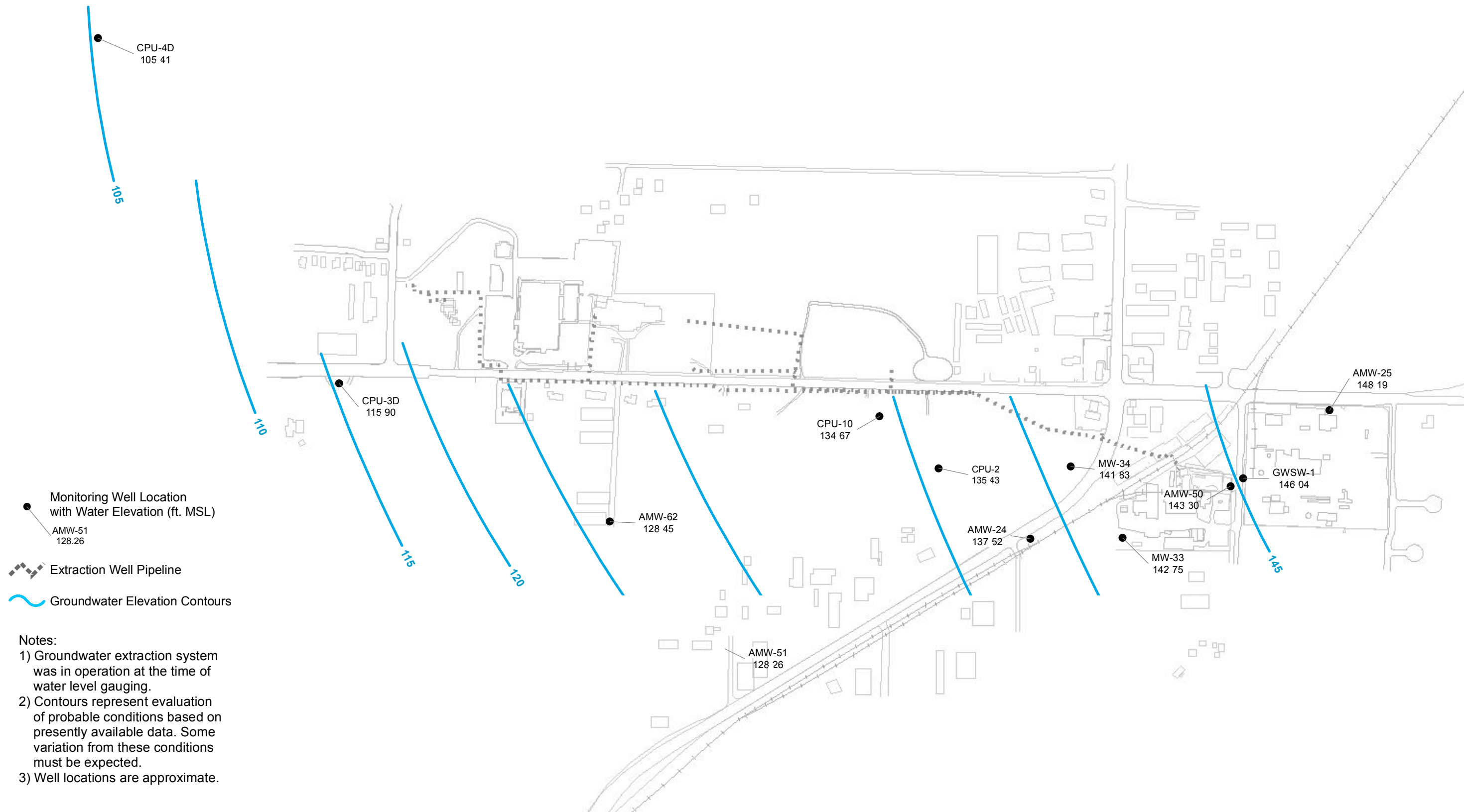


FIGURE 6. INFLUENT CONCENTRATIONS OVER TIME



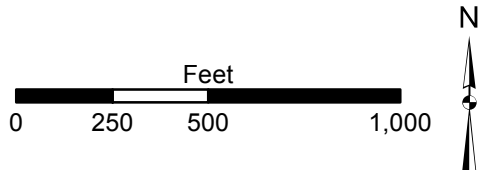
Note: Concentrations per year are an average of monthly data.





- Notes:
- 1) Groundwater extraction system was in operation at the time of water level gauging.
 - 2) Contours represent evaluation of probable conditions based on presently available data. Some variation from these conditions must be expected.
 - 3) Well locations are approximate.

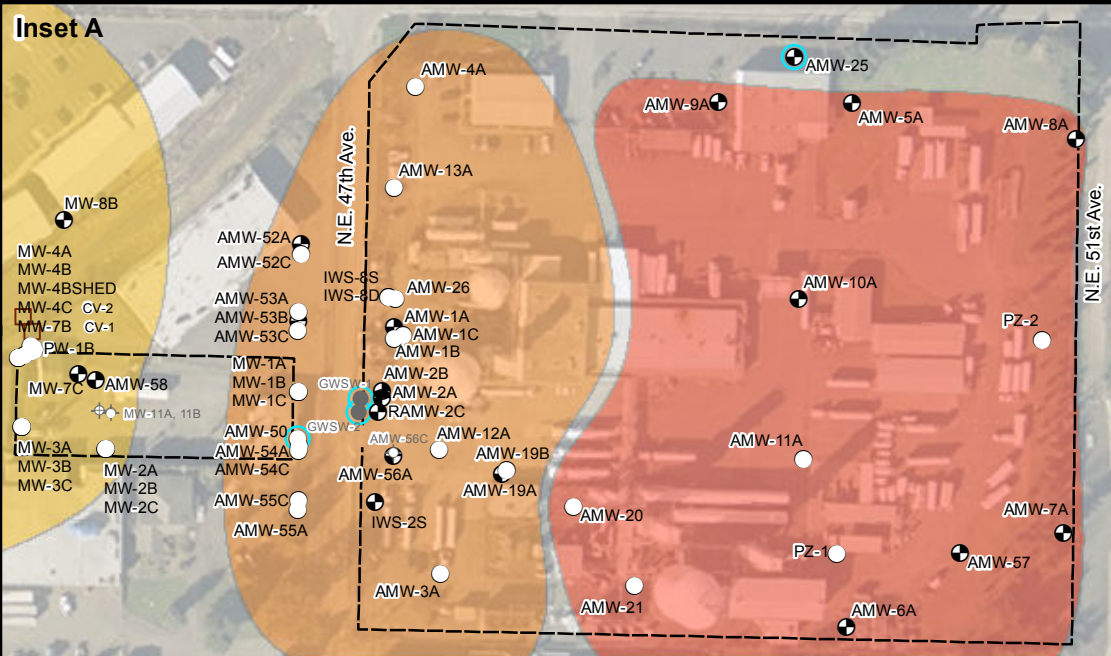
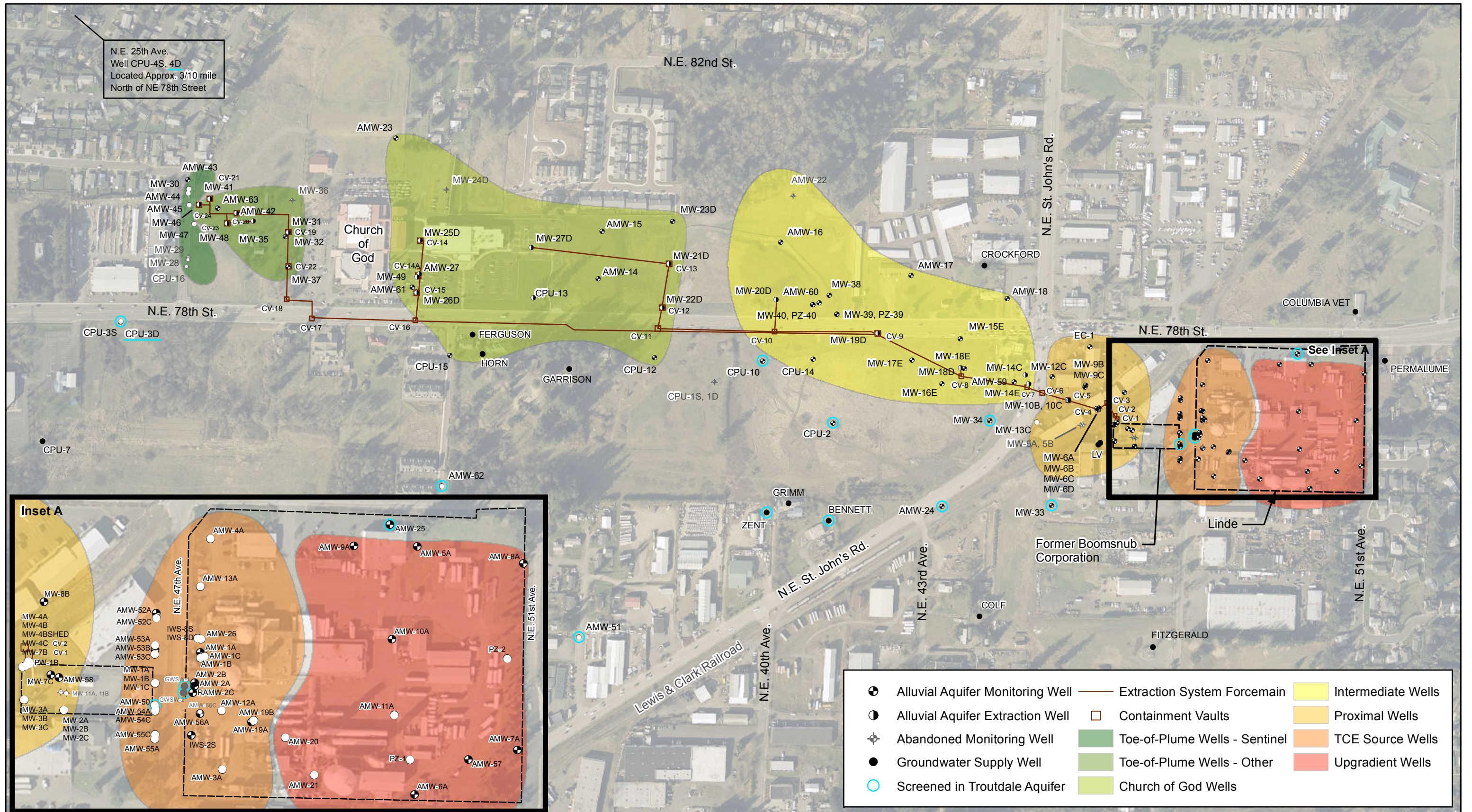
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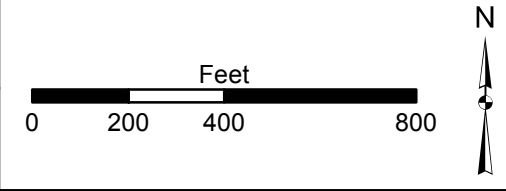
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FIGURE 8
 TROUTDALE AQUIFER GROUNDWATER CONTOURS
 FALL 2012



- | | | |
|------------------------------------|---------------------------------|----------------------|
| ● Alluvial Aquifer Monitoring Well | — Extraction System Forcemain | ■ Intermediate Wells |
| ● Alluvial Aquifer Extraction Well | □ Containment Vaults | ■ Proximal Wells |
| ⊕ Abandoned Monitoring Well | ■ Toe-of-Plume Wells - Sentinel | ■ TCE Source Wells |
| ● Groundwater Supply Well | ■ Toe-of-Plume Wells - Other | ■ Upgradient Wells |
| ○ Screened in Troutdale Aquifer | ■ Church of God Wells | |

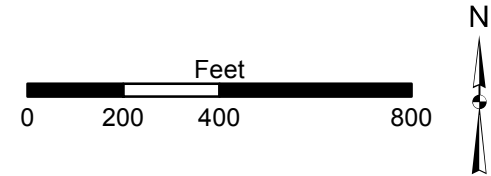
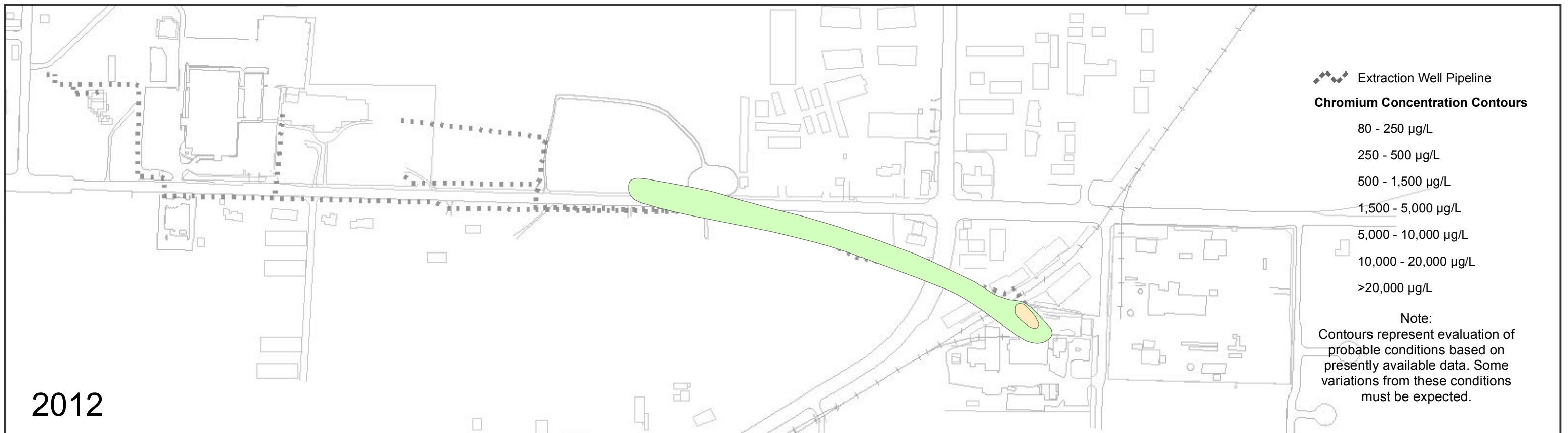
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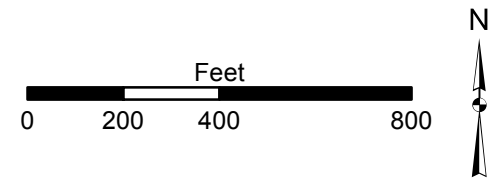
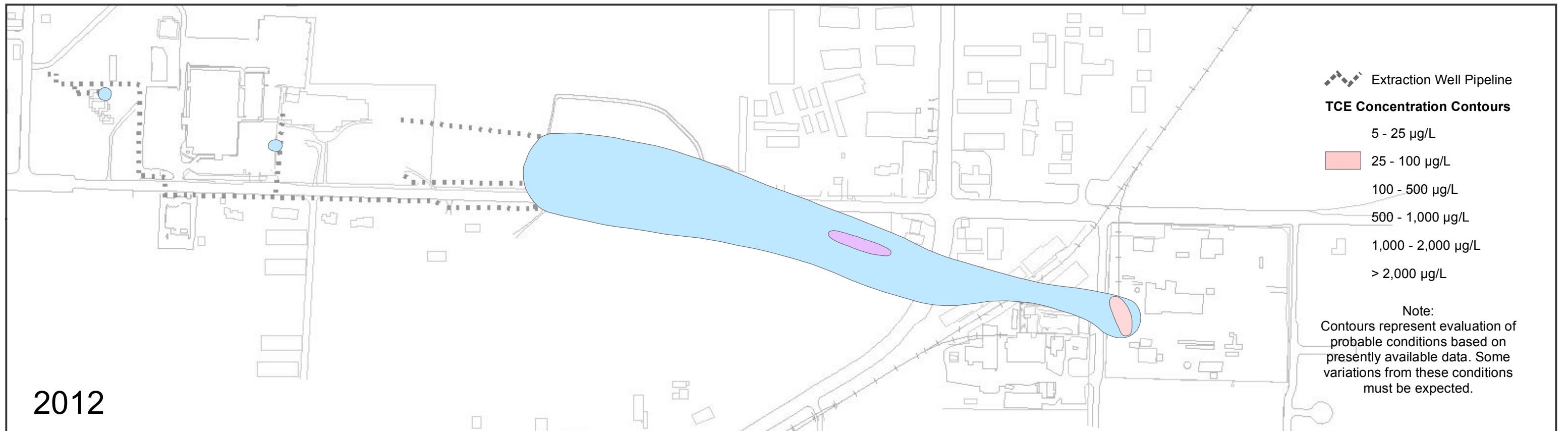
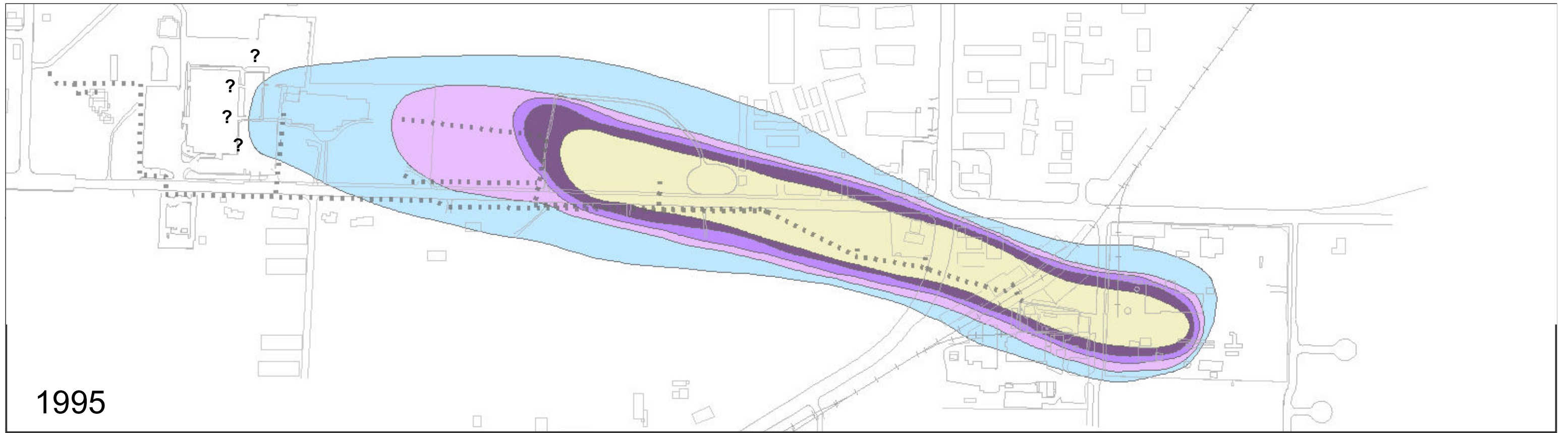


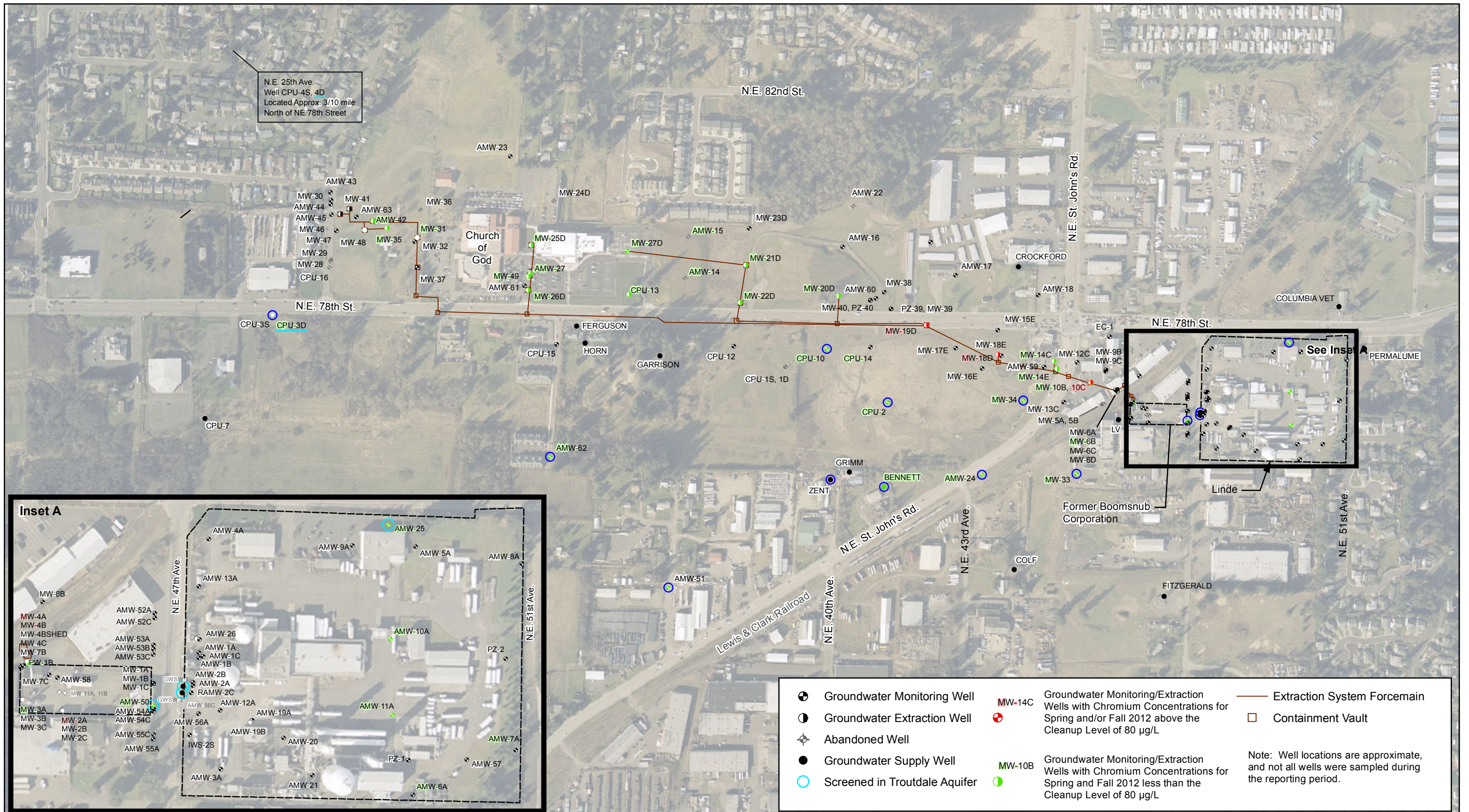
BOOMSNUB / AIRCO SUPERFUND SITE
 HAZEL DELL, WASHINGTON

EA Project No. 14495.05
 File Location: \\SEATTLE\Seattle\Projects\0_Linde GIS\Linde Reports\ANNUAL2012\mxd\Fig_9_Well_Groupings

FIGURE 9
 EXTRACTION AND MONITORING WELL GROUPINGS

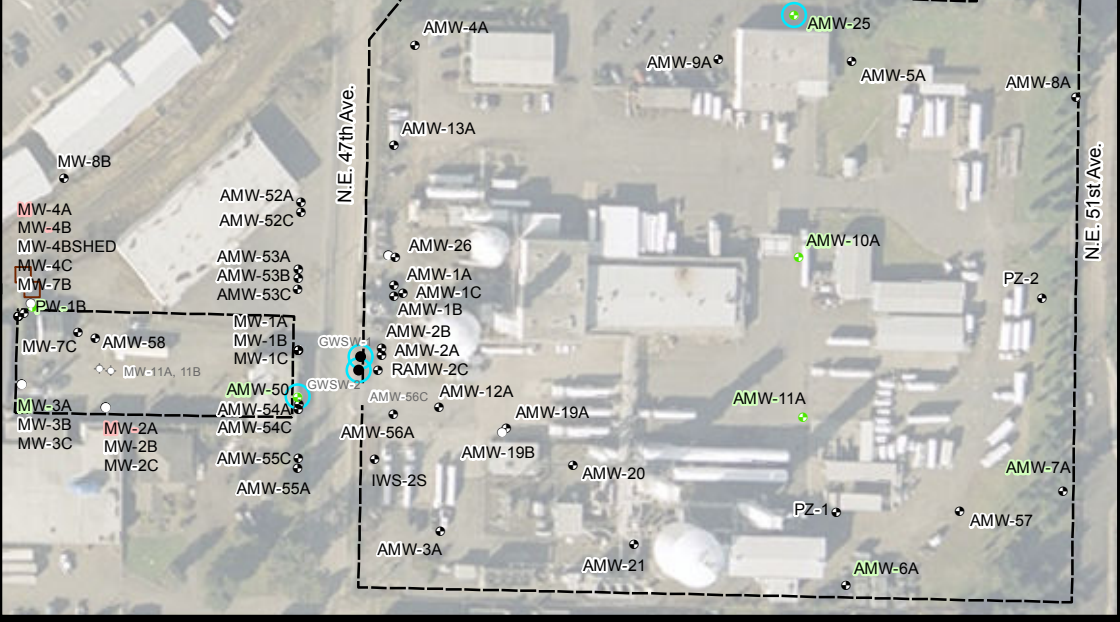






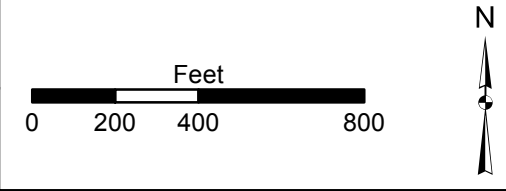
N.E. 25th Ave.
Well CPU-4S, 4D
Located Approx. 3/10 mile
North of NE 78th Street

Inset A



- | | | | |
|---------------------------------|----------|--|-------------------------------|
| ● Groundwater Monitoring Well | ● MW-14C | Groundwater Monitoring/Extraction Wells with Chromium Concentrations for Spring and/or Fall 2012 above the Cleanup Level of 80 µg/L | — Extraction System Forcemain |
| ● Groundwater Extraction Well | ● MW-10B | Groundwater Monitoring/Extraction Wells with Chromium Concentrations for Spring and Fall 2012 less than the Cleanup Level of 80 µg/L | □ Containment Vault |
| □ Abandoned Well | | | |
| ● Groundwater Supply Well | | | |
| ○ Screened in Troutdale Aquifer | | | |
- Note: Well locations are approximate, and not all wells were sampled during the reporting period.

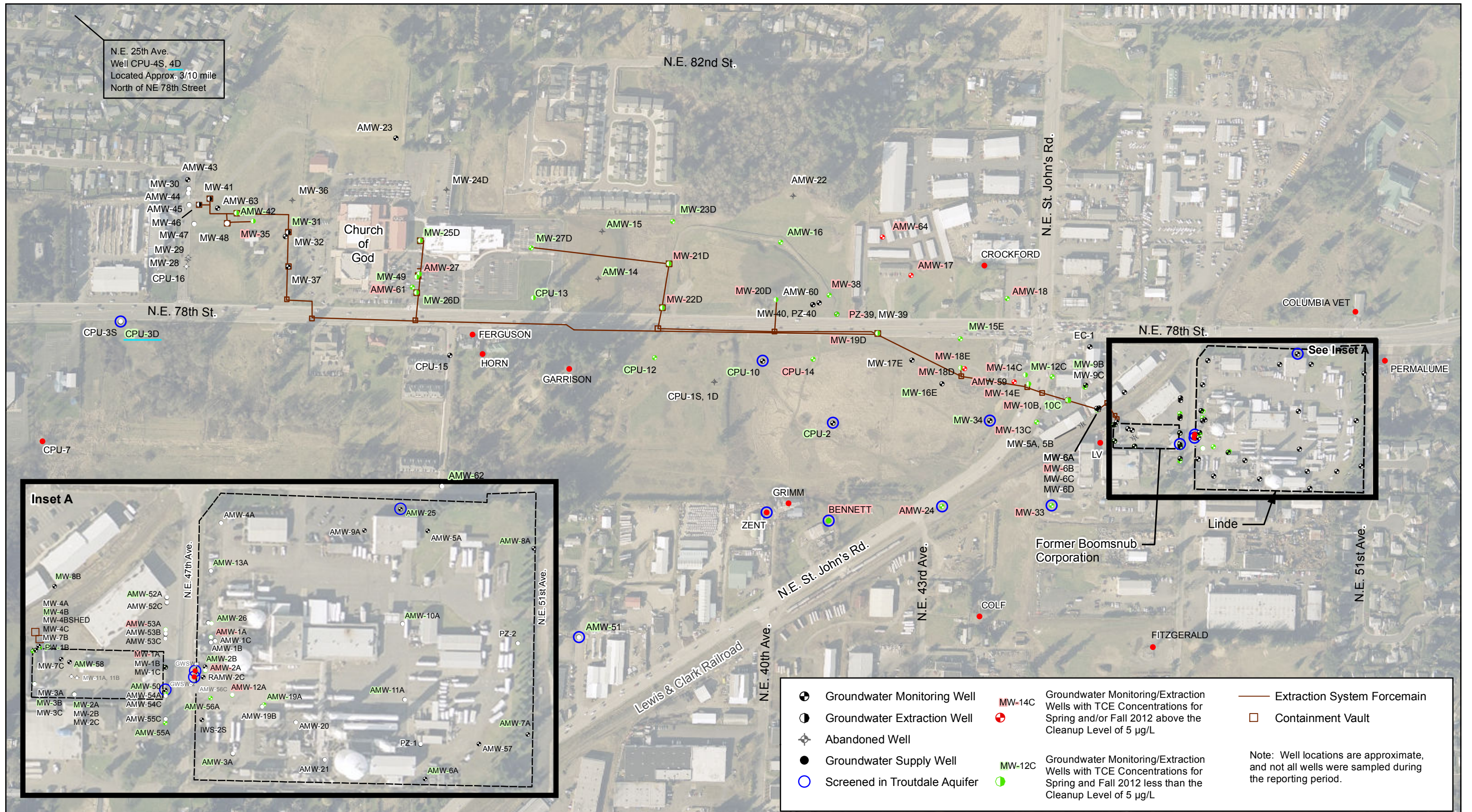
EA Engineering, Science, & Technology, Inc.
2200 Sixth Avenue, Suite 707
Seattle, WA 98121
Phone: (206) 452-5350
Fax: (206) 443-7646



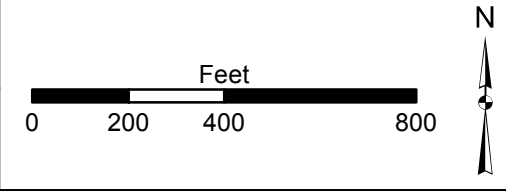
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**FIGURE 12
WELLS WITH CHROMIUM CONCENTRATIONS
ABOVE THE CLEANUP LEVEL IN 2012**



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**FIGURE 13
 WELLS WITH TCE CONCENTRATIONS
 ABOVE THE CLEANUP LEVEL IN 2012**

TABLES

TABLE 1. OU-2 SOURCE WELL SAMPLING RESULTS FOR TCE

Well ID	Baseline*	Biennial Well Data Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
AMW-1A	220	--	1.7	44	5.7	44
AMW-2A	1,000	--	18	55	6.1	14
AMW-2B	0.4 J	0.49 J	--	--	--	0.40 J
AMW-3A	8.0	0.85	--	--	--	0.48 J
AMW-12A	1,200	--	30	38	27	33
AMW-13A	2.7	0.5 U	--	--	--	0.17 J
AMW-19A	290	--	--	1.5	--	1.2
AMW-26	34.0	0.24 J	--	--	--	0.52
AMW-52A	0.53	0.16 J	--	--	--	0.50 U
AMW-53A	240	--	0.86	6.0	1.8	12
AMW-54A	120	2.3	--	--	--	1.8
AMW-55A	22.0	0.95	--	--	--	1.3
AMW-56A	610	2.3	--	--	--	2.7
MW-1A	880	--	4.8	5.2	6.1	6.1

NOTES:

- = Not Sampled.
- * = Baseline samples were collected in late December 2003.
- J = Not 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.

All results are reported in micrograms per liter ($\mu\text{g/L}$).

When duplicate samples are collected, the maximum of the two results is reported.

Results from shown in **bold and shaded** indicate the concentration exceeds the cleanup level of 5.0 $\mu\text{g/L}$.

TABLE 2. 2012 EXTRACTION WELL PUMPING RATES

Flow Rates (gpm)												
Well ID	January	February	March	April	May	June	July	August	September	October	November	December
AMW-27	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	off	1.0	1.0
AMW-42	off	off	off	off	off	off	off	off	off	off	off	off
MW-6B	7.7	7.7	7.8	7.8	7.8	7.8	7.7	7.5	7.5	6.3	7.6	7.6
MW-10B	8.8	9.0	9.0	9.0	8.6	8.6	8.9	8.5	8.5	9.0	8.6	9.0
MW-10C	9.8	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.2	9.8	10.0
MW-14C	12.0	12.0	off	12.0	12.0	12.0	12.6	11.6	13.2	13.0	12.2	13.0
MW-14E	5.0	5.0	5.2	5.3	5.0	8.5	8.3	8.1	8.0	8.2	8.0	7.5
MW-18D	11.0	11.4	13.4	11.4	11.2	11.5	11.2	11.2	11.0	12.0	11.0	11.0
MW-19D	10.4	10.4	10.4	10.0	10.1	10.0	10.0	10.0	10.0	10.4	9.8	9.6
MW-20D	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.7	15.0	15.0
MW-21D	10.5	11.2	11.5	11.4	10.5	11.4	10.6	11.2	11.3	12.1	10.5	11.7
MW-22D	13.0	13.5	13.8	13.3	13.5	13.5	14.2	14.2	14.4	17.9	13.5	14.2
MW-25D	6.4	6.4	9.0	9.0	9.0	9.0	6.3	6.3	6.2	off*	6.4	6.5
MW-26D	8.8	9.0	9.3	9.0	9.0	9.0	8.6	8.6	9.0	off*	9.8	10.0
MW-49	13.0	13.0	13.3	13.0	13.0	13.0	12.5	12.5	12.4	off*	13.0	13.0
PW-1B	9.5	9.7	9.9	9.8	10.0	9.9	9.8	9.6	9.6	10.0	9.7	9.8
CPU-13	12.3	9.1	12.3	12.3	12.2	12.8	12.3	12.1	12.4	12.7	12.1	12.1
Total	154.2	153.4	150.9	159.3	157.9	163.0	159.0	157.4	159.5	137.5	158.0	161.0

Notes:
Only wells actively pumping during 2012 are included on this table.
* = Wells were off for a short time during the replacement of an electrical panel
gpm = gallons per minute

TABLE 3. WELLS AND RECOMMENDED SAMPLING FREQUENCIES

Well Name	Well Type	GW Model Layer	Top of Screen		Bottom of Screen		TCE						Chromium						MAROS Recommended Sampling Frequency		2012 Sampling Frequency ¹		2013 Recommendations		Rationale for Frequency ²					
			Depth	Elevation	Depth	Elevation	Min. Conc. (ug/L)	Max. Conc. (ug/L)	Most Recent Conc. (ug/L)	Most Recent Data Qualifiers	Most Recent Sample Date	Conc. Below Cleanup Levels	Conc. Statistically Below Cleanup Levels ³	Min. Conc. (ug/L)	Max. Conc. (ug/L)	Most Recent Conc. (ug/L)	Most Recent Data Qualifiers	Most Recent Sample Date	Conc. Below Cleanup Levels	Conc. Statistically Below Cleanup Levels ³	TCE	Chromium	TCE	Chromium		TCE	Chromium			
			TCE		Chromium		TCE	Chromium	TCE	Chromium	TCE	Chromium																		
Troutdale Wells																														
AMW-24	M/D	6	190	74.72	200	64.72	9.00	25.0	11.0			10/17/2012	No	NA	U	8.80	7.5			10/17/2012	Yes	NA	NA	NA	Annual	Annual	NC	NC	Troutdale well - TCE impacted	
AMW-25	M/D	6	215	67.94	225	57.94	U	U	U	U		10/15/2012	Yes	NA	U	4.10	1.9	J		10/15/2012	Yes	NA	NA	NA	Biennial	Biennial	NC	NC	Troutdale well - unimpacted; upgradient well	
AMW-50	M/D	6	185.19	97.59	195.19	87.59	U	0.16	U	U		10/15/2012	Yes	NA	U	37.7	2.10	J		10/15/2012	Yes	NA	NA	NA	Biennial	Biennial	NC	NC	Troutdale well - unimpacted	
AMW-51	M/D	6	185.7	72.74	195.7	62.74	U	0.32	0.24	J		10/16/2012	Yes	NA	U	10.1	2.10	J		10/16/2012	Yes	NA	NA	NA	Biennial	Biennial	NC	NC	Troutdale well - unimpacted	
AMW-62	M/D	6	185.73	72.93	195.73	62.93	U	U	U	U		10/15/2012	Yes	NA	U	1.5	1.5	J		10/15/2012	Yes	NA	NA	NA	Biennial	Biennial	NC	NC	Troutdale well - unimpacted	
CPU-2	M	6	186.13	73.4	196.13	63.4	U	U	U	U		10/22/2012	Yes	NA	U	14.0	2	J		10/22/2012	Yes	NA	NA	NA	Biennial	Biennial	NC	NC	Troutdale well - unimpacted	
CPU-3D	M/D	6	212.38	34.39	217.38	29.39	U	U	U	U		10/15/2012	Yes	NA	U	11.0	1.80	J		10/15/2012	Yes	NA	NA	NA	Biennial	Biennial	NC	NC	Troutdale well - unimpacted	
CPU-10	M	6	186.9	74.34	196.9	64.34	U	U	U	U		10/23/2012	Yes	NA	U	23.2	U	UJ		10/23/2012	Yes	NA	NA	NA	Biennial	Biennial	NC	NC	Troutdale well - unimpacted	
MW-33	M/D	6	205	67.55	215	57.55	6.40	19.0	11.0			10/16/2012	No	NA	U	40.5	3.2	J		10/16/2012	Yes	NA	NA	NA	Annual	Annual	NC	NC	Troutdale well - TCE impacted	
MW-34	M/D	6	195	72.33	205	62.33	U	U	U	U		10/17/2012	Yes	NA	U	25.4	0.80	J		10/17/2012	Yes	NA	NA	NA	Biennial	Biennial	NC	NC	Troutdale well - unimpacted	
BENNETT	Other	N/A	N/A	N/A	180	N/A	3.80	10.0	6.9				No	NA	U	U	U	U	U		10/17/2012	Yes	NA	NA	NA	Semiannual	Semiannual	NC	NC	Troutdale well - TCE impacted - CPU request for semiannual sampling
Upgradient Wells																														
AMW-6A	M/D	1	24	260.56	34	250.56	U	0.93	0.42	J		10/16/2012	Yes	Yes	U	17.7	6.90			10/16/2012	Yes	Yes	NFS	NFS	Biennial	Biennial	NC	NC	Infiltration gallery well	
AMW-7A	M/D	1	24.25	260.77	34.25	250.77	U	1.00	0.24	J		10/17/2012	Yes	Yes	U	5.20	2.90	J		10/16/2012	Yes	Yes	NFS	NFS	Biennial	Biennial	NC	NC	Infiltration gallery well	
AMW-8A	M	1	24.5	260.99	34.5	250.99	0.33	692	0.33	J		10/18/2012	Yes	No									Annual	NA	Annual		NC		Upgradient well - check for possible offsite TCE impacts	
AMW-10A	M/D	1	21.5	262.51	31.5	252.51	U	0.79	0.32	J		10/16/2012	Yes	Yes	U	18.7	18.70			10/16/2012	Yes	Yes	NFS	NFS	Biennial	Biennial	NC	NC	Infiltration gallery well	
AMW-11A	M/D	1	24	259.21	34	249.21	U	1.50	0.41	J		10/16/2012	Yes	Yes	U	9.40	2.00	J		10/16/2012	Yes	Yes	NFS	NFS	Biennial	Biennial	NC	NC	Infiltration gallery well	
TCE Source Wells																														
AMW-1A	M	1	24.24	259.85	34.24	249.85	U	1290	44.0				No	No									Annual	NA	Semiannual	NA	NC	NA	OU2 monitoring well (TCE fluctuating above and below cleanup level)	
AMW-2A	M	1	24.2	259.83	34.2	249.83	1.1	5350	14.0		10/18/2012	10/18/2012	No	No									Annual	NA	Semiannual	NA	NC	NA	OU2 monitoring well; well cluster - most impacted (TCE above cleanup level)	
AMW-2B	M	1/2	47	237.11	57	227.11	U	30.8	0.40	J		10/18/2012	Yes	No									Annual	NA	Biennial	NA	NC	NA	OU2 monitoring well; well cluster - less frequent sampling	
AMW-3A	M	1	24.5	259.42	34.5	249.42	0.16	34.0	0.48	J		10/18/2012	Yes	No									Annual	NA	Biennial	NA	NC	NA	OU2 monitoring well (TCE below cleanup level)	
AMW-12A	M	1	24.05	259.69	34.05	249.69	19.0	19300	33			10/18/2012	No	No									Annual	NA	Semiannual	NA	NC	NA	OU2 monitoring well (TCE above cleanup level)	
AMW-13A	M	1	23.8	260.08	33.8	250.08	U	74.8	0.17	J		10/18/2012	Yes	No									Annual	NA	Biennial	NA	NC	NA	OU2 monitoring well (TCE below cleanup level)	
AMW-19A	M	1	25	258.94	35	248.94	1.20	490	1.20			10/18/2012	Yes	No									Annual	NA	Biennial	NA	NC	NA	OU2 monitoring well (TCE below cleanup level)	
AMW-26	M	1	24.2	258.82	34.2	248.82	U	100	0.52			10/18/2012	Yes	No									Annual	NA	Biennial	NA	NC	NA	OU-2 monitoring well (TCE below cleanup level)	
AMW-52A	M	1	24.55	255.85	34.55	245.85	U	29.0	U	U		10/16/2012	Yes	No									Annual	NA	Biennial	NA	NC	NA	OU2 monitoring well (TCE below cleanup level)	
AMW-53A	M	1	22.2	258.85	32.2	248.85	0.86	240	12.0			10/16/2012	No	No									Annual	NA	Semiannual	NA	NC	NA	OU2 monitoring well (TCE fluctuating above and below cleanup level)	
AMW-54A	M	1	24.3	259.01	34.3	249.01	0.53	190	1.80			10/16/2012	Yes	No									Annual	NA	Biennial	NA	NC	NA	OU2 monitoring well (TCE below cleanup level)	
AMW-55A	M	1	20.83	261.28	30.83	251.28	0.40	39.0	1.30			10/16/2012	Yes	No									Annual	NA	Biennial	NA	NC	NA	OU2 monitoring well (TCE below cleanup level)	
AMW-56A	M	1	25.24	258.43	35.24	248.43	0.38	610	2.70			10/18/2012	Yes	No									Annual	NA	Biennial	NA	NC	NA	OU2 monitoring well (TCE below cleanup level)	
MW-1A	M	1	28.36	257.13	38.26	247.23	4.80	3900	6.1				No	No	U	162.0	19.3			10/24/2012	Yes	No	Annual	Annual	Semiannual	Biennial	NC	NC	OU2 monitoring well (TCE fluctuating above and below cleanup level) also Cr background well	
Proximal Wells																														
AMW-58	M	4	109.43	170.65	114.43	165.65	U	9.20	0.10	J		10/17/2012	Yes	No									Annual	NA	Biennial	NFS (2010)	NFS	NA	Plume area - silt well; Cr statistically below the cleanup level	
MW-2A	M	1	32.09	250.48	37.09	245.48	1.70	24.7	1.70			10/24/2012	Yes	No	29.2	2660	190			10/24/2012	No	No	Annual	Annual	Biennial	Annual	NC	Semiannual ⁴	Well cluster - most impacted and Cr residual contamination	
MW-3A	M	1	22.34	257.87	32.34	247.87									75.4	1820	75			10/24/2012	Yes	No	NA	Annual	NFS (2009)	Annual	NA	Semiannual ⁴	Well cluster - most Cr impacted; TCE statistically below cleanup level	
MW-3B	M	1	51.39	228.94	56.39	223.94	2.00	32.0	2.00			10/17/2012	Yes	No									Annual	NA	Biennial	NFS (2009)	NC	NA	Well cluster - most TCE impacted; Cr statistically below cleanup level	
MW-4A	M	1	26.81	253.49	36.81	243.49									362	5320	362			10/24/2012	No	No	NA	Annual	NFS (2010)	Annual	NA	Semiannual ⁴	Well cluster - not optimal depth for TCE (EPA request for annual Cr sampling)	

TABLE 3. WELLS AND RECOMMENDED SAMPLING FREQUENCIES

Well Name	Well Type	GW Model Layer	Top of Screen		Bottom of Screen		TCE						Chromium						MAROS Recommended Sampling Frequency		2012 Sampling Frequency ¹		2013 Recommendations		Rationale for Frequency ²				
			Depth	Elevation	Depth	Elevation	Min. Conc. (ug/L)	Max. Conc. (ug/L)	Most Recent Conc. (ug/L)	Most Recent Data Qualifiers	Most Recent Sample Date	Conc. Below Cleanup Levels	Conc. Statistically Below Cleanup Levels ³	Min. Conc. (ug/L)	Max. Conc. (ug/L)	Most Recent Conc. (ug/L)	Most Recent Data Qualifiers	Most Recent Sample Date	Conc. Below Cleanup Levels	Conc. Statistically Below Cleanup Levels ³	TCE	Chromium	TCE	Chromium		TCE	Chromium		
MW-4B	M	1	39.7	240.45	44.7	235.45	0.94	600	4.20			10/24/2012	Yes	No	353	15500	407		10/24/2012	No	No	Annual	Annual	Biennial	Annual	NC	Semiannual ⁴	Well cluster - most impacted and Cr residual contamination (EPA request for annual Cr sampling)	
MW-4BShed	M	1	52.9	227.57	57.9	222.57	4.10	198	4.10			10/20/2009	Yes	No	85.9	8580	85.9		10/20/2009	No	No	Annual	Annual	NFS (2010)	NFS (2010)	NA	Semiannual ⁴	Well cluster - not optimal depth	
MW-6A	M	1	18.25	260.52	28.25	250.52									U	167	167		10/15/2009	No	No	NA	Quarterly	NFS (2009)	Every 5 years	NA	Semiannual ⁴	Well cluster - TCE below cleanup level since 1995.	
MW-6B	E	1	45.75	227.57	55.75	217.57	4.20	1230	5.10			10/15/2012	No	No	10.9	13000	17.8		10/15/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active (also well cluster)	
MW-7B	M	1	47	233.02	57	223.02	7.30	984	7.30			10/19/2009	No	No														Well cluster - adjacent to MW-4 cluster, less frequent sampling; Cr below cleanup level since 1998	
MW-8B	M	1	46.9	233.8	56.9	223.8	2.40	3070	2.40			10/18/2012	Yes	No														Plume area - not included in any other category; Cr statistically below cleanup level	
MW-9B	M	1	44.9	230.52	54.9	220.52	3.70	2100	3.70			10/18/2012	Yes	No														Well cluster - most TCE impacted; Cr below cleanup level since 1997	
MW-10B	E	1	48	225.24	58	215.24	5.20	1300	16.0			10/15/2012	No	No	31.0	3600	36.2		10/15/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active (also well cluster)	
MW-10C	E	1	70	203.25	80	193.25	2.50	1500	3.00			10/15/2012	Yes	No	67.2	6400	93.6		10/15/2012	No	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active (also well cluster)	
MW-12C	M	1	71.2	203.11	81.2	193.11	1.40	9430	1.4			10/18/2012	Yes	No														TCE Plume boundary; Cr statistically below cleanup level, TCE above cleanup level	
MW-13C	M	1	65.03	206.94	75.03	196.94	2.10	35.0	5.80			10/18/2012	No	No														TCE Plume boundary; Cr statistically below cleanup level, TCE fluctuates above and below cleanup level	
PW-1B	E	1	48	228.56	58	218.56	2.60	900	3.10			10/15/2012	Yes	No	34.1	13000	34.1		10/15/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active	
Intermediate Wells																													
AMW-16	M	2	76.83	185.15	86.83	175.15	0.17	87.0	1.80				Yes	No															Northern Plume area; Cr statistically below the cleanup level
AMW-17	M/D	1	81	180.87	91	170.87	1.10	210.0	210.00			10/17/2012	No	No															Northern Plume monitoring well; Cr statistically below the cleanup level
AMW-18	M	1	92.69	186.15	102.69	176.15	U	460	39			10/23/2012	No	No															Northern Plume monitoring well; Cr statistically below the cleanup level
AMW-59	M/D	3	134.74	134.6295	139.74	129.6295	76.0	310	92			10/16/2012	No	No															Plume area - silt well; Cr statistically below the cleanup level
AMW-64	M	2	88.4	177.73	98.4	167.73	110	190	110			10/23/2012	No	No															Northern Plume monitoring well (installed in 2012)
CPU-14	M	2	60.43	197.13	70.43	187.13	5.20	63.0	5.2			10/23/2012	No	No	31.9	957	37.1		10/23/2012	Yes	No	Annual	Annual	Annual	Annual	NC	NC		Plume boundary
MW-14C	E	1	70	201.22	80	191.22	11.0	2500	19.0			10/16/2012	No	No	69.6	20000	69.6		10/16/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC		Extraction well - active (also well cluster)
MW-14E	E	2	115	153.95	125	143.95	67.0	6540	67.0			10/16/2012	No	No	41.1	21200	41.1		10/16/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC		Extraction well - active (also well cluster)
MW-15E	M	3	95.7	168.97	105.7	158.97	4.20	1100	4.20			10/18/2012	Yes	No														Plume area; Cr statistically below the cleanup level	
MW-16E	M	2	111.1	147.25	121.1	137.35	U	5.70	0.42	J		10/18/2012	Yes	Yes															Plume boundary; TCE and Cr statistically below cleanup level
MW-18D	E	1	73.4	189.34	93.4	169.34	47.0	7800	49.0			10/16/2012	No	No	107	23100	107		10/16/2012	No	No	Annual	Annual	Semiannual	Semiannual	NC	NC		Extraction well - active (also well cluster)
MW-18E	M/D	3	112.57	149.1965	122.57	139.1965	130	2700	170			10/18/2012	No	No															Plume area - TCE residual contamination
MW-19D	E	1	76.2	181.78	91.2	166.78	12.0	6300	34.0			10/16/2012	No	No	102	23000	102		10/16/2012	No	No	Annual	Annual	Semiannual	Semiannual	NC	NC		Extraction well - active
MW-20D	E	2	79.7	193.45	89.7	183.45	41.0	4100	45.0			10/16/2012	No	No	63.5	51000	63.5		10/16/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC		Extraction well - active
MW-38	M	1	77	187.2	82	182.2	7.4	12	7.4			10/17/2012	No	No														Monitoring for potential Northern Plume impacts	
PZ-39	M	2	88	176.37	90	174.37	54.0	2,100 J	54.0			10/17/2012	No	No														Monitoring for potential Northern Plume impacts	

TABLE 3. WELLS AND RECOMMENDED SAMPLING FREQUENCIES

Well Name	Well Type	GW Model Layer	Top of Screen		Bottom of Screen		TCE						Chromium						MAROS Recommended Sampling Frequency		2012 Sampling Frequency ¹		2013 Recommendations		Rationale for Frequency ²			
			Depth	Elevation	Depth	Elevation	Min. Conc. (ug/L)	Max. Conc. (ug/L)	Most Recent Conc. (ug/L)	Most Recent Data Qualifiers	Most Recent Sample Date	Conc. Below Cleanup Levels	Conc. Statistically Below Cleanup Levels ³	Min. Conc. (ug/L)	Max. Conc. (ug/L)	Most Recent Conc. (ug/L)	Most Recent Data Qualifiers	Most Recent Sample Date	Conc. Below Cleanup Levels	Conc. Statistically Below Cleanup Levels ³	TCE	Chromium	TCE	Chromium		TCE	Chromium	
Church of God Wells																												
AMW-14	M	2	58.19	215.71	68.19	205.71	U	506	0.53			Yes	No	26	8300	26.0		4/6/2012	Yes	No	Annual	Annual	Annual	Annual	NFS	NFS	Decommissioned in 2012	
AMW-27	E	3	78	194.60	88	184.6	6.8	81.0	6.8		10/16/2012	No	No	2.9	7630	2.9	J	10/16/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	Quarterly	Quarterly	Extraction well - inactive; monitoring for potential contaminant rebound ⁵	
AMW-61	M	3	91.86	181.92	96.86	176.92	5.40	43.0	5.40	4/6/2012	10/18/2012	No	No								Annual	NA	Biennial	NFS (2010)	Semiannual	NA	Plume area - silt well (Cr below cleanup level)	
CPU-12	M	2	61.12	214.11	71.12	204.11	U	13.0	4.90		10/23/2012	Yes	No								Annual	NA	Annual	NFS (2010)	NC	NA	TCE Plume boundary (Cr below cleanup level)	
CPU-13	E	3	80	198.99	90	188.99	1.40	110	1.50		10/16/2012	Yes	No	16.4	5000	16.4		10/16/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active	
MW-21D	E	2	56	201.56	66	191.56	5.3	3000	5.3		10/16/2012	No	No	6.7	35000	12.0		10/16/2012	Yes	No	Annual	Annual	Semiannual	Semi-annual	NC	NC	Extraction well - active	
MW-22D	E	3	54	215.02	64	205.02	5.6	390	5.6		10/16/2012	No	No	25.4	11000	25.4		10/16/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active	
MW-23D	M	3	75.86	191.70	90.86	176.70	U	67.0	1.40		10/17/2012	Yes	No								Annual	NA	Annual	NFS (2010)	NC	NA	TCE Plume boundary; Cr statistically below cleanup level	
MW-25D	E	2	70	202.13	80	192.13	1.20	200	1.30		10/16/2012	Yes	No	U	16000	2.70	J	10/16/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - inactive; monitoring for potential contaminant rebound ⁵	
MW-26D	E	3	83	189.86	93	179.86	0.72	52	0.84		10/16/2012	Yes	No	6.6	4800	11.7		10/16/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - inactive; monitoring for potential contaminant rebound ⁵	
MW-27D	E	2	61.1	208.15	71.1	198.15	U	280	0.89		10/22/2012	Yes	No	3.90	6940	12.20		10/22/2012	Yes	No	Annual	Annual	Annual	Annual	NC	NC	Extraction well - inactive; monitoring for potential contaminant rebound ⁵	
MW-49	E	2	71.2	200.48	81.2	190.48	U	340	1.1		10/16/2012	Yes	No	U	36800	9.3		10/16/2012	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - inactive; monitoring for potential contaminant rebound ⁵	
Toe Wells																												
AMW-42	E	3	87	168.88	102	153.88	U	73.0	1.20			Yes	No	U	2280	21.3		10/15/2012	Yes	No	Annual	Annual	Biennial	Biennial	NC	NC	Sentinel well downgradient of MW-35 - TCE and Cr are below the cleanup level	
AMW-63	M	2	76.13	181.29	86.13	171.29	U	0.17	U	U	10/15/2012	10/14/2010	Yes	Yes	U	12.4	6.8		10/14/2010	Yes	Yes	NFS	NFS	Every 5 years	Every 5 years	NC	NC	TCE and Cr are statistically below cleanup level. EPA request for sampling every 5 years.
MW-31	E	2	75	187.88	85	177.88	0.20	32	0.26	J	10/15/2012	Yes	No	U	535	11.40		10/15/2012	Yes	No	Annual	Annual	Biennial	Biennial	NC	NC	Concentrations below the cleanup level	
MW-35	E/M	2	79.5	176.20	89.5	166.20	0.82	110	5.40		10/22/2012	No	No	U	4690	U	UJ	10/22/2012	Yes	No	Annual	Annual	Annual	Annual	Semiannual	NC	Former extraction well - inactive - local TCE hot spot	
MW-41	E/M	2	74	179.08	84	169.08	U	8.3	U	U	10/14/2011	Yes	Yes	U	216	U	U	10/14/2011	Yes	Yes	NFS	NFS	Every 5 years	Every 5 years	NC	NC	TCE and Cr are statistically below cleanup level. EPA request for sampling every 5 years.	

NOTES:
¹ The 2012 sampling frequencies shown are those approved by EPA as of 1/3/13.
² For wells with 2013 recommendations for a change in sampling frequency, additional explanation is provided in Table 5.
³ The "concentration statistically below cleanup levels" determination is per the MAROS evaluation; this does not meet the EPA requirements for determining site closure.
⁴ EPA requested semiannual sampling of this well for chromium during 2013. The sampling frequency will be re-evaluated following review of the 2013 data.
⁵ The pump in this well was turned off in January 2013 with EPA approval.
 Cr = chromium
 E = extraction well
 E/M = extraction well with pump pulled; now sampled as a monitoring well
 GW = groundwater
 M = monitoring well
 MAROS = Monitoring and Remediation Optimization System
 M/D = monitoring well with dedicated pump installed
 NA = not applicable
 NFS = no further sampling (dates in parentheses indicate the Annual Report in which this recommendation was first made)
 NC = no change to the current sampling frequency
 TCE = trichloroethene
 TOPPS = toe of plume pilot study
 U = analyte not detected above the specified reporting limit
 ug/L = micrograms per liter
 Data used for the Annual Screening are from 1995 to the present. Maximum concentrations presented are based on data collected from 1995 through the present.
 Biennial sampling - these wells will be sampled next in Fall 2014.
 Every 5 years - these wells will be sampled next in Fall 2014.
 Wells designated NFS in previous Annual Reports have been deleted from this table and are included in Table C-2.
 Where no entries are present for one of the two constituents (TCE or Cr), that constituent is not being sampled in that well (see Table C-2).
Bold text indicates changes from the 2011 Annual Report.

TABLE 4. SUMMARY OF 2013 WELL SAMPLING FREQUENCIES

Well Name	Recommendation						Rationale for Recommendation
	Well Type	Quarterly	Semi-annual	Annual	Biennial	Every 5 Years	
Troutdale wells							
AMW-24	M/D			X			Troutdale well - TCE impacted
AMW-25	M/D				X		Troutdale well - unimpacted; upgradient well
AMW-50	M/D				X		Troutdale well - unimpacted
AMW-51	M/D				X		Troutdale well - unimpacted
AMW-62	M/D				X		Troutdale well - unimpacted
CPU-2	M				X		Troutdale well - unimpacted
CPU-3D	M/D				X		Troutdale well - unimpacted
CPU-10	M				X		Troutdale well - unimpacted
MW-33	M/D			X			Troutdale well - TCE impacted
MW-34	M/D				X		Troutdale well - unimpacted
BENNETT	Other		X				Troutdale well - TCE impacted -CPU request for semiannual sampling
Upgradient Wells							
AMW-6A	M/D				X		Infiltration gallery well
AMW-7A	M/D				X		Infiltration gallery well
AMW-8A	M			TCE			Upgradient well - check for possible offsite TCE impacts
AMW-10A	M/D				X		Infiltration gallery well
AMW-11A	M/D				X		Infiltration gallery well
TCE Source Wells							
AMW-1A	M		TCE				OU2 monitoring well (TCE fluctuating above and below cleanup level)
AMW-2A	M		TCE				OU2 monitoring well; well cluster - most impacted (TCE above cleanup level)
AMW-2B	M				TCE		OU2 monitoring well; well cluster - less frequent sampling
AMW-3A	M				TCE		OU2 monitoring well (TCE below cleanup level)
AMW-12A	M		TCE				OU2 monitoring well (TCE above cleanup level)
AMW-13A	M				TCE		OU2 monitoring well (TCE below cleanup level)
AMW-19A	M				TCE		OU2 monitoring well (TCE below cleanup level)
AMW-26	M				TCE		OU-2 monitoring well (TCE below cleanup level)
AMW-52A	M				TCE		OU2 monitoring well (TCE below cleanup level)
AMW-53A	M		TCE				OU2 monitoring well (TCE fluctuating above and below cleanup level)
AMW-54A	M				TCE		OU2 monitoring well (TCE below cleanup level)
AMW-55A	M				TCE		OU2 monitoring well (TCE below cleanup level)
AMW-56A	M				TCE		OU2 monitoring well (TCE below cleanup level)
MW-1A	M		TCE		Cr		OU2 monitoring well (TCE fluctuating above and below cleanup level) also Cr background well
Proximal Wells							
MW-2A	M		Cr*		TCE		Well cluster - most impacted and Cr residual contamination
MW-3A	M		Cr*				Well cluster - most Cr impacted; TCE statistically below cleanup level
MW-3B	M				TCE		Well cluster - most TCE impacted; Cr statistically below cleanup level
MW-4A	M		Cr*				Well cluster - not optimal depth for TCE (EPA request for annual Cr sampling)
MW-4B	M		Cr*		TCE		Well cluster - most impacted and Cr residual contamination (EPA request for annual Cr sampling)
MW-4BShed	M						Well cluster - less frequent sampling; TCE and Cr below cleanup level
MW-6A	M		Cr*				Well cluster - TCE below cleanup level since 1995.

TABLE 4. SUMMARY OF 2013 WELL SAMPLING FREQUENCIES

Well Name	Recommendation						Rationale for Recommendation
	Well Type	Quarterly	Semi-annual	Annual	Biennial	Every 5 Years	
MW-6B	E		X				Extraction well - active (also well cluster)
MW-7B	M					TCE	Well cluster - adjacent to MW-4 cluster, less frequent sampling; Cr below cleanup level since 1998
MW-8B	M				TCE		Plume area - not included in any other category; Cr statistically below cleanup level
MW-9B	M				TCE		Well cluster - most TCE impacted; Cr below cleanup level since 1997
MW-10B	E		X				Extraction well - active (also well cluster)
MW-10C	E		X				Extraction well - active (also well cluster)
MW-12C	M				TCE		TCE Plume boundary; Cr statistically below cleanup level, TCE above cleanup level
MW-13C	M				TCE		TCE Plume boundary; Cr statistically below cleanup level, TCE fluctuates above and below cleanup level
PW-1B	E		X				Extraction well - active
Intermediate Wells							
AMW-16	M		TCE				Northern Plume area; Cr statistically below the cleanup level
AMW-17	M/D	TCE					Northern Plume monitoring well; Cr statistically below the cleanup level
AMW-18	M	TCE					Northern Plume monitoring well; Cr statistically below the cleanup level
AMW-59	M/D(E)				TCE		Plume area - silt well; Cr statistically below the cleanup level
AMW-64	M	TCE					Northern Plume monitoring well (installed in 2012)
CPU-14	M			X			Plume boundary
MW-14C	E		X				Extraction well - active (also well cluster)
MW-14E	E		X				Extraction well - active (also well cluster)
MW-15E	M		TCE				Plume area; Cr statistically below the cleanup level
MW-16E	M				TCE		Plume boundary; TCE and Cr statistically below cleanup level
MW-18D	E		X				Extraction well - active (also well cluster)
MW-18E	M			TCE			Plume area - TCE residual contamination
MW-19D	E		X				Extraction well - active
MW-20D	E		X				Extraction well - active
MW-38	M			TCE			Monitoring for potential Northern Plume impacts
PZ-39	M		TCE				Monitoring for potential Northern Plume impacts
Church of God Wells							
AMW-27	E	X					Extraction well - inactive; monitoring for potential contaminant rebound
AMW-61	M		TCE				Plume area - silt well (Cr below cleanup level)
CPU-12	M			TCE			TCE Plume boundary (Cr below cleanup level)
CPU-13	E		X				Extraction well - active
MW-21D	E		X				Extraction well - active
MW-22D	E		X				Extraction well - active
MW-23D	M			TCE			TCE Plume boundary; Cr statistically below cleanup level
MW-25D	E		X				Extraction well - inactive; monitoring for potential contaminant rebound
MW-26D	E		X				Extraction well - inactive; monitoring for potential contaminant rebound
MW-27D	E			X			Extraction well - inactive; monitoring for potential contaminant rebound
MW-49	E		X				Extraction well - inactive; monitoring for potential contaminant rebound

TABLE 4. SUMMARY OF 2013 WELL SAMPLING FREQUENCIES

Well Name	Recommendation						Rationale for Recommendation
	Well Type	Quarterly	Semi-annual	Annual	Biennial	Every 5 Years	
Other Toe Wells							
AMW-42	E				X		Sentinel well downgradient of MW-35 - TCE and Cr are below the cleanup level
AMW-63	M					X	TCE and Cr are statistically below cleanup level. EPA request for sampling every 5 years.
MW-31	E				X		Concentrations below the cleanup level
MW-35	E/M		TCE	Cr			Former extraction well - inactive - local TCE hot spot
MW-41	E/M					X	TCE and Cr are statistically below cleanup level. EPA request for sampling every 5 years.
Total Wells:		4	31	10	33	3	Total 81
(4 wells are in 2 categories; i.e., TCE and Cr are on different sampling schedules)							
NOTES:							
* = EPA requested semiannual sampling of this well for chromium during 2013. The sampling frequency will be re-evaluated following review of the 2013 data.							
Wells designated NFS have been deleted from this table.							
Cr	= Chromium						
TCE	= Trichloroethene						
X	= TCE and chromium						

TABLE 5. WELL SAMPLING FREQUENCY CHANGES FOR 2013

Well Group	Well ID	Sampling Frequency		Reason for Change
		From	To	
Proximal	AMW-58	Biennial for TCE	NFS	TCE concentrations in this silt well have been below the cleanup level since 2005.
	MW-2A	Annual	Semiannual for chromium	EPA request for semiannual sampling for chromium during 2013; the sampling frequency will be re-evaluated following review of the 2013 data.
	MW-3A	Annual for chromium	Semiannual for chromium	EPA request for semiannual sampling for chromium during 2013; the sampling frequency will be re-evaluated following review of the 2013 data.
	MW-4A	Annual for chromium	Semiannual for chromium	EPA request for semiannual sampling for chromium during 2013; the sampling frequency will be re-evaluated following review of the 2013 data.
	MW-4B	Annual for chromium	Semiannual for chromium	EPA request for semiannual sampling for chromium during 2013; the sampling frequency will be re-evaluated following review of the 2013 data.
	MW-4BShed	NFS	Semiannual for chromium	EPA request for semiannual sampling for chromium during 2013; the sampling frequency will be re-evaluated following review of the 2013 data.
	MW-6A	Every 5 years for chromium	Semiannual for chromium	EPA request for semiannual sampling for chromium during 2013; the sampling frequency will be re-evaluated following review of the 2013 data.
Church-of-God		Annual	NFS	This well was decommissioned during 2012.
	AMW-27	Semiannual	Quarterly	The pump in this well was turned off in January 2013; the well will be sampled quarterly during 2013 to monitor for potential contaminant rebound.
	AMW-61	Biennial for TCE	Semiannual	This silt well will be sampled more frequently in 2013 to monitor for potential contaminant rebound due to shutdown of nearby extraction wells.
AMW-14 Toe	MW-35	Annual for TCE	Semiannual for TCE	This well will be sampled for TCE more frequently in 2013 prior to anticipated <i>in situ</i> treatment.
NOTES: MAROS = Monitoring and Remediation Optimization System. NFS = No further sampling. TCE = Trichloroethene.				

APPENDIX A

**CHROMIUM CONCENTRATIONS IN
GROUNDWATER**

APPENDIX A-1

**CHROMIUM CONCENTRATIONS –
SUMMARY TABLES**

A1. Chromium Concentration Summary

Well Group	Well	Biennial Well Data Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Upgradient	AMW-6A	5.0	--	--	--	6.9
	AMW-7A	3.1 J	--	--	--	2.9 J
	AMW-10A	10.1	--	--	--	18.7
	AMW-11A	4.0 J	--	--	--	2.0 J
TCE Source (OU-2)	MW-1A	6.8 UJ	--	--	--	19.3
Proximal	MW-2A	--	--	81.3	--	190
	MW-3A	--	--	342	--	75.4
	MW-4A	--	--	741	--	362
	MW-4B	--	--	617	--	407
	MW-6B	--	50.9	18	48.1	17.8
	MW-10B	--	46.4	34.7	39.6	36.2
	MW-10C	--	99.9	70	116	93.6
	PW-1B	--	46.8	61.9	49.7	34.1
Intermediate	CPU-14	--	--	41.4	--	37.1
	MW-14C	--	91.9	77	77.1	69.6
	MW-14E	--	57.1	48.3	42.1	41.1
	MW-18D	--	133	128	109	107
	MW-19D	--	140	126	113	102
	MW-20D	--	75.3	78.1	72.8	63.5
Church of God	AMW-14	--	--	45.3	26	--
	AMW-15	5.0 U**	--	--	5.0 U	--
	AMW-27	--	82.9 J	38.6	28.9	2.9 J
	CPU-13	--	18.8	18.4	19.5	16.4
	MW-21D	--	13.5	12.8	6.7	12
	MW-22D	--	44	35.9	28.5	25.4
	MW-25D	--	2.1 J	5.0 U	3.4 J	2.7 J
	MW-26D	--	7.6	10.7	6.6	11.7
	MW-27D	--	--	5.7	--	12.9 UJ
MW-49	--	11.9	11.9	9.5	9.3	
Toe of Plume: Other Toe	AMW-42	18.2	--	--	--	21.3
	MW-31	8.1	--	--	--	11.4
	MW-35	--	--	16.5	--	16.5 UJ

A1. Chromium Concentration Summary

Well Group	Well	Biennial Well Data Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Troutdale Aquifer	AMW-24	--	--	3.5 J	--	8.8
	AMW-25	1.9 J	--	--	--	1.9 J
	AMW-50	1.8 J	--	--	--	2.1 J
	AMW-51	4.3 J	--	--	--	2.1 J
	AMW-62	0.5 U	--	--	--	1.5 J
	BENNETT	--	5.0 U	5.0 U	5.0 U	5.0 U
	CPU-10	2.5 J	--	--	--	1.0 UJ*
	CPU-2	2.4 J	--	--	--	2.0 J
	CPU-3D	3.1 J	--	--	--	1.8 J
	MW-33	--	--	2.8 J	--	3.2 J
MW-34	5.0 U	--	--	--	0.8 J	

NOTES:

Only wells sampled during 2012 are included in this table.

Results are in micrograms per liter ($\mu\text{g/L}$).

Results are for total chromium, unless otherwise noted.

B or 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.

-- = Well not sampled during the monitoring event.

U = Analyte not detected above the specified reporting limit.

UJ = The analyte was not detected, but the associated limit of quantitation is estimated due to discrepancies in quality control criteria.

* = Well CPU-10 was sampled for both total and dissolved chromium due to elevated turbidity. The dissolved chromium results more accurately reflect previous sample results and are reported in the table. The total chromium concentration was 23.2 $\mu\text{g/L}$.

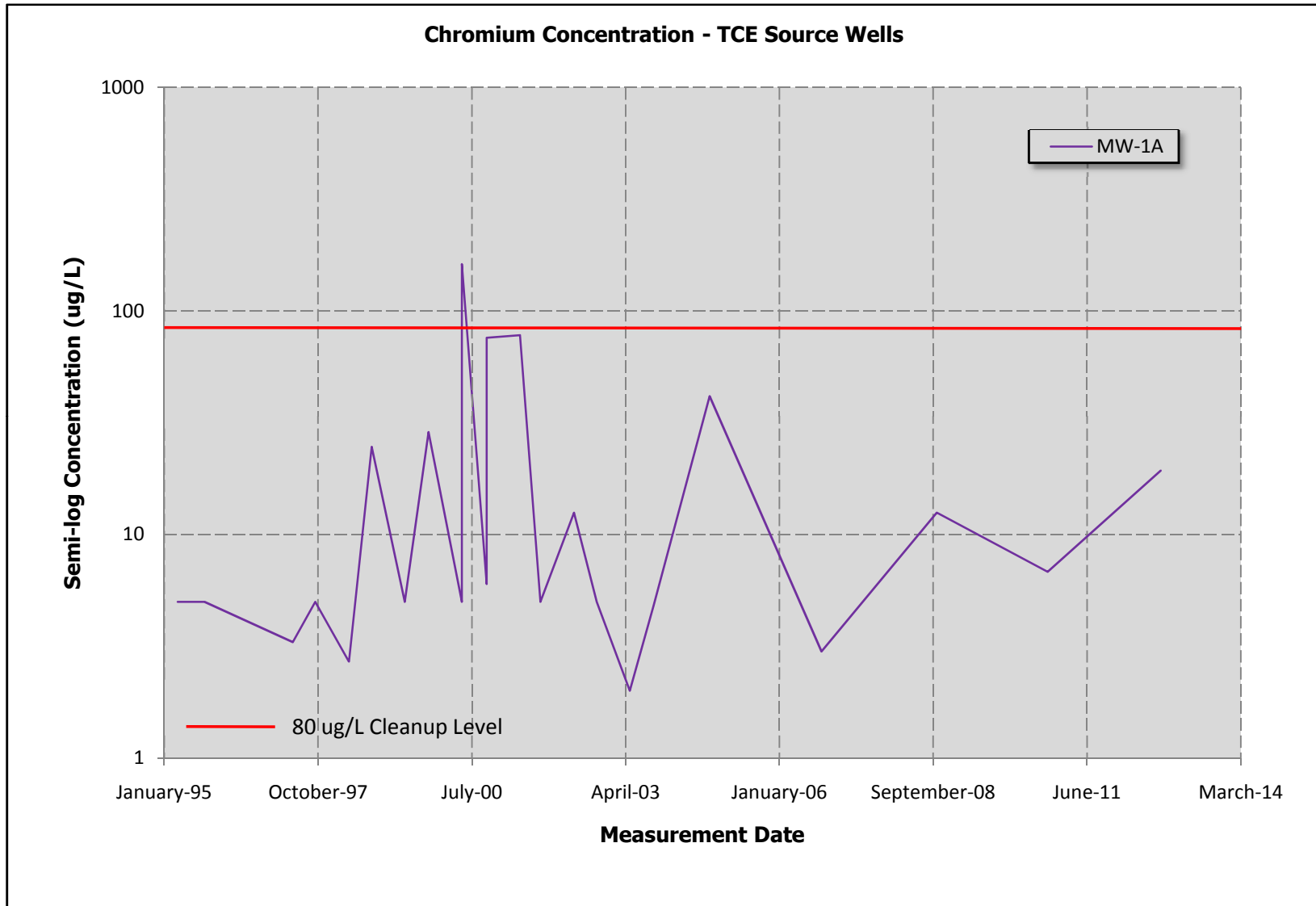
** = Well AMW-15 data is from the last time it was sampled in 2004. Per EPA request, the well was sampled during the Spring 2012 event prior decommissioning in April.

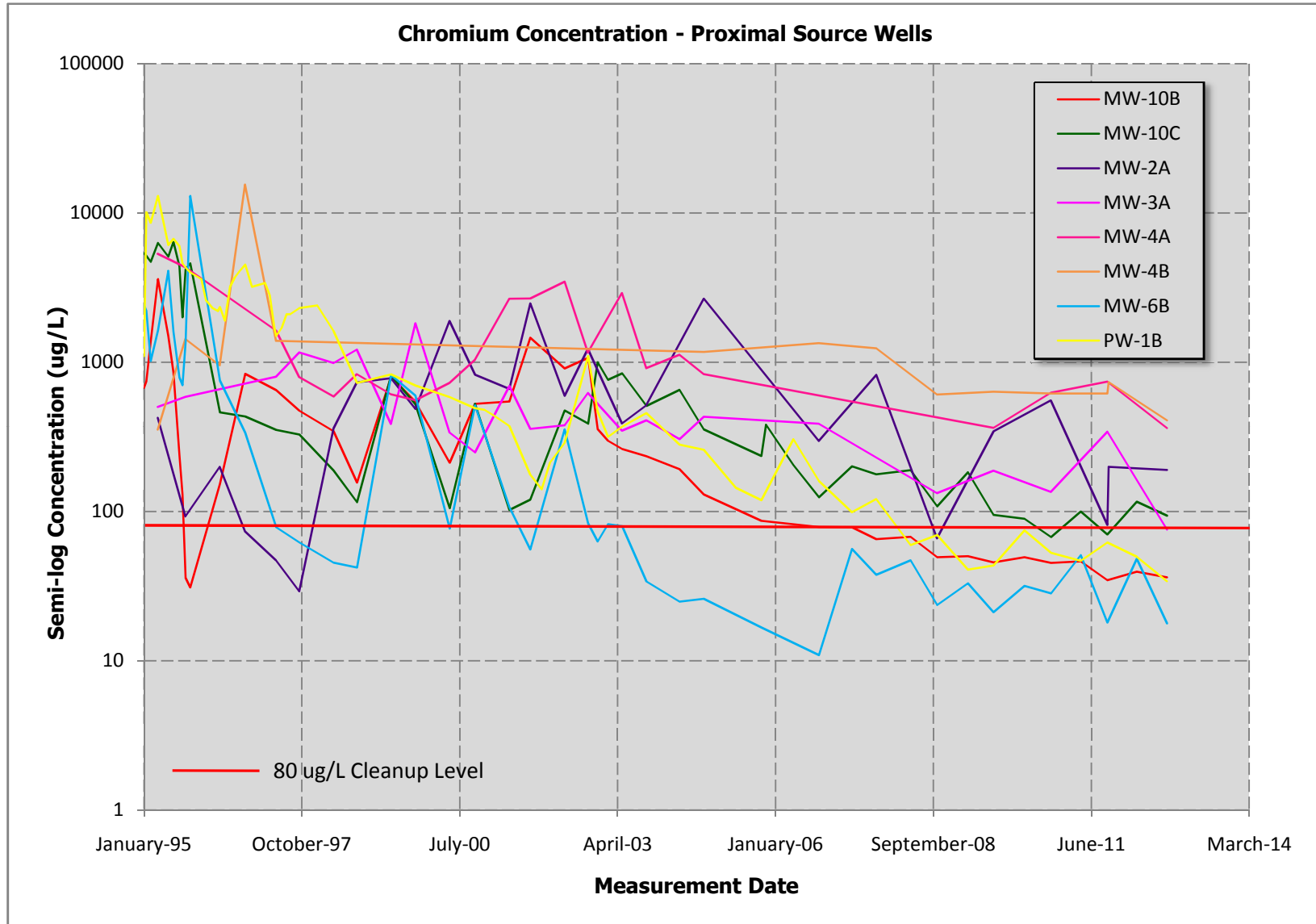
Results shown in **bold and shaded** are above the cleanup level of 80 $\mu\text{g/L}$.

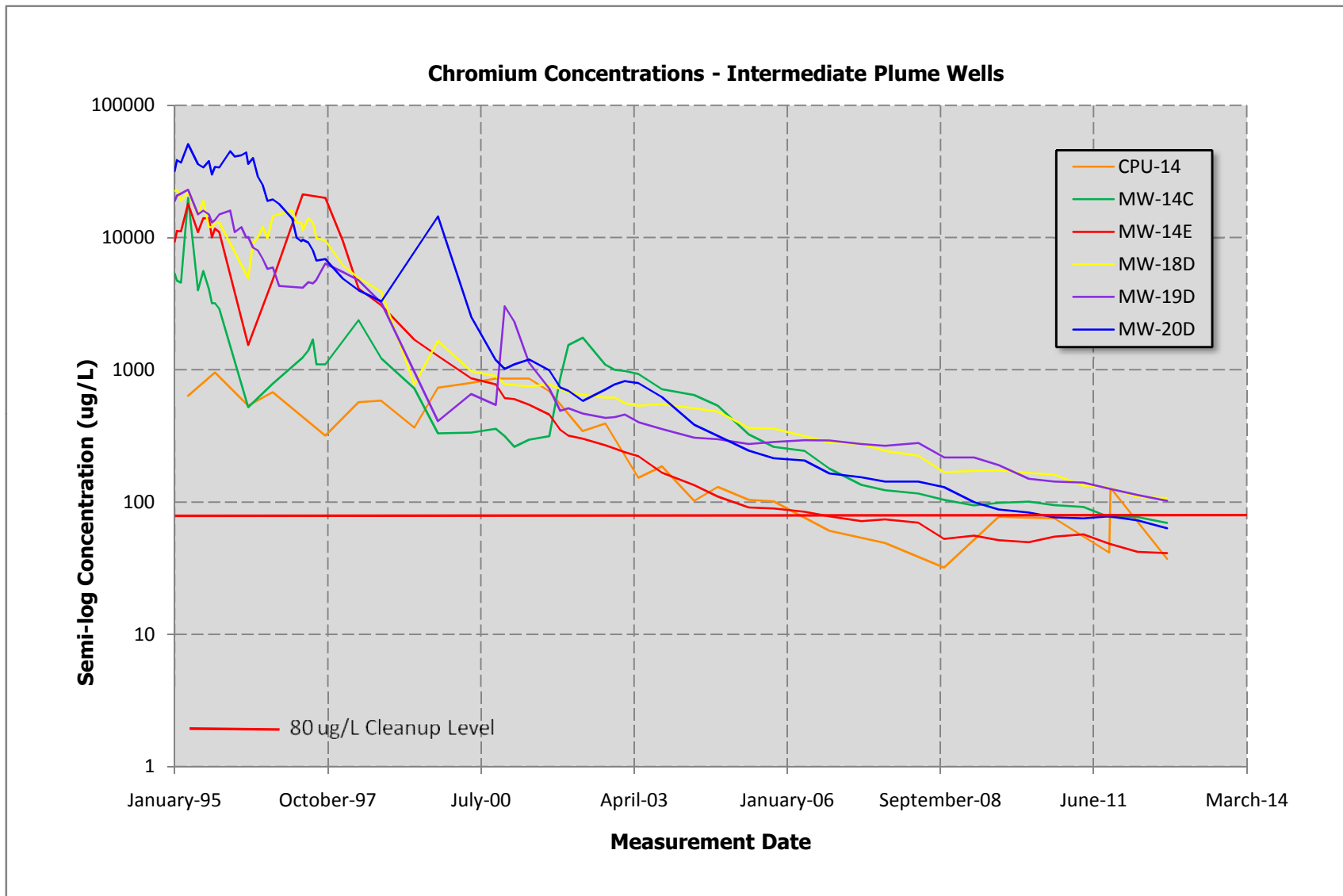
APPENDIX A-2

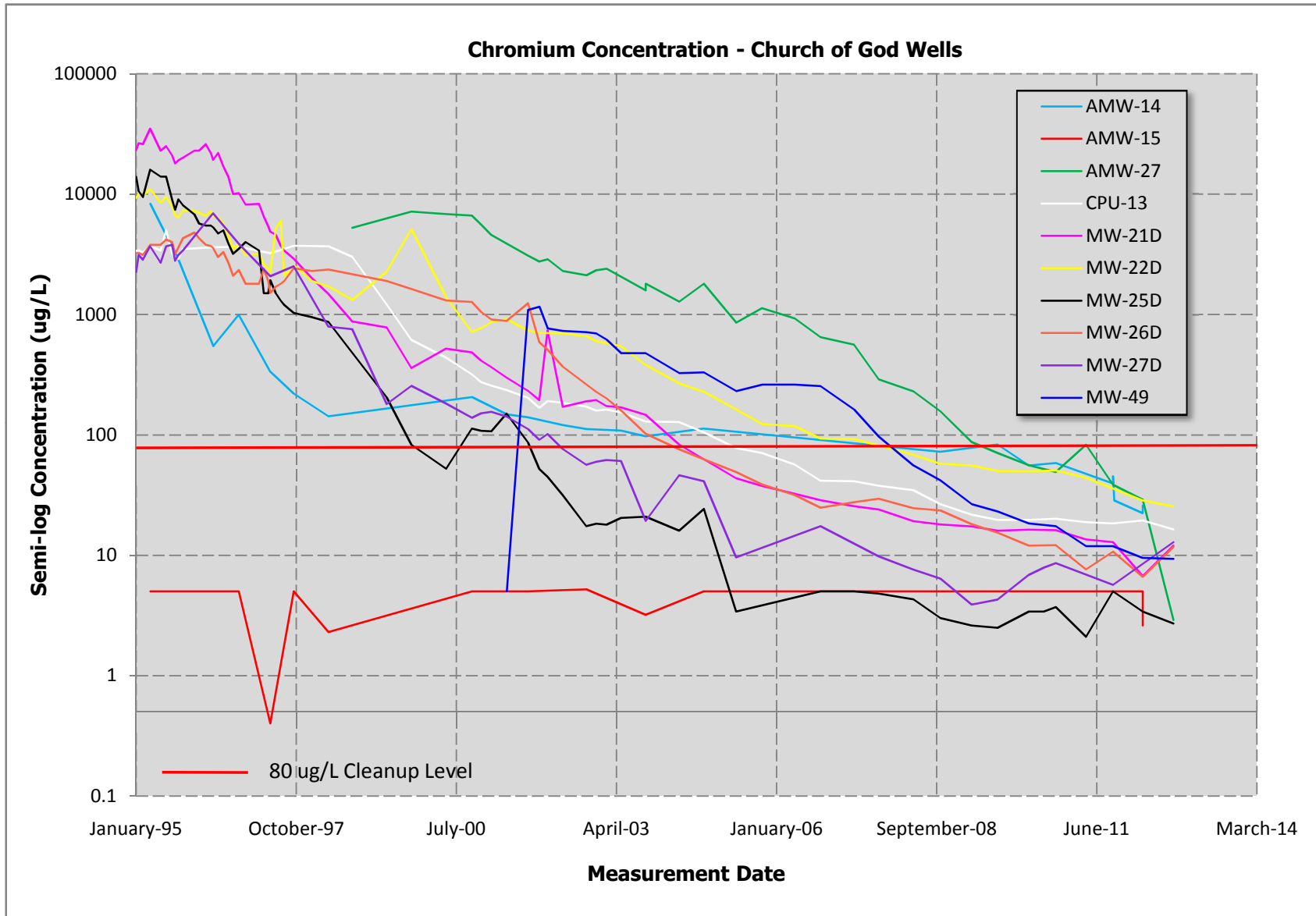
**CHROMIUM CONCENTRATIONS –
BY WELL GROUPING**

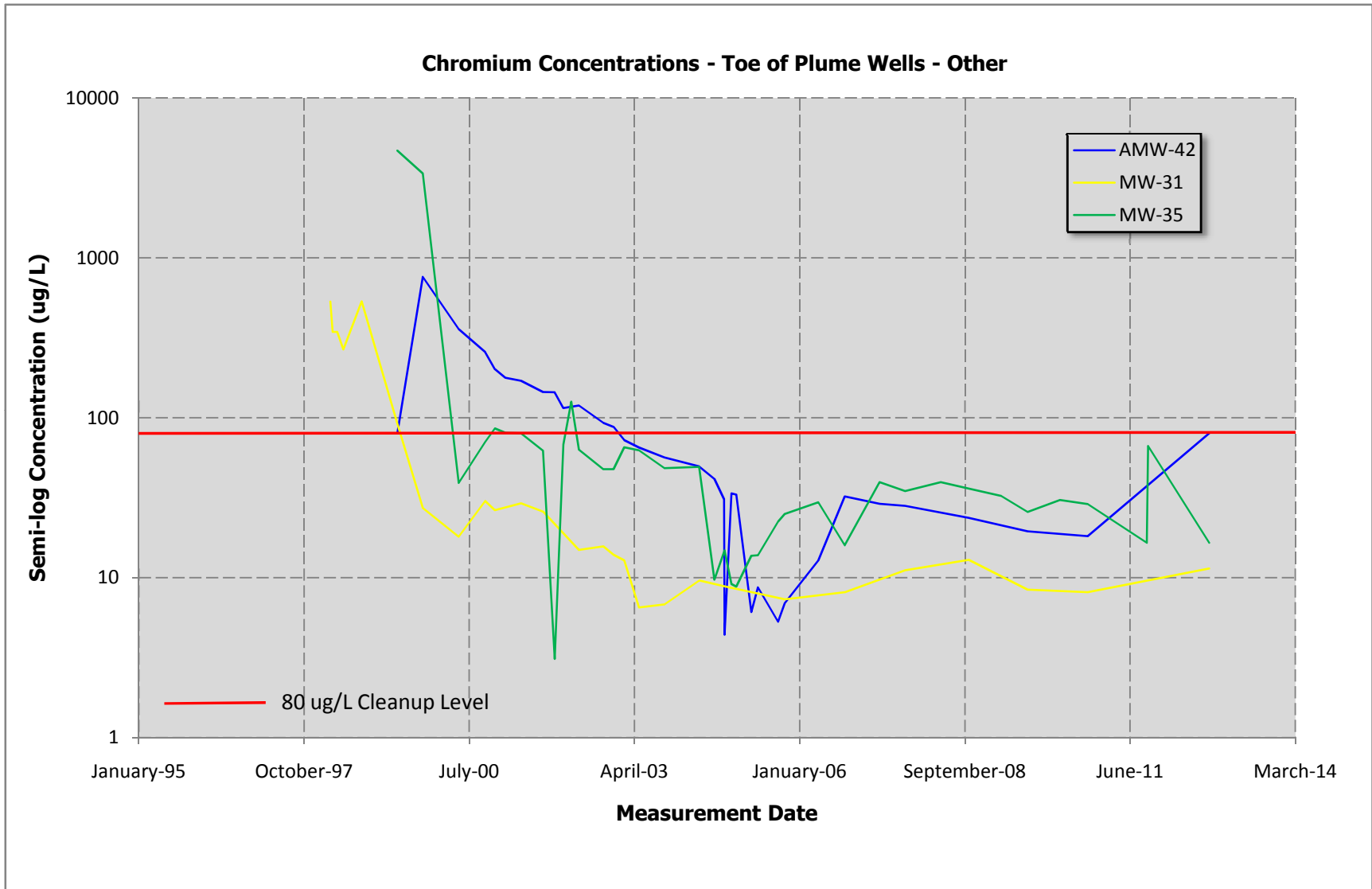


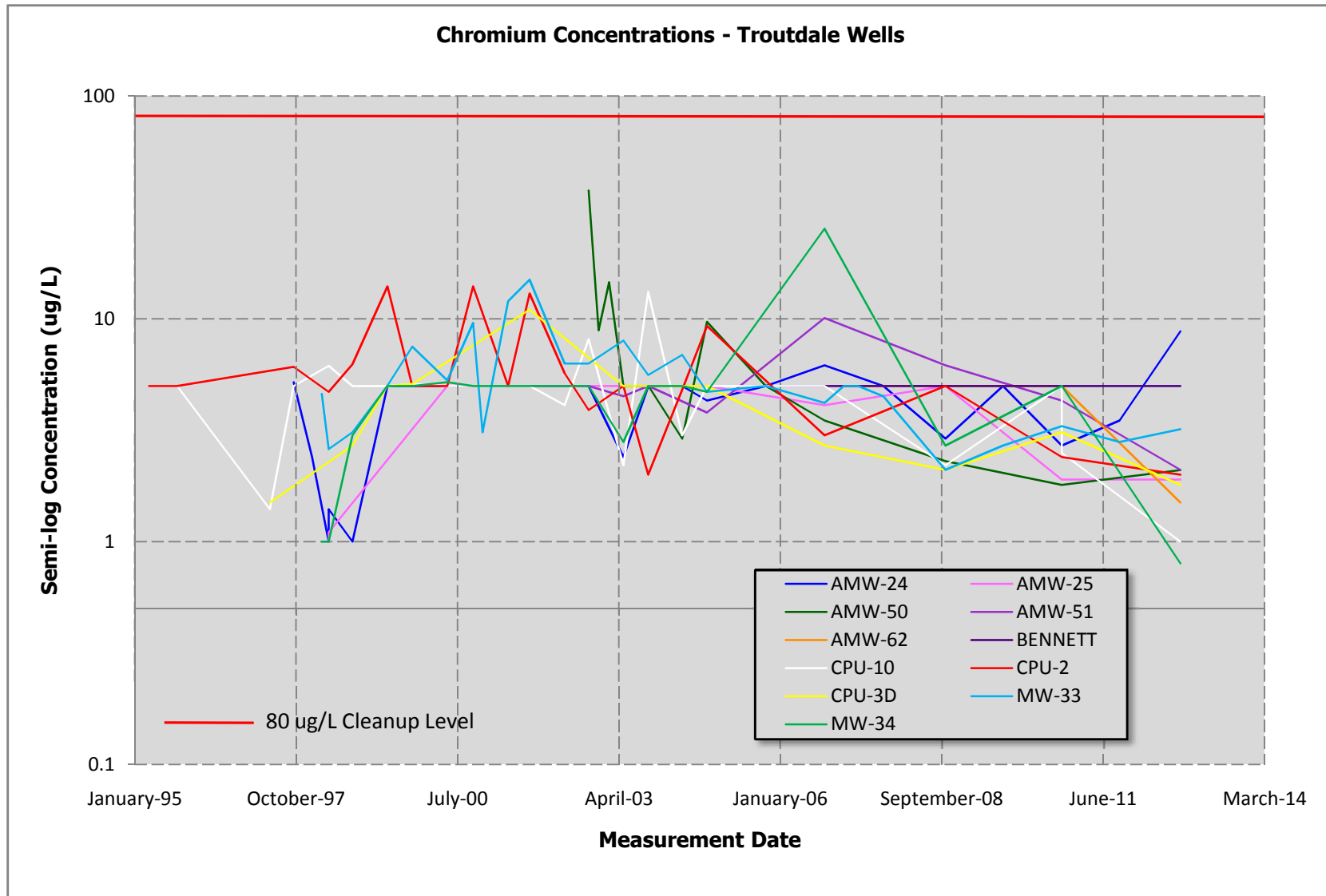












APPENDIX A-3

**CHROMIUM CONCENTRATIONS –
INDIVIDUAL WELLS**

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MW-4A	3
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MW-6A	6
MW-6B	7
MW-10B	8
MW-10C	9
PW-1B.....	10
Intermediate Wells	
CPU-14	1
MW-14C	2
MW-14E	3
MW-18D	4
MW-19D	5
MW-20D	6
Church of God Wells	
AMW-14	1
AMW-27	2
CPU-13	3
MW-21D	4
MW-22D	5
MW-25D	6
MW-26D	7
MW-27D	8
MW-49	9

Toe of Plume – Other Toe Wells

AMW-42 1
AMW-63 2
MW-31 3
MW-35 4
MW-41 5

Troutdale Wells

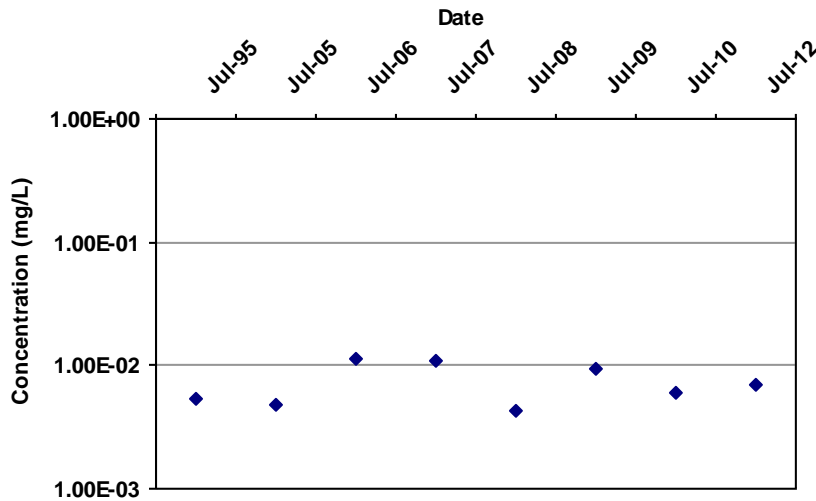
AMW-24 1
AMW-25 2
AMW-50 3
AMW-51 4
AMW-62 5
BENNETT 6
CPU-2 7
CPU-3D 8
CPU-10 9
MW-33 10
MW-34 11

UPGRADIENT WELLS

MAROS Mann-Kendall Statistics Summary

Well: AMW-6A
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

0

Confidence in Trend:

45.2%

Coefficient of Variation:

0.38

Mann Kendall Concentration Trend: (See Note)

S

Data Table:

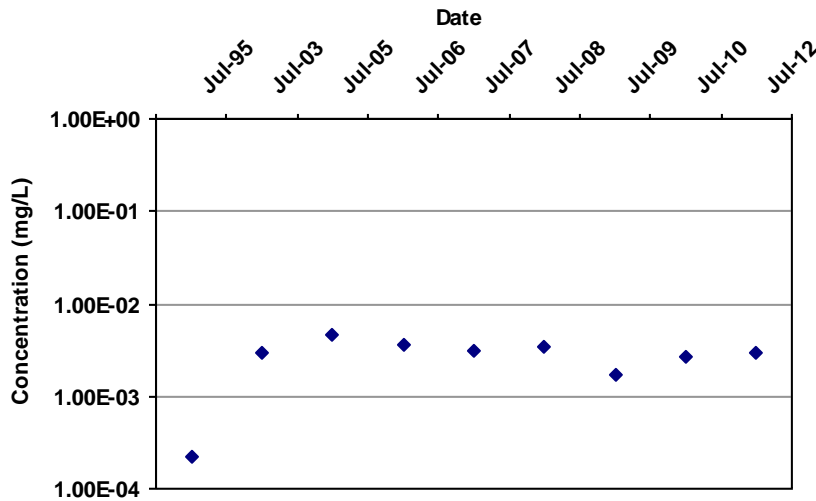
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-6A	T	7/1/1995	CHROMIUM, HEXAVALENT	5.3E-03		1	1
AMW-6A	T	7/1/2005	CHROMIUM, HEXAVALENT	4.8E-03		1	1
AMW-6A	T	7/1/2006	CHROMIUM, HEXAVALENT	1.1E-02		4	4
AMW-6A	T	7/1/2007	CHROMIUM, HEXAVALENT	1.1E-02		3	3
AMW-6A	T	7/1/2008	CHROMIUM, HEXAVALENT	4.3E-03		2	2
AMW-6A	T	7/1/2009	CHROMIUM, HEXAVALENT	9.4E-03		2	2
AMW-6A	T	7/1/2010	CHROMIUM, HEXAVALENT	5.9E-03		2	2
AMW-6A	T	7/1/2012	CHROMIUM, HEXAVALENT	6.9E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-7A
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-4

Confidence in Trend:

61.9%

Coefficient of Variation:

0.45

Mann Kendall Concentration Trend:
(See Note)

S

Data Table:

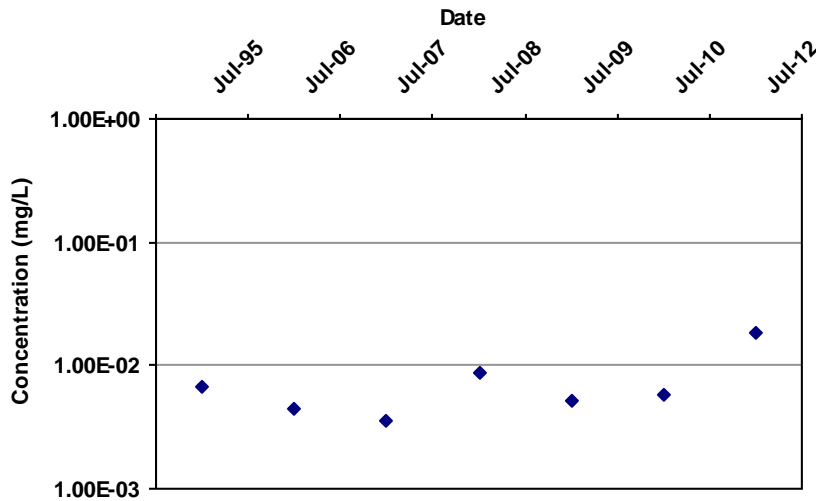
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-7A	T	7/1/1995	CHROMIUM, HEXAVALENT	2.2E-04		2	1
AMW-7A	T	7/1/2003	CHROMIUM, HEXAVALENT	3.0E-03	ND	1	0
AMW-7A	T	7/1/2005	CHROMIUM, HEXAVALENT	4.7E-03		1	1
AMW-7A	T	7/1/2006	CHROMIUM, HEXAVALENT	3.6E-03		4	4
AMW-7A	T	7/1/2007	CHROMIUM, HEXAVALENT	3.1E-03		3	2
AMW-7A	T	7/1/2008	CHROMIUM, HEXAVALENT	3.5E-03		2	1
AMW-7A	T	7/1/2009	CHROMIUM, HEXAVALENT	1.7E-03		2	1
AMW-7A	T	7/1/2010	CHROMIUM, HEXAVALENT	2.7E-03		2	2
AMW-7A	T	7/1/2012	CHROMIUM, HEXAVALENT	2.9E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-10A
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

7

Confidence in Trend:

80.9%

Coefficient of Variation:

0.69

Mann Kendall Concentration Trend: (See Note)

NT

Data Table:

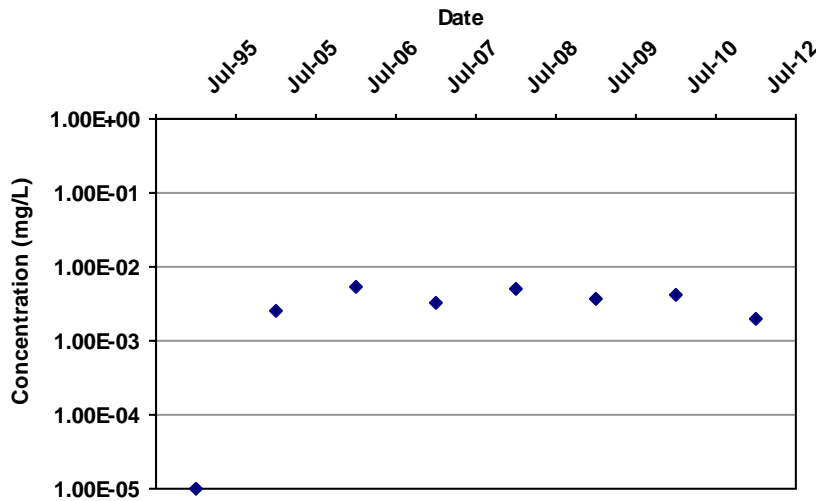
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-10A	T	7/1/1995	CHROMIUM, HEXAVALENT	6.6E-03		2	2
AMW-10A	T	7/1/2006	CHROMIUM, HEXAVALENT	4.5E-03		4	3
AMW-10A	T	7/1/2007	CHROMIUM, HEXAVALENT	3.5E-03		3	2
AMW-10A	T	7/1/2008	CHROMIUM, HEXAVALENT	8.6E-03		2	2
AMW-10A	T	7/1/2009	CHROMIUM, HEXAVALENT	5.2E-03		2	2
AMW-10A	T	7/1/2010	CHROMIUM, HEXAVALENT	5.7E-03		2	2
AMW-10A	T	7/1/2012	CHROMIUM, HEXAVALENT	1.9E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-11A
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

4

Confidence in Trend:

64.0%

Coefficient of Variation:

0.53

Mann Kendall Concentration Trend:
(See Note)

NT

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-11A	T	7/1/1995	CHROMIUM, HEXAVALENT	1.0E-05	ND	2	0
AMW-11A	T	7/1/2005	CHROMIUM, HEXAVALENT	2.6E-03		1	1
AMW-11A	T	7/1/2006	CHROMIUM, HEXAVALENT	5.5E-03		4	4
AMW-11A	T	7/1/2007	CHROMIUM, HEXAVALENT	3.3E-03		3	1
AMW-11A	T	7/1/2008	CHROMIUM, HEXAVALENT	4.9E-03		2	2
AMW-11A	T	7/1/2009	CHROMIUM, HEXAVALENT	3.7E-03		2	2
AMW-11A	T	7/1/2010	CHROMIUM, HEXAVALENT	4.1E-03		2	2
AMW-11A	T	7/1/2012	CHROMIUM, HEXAVALENT	2.0E-03		1	1

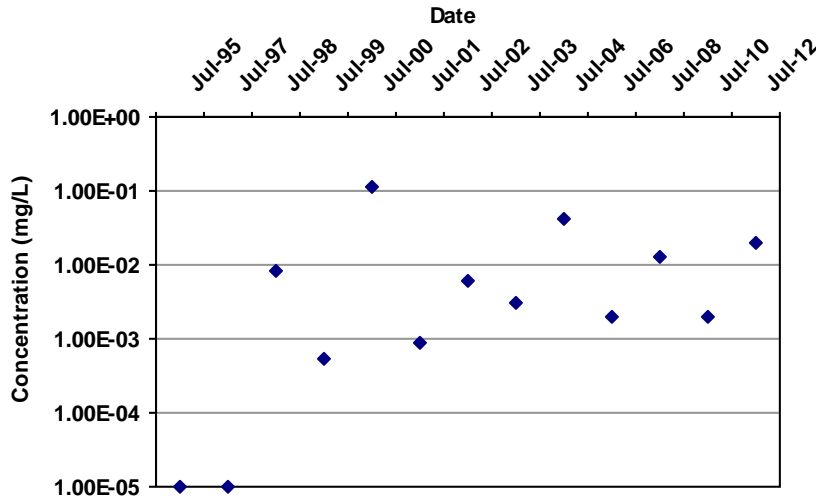
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

TCE SOURCE WELLS

MAROS Mann-Kendall Statistics Summary

Well: MW-1A
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

28

Confidence in Trend:

95.0%

Coefficient of Variation:

1.93

Mann Kendall Concentration Trend:
(See Note)

I

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-1A	T	7/1/1995	CHROMIUM, HEXAVALENT	1.0E-05	ND	2	0
MW-1A	T	7/1/1997	CHROMIUM, HEXAVALENT	1.0E-05	ND	2	0
MW-1A	T	7/1/1998	CHROMIUM, HEXAVALENT	8.2E-03		2	2
MW-1A	T	7/1/1999	CHROMIUM, HEXAVALENT	5.4E-04		2	1
MW-1A	T	7/1/2000	CHROMIUM, HEXAVALENT	1.1E-01		2	2
MW-1A	T	7/1/2001	CHROMIUM, HEXAVALENT	8.8E-04		2	1
MW-1A	T	7/1/2002	CHROMIUM, HEXAVALENT	6.1E-03		2	1
MW-1A	T	7/1/2003	CHROMIUM, HEXAVALENT	3.1E-03		2	2
MW-1A	T	7/1/2004	CHROMIUM, HEXAVALENT	4.2E-02		1	1
MW-1A	T	7/1/2006	CHROMIUM, HEXAVALENT	2.0E-03	ND	1	0
MW-1A	T	7/1/2008	CHROMIUM, HEXAVALENT	1.3E-02		1	1
MW-1A	T	7/1/2010	CHROMIUM, HEXAVALENT	2.0E-03	ND	1	0
MW-1A	T	7/1/2012	CHROMIUM, HEXAVALENT	1.9E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

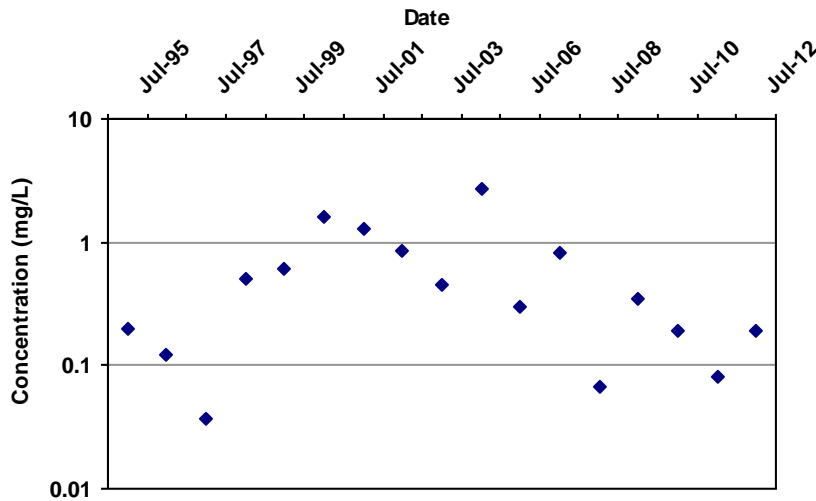
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PROXIMAL WELLS

MAROS Mann-Kendall Statistics Summary

Well: MW-2A
 Well Type: S
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-18

Confidence in Trend:

75.5%

Coefficient of Variation:

1.14

Mann Kendall Concentration Trend: (See Note)

NT

Data Table:

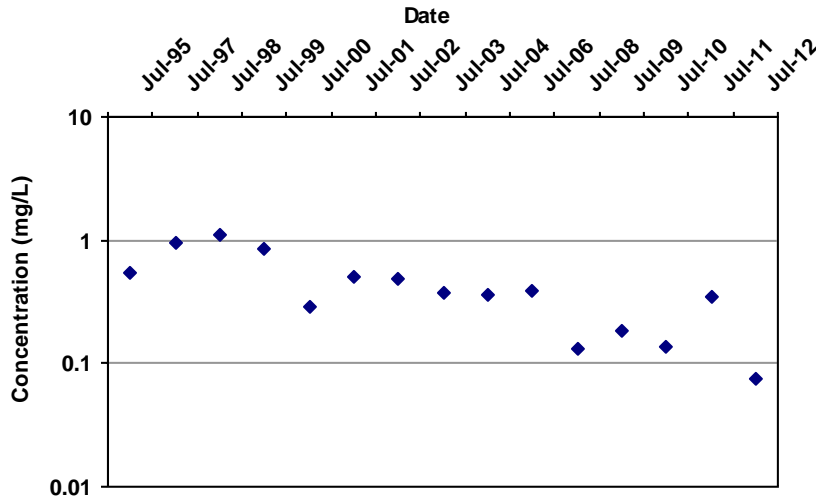
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-2A	S	7/1/1995	CHROMIUM, HEXAVALENT	2.0E-01		2	2
MW-2A	S	7/1/1996	CHROMIUM, HEXAVALENT	1.2E-01		2	2
MW-2A	S	7/1/1997	CHROMIUM, HEXAVALENT	3.7E-02		2	2
MW-2A	S	7/1/1998	CHROMIUM, HEXAVALENT	5.1E-01		2	2
MW-2A	S	7/1/1999	CHROMIUM, HEXAVALENT	6.2E-01		2	2
MW-2A	S	7/1/2000	CHROMIUM, HEXAVALENT	1.6E+00		2	2
MW-2A	S	7/1/2001	CHROMIUM, HEXAVALENT	1.3E+00		2	2
MW-2A	S	7/1/2002	CHROMIUM, HEXAVALENT	8.6E-01		2	2
MW-2A	S	7/1/2003	CHROMIUM, HEXAVALENT	4.5E-01		2	2
MW-2A	S	7/1/2004	CHROMIUM, HEXAVALENT	2.7E+00		1	1
MW-2A	S	7/1/2006	CHROMIUM, HEXAVALENT	3.0E-01		1	1
MW-2A	S	7/1/2007	CHROMIUM, HEXAVALENT	8.2E-01		1	1
MW-2A	S	7/1/2008	CHROMIUM, HEXAVALENT	6.6E-02		1	1
MW-2A	S	7/1/2009	CHROMIUM, HEXAVALENT	3.4E-01		1	1
MW-2A	S	7/1/2010	CHROMIUM, HEXAVALENT	1.9E-01		1	1
MW-2A	S	7/1/2011	CHROMIUM, HEXAVALENT	8.1E-02		1	1
MW-2A	S	7/1/2012	CHROMIUM, HEXAVALENT	1.9E-01		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-3A
 Well Type: S
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-71

Confidence in Trend:

100.0%

Coefficient of Variation:

0.68

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

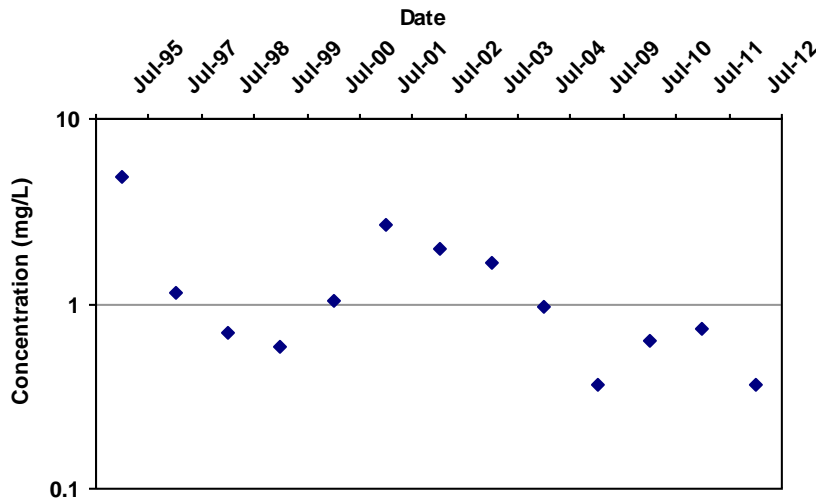
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-3A	S	7/1/1995	CHROMIUM, HEXAVALENT	5.4E-01		2	2
MW-3A	S	7/1/1997	CHROMIUM, HEXAVALENT	9.6E-01		2	2
MW-3A	S	7/1/1998	CHROMIUM, HEXAVALENT	1.1E+00		2	2
MW-3A	S	7/1/1999	CHROMIUM, HEXAVALENT	8.4E-01		2	2
MW-3A	S	7/1/2000	CHROMIUM, HEXAVALENT	2.9E-01		2	2
MW-3A	S	7/1/2001	CHROMIUM, HEXAVALENT	5.0E-01		2	2
MW-3A	S	7/1/2002	CHROMIUM, HEXAVALENT	4.8E-01		2	2
MW-3A	S	7/1/2003	CHROMIUM, HEXAVALENT	3.8E-01		2	2
MW-3A	S	7/1/2004	CHROMIUM, HEXAVALENT	3.6E-01		2	2
MW-3A	S	7/1/2006	CHROMIUM, HEXAVALENT	3.9E-01		1	1
MW-3A	S	7/1/2008	CHROMIUM, HEXAVALENT	1.3E-01		1	1
MW-3A	S	7/1/2009	CHROMIUM, HEXAVALENT	1.9E-01		1	1
MW-3A	S	7/1/2010	CHROMIUM, HEXAVALENT	1.4E-01		1	1
MW-3A	S	7/1/2011	CHROMIUM, HEXAVALENT	3.4E-01		1	1
MW-3A	S	7/1/2012	CHROMIUM, HEXAVALENT	7.5E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-4A
 Well Type: S
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-34

Confidence in Trend:

97.9%

Coefficient of Variation:

0.91

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

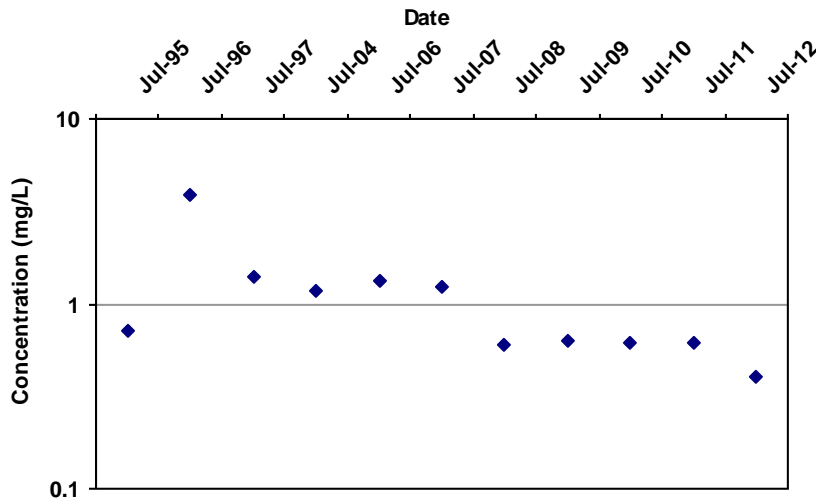
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-4A	S	7/1/1995	CHROMIUM, HEXAVALENT	4.8E+00		2	2
MW-4A	S	7/1/1997	CHROMIUM, HEXAVALENT	1.1E+00		2	2
MW-4A	S	7/1/1998	CHROMIUM, HEXAVALENT	7.0E-01		2	2
MW-4A	S	7/1/1999	CHROMIUM, HEXAVALENT	5.8E-01		2	2
MW-4A	S	7/1/2000	CHROMIUM, HEXAVALENT	1.0E+00		2	2
MW-4A	S	7/1/2001	CHROMIUM, HEXAVALENT	2.7E+00		2	2
MW-4A	S	7/1/2002	CHROMIUM, HEXAVALENT	2.0E+00		2	2
MW-4A	S	7/1/2003	CHROMIUM, HEXAVALENT	1.7E+00		2	2
MW-4A	S	7/1/2004	CHROMIUM, HEXAVALENT	9.7E-01		2	2
MW-4A	S	7/1/2009	CHROMIUM, HEXAVALENT	3.6E-01		1	1
MW-4A	S	7/1/2010	CHROMIUM, HEXAVALENT	6.3E-01		1	1
MW-4A	S	7/1/2011	CHROMIUM, HEXAVALENT	7.4E-01		1	1
MW-4A	S	7/1/2012	CHROMIUM, HEXAVALENT	3.6E-01		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-4B
 Well Type: S
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-33

Confidence in Trend:

99.5%

Coefficient of Variation:

0.84

Mann Kendall Concentration Trend:
(See Note)

D

Data Table:

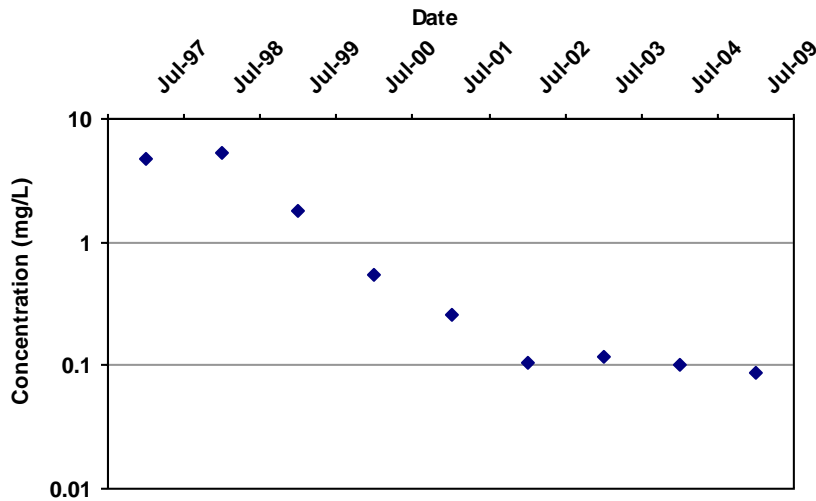
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-4B	S	7/1/1995	CHROMIUM, HEXAVALENT	7.1E-01		2	2
MW-4B	S	7/1/1996	CHROMIUM, HEXAVALENT	3.8E+00		2	2
MW-4B	S	7/1/1997	CHROMIUM, HEXAVALENT	1.4E+00		1	1
MW-4B	S	7/1/2004	CHROMIUM, HEXAVALENT	1.2E+00		1	1
MW-4B	S	7/1/2006	CHROMIUM, HEXAVALENT	1.3E+00		1	1
MW-4B	S	7/1/2007	CHROMIUM, HEXAVALENT	1.2E+00		1	1
MW-4B	S	7/1/2008	CHROMIUM, HEXAVALENT	6.1E-01		1	1
MW-4B	S	7/1/2009	CHROMIUM, HEXAVALENT	6.3E-01		1	1
MW-4B	S	7/1/2010	CHROMIUM, HEXAVALENT	6.2E-01		1	1
MW-4B	S	7/1/2011	CHROMIUM, HEXAVALENT	6.2E-01		1	1
MW-4B	S	7/1/2012	CHROMIUM, HEXAVALENT	4.1E-01		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-4BSHE
 Well Type: S
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-32

Confidence in Trend:

100.0%

Coefficient of Variation:

1.45

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

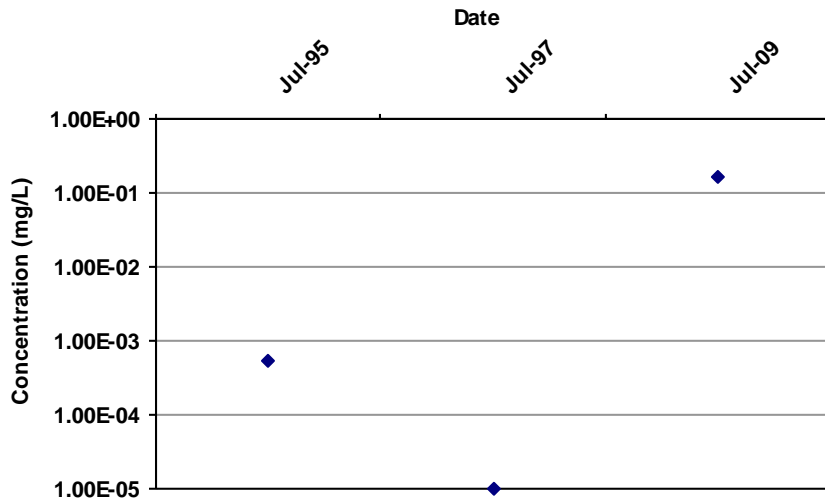
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-4BSHED	S	7/1/1997	CHROMIUM, HEXAVALENT	4.8E+00		2	2
MW-4BSHED	S	7/1/1998	CHROMIUM, HEXAVALENT	5.4E+00		2	2
MW-4BSHED	S	7/1/1999	CHROMIUM, HEXAVALENT	1.8E+00		2	2
MW-4BSHED	S	7/1/2000	CHROMIUM, HEXAVALENT	5.3E-01		2	2
MW-4BSHED	S	7/1/2001	CHROMIUM, HEXAVALENT	2.6E-01		2	2
MW-4BSHED	S	7/1/2002	CHROMIUM, HEXAVALENT	1.1E-01		2	2
MW-4BSHED	S	7/1/2003	CHROMIUM, HEXAVALENT	1.2E-01		2	2
MW-4BSHED	S	7/1/2004	CHROMIUM, HEXAVALENT	1.0E-01		1	1
MW-4BSHED	S	7/1/2009	CHROMIUM, HEXAVALENT	8.6E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-6A
 Well Type: S
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

0

Confidence in Trend:

0.0%

Coefficient of Variation:

0.00

Mann Kendall Concentration Trend: (See Note)

N/A

Data Table:

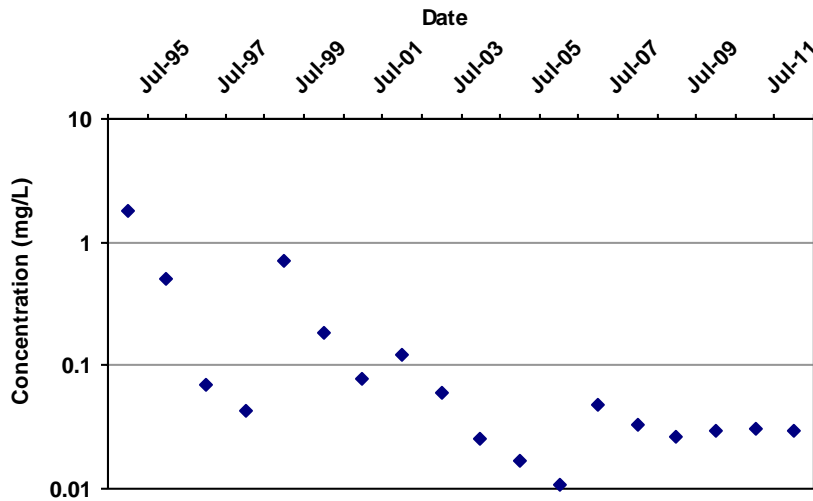
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-6A	S	7/1/1995	CHROMIUM, HEXAVALENT	5.2E-04		2	1
MW-6A	S	7/1/1997	CHROMIUM, HEXAVALENT	1.0E-05	ND	1	0
MW-6A	S	7/1/2009	CHROMIUM, HEXAVALENT	1.7E-01		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-6B
 Well Type: S
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-85

Confidence in Trend:

100.0%

Coefficient of Variation:

2.06

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

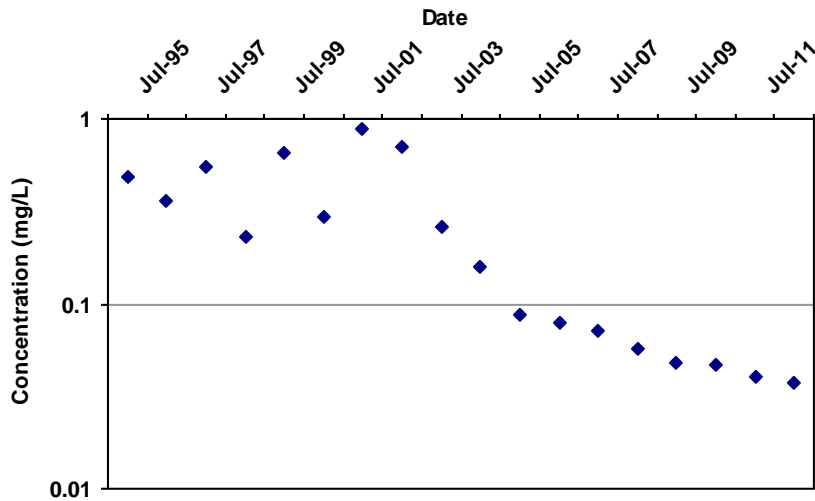
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-6B	S	7/1/1995	CHROMIUM, HEXAVALENT	1.8E+00		11	11
MW-6B	S	7/1/1996	CHROMIUM, HEXAVALENT	5.0E-01		2	2
MW-6B	S	7/1/1997	CHROMIUM, HEXAVALENT	7.0E-02		2	2
MW-6B	S	7/1/1998	CHROMIUM, HEXAVALENT	4.4E-02		2	2
MW-6B	S	7/1/1999	CHROMIUM, HEXAVALENT	7.0E-01		2	2
MW-6B	S	7/1/2000	CHROMIUM, HEXAVALENT	1.9E-01		3	3
MW-6B	S	7/1/2001	CHROMIUM, HEXAVALENT	7.7E-02		2	2
MW-6B	S	7/1/2002	CHROMIUM, HEXAVALENT	1.2E-01		3	3
MW-6B	S	7/1/2003	CHROMIUM, HEXAVALENT	6.1E-02		3	3
MW-6B	S	7/1/2004	CHROMIUM, HEXAVALENT	2.5E-02		2	2
MW-6B	S	7/1/2005	CHROMIUM, HEXAVALENT	1.7E-02		1	1
MW-6B	S	7/1/2006	CHROMIUM, HEXAVALENT	1.1E-02		1	1
MW-6B	S	7/1/2007	CHROMIUM, HEXAVALENT	4.9E-02		2	2
MW-6B	S	7/1/2008	CHROMIUM, HEXAVALENT	3.3E-02		2	2
MW-6B	S	7/1/2009	CHROMIUM, HEXAVALENT	2.6E-02		2	2
MW-6B	S	7/1/2010	CHROMIUM, HEXAVALENT	3.0E-02		2	2
MW-6B	S	7/1/2011	CHROMIUM, HEXAVALENT	3.0E-02		2	2
MW-6B	S	7/1/2012	CHROMIUM, HEXAVALENT	2.9E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-10B
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-113

Confidence in Trend:

100.0%

Coefficient of Variation:

0.96

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

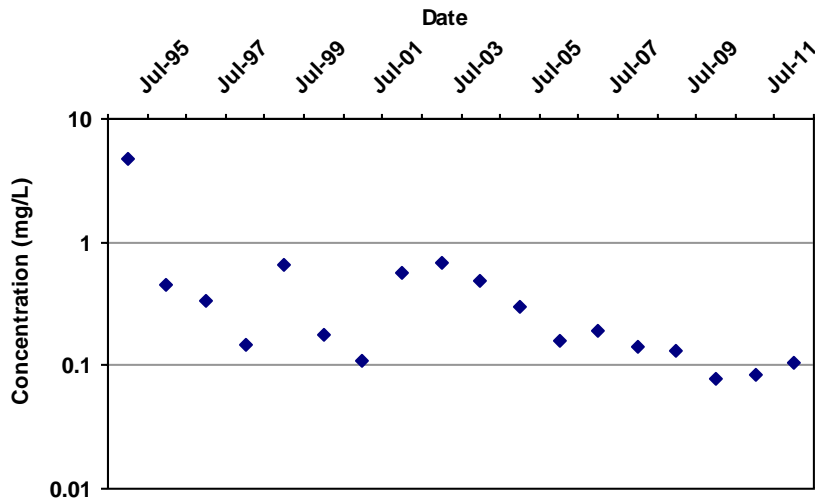
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-10B	T	7/1/1995	CHROMIUM, HEXAVALENT	4.9E-01		11	11
MW-10B	T	7/1/1996	CHROMIUM, HEXAVALENT	3.6E-01		2	2
MW-10B	T	7/1/1997	CHROMIUM, HEXAVALENT	5.5E-01		2	2
MW-10B	T	7/1/1998	CHROMIUM, HEXAVALENT	2.3E-01		2	2
MW-10B	T	7/1/1999	CHROMIUM, HEXAVALENT	6.6E-01		2	2
MW-10B	T	7/1/2000	CHROMIUM, HEXAVALENT	2.9E-01		3	3
MW-10B	T	7/1/2001	CHROMIUM, HEXAVALENT	8.9E-01		2	2
MW-10B	T	7/1/2002	CHROMIUM, HEXAVALENT	7.0E-01		3	3
MW-10B	T	7/1/2003	CHROMIUM, HEXAVALENT	2.6E-01		3	3
MW-10B	T	7/1/2004	CHROMIUM, HEXAVALENT	1.6E-01		2	2
MW-10B	T	7/1/2005	CHROMIUM, HEXAVALENT	8.7E-02		1	1
MW-10B	T	7/1/2006	CHROMIUM, HEXAVALENT	7.9E-02		1	1
MW-10B	T	7/1/2007	CHROMIUM, HEXAVALENT	7.2E-02		2	2
MW-10B	T	7/1/2008	CHROMIUM, HEXAVALENT	5.8E-02		2	2
MW-10B	T	7/1/2009	CHROMIUM, HEXAVALENT	4.8E-02		2	2
MW-10B	T	7/1/2010	CHROMIUM, HEXAVALENT	4.7E-02		2	2
MW-10B	T	7/1/2011	CHROMIUM, HEXAVALENT	4.0E-02		2	2
MW-10B	T	7/1/2012	CHROMIUM, HEXAVALENT	3.8E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-10C
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-83

Confidence in Trend:

99.9%

Coefficient of Variation:

2.01

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

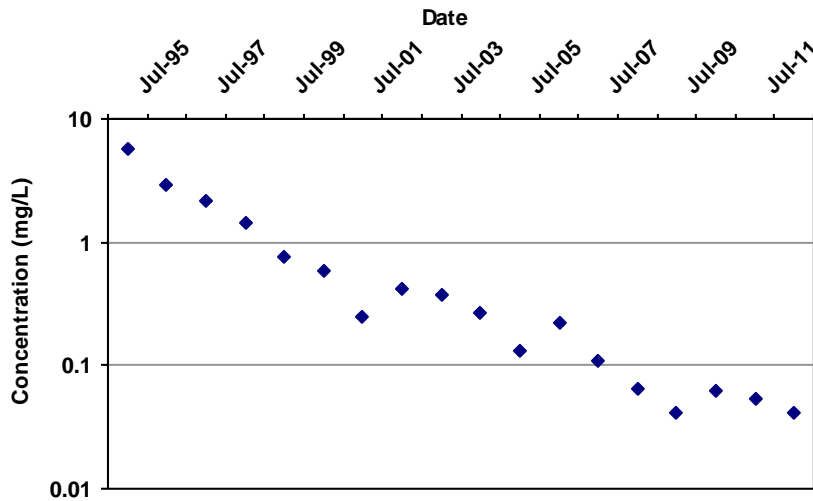
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-10C	T	7/1/1995	CHROMIUM, HEXAVALENT	4.7E+00		11	11
MW-10C	T	7/1/1996	CHROMIUM, HEXAVALENT	4.5E-01		2	2
MW-10C	T	7/1/1997	CHROMIUM, HEXAVALENT	3.4E-01		2	2
MW-10C	T	7/1/1998	CHROMIUM, HEXAVALENT	1.5E-01		2	2
MW-10C	T	7/1/1999	CHROMIUM, HEXAVALENT	6.5E-01		2	2
MW-10C	T	7/1/2000	CHROMIUM, HEXAVALENT	1.8E-01		3	3
MW-10C	T	7/1/2001	CHROMIUM, HEXAVALENT	1.1E-01		2	2
MW-10C	T	7/1/2002	CHROMIUM, HEXAVALENT	5.7E-01		3	3
MW-10C	T	7/1/2003	CHROMIUM, HEXAVALENT	6.9E-01		3	3
MW-10C	T	7/1/2004	CHROMIUM, HEXAVALENT	4.8E-01		2	2
MW-10C	T	7/1/2005	CHROMIUM, HEXAVALENT	3.0E-01		2	2
MW-10C	T	7/1/2006	CHROMIUM, HEXAVALENT	1.6E-01		2	2
MW-10C	T	7/1/2007	CHROMIUM, HEXAVALENT	1.9E-01		2	2
MW-10C	T	7/1/2008	CHROMIUM, HEXAVALENT	1.4E-01		2	2
MW-10C	T	7/1/2009	CHROMIUM, HEXAVALENT	1.3E-01		2	2
MW-10C	T	7/1/2010	CHROMIUM, HEXAVALENT	7.7E-02		2	2
MW-10C	T	7/1/2011	CHROMIUM, HEXAVALENT	8.4E-02		2	2
MW-10C	T	7/1/2012	CHROMIUM, HEXAVALENT	1.0E-01		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: PW-1B
 Well Type: S
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-141

Confidence in Trend:

100.0%

Coefficient of Variation:

1.68

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PW-1B	S	7/1/1995	CHROMIUM, HEXAVALENT	5.8E+00		11	11
PW-1B	S	7/1/1996	CHROMIUM, HEXAVALENT	3.0E+00		12	12
PW-1B	S	7/1/1997	CHROMIUM, HEXAVALENT	2.1E+00		9	9
PW-1B	S	7/1/1998	CHROMIUM, HEXAVALENT	1.4E+00		3	3
PW-1B	S	7/1/1999	CHROMIUM, HEXAVALENT	7.7E-01		4	4
PW-1B	S	7/1/2000	CHROMIUM, HEXAVALENT	5.9E-01		4	4
PW-1B	S	7/1/2001	CHROMIUM, HEXAVALENT	2.5E-01		4	4
PW-1B	S	7/1/2002	CHROMIUM, HEXAVALENT	4.2E-01		4	4
PW-1B	S	7/1/2003	CHROMIUM, HEXAVALENT	3.8E-01		3	3
PW-1B	S	7/1/2004	CHROMIUM, HEXAVALENT	2.7E-01		2	2
PW-1B	S	7/1/2005	CHROMIUM, HEXAVALENT	1.3E-01		2	2
PW-1B	S	7/1/2006	CHROMIUM, HEXAVALENT	2.2E-01		2	2
PW-1B	S	7/1/2007	CHROMIUM, HEXAVALENT	1.1E-01		2	2
PW-1B	S	7/1/2008	CHROMIUM, HEXAVALENT	6.4E-02		2	2
PW-1B	S	7/1/2009	CHROMIUM, HEXAVALENT	4.2E-02		2	2
PW-1B	S	7/1/2010	CHROMIUM, HEXAVALENT	6.3E-02		2	2
PW-1B	S	7/1/2011	CHROMIUM, HEXAVALENT	5.4E-02		3	3
PW-1B	S	7/1/2012	CHROMIUM, HEXAVALENT	4.1E-02		2	2

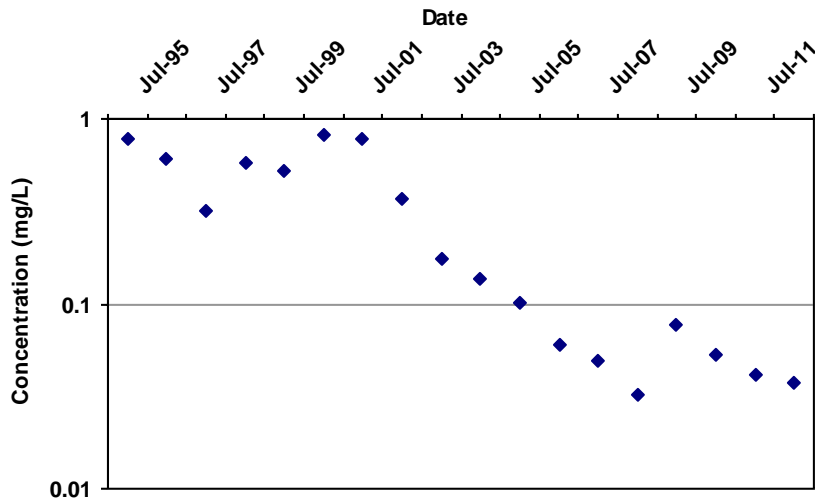
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

INTERMEDIATE WELLS

MAROS Mann-Kendall Statistics Summary

Well: CPU-14
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-115

Confidence in Trend:

100.0%

Coefficient of Variation:

0.96

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

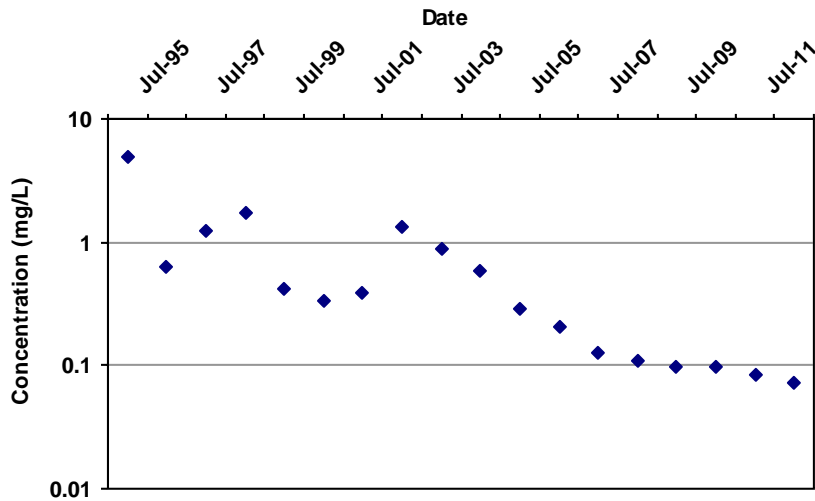
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
CPU-14	T	7/1/1995	CHROMIUM, HEXAVALENT	7.8E-01		2	2
CPU-14	T	7/1/1996	CHROMIUM, HEXAVALENT	6.0E-01		2	2
CPU-14	T	7/1/1997	CHROMIUM, HEXAVALENT	3.2E-01		1	1
CPU-14	T	7/1/1998	CHROMIUM, HEXAVALENT	5.8E-01		2	2
CPU-14	T	7/1/1999	CHROMIUM, HEXAVALENT	5.2E-01		2	2
CPU-14	T	7/1/2000	CHROMIUM, HEXAVALENT	8.3E-01		2	2
CPU-14	T	7/1/2001	CHROMIUM, HEXAVALENT	7.7E-01		2	2
CPU-14	T	7/1/2002	CHROMIUM, HEXAVALENT	3.7E-01		2	2
CPU-14	T	7/1/2003	CHROMIUM, HEXAVALENT	1.8E-01		2	2
CPU-14	T	7/1/2004	CHROMIUM, HEXAVALENT	1.4E-01		2	2
CPU-14	T	7/1/2005	CHROMIUM, HEXAVALENT	1.0E-01		2	2
CPU-14	T	7/1/2006	CHROMIUM, HEXAVALENT	6.1E-02		1	1
CPU-14	T	7/1/2007	CHROMIUM, HEXAVALENT	5.0E-02		1	1
CPU-14	T	7/1/2008	CHROMIUM, HEXAVALENT	3.2E-02		1	1
CPU-14	T	7/1/2009	CHROMIUM, HEXAVALENT	7.7E-02		1	1
CPU-14	T	7/1/2010	CHROMIUM, HEXAVALENT	5.3E-02		1	1
CPU-14	T	7/1/2011	CHROMIUM, HEXAVALENT	4.1E-02		1	1
CPU-14	T	7/1/2012	CHROMIUM, HEXAVALENT	3.7E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-14C
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-119

Confidence in Trend:

100.0%

Coefficient of Variation:

1.52

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

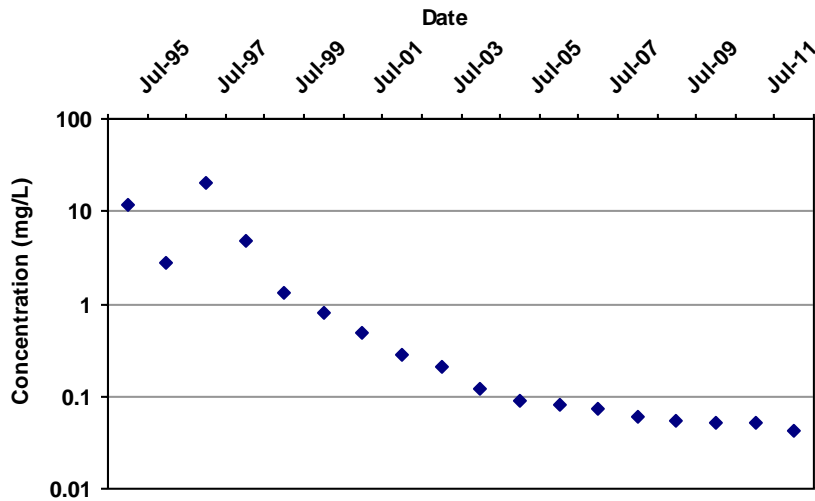
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-14C	T	7/1/1995	CHROMIUM, HEXAVALENT	4.8E+00		11	11
MW-14C	T	7/1/1996	CHROMIUM, HEXAVALENT	6.4E-01		2	2
MW-14C	T	7/1/1997	CHROMIUM, HEXAVALENT	1.3E+00		6	6
MW-14C	T	7/1/1998	CHROMIUM, HEXAVALENT	1.7E+00		2	2
MW-14C	T	7/1/1999	CHROMIUM, HEXAVALENT	4.1E-01		3	3
MW-14C	T	7/1/2000	CHROMIUM, HEXAVALENT	3.4E-01		5	5
MW-14C	T	7/1/2001	CHROMIUM, HEXAVALENT	3.8E-01		4	4
MW-14C	T	7/1/2002	CHROMIUM, HEXAVALENT	1.3E+00		4	4
MW-14C	T	7/1/2003	CHROMIUM, HEXAVALENT	8.7E-01		3	3
MW-14C	T	7/1/2004	CHROMIUM, HEXAVALENT	5.9E-01		2	2
MW-14C	T	7/1/2005	CHROMIUM, HEXAVALENT	2.9E-01		2	2
MW-14C	T	7/1/2006	CHROMIUM, HEXAVALENT	2.1E-01		2	2
MW-14C	T	7/1/2007	CHROMIUM, HEXAVALENT	1.3E-01		2	2
MW-14C	T	7/1/2008	CHROMIUM, HEXAVALENT	1.1E-01		2	2
MW-14C	T	7/1/2009	CHROMIUM, HEXAVALENT	9.7E-02		2	2
MW-14C	T	7/1/2010	CHROMIUM, HEXAVALENT	9.8E-02		2	2
MW-14C	T	7/1/2011	CHROMIUM, HEXAVALENT	8.4E-02		2	2
MW-14C	T	7/1/2012	CHROMIUM, HEXAVALENT	7.3E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-14E
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-145

Confidence in Trend:

100.0%

Coefficient of Variation:

2.21

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

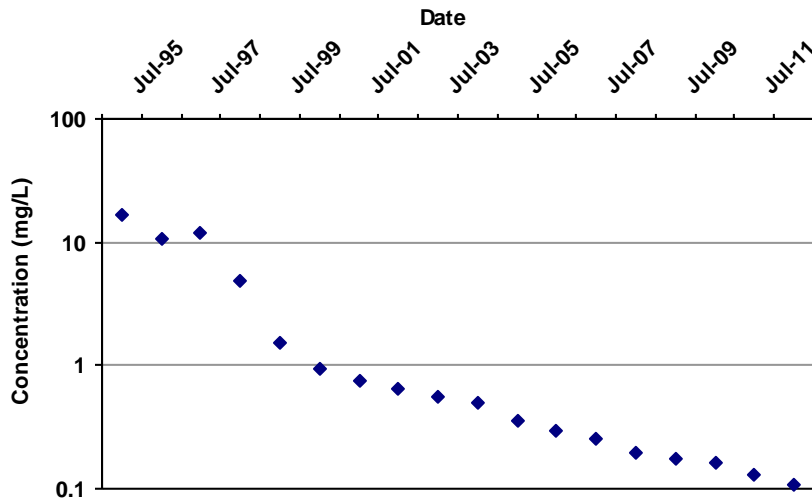
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-14E	T	7/1/1995	CHROMIUM, HEXAVALENT	1.2E+01		11	11
MW-14E	T	7/1/1996	CHROMIUM, HEXAVALENT	2.7E+00		2	2
MW-14E	T	7/1/1997	CHROMIUM, HEXAVALENT	2.1E+01		2	2
MW-14E	T	7/1/1998	CHROMIUM, HEXAVALENT	4.9E+00		3	3
MW-14E	T	7/1/1999	CHROMIUM, HEXAVALENT	1.3E+00		3	3
MW-14E	T	7/1/2000	CHROMIUM, HEXAVALENT	8.0E-01		5	5
MW-14E	T	7/1/2001	CHROMIUM, HEXAVALENT	4.8E-01		4	4
MW-14E	T	7/1/2002	CHROMIUM, HEXAVALENT	2.8E-01		4	4
MW-14E	T	7/1/2003	CHROMIUM, HEXAVALENT	2.1E-01		3	3
MW-14E	T	7/1/2004	CHROMIUM, HEXAVALENT	1.2E-01		2	2
MW-14E	T	7/1/2005	CHROMIUM, HEXAVALENT	9.0E-02		2	2
MW-14E	T	7/1/2006	CHROMIUM, HEXAVALENT	8.1E-02		2	2
MW-14E	T	7/1/2007	CHROMIUM, HEXAVALENT	7.3E-02		2	2
MW-14E	T	7/1/2008	CHROMIUM, HEXAVALENT	6.1E-02		2	2
MW-14E	T	7/1/2009	CHROMIUM, HEXAVALENT	5.4E-02		2	2
MW-14E	T	7/1/2010	CHROMIUM, HEXAVALENT	5.2E-02		2	2
MW-14E	T	7/1/2011	CHROMIUM, HEXAVALENT	5.3E-02		2	2
MW-14E	T	7/1/2012	CHROMIUM, HEXAVALENT	4.2E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-18D
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-151

Confidence in Trend:

100.0%

Coefficient of Variation:

1.76

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

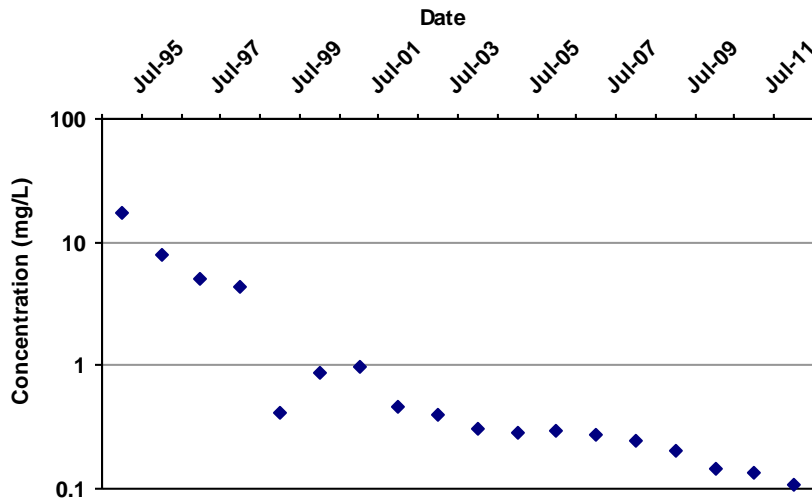
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-18D	T	7/1/1995	CHROMIUM, HEXAVALENT	1.7E+01		11	11
MW-18D	T	7/1/1996	CHROMIUM, HEXAVALENT	1.1E+01		8	8
MW-18D	T	7/1/1997	CHROMIUM, HEXAVALENT	1.2E+01		9	9
MW-18D	T	7/1/1998	CHROMIUM, HEXAVALENT	4.9E+00		3	3
MW-18D	T	7/1/1999	CHROMIUM, HEXAVALENT	1.5E+00		4	4
MW-18D	T	7/1/2000	CHROMIUM, HEXAVALENT	9.4E-01		5	5
MW-18D	T	7/1/2001	CHROMIUM, HEXAVALENT	7.6E-01		2	2
MW-18D	T	7/1/2002	CHROMIUM, HEXAVALENT	6.4E-01		4	4
MW-18D	T	7/1/2003	CHROMIUM, HEXAVALENT	5.5E-01		3	3
MW-18D	T	7/1/2004	CHROMIUM, HEXAVALENT	5.0E-01		2	2
MW-18D	T	7/1/2005	CHROMIUM, HEXAVALENT	3.6E-01		2	2
MW-18D	T	7/1/2006	CHROMIUM, HEXAVALENT	3.0E-01		2	2
MW-18D	T	7/1/2007	CHROMIUM, HEXAVALENT	2.6E-01		2	2
MW-18D	T	7/1/2008	CHROMIUM, HEXAVALENT	1.9E-01		2	2
MW-18D	T	7/1/2009	CHROMIUM, HEXAVALENT	1.7E-01		2	2
MW-18D	T	7/1/2010	CHROMIUM, HEXAVALENT	1.6E-01		2	2
MW-18D	T	7/1/2011	CHROMIUM, HEXAVALENT	1.3E-01		2	2
MW-18D	T	7/1/2012	CHROMIUM, HEXAVALENT	1.1E-01		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-19D
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-143

Confidence in Trend:

100.0%

Coefficient of Variation:

1.96

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

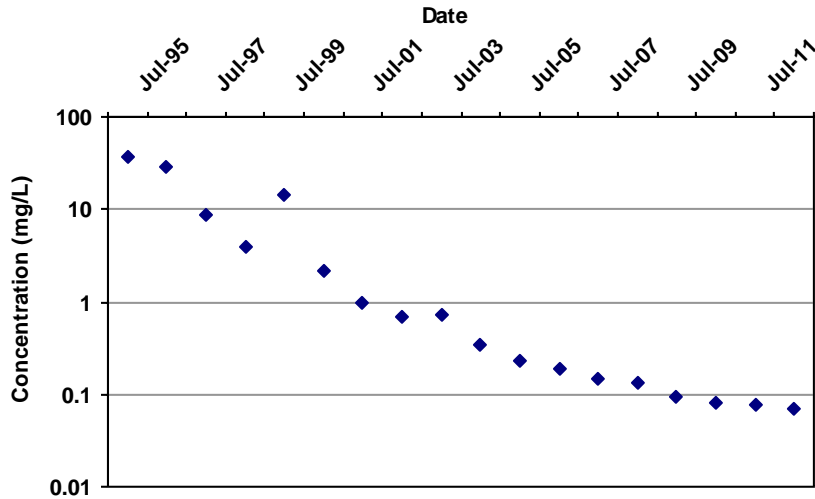
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-19D	T	7/1/1995	CHROMIUM, HEXAVALENT	1.7E+01		11	11
MW-19D	T	7/1/1996	CHROMIUM, HEXAVALENT	7.9E+00		12	12
MW-19D	T	7/1/1997	CHROMIUM, HEXAVALENT	5.0E+00		6	6
MW-19D	T	7/1/1998	CHROMIUM, HEXAVALENT	4.4E+00		3	3
MW-19D	T	7/1/1999	CHROMIUM, HEXAVALENT	4.1E-01		1	1
MW-19D	T	7/1/2000	CHROMIUM, HEXAVALENT	8.8E-01		4	4
MW-19D	T	7/1/2001	CHROMIUM, HEXAVALENT	9.8E-01		4	4
MW-19D	T	7/1/2002	CHROMIUM, HEXAVALENT	4.6E-01		4	4
MW-19D	T	7/1/2003	CHROMIUM, HEXAVALENT	4.0E-01		3	3
MW-19D	T	7/1/2004	CHROMIUM, HEXAVALENT	3.0E-01		2	2
MW-19D	T	7/1/2005	CHROMIUM, HEXAVALENT	2.8E-01		2	2
MW-19D	T	7/1/2006	CHROMIUM, HEXAVALENT	2.9E-01		2	2
MW-19D	T	7/1/2007	CHROMIUM, HEXAVALENT	2.7E-01		2	2
MW-19D	T	7/1/2008	CHROMIUM, HEXAVALENT	2.5E-01		2	2
MW-19D	T	7/1/2009	CHROMIUM, HEXAVALENT	2.0E-01		2	2
MW-19D	T	7/1/2010	CHROMIUM, HEXAVALENT	1.5E-01		2	2
MW-19D	T	7/1/2011	CHROMIUM, HEXAVALENT	1.3E-01		2	2
MW-19D	T	7/1/2012	CHROMIUM, HEXAVALENT	1.1E-01		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-20D
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-147

Confidence in Trend:

100.0%

Coefficient of Variation:

1.95

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-20D	T	7/1/1995	CHROMIUM, HEXAVALENT	3.6E+01		11	11
MW-20D	T	7/1/1996	CHROMIUM, HEXAVALENT	2.9E+01		12	12
MW-20D	T	7/1/1997	CHROMIUM, HEXAVALENT	8.7E+00		9	9
MW-20D	T	7/1/1998	CHROMIUM, HEXAVALENT	4.0E+00		3	3
MW-20D	T	7/1/1999	CHROMIUM, HEXAVALENT	1.5E+01		1	1
MW-20D	T	7/1/2000	CHROMIUM, HEXAVALENT	2.2E+00		5	5
MW-20D	T	7/1/2001	CHROMIUM, HEXAVALENT	9.9E-01		4	4
MW-20D	T	7/1/2002	CHROMIUM, HEXAVALENT	6.9E-01		4	4
MW-20D	T	7/1/2003	CHROMIUM, HEXAVALENT	7.4E-01		3	3
MW-20D	T	7/1/2004	CHROMIUM, HEXAVALENT	3.5E-01		2	2
MW-20D	T	7/1/2005	CHROMIUM, HEXAVALENT	2.3E-01		2	2
MW-20D	T	7/1/2006	CHROMIUM, HEXAVALENT	1.8E-01		2	2
MW-20D	T	7/1/2007	CHROMIUM, HEXAVALENT	1.5E-01		2	2
MW-20D	T	7/1/2008	CHROMIUM, HEXAVALENT	1.4E-01		2	2
MW-20D	T	7/1/2009	CHROMIUM, HEXAVALENT	9.4E-02		2	2
MW-20D	T	7/1/2010	CHROMIUM, HEXAVALENT	8.0E-02		2	2
MW-20D	T	7/1/2011	CHROMIUM, HEXAVALENT	7.7E-02		2	2
MW-20D	T	7/1/2012	CHROMIUM, HEXAVALENT	6.8E-02		2	2

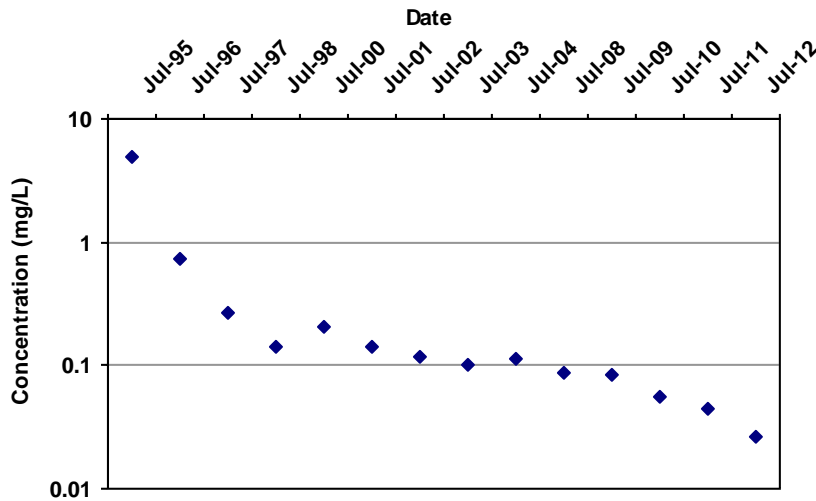
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

CHURCH OF GOD WELLS

MAROS Mann-Kendall Statistics Summary

Well: AMW-14
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-85

Confidence in Trend:

100.0%

Coefficient of Variation:

2.54

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

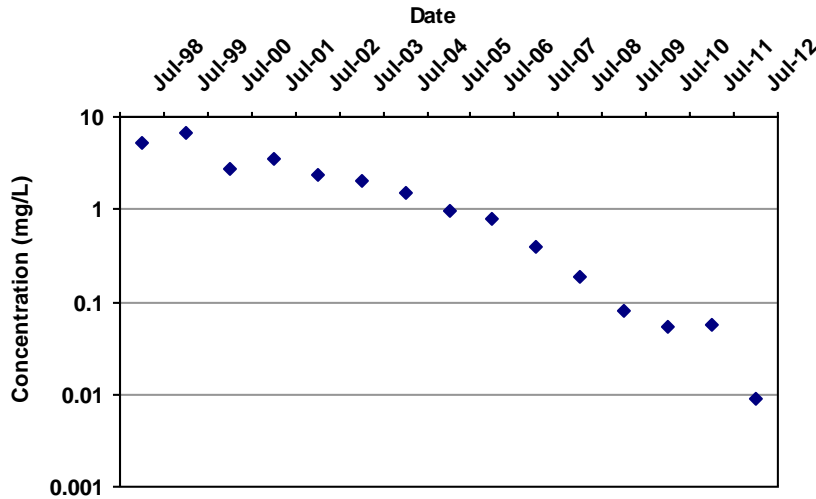
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-14	T	7/1/1995	CHROMIUM, HEXAVALENT	4.9E+00		2	2
AMW-14	T	7/1/1996	CHROMIUM, HEXAVALENT	7.4E-01		2	2
AMW-14	T	7/1/1997	CHROMIUM, HEXAVALENT	2.7E-01		2	2
AMW-14	T	7/1/1998	CHROMIUM, HEXAVALENT	1.4E-01		1	1
AMW-14	T	7/1/2000	CHROMIUM, HEXAVALENT	2.1E-01		1	1
AMW-14	T	7/1/2001	CHROMIUM, HEXAVALENT	1.4E-01		2	2
AMW-14	T	7/1/2002	CHROMIUM, HEXAVALENT	1.2E-01		2	2
AMW-14	T	7/1/2003	CHROMIUM, HEXAVALENT	1.0E-01		2	2
AMW-14	T	7/1/2004	CHROMIUM, HEXAVALENT	1.1E-01		1	1
AMW-14	T	7/1/2008	CHROMIUM, HEXAVALENT	8.7E-02		1	1
AMW-14	T	7/1/2009	CHROMIUM, HEXAVALENT	8.3E-02		1	1
AMW-14	T	7/1/2010	CHROMIUM, HEXAVALENT	5.5E-02		2	2
AMW-14	T	7/1/2011	CHROMIUM, HEXAVALENT	4.5E-02		1	1
AMW-14	T	7/1/2012	CHROMIUM, HEXAVALENT	2.6E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-27
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-99

Confidence in Trend:

100.0%

Coefficient of Variation:

1.16

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

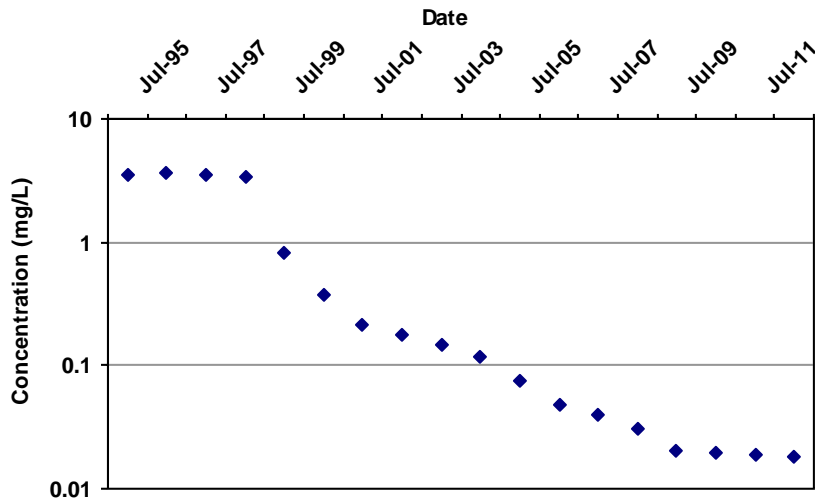
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-27	T	7/1/1998	CHROMIUM, HEXAVALENT	5.3E+00		1	1
AMW-27	T	7/1/1999	CHROMIUM, HEXAVALENT	6.8E+00		4	4
AMW-27	T	7/1/2000	CHROMIUM, HEXAVALENT	2.8E+00		5	5
AMW-27	T	7/1/2001	CHROMIUM, HEXAVALENT	3.5E+00		4	4
AMW-27	T	7/1/2002	CHROMIUM, HEXAVALENT	2.4E+00		4	4
AMW-27	T	7/1/2003	CHROMIUM, HEXAVALENT	2.1E+00		3	3
AMW-27	T	7/1/2004	CHROMIUM, HEXAVALENT	1.5E+00		2	2
AMW-27	T	7/1/2005	CHROMIUM, HEXAVALENT	9.8E-01		2	2
AMW-27	T	7/1/2006	CHROMIUM, HEXAVALENT	7.7E-01		2	2
AMW-27	T	7/1/2007	CHROMIUM, HEXAVALENT	4.0E-01		2	2
AMW-27	T	7/1/2008	CHROMIUM, HEXAVALENT	1.9E-01		2	2
AMW-27	T	7/1/2009	CHROMIUM, HEXAVALENT	7.9E-02		2	2
AMW-27	T	7/1/2010	CHROMIUM, HEXAVALENT	5.2E-02		2	2
AMW-27	T	7/1/2011	CHROMIUM, HEXAVALENT	5.7E-02		2	2
AMW-27	T	7/1/2012	CHROMIUM, HEXAVALENT	9.2E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: CPU-13
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-149

Confidence in Trend:

100.0%

Coefficient of Variation:

1.61

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

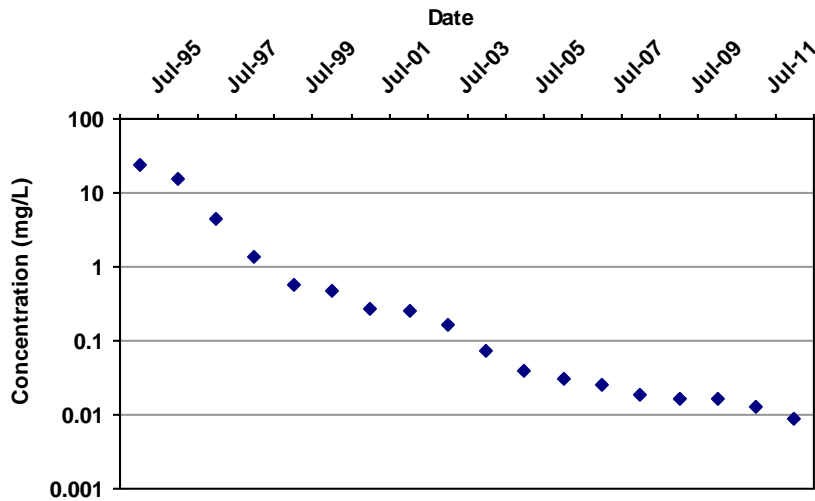
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
CPU-13	T	7/1/1995	CHROMIUM, HEXAVALENT	3.5E+00		11	11
CPU-13	T	7/1/1996	CHROMIUM, HEXAVALENT	3.6E+00		2	2
CPU-13	T	7/1/1997	CHROMIUM, HEXAVALENT	3.5E+00		2	2
CPU-13	T	7/1/1998	CHROMIUM, HEXAVALENT	3.3E+00		2	2
CPU-13	T	7/1/1999	CHROMIUM, HEXAVALENT	8.3E-01		4	4
CPU-13	T	7/1/2000	CHROMIUM, HEXAVALENT	3.8E-01		5	5
CPU-13	T	7/1/2001	CHROMIUM, HEXAVALENT	2.1E-01		4	4
CPU-13	T	7/1/2002	CHROMIUM, HEXAVALENT	1.8E-01		4	4
CPU-13	T	7/1/2003	CHROMIUM, HEXAVALENT	1.5E-01		3	3
CPU-13	T	7/1/2004	CHROMIUM, HEXAVALENT	1.2E-01		2	2
CPU-13	T	7/1/2005	CHROMIUM, HEXAVALENT	7.4E-02		2	2
CPU-13	T	7/1/2006	CHROMIUM, HEXAVALENT	4.9E-02		2	2
CPU-13	T	7/1/2007	CHROMIUM, HEXAVALENT	4.0E-02		2	2
CPU-13	T	7/1/2008	CHROMIUM, HEXAVALENT	3.0E-02		2	2
CPU-13	T	7/1/2009	CHROMIUM, HEXAVALENT	2.1E-02		2	2
CPU-13	T	7/1/2010	CHROMIUM, HEXAVALENT	2.0E-02		2	2
CPU-13	T	7/1/2011	CHROMIUM, HEXAVALENT	1.9E-02		2	2
CPU-13	T	7/1/2012	CHROMIUM, HEXAVALENT	1.8E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-21D
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-153

Confidence in Trend:

100.0%

Coefficient of Variation:

2.46

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

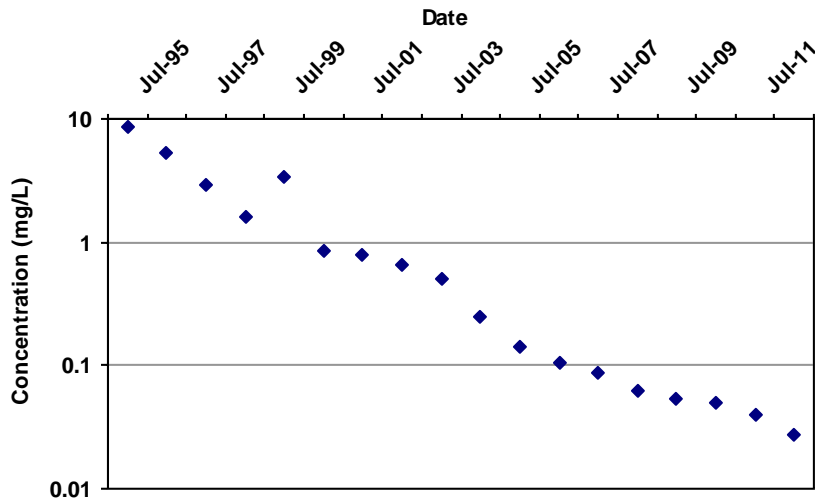
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-21D	T	7/1/1995	CHROMIUM, HEXAVALENT	2.4E+01		11	11
MW-21D	T	7/1/1996	CHROMIUM, HEXAVALENT	1.6E+01		12	12
MW-21D	T	7/1/1997	CHROMIUM, HEXAVALENT	4.4E+00		9	9
MW-21D	T	7/1/1998	CHROMIUM, HEXAVALENT	1.4E+00		3	3
MW-21D	T	7/1/1999	CHROMIUM, HEXAVALENT	5.8E-01		4	4
MW-21D	T	7/1/2000	CHROMIUM, HEXAVALENT	4.8E-01		5	5
MW-21D	T	7/1/2001	CHROMIUM, HEXAVALENT	2.6E-01		4	4
MW-21D	T	7/1/2002	CHROMIUM, HEXAVALENT	2.6E-01		4	4
MW-21D	T	7/1/2003	CHROMIUM, HEXAVALENT	1.6E-01		3	3
MW-21D	T	7/1/2004	CHROMIUM, HEXAVALENT	7.2E-02		2	2
MW-21D	T	7/1/2005	CHROMIUM, HEXAVALENT	4.0E-02		2	2
MW-21D	T	7/1/2006	CHROMIUM, HEXAVALENT	3.0E-02		2	2
MW-21D	T	7/1/2007	CHROMIUM, HEXAVALENT	2.5E-02		2	2
MW-21D	T	7/1/2008	CHROMIUM, HEXAVALENT	1.9E-02		2	2
MW-21D	T	7/1/2009	CHROMIUM, HEXAVALENT	1.7E-02		2	2
MW-21D	T	7/1/2010	CHROMIUM, HEXAVALENT	1.6E-02		2	2
MW-21D	T	7/1/2011	CHROMIUM, HEXAVALENT	1.3E-02		2	2
MW-21D	T	7/1/2012	CHROMIUM, HEXAVALENT	9.0E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-22D
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-149

Confidence in Trend:

100.0%

Coefficient of Variation:

1.63

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

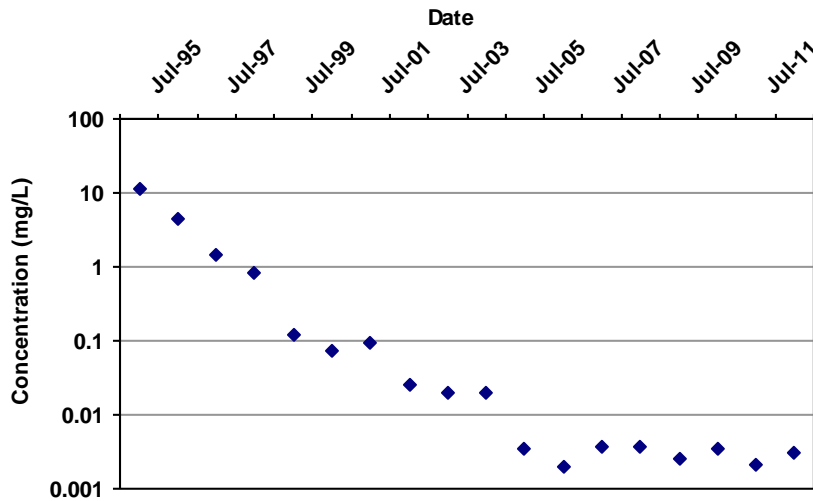
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-22D	T	7/1/1995	CHROMIUM, HEXAVALENT	8.6E+00		11	11
MW-22D	T	7/1/1996	CHROMIUM, HEXAVALENT	5.4E+00		11	11
MW-22D	T	7/1/1997	CHROMIUM, HEXAVALENT	2.9E+00		9	9
MW-22D	T	7/1/1998	CHROMIUM, HEXAVALENT	1.6E+00		3	3
MW-22D	T	7/1/1999	CHROMIUM, HEXAVALENT	3.4E+00		2	2
MW-22D	T	7/1/2000	CHROMIUM, HEXAVALENT	8.6E-01		4	4
MW-22D	T	7/1/2001	CHROMIUM, HEXAVALENT	8.0E-01		4	4
MW-22D	T	7/1/2002	CHROMIUM, HEXAVALENT	6.5E-01		3	3
MW-22D	T	7/1/2003	CHROMIUM, HEXAVALENT	5.0E-01		3	3
MW-22D	T	7/1/2004	CHROMIUM, HEXAVALENT	2.5E-01		2	2
MW-22D	T	7/1/2005	CHROMIUM, HEXAVALENT	1.4E-01		2	2
MW-22D	T	7/1/2006	CHROMIUM, HEXAVALENT	1.0E-01		2	2
MW-22D	T	7/1/2007	CHROMIUM, HEXAVALENT	8.7E-02		2	2
MW-22D	T	7/1/2008	CHROMIUM, HEXAVALENT	6.3E-02		2	2
MW-22D	T	7/1/2009	CHROMIUM, HEXAVALENT	5.3E-02		2	2
MW-22D	T	7/1/2010	CHROMIUM, HEXAVALENT	5.0E-02		2	2
MW-22D	T	7/1/2011	CHROMIUM, HEXAVALENT	4.0E-02		2	2
MW-22D	T	7/1/2012	CHROMIUM, HEXAVALENT	2.7E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-25D
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-127

Confidence in Trend:

100.0%

Coefficient of Variation:

2.71

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

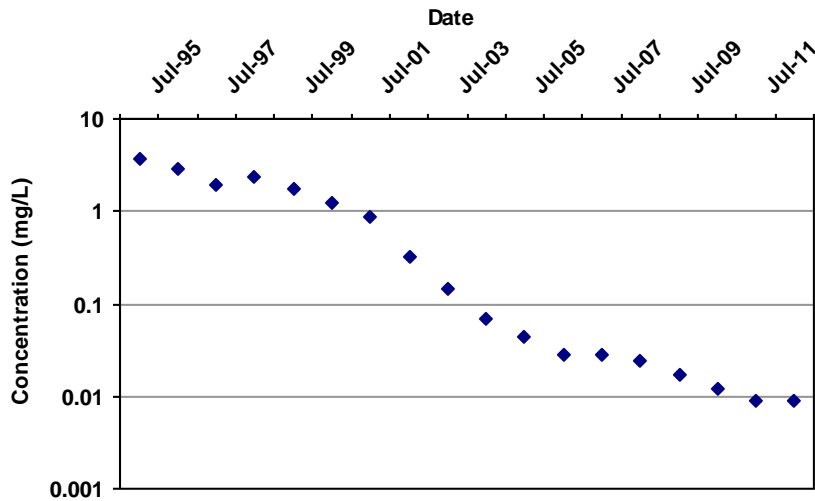
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-25D	T	7/1/1995	CHROMIUM, HEXAVALENT	1.1E+01		12	12
MW-25D	T	7/1/1996	CHROMIUM, HEXAVALENT	4.6E+00		12	12
MW-25D	T	7/1/1997	CHROMIUM, HEXAVALENT	1.5E+00		9	9
MW-25D	T	7/1/1998	CHROMIUM, HEXAVALENT	8.1E-01		3	3
MW-25D	T	7/1/1999	CHROMIUM, HEXAVALENT	1.2E-01		3	3
MW-25D	T	7/1/2000	CHROMIUM, HEXAVALENT	7.5E-02		5	5
MW-25D	T	7/1/2001	CHROMIUM, HEXAVALENT	9.2E-02		4	4
MW-25D	T	7/1/2002	CHROMIUM, HEXAVALENT	2.6E-02		4	4
MW-25D	T	7/1/2003	CHROMIUM, HEXAVALENT	2.0E-02		3	3
MW-25D	T	7/1/2004	CHROMIUM, HEXAVALENT	2.0E-02		2	2
MW-25D	T	7/1/2005	CHROMIUM, HEXAVALENT	3.4E-03		1	1
MW-25D	T	7/1/2006	CHROMIUM, HEXAVALENT	2.0E-03	ND	1	0
MW-25D	T	7/1/2007	CHROMIUM, HEXAVALENT	3.8E-03		2	1
MW-25D	T	7/1/2008	CHROMIUM, HEXAVALENT	3.6E-03		2	2
MW-25D	T	7/1/2009	CHROMIUM, HEXAVALENT	2.5E-03		2	2
MW-25D	T	7/1/2010	CHROMIUM, HEXAVALENT	3.5E-03		3	3
MW-25D	T	7/1/2011	CHROMIUM, HEXAVALENT	2.0E-03		2	1
MW-25D	T	7/1/2012	CHROMIUM, HEXAVALENT	3.0E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-26D
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-149

Confidence in Trend:

100.0%

Coefficient of Variation:

1.37

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

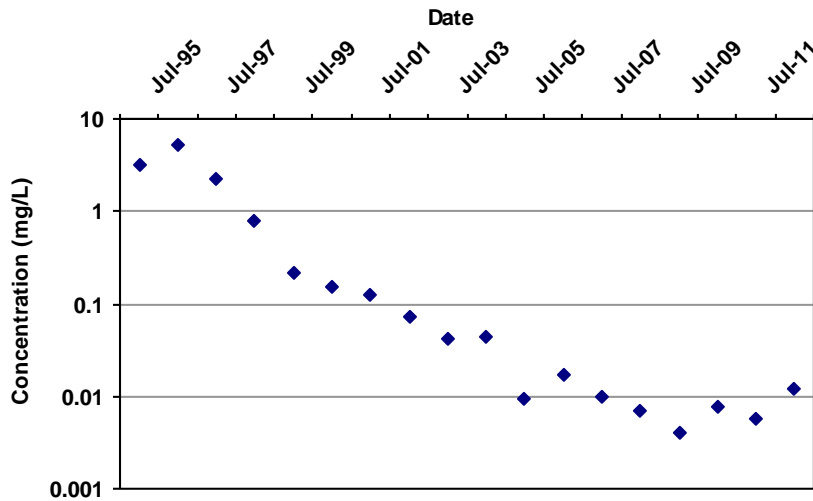
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-26D	T	7/1/1995	CHROMIUM, HEXAVALENT	3.6E+00		11	11
MW-26D	T	7/1/1996	CHROMIUM, HEXAVALENT	2.9E+00		12	12
MW-26D	T	7/1/1997	CHROMIUM, HEXAVALENT	1.9E+00		9	9
MW-26D	T	7/1/1998	CHROMIUM, HEXAVALENT	2.4E+00		3	3
MW-26D	T	7/1/1999	CHROMIUM, HEXAVALENT	1.7E+00		4	4
MW-26D	T	7/1/2000	CHROMIUM, HEXAVALENT	1.3E+00		4	4
MW-26D	T	7/1/2001	CHROMIUM, HEXAVALENT	8.8E-01		4	4
MW-26D	T	7/1/2002	CHROMIUM, HEXAVALENT	3.3E-01		4	4
MW-26D	T	7/1/2003	CHROMIUM, HEXAVALENT	1.5E-01		3	3
MW-26D	T	7/1/2004	CHROMIUM, HEXAVALENT	6.9E-02		2	2
MW-26D	T	7/1/2005	CHROMIUM, HEXAVALENT	4.4E-02		2	2
MW-26D	T	7/1/2006	CHROMIUM, HEXAVALENT	2.8E-02		2	2
MW-26D	T	7/1/2007	CHROMIUM, HEXAVALENT	2.9E-02		2	2
MW-26D	T	7/1/2008	CHROMIUM, HEXAVALENT	2.4E-02		2	2
MW-26D	T	7/1/2009	CHROMIUM, HEXAVALENT	1.7E-02		2	2
MW-26D	T	7/1/2010	CHROMIUM, HEXAVALENT	1.2E-02		2	2
MW-26D	T	7/1/2011	CHROMIUM, HEXAVALENT	9.0E-03		2	2
MW-26D	T	7/1/2012	CHROMIUM, HEXAVALENT	8.8E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-27D
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-127

Confidence in Trend:

100.0%

Coefficient of Variation:

2.12

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

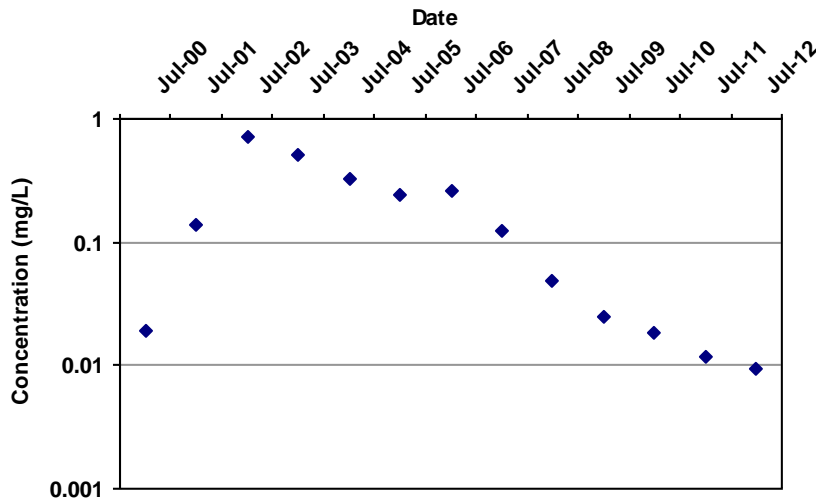
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-27D	T	7/1/1995	CHROMIUM, HEXAVALENT	3.1E+00		11	11
MW-27D	T	7/1/1996	CHROMIUM, HEXAVALENT	5.2E+00		2	2
MW-27D	T	7/1/1997	CHROMIUM, HEXAVALENT	2.3E+00		2	2
MW-27D	T	7/1/1998	CHROMIUM, HEXAVALENT	7.8E-01		2	2
MW-27D	T	7/1/1999	CHROMIUM, HEXAVALENT	2.2E-01		2	2
MW-27D	T	7/1/2000	CHROMIUM, HEXAVALENT	1.6E-01		3	3
MW-27D	T	7/1/2001	CHROMIUM, HEXAVALENT	1.2E-01		4	4
MW-27D	T	7/1/2002	CHROMIUM, HEXAVALENT	7.2E-02		4	4
MW-27D	T	7/1/2003	CHROMIUM, HEXAVALENT	4.2E-02		3	3
MW-27D	T	7/1/2004	CHROMIUM, HEXAVALENT	4.4E-02		2	2
MW-27D	T	7/1/2005	CHROMIUM, HEXAVALENT	9.6E-03		1	1
MW-27D	T	7/1/2006	CHROMIUM, HEXAVALENT	1.8E-02		1	1
MW-27D	T	7/1/2007	CHROMIUM, HEXAVALENT	9.8E-03		1	1
MW-27D	T	7/1/2008	CHROMIUM, HEXAVALENT	7.0E-03		2	2
MW-27D	T	7/1/2009	CHROMIUM, HEXAVALENT	4.1E-03		2	2
MW-27D	T	7/1/2010	CHROMIUM, HEXAVALENT	7.8E-03		3	3
MW-27D	T	7/1/2011	CHROMIUM, HEXAVALENT	5.7E-03		1	1
MW-27D	T	7/1/2012	CHROMIUM, HEXAVALENT	1.2E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-49
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-48

Confidence in Trend:

99.9%

Coefficient of Variation:

1.18

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-49	T	7/1/2000	CHROMIUM, HEXAVALENT	1.9E-02		2	1
MW-49	T	7/1/2001	CHROMIUM, HEXAVALENT	1.4E-01		4	4
MW-49	T	7/1/2002	CHROMIUM, HEXAVALENT	7.3E-01		4	4
MW-49	T	7/1/2003	CHROMIUM, HEXAVALENT	5.2E-01		3	3
MW-49	T	7/1/2004	CHROMIUM, HEXAVALENT	3.3E-01		2	2
MW-49	T	7/1/2005	CHROMIUM, HEXAVALENT	2.5E-01		2	2
MW-49	T	7/1/2006	CHROMIUM, HEXAVALENT	2.6E-01		2	2
MW-49	T	7/1/2007	CHROMIUM, HEXAVALENT	1.3E-01		2	2
MW-49	T	7/1/2008	CHROMIUM, HEXAVALENT	4.8E-02		2	2
MW-49	T	7/1/2009	CHROMIUM, HEXAVALENT	2.5E-02		2	2
MW-49	T	7/1/2010	CHROMIUM, HEXAVALENT	1.8E-02		1	1
MW-49	T	7/1/2011	CHROMIUM, HEXAVALENT	1.2E-02		2	2
MW-49	T	7/1/2012	CHROMIUM, HEXAVALENT	9.4E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

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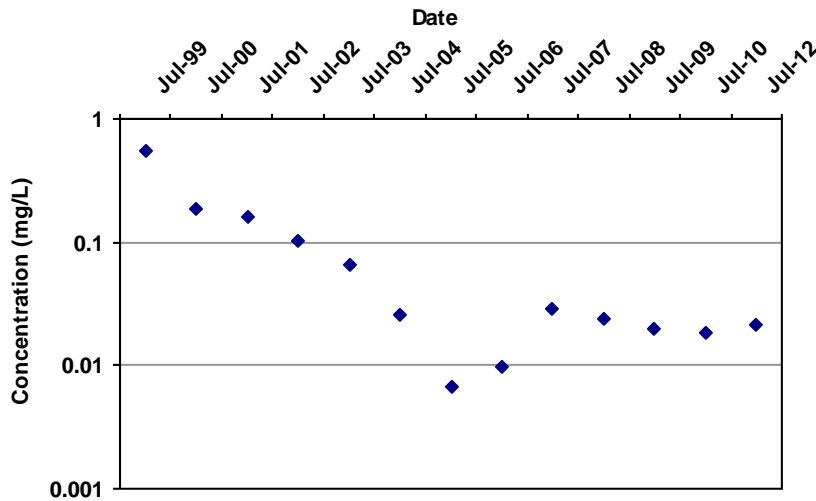
TOE OF PLUME

Other Toe Wells

MAROS Mann-Kendall Statistics Summary

Well: AMW-42
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-50

Confidence in Trend:

99.9%

Coefficient of Variation:

1.60

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

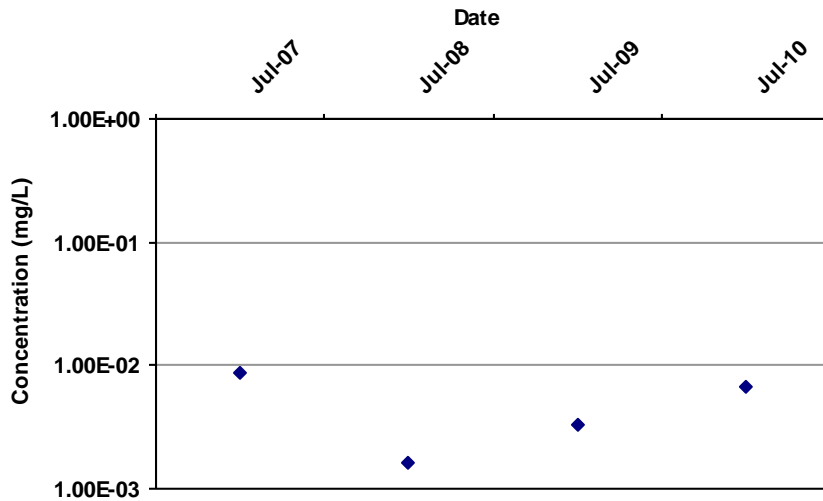
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-42	T	7/1/1999	CHROMIUM, HEXAVALENT	5.5E-01		10	10
AMW-42	T	7/1/2000	CHROMIUM, HEXAVALENT	1.9E-01		13	13
AMW-42	T	7/1/2001	CHROMIUM, HEXAVALENT	1.6E-01		4	4
AMW-42	T	7/1/2002	CHROMIUM, HEXAVALENT	1.0E-01		4	4
AMW-42	T	7/1/2003	CHROMIUM, HEXAVALENT	6.4E-02		3	3
AMW-42	T	7/1/2004	CHROMIUM, HEXAVALENT	2.6E-02		6	6
AMW-42	T	7/1/2005	CHROMIUM, HEXAVALENT	6.6E-03		4	4
AMW-42	T	7/1/2006	CHROMIUM, HEXAVALENT	9.8E-03		2	1
AMW-42	T	7/1/2007	CHROMIUM, HEXAVALENT	2.9E-02		2	2
AMW-42	T	7/1/2008	CHROMIUM, HEXAVALENT	2.4E-02		1	1
AMW-42	T	7/1/2009	CHROMIUM, HEXAVALENT	2.0E-02		1	1
AMW-42	T	7/1/2010	CHROMIUM, HEXAVALENT	1.8E-02		1	1
AMW-42	T	7/1/2012	CHROMIUM, HEXAVALENT	2.1E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-63
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

0

Confidence in Trend:

37.5%

Coefficient of Variation:

0.63

Mann Kendall Concentration Trend: (See Note)

S

Data Table:

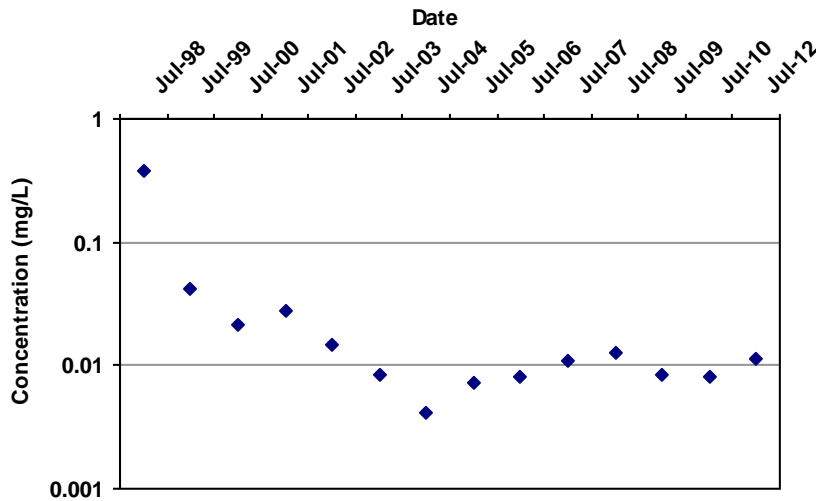
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-63	T	7/1/2007	CHROMIUM, HEXAVALENT	8.8E-03		4	4
AMW-63	T	7/1/2008	CHROMIUM, HEXAVALENT	1.6E-03	ND	2	0
AMW-63	T	7/1/2009	CHROMIUM, HEXAVALENT	3.3E-03		2	1
AMW-63	T	7/1/2010	CHROMIUM, HEXAVALENT	6.8E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-31
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-38

Confidence in Trend:

97.9%

Coefficient of Variation:

2.41

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

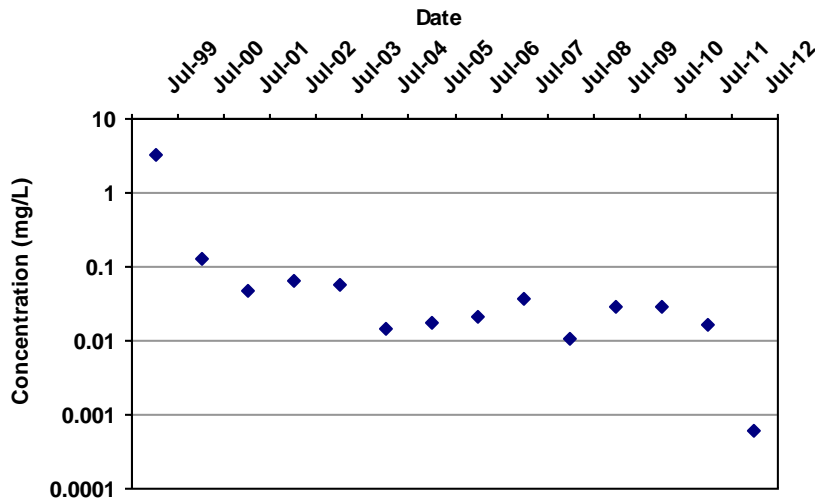
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-31	T	7/1/1998	CHROMIUM, HEXAVALENT	3.7E-01		6	6
MW-31	T	7/1/1999	CHROMIUM, HEXAVALENT	4.2E-02		8	8
MW-31	T	7/1/2000	CHROMIUM, HEXAVALENT	2.2E-02		12	12
MW-31	T	7/1/2001	CHROMIUM, HEXAVALENT	2.7E-02		2	2
MW-31	T	7/1/2002	CHROMIUM, HEXAVALENT	1.5E-02		3	3
MW-31	T	7/1/2003	CHROMIUM, HEXAVALENT	8.3E-03		3	3
MW-31	T	7/1/2004	CHROMIUM, HEXAVALENT	4.2E-03		2	1
MW-31	T	7/1/2005	CHROMIUM, HEXAVALENT	7.3E-03		1	1
MW-31	T	7/1/2006	CHROMIUM, HEXAVALENT	8.1E-03		1	1
MW-31	T	7/1/2007	CHROMIUM, HEXAVALENT	1.1E-02		1	1
MW-31	T	7/1/2008	CHROMIUM, HEXAVALENT	1.3E-02		1	1
MW-31	T	7/1/2009	CHROMIUM, HEXAVALENT	8.4E-03		1	1
MW-31	T	7/1/2010	CHROMIUM, HEXAVALENT	8.1E-03		1	1
MW-31	T	7/1/2012	CHROMIUM, HEXAVALENT	1.1E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-35
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-53

Confidence in Trend:

99.8%

Coefficient of Variation:

3.24

Mann Kendall Concentration Trend:
(See Note)

D

Data Table:

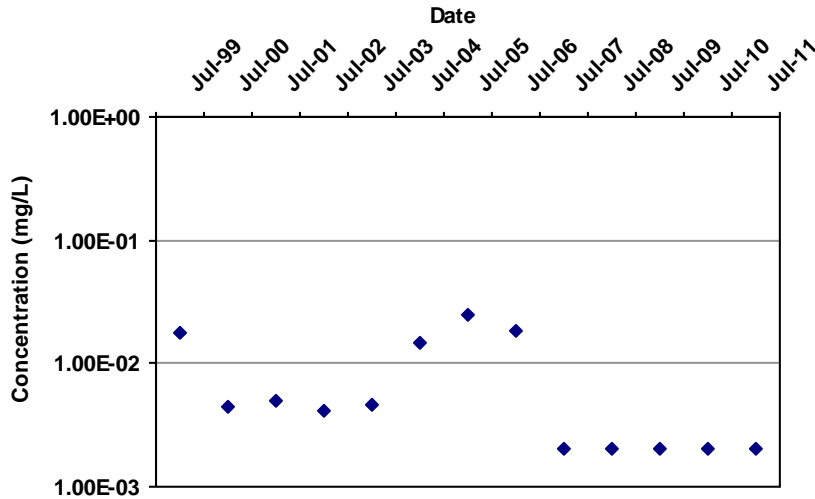
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-35	T	7/1/1999	CHROMIUM, HEXAVALENT	3.4E+00		4	4
MW-35	T	7/1/2000	CHROMIUM, HEXAVALENT	1.3E-01		12	12
MW-35	T	7/1/2001	CHROMIUM, HEXAVALENT	4.8E-02		10	10
MW-35	T	7/1/2002	CHROMIUM, HEXAVALENT	6.6E-02		7	7
MW-35	T	7/1/2003	CHROMIUM, HEXAVALENT	5.6E-02		2	2
MW-35	T	7/1/2004	CHROMIUM, HEXAVALENT	1.4E-02		5	5
MW-35	T	7/1/2005	CHROMIUM, HEXAVALENT	1.8E-02		4	4
MW-35	T	7/1/2006	CHROMIUM, HEXAVALENT	2.2E-02		2	2
MW-35	T	7/1/2007	CHROMIUM, HEXAVALENT	3.7E-02		2	2
MW-35	T	7/1/2008	CHROMIUM, HEXAVALENT	1.0E-02		2	1
MW-35	T	7/1/2009	CHROMIUM, HEXAVALENT	2.9E-02		2	2
MW-35	T	7/1/2010	CHROMIUM, HEXAVALENT	3.0E-02		2	2
MW-35	T	7/1/2011	CHROMIUM, HEXAVALENT	1.7E-02		1	1
MW-35	T	7/1/2012	CHROMIUM, HEXAVALENT	6.0E-04	ND	1	0

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-41
 Well Type: T
 COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-30

Confidence in Trend:

96.2%

Coefficient of Variation:

1.00

Mann Kendall Concentration Trend: (See Note)

D

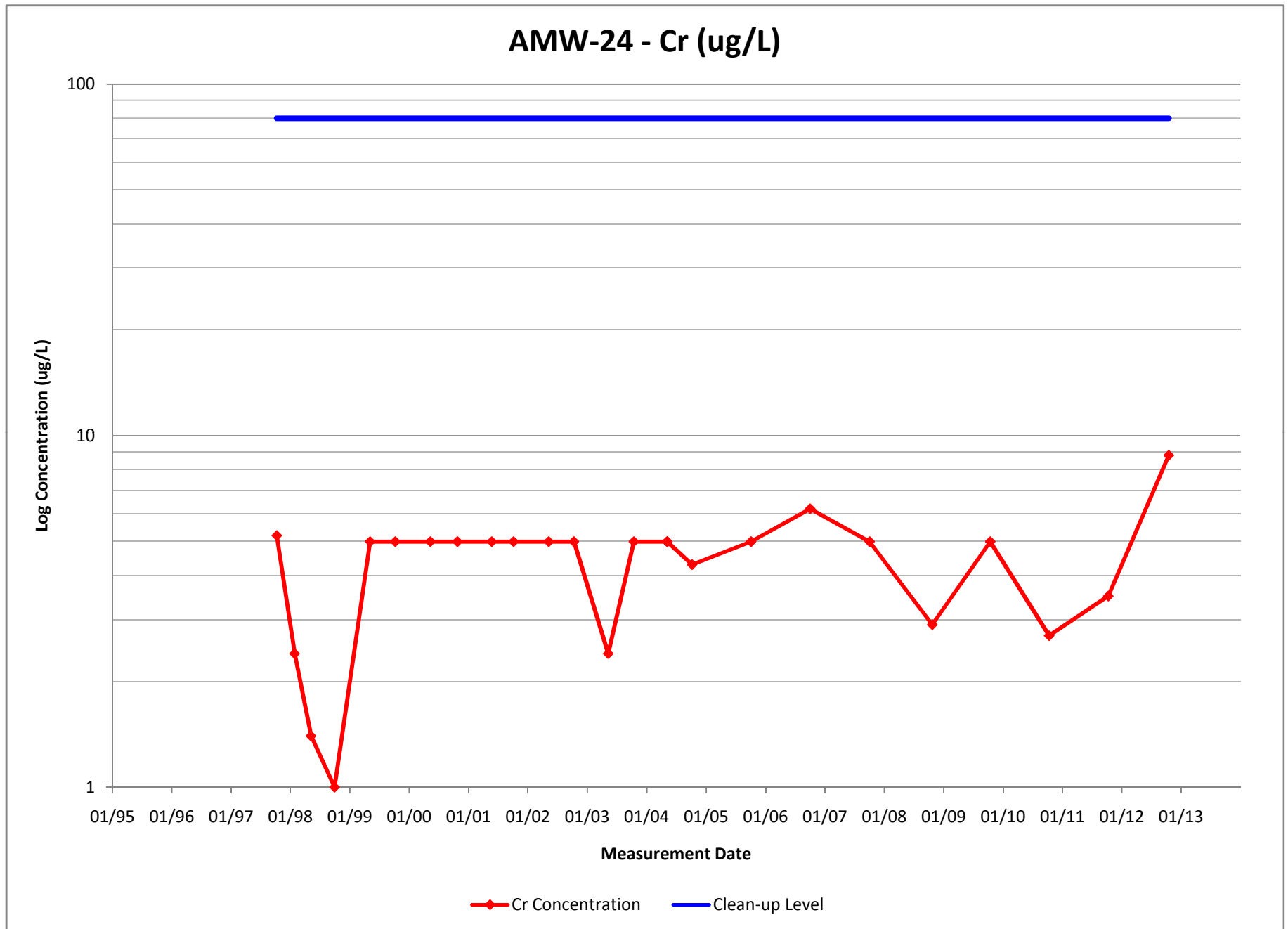
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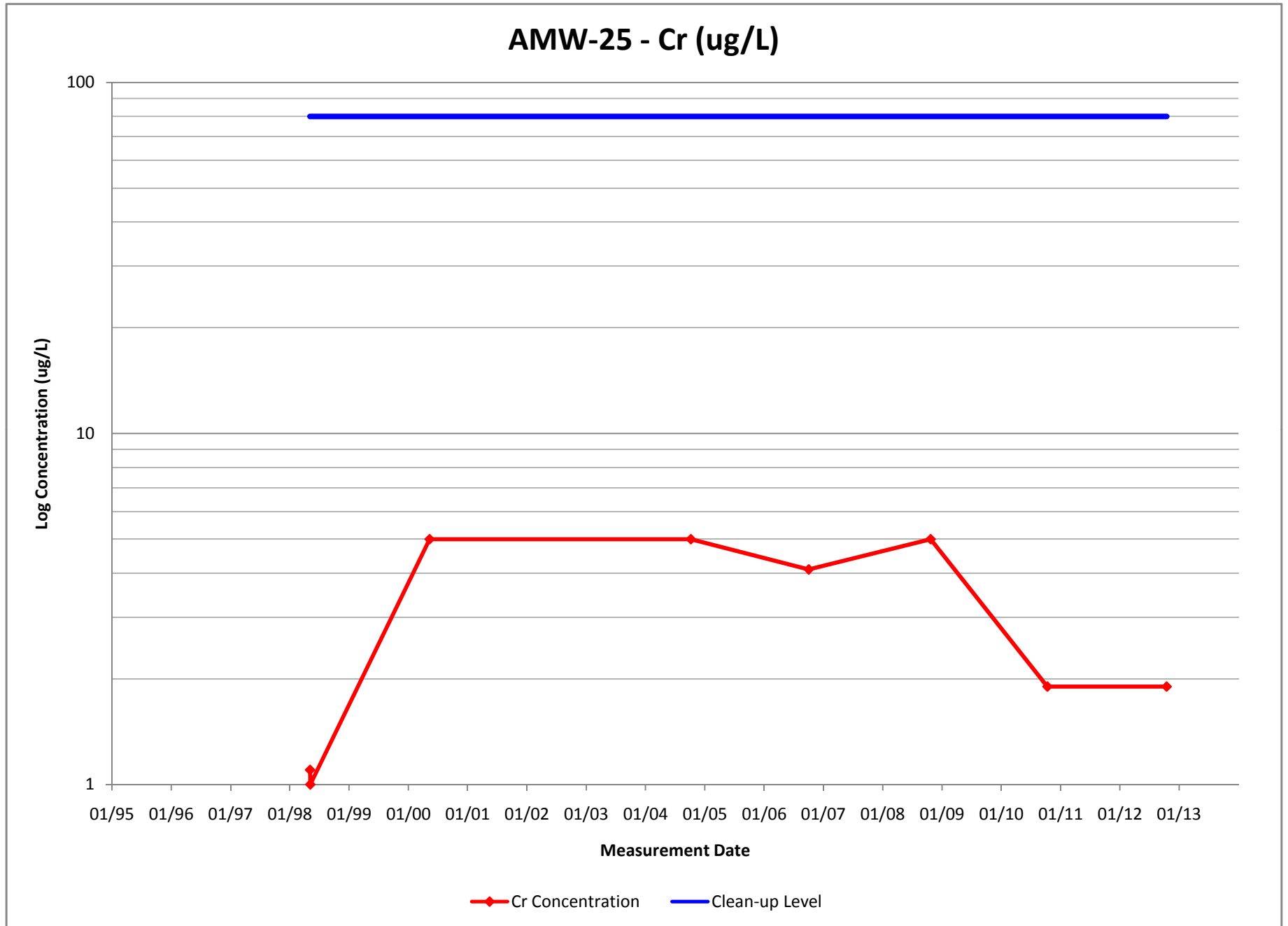
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-41	T	7/1/1999	CHROMIUM, HEXAVALENT	1.8E-02		8	8
MW-41	T	7/1/2000	CHROMIUM, HEXAVALENT	4.5E-03		13	9
MW-41	T	7/1/2001	CHROMIUM, HEXAVALENT	5.0E-03	ND	4	0
MW-41	T	7/1/2002	CHROMIUM, HEXAVALENT	4.2E-03		4	2
MW-41	T	7/1/2003	CHROMIUM, HEXAVALENT	4.6E-03		3	1
MW-41	T	7/1/2004	CHROMIUM, HEXAVALENT	1.5E-02		6	3
MW-41	T	7/1/2005	CHROMIUM, HEXAVALENT	2.5E-02		5	4
MW-41	T	7/1/2006	CHROMIUM, HEXAVALENT	1.8E-02		2	1
MW-41	T	7/1/2007	CHROMIUM, HEXAVALENT	2.0E-03	ND	4	0
MW-41	T	7/1/2008	CHROMIUM, HEXAVALENT	2.0E-03	ND	2	0
MW-41	T	7/1/2009	CHROMIUM, HEXAVALENT	2.0E-03	ND	2	0
MW-41	T	7/1/2010	CHROMIUM, HEXAVALENT	2.0E-03	ND	1	0
MW-41	T	7/1/2011	CHROMIUM, HEXAVALENT	2.0E-03	ND	1	0

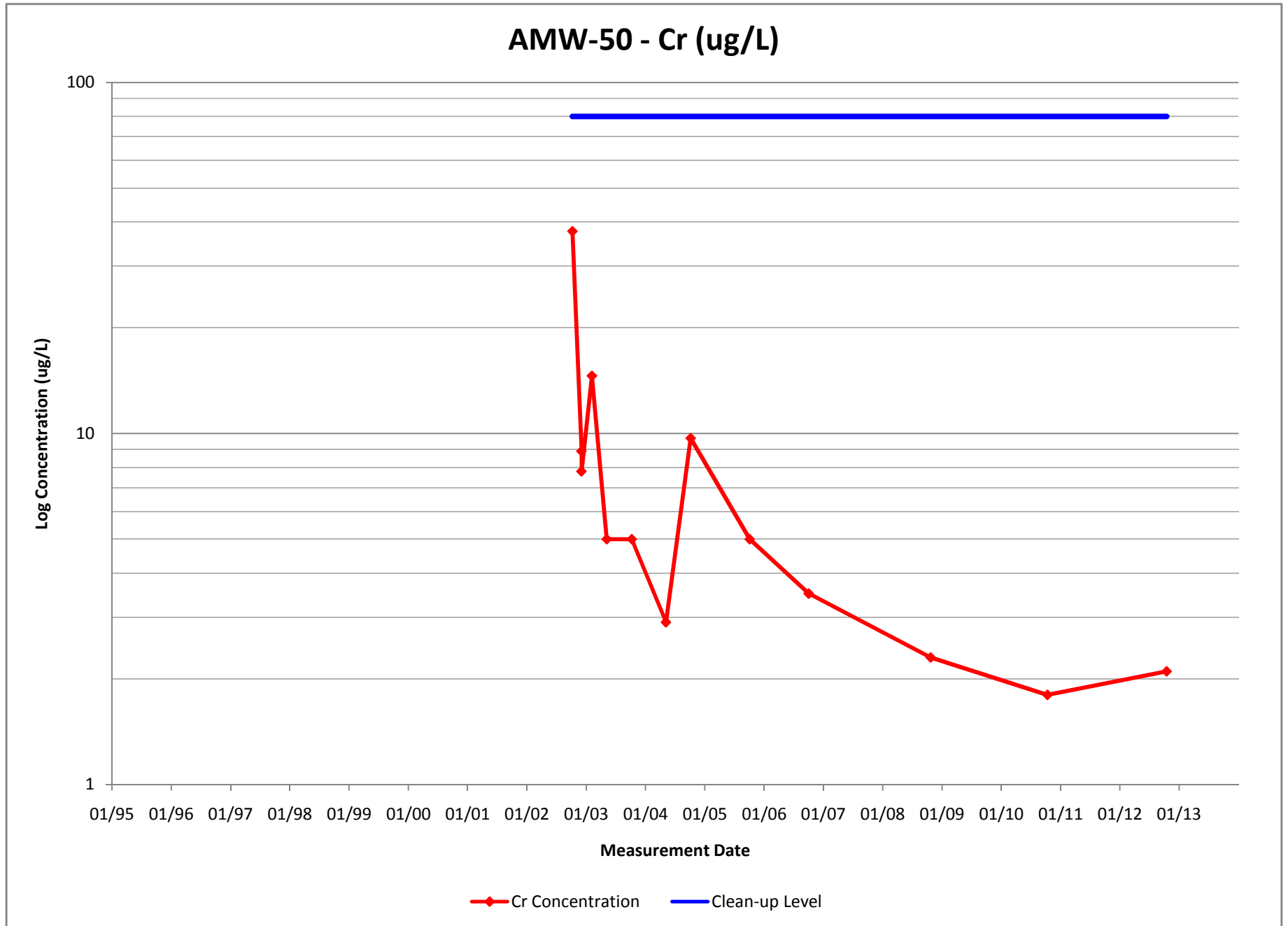
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

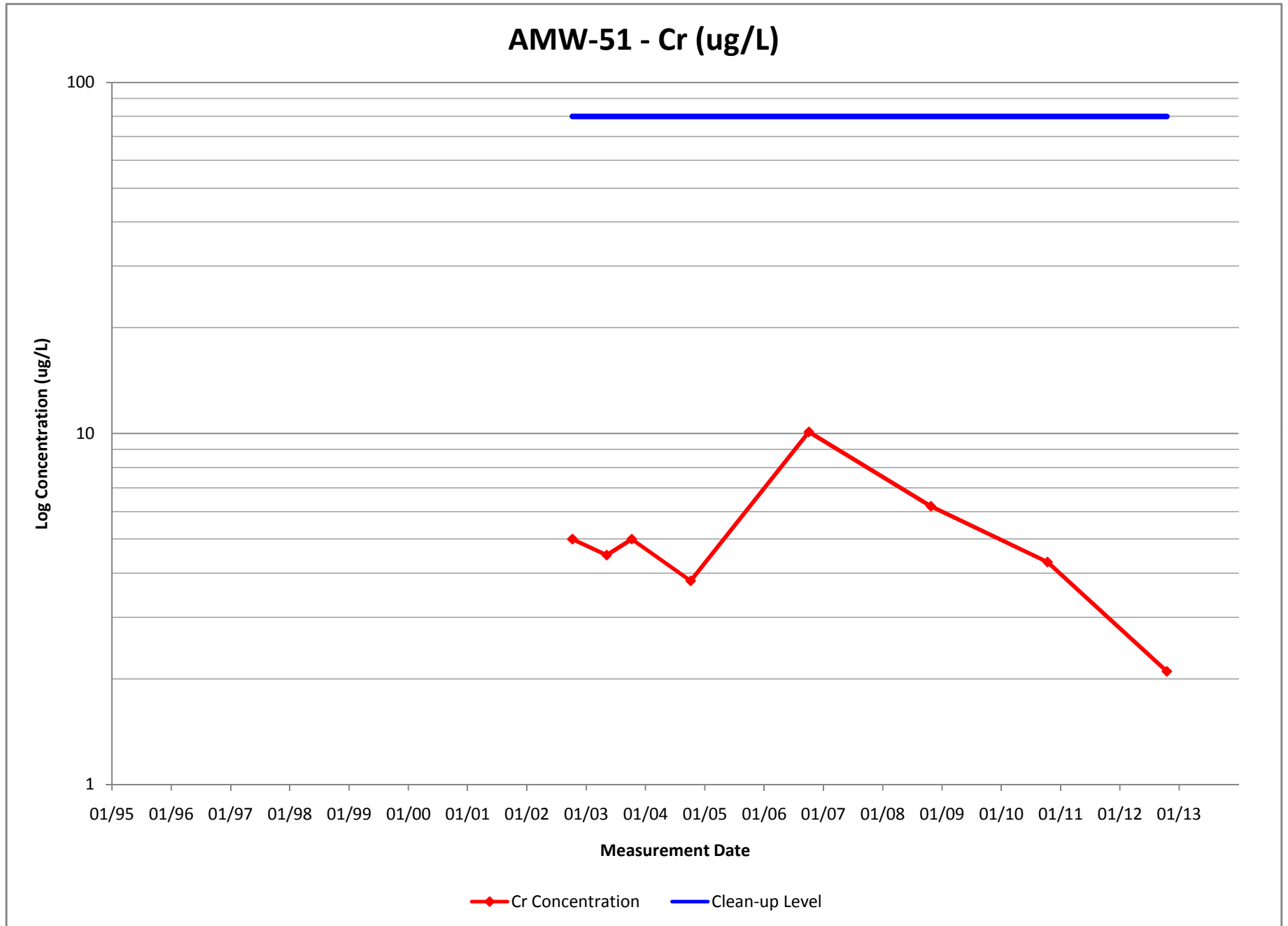
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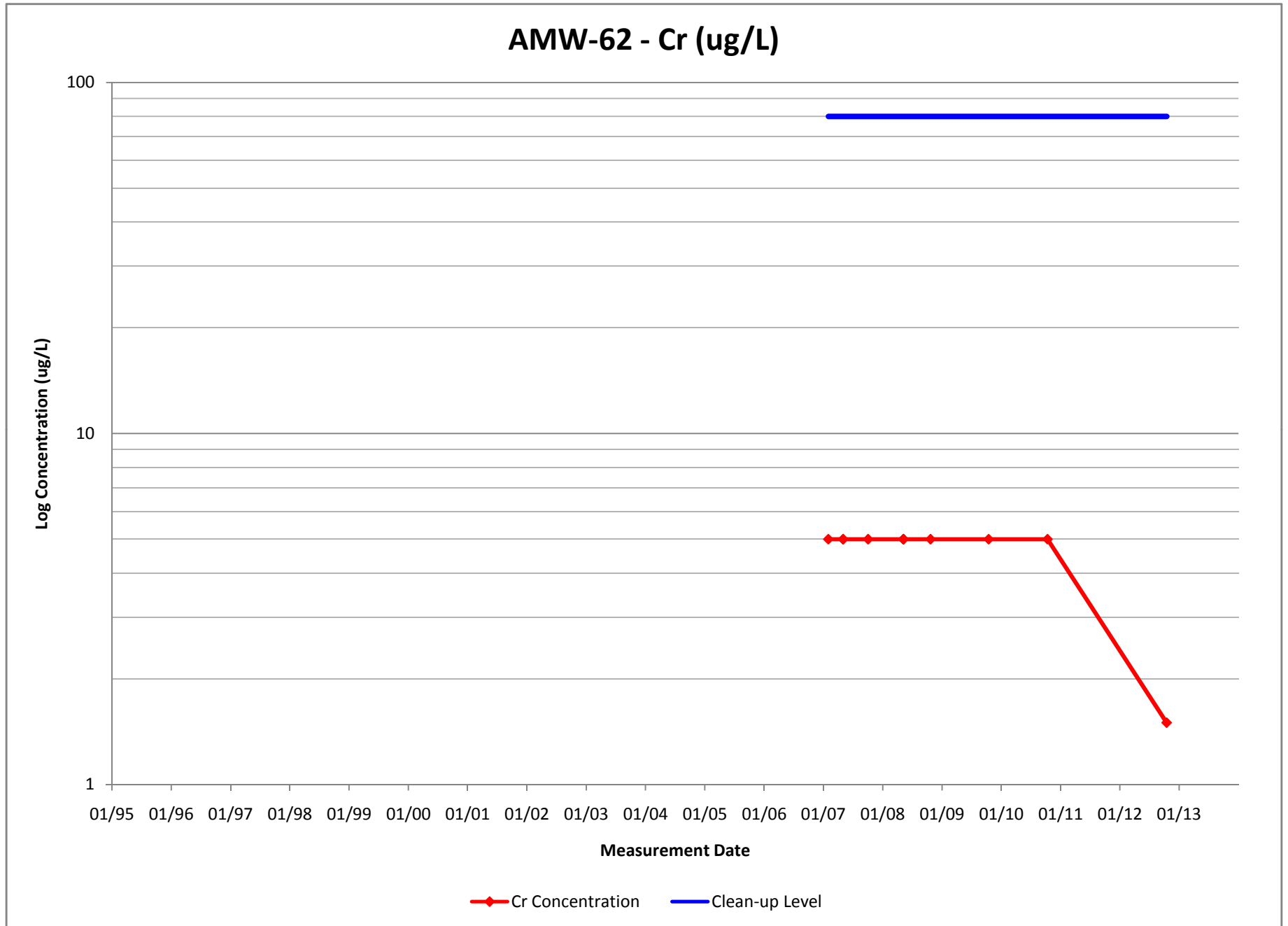
TROUTDALE WELLS

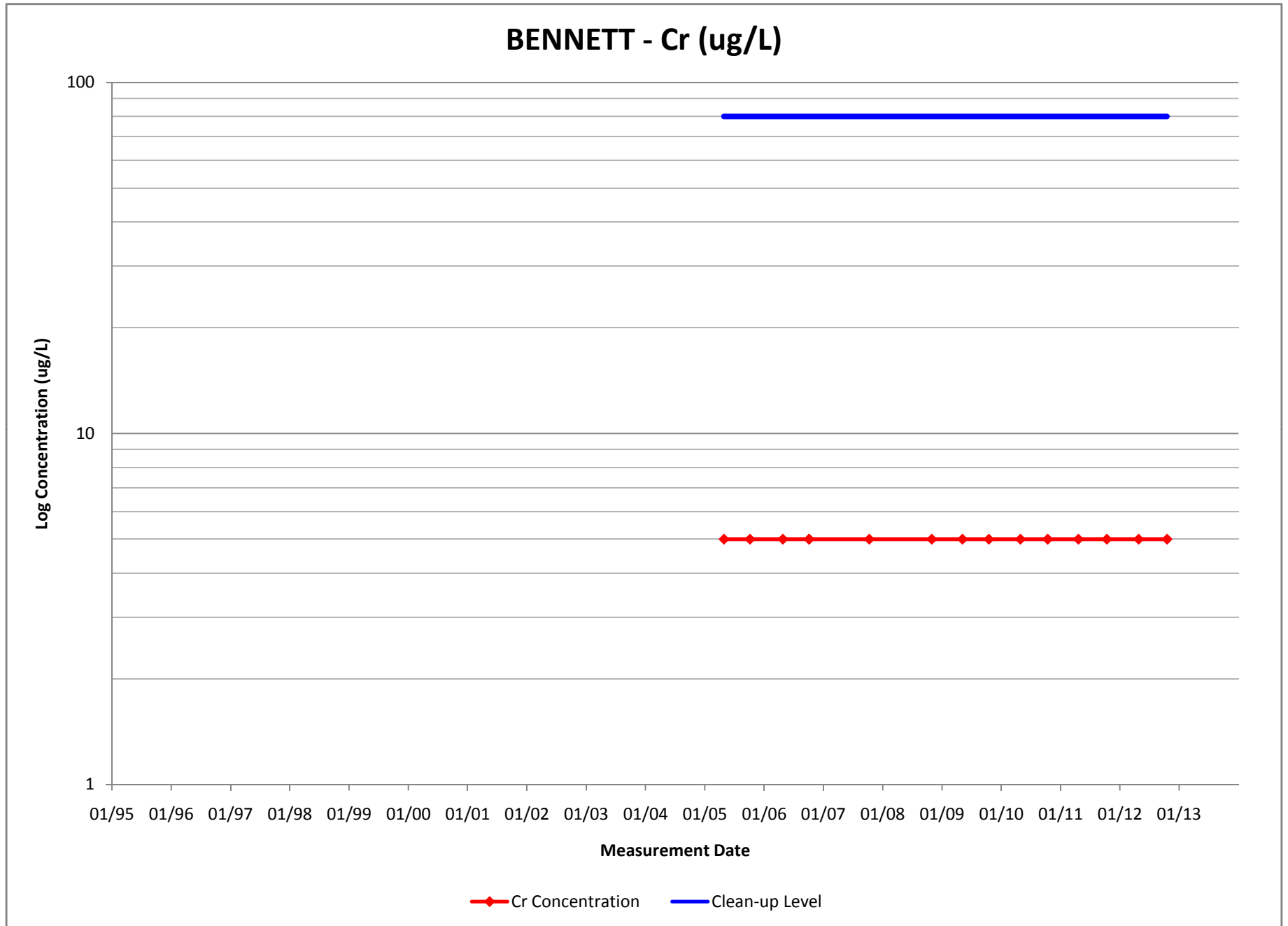


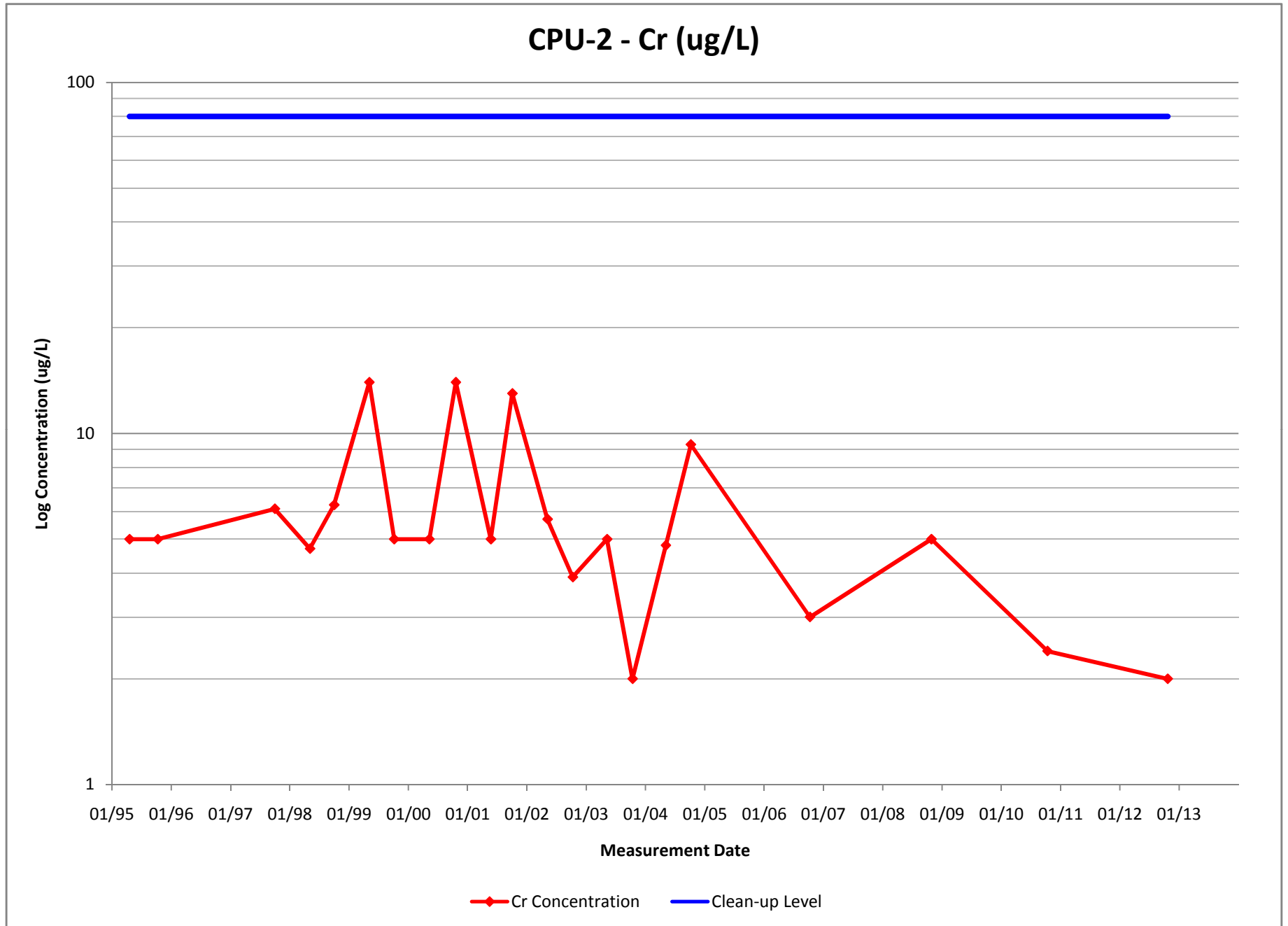


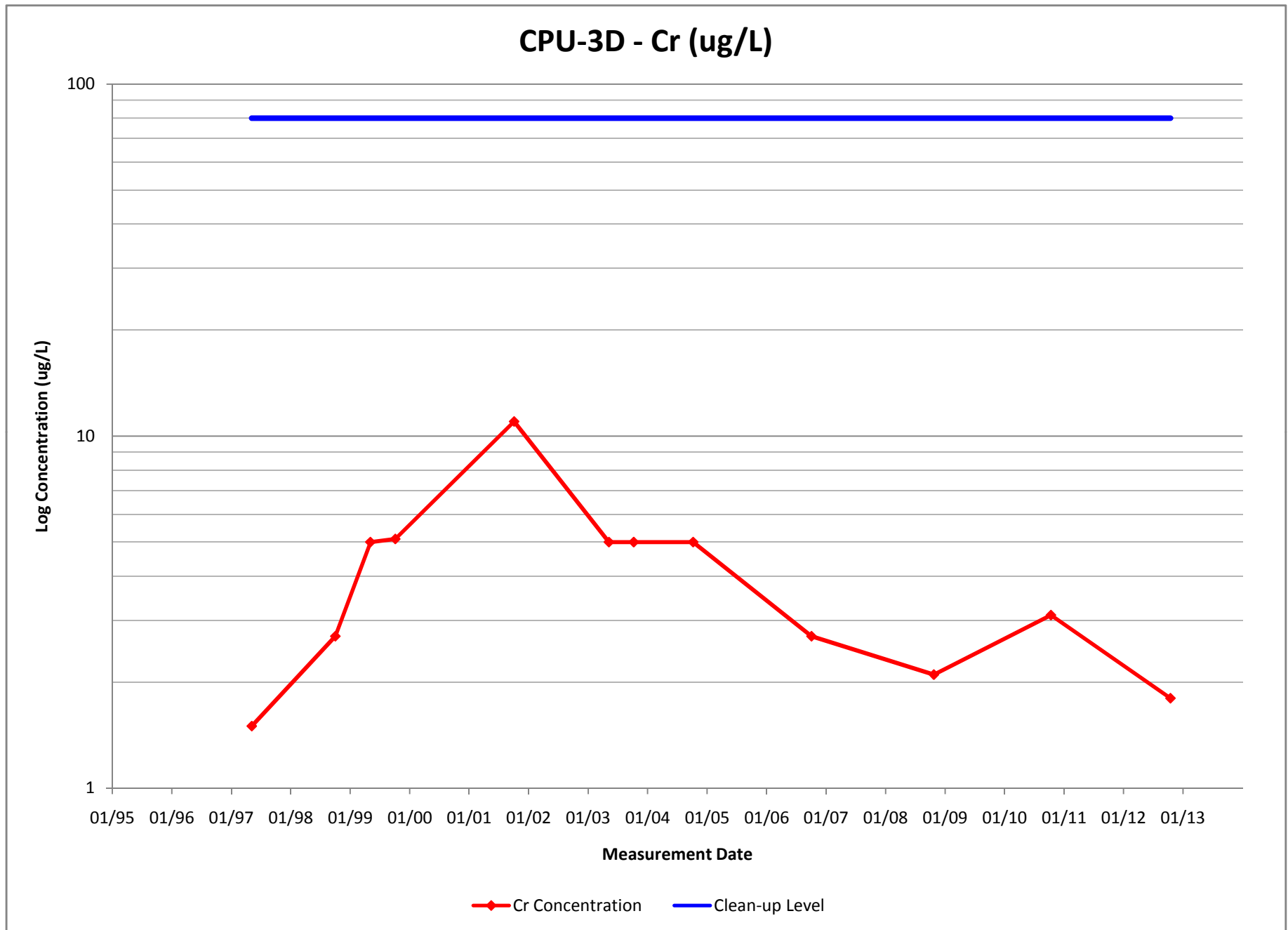


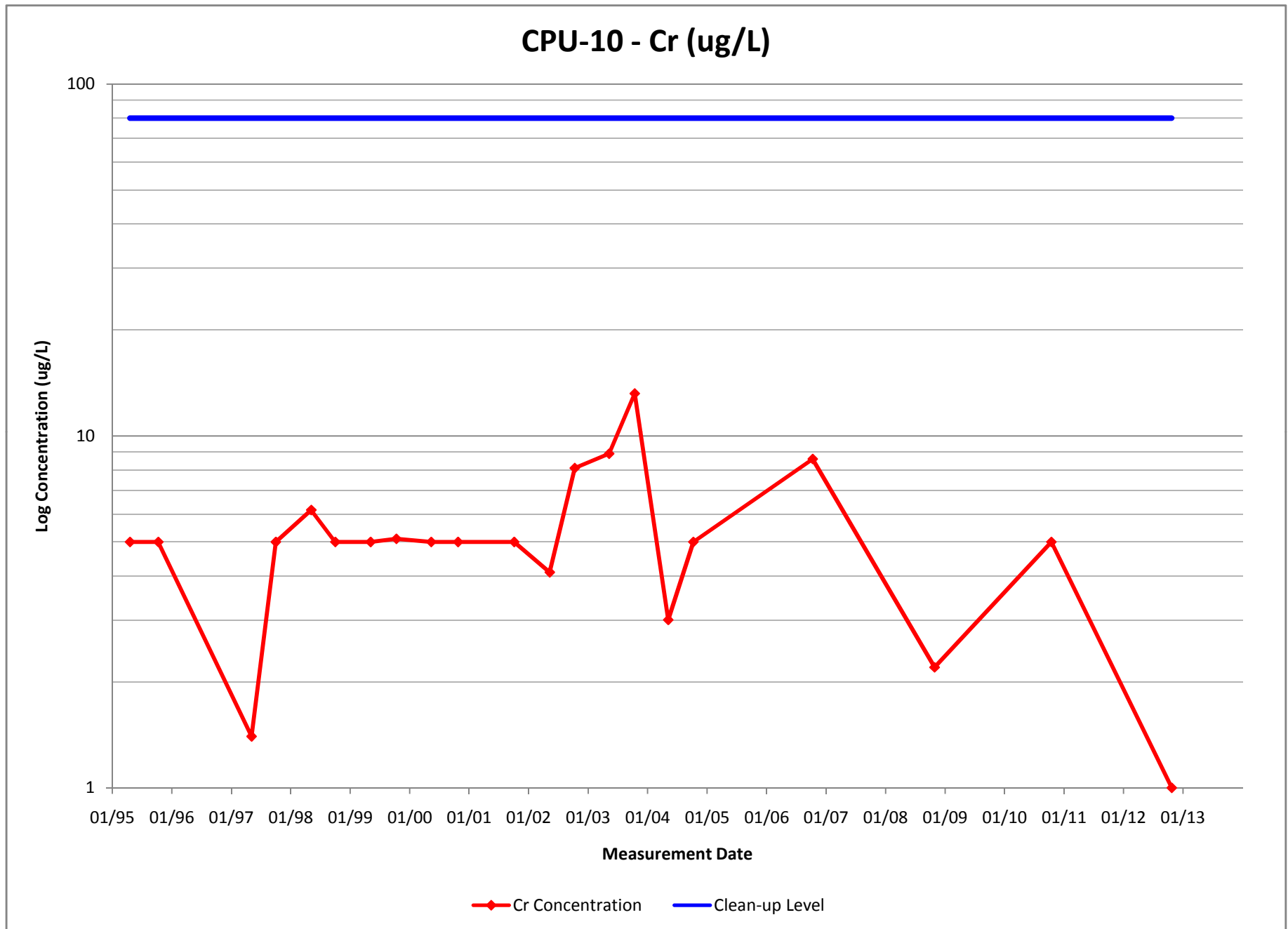


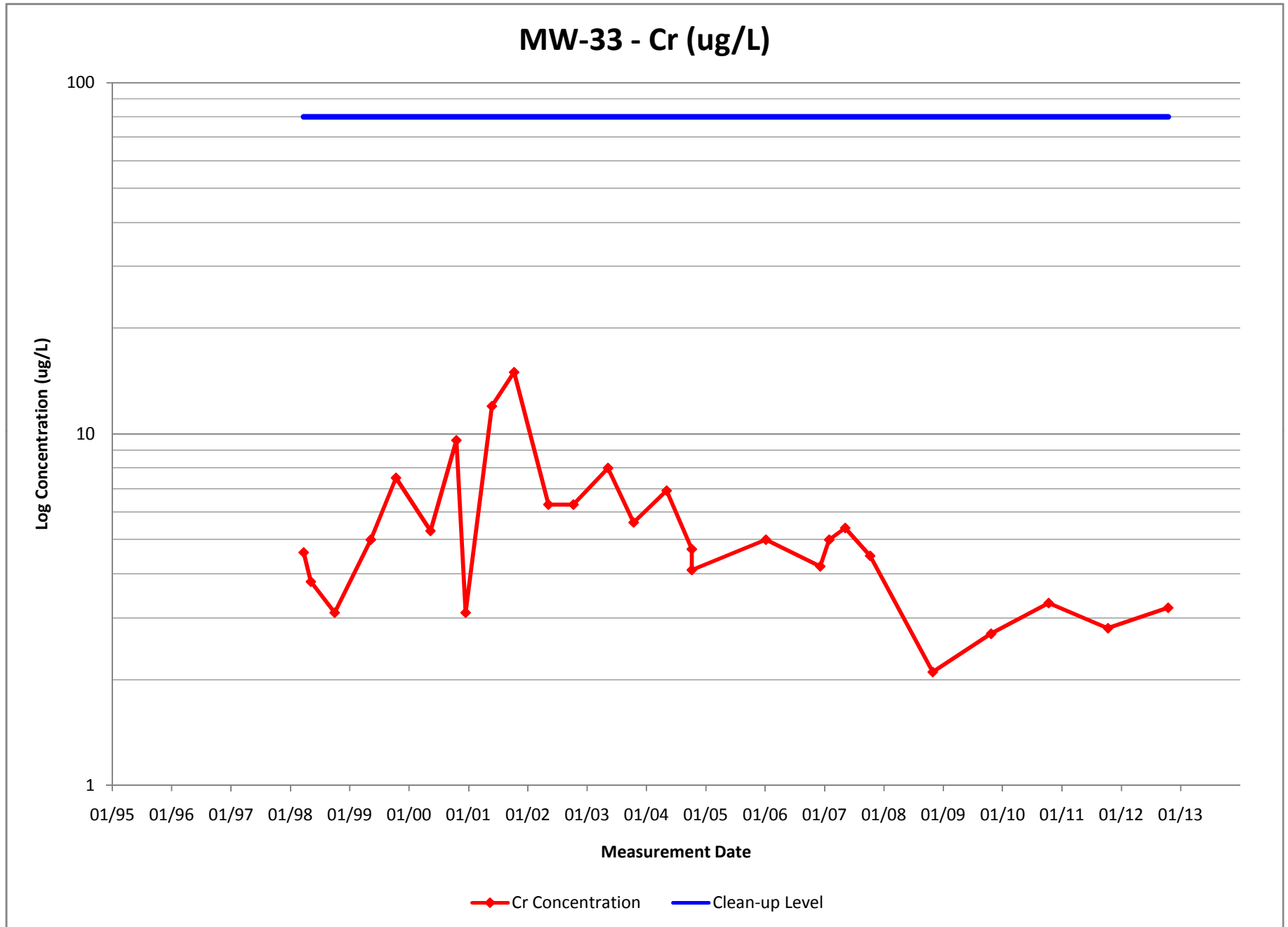


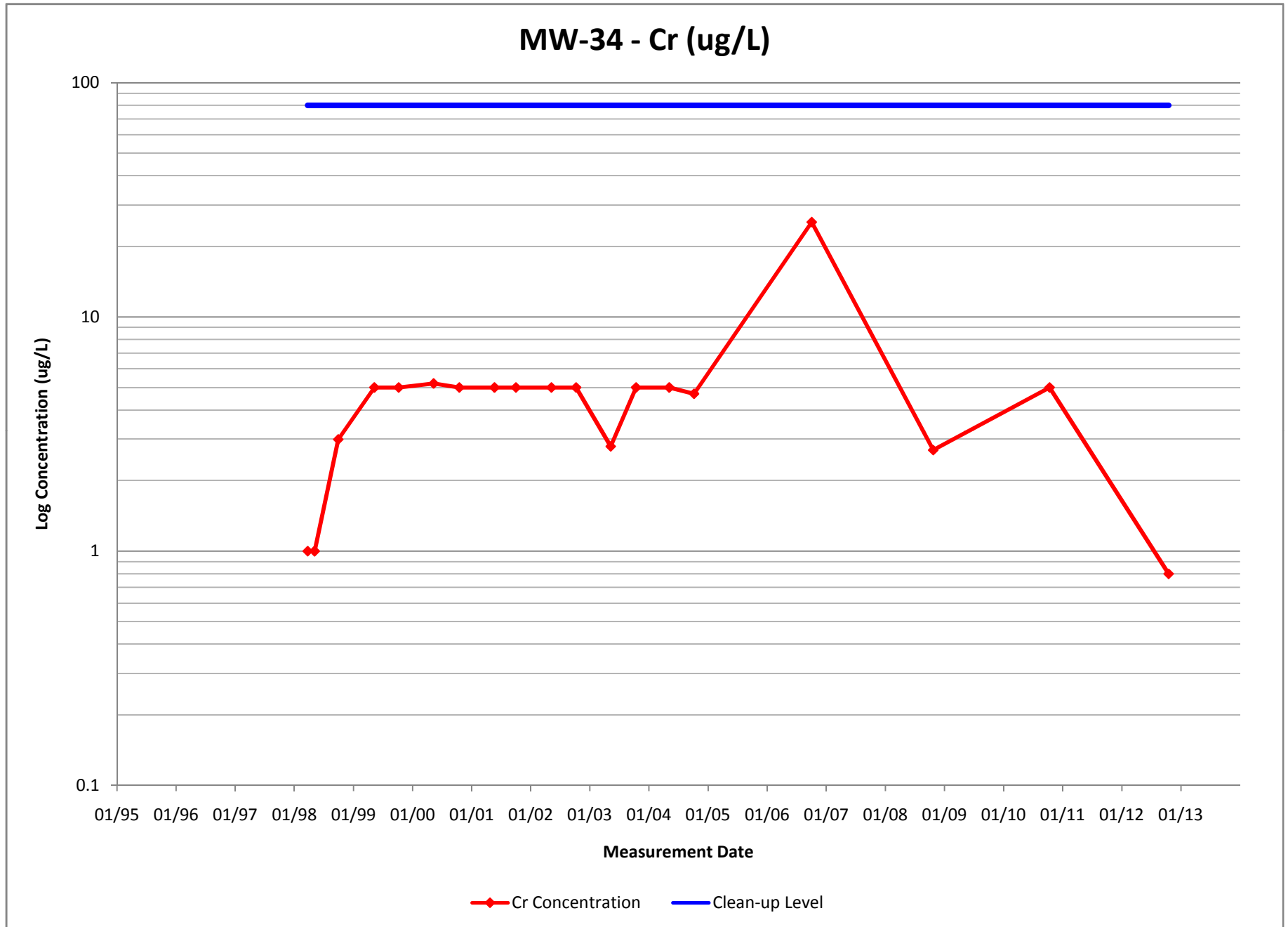












APPENDIX B

TCE CONCENTRATIONS IN GROUNDWATER

APPENDIX B-1

**TCE CONCENTRATIONS –
SUMMARY TABLES**

B1. TCE Concentration Summary

Well Group	Well	Biennial Well Data Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Upgradient	AMW-6A	0.46 J	--	--	--	0.42 J
	AMW-7A	0.43 J	--	--	--	0.24 J
	AMW-8A	--	--	0.50	--	0.33 J
	AMW-10A	0.18 J	--	--	--	0.32 J
	AMW-11A	0.45 J	--	--	--	0.41 J
TCE Source (OU-2)	AMW-1A	--	1.7	44	5.7	44
	AMW-2A	--	18	55	6.1	14
	AMW-2B	0.49 J	--	--	--	0.4 J
	AMW-3A	0.85	--	--	--	0.48 J
	AMW-12A	--	30	38	27	33
	AMW-13A	0.50 U	--	--	--	0.17 J
	AMW-19A	--	--	1.5	--	1.2
	AMW-26	0.24 J	--	--	--	0.52
	AMW-52A	0.16 J	--	--	--	0.50 U
	AMW-53A	--	0.86	6.0	1.8	12
	AMW-54A	2.3	--	--	--	1.8
	AMW-55A	0.95	--	--	--	1.3
	AMW-56A	2.3	--	--	--	2.7
	MW-1A	--	4.8	5.2	6.1	6.1
Proximal	AMW-58	0.15 J	--	--	--	0.10 J
	MW-2A	--	--	1.7	--	1.7
	MW-3B	2.0	--	--	--	2.0
	MW-4B	--	--	4.6	--	4.2
	MW-6B	--	4.5	4.2	4.2	5.1
	MW-8B	3.3	--	--	--	2.4
	MW-9B	5.7	--	--	--	3.7
	MW-10B	--	21	18	16	16
	MW-10C	--	3.6	3.3	2.5	3.0
	MW-12C	24	--	--	--	1.4
	MW-13C	5.6	--	--	--	5.8
	PW-1B	--	3.1	2.9	2.6	3.1
Intermediate	AMW-16	--	--	1.6	0.17 J	1.8
	AMW-59	76	--	--	--	92
	CPU-14	--	--	5.4	--	5.2
	MW-14C	--	24	15	11	19

B1. TCE Concentration Summary

Well Group	Well	Biennial Well Data Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Intermediate Cont.	MW-14E	--	83	78	72	67
	MW-15E	--	5.5	5.1	4.5	4.2
	MW-16E	0.92 UJ	--	--	--	0.42 J
	MW-18D	--	63	52	47	49
	MW-18E	--	--	170	--	170
	MW-19D	--	34	32	30	34
	MW-20D	--	50	58	47	45
	MW-38	--	11	9.8	--	7.4
	PZ-39	--	56	56	56	54
Northern Plume	AMW-17	--	29	140	160	210
	AMW-18	--	75	68	52	39
	AMW-64	--	--	--	160	110
Church of God	AMW-14	--	--	0.64	0.53	--
	AMW-15	0.50 U*	--	--	0.50 U	--
	AMW-27	--	15	14	12	6.8
	AMW-61	6.0	--	--	--	5.4
	CPU-12	--	--	3.5	--	4.9
	CPU-13	--	1.8	1.5	1.4	1.5
	MW-21D	--	7.3	6.2	5.4	5.3
	MW-22D	--	8.4	6.5	6.8	5.6
	MW-23D	--	--	1.6	--	1.4
	MW-25D	--	1.3	1.5	1.3	1.3
	MW-26D	--	0.79	0.72	0.76	0.84
	MW-27D	--	--	0.63	--	0.89
	MW-49	--	1.7	1.4	1.4	1.1
Toe of Plume: Other Toe	AMW-42	0.82	--	--	--	1.2
	MW-31	0.20 J	--	--	--	0.26 J
	MW-35	--	--	5.4	--	5.4
Troutdale Aquifer	AMW-24	--	--	12	--	11
	AMW-25	0.50 U	--	--	--	0.50 U
	AMW-50	0.50 U	--	--	--	0.50 U
	AMW-51	0.17 J	--	--	--	0.24 J
	AMW-62	0.5 U	--	--	--	0.50 U

B1. TCE Concentration Summary

Well Group	Well	Biennial Well Data Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Troutdale Aquifer Cont.	BENNETT	--	4.0	6.2	3.8	6.9
	CPU-2	0.50 U	--	--	--	0.50 U
	CPU-3D	0.50 U	--	--	--	0.50 U
	CPU-10	0.50 U	--	--	--	0.50 U
	MW-33	--	--	13	--	11
	MW-34	0.50 U	--	--	--	0.50 U

NOTES:

Only wells sampled during 2012 are included in this table.

Results are in micrograms per liter ($\mu\text{g/L}$).

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.

-- = Well not sampled during the monitoring event.

U = Analyte not detected above the specified reporting limit.

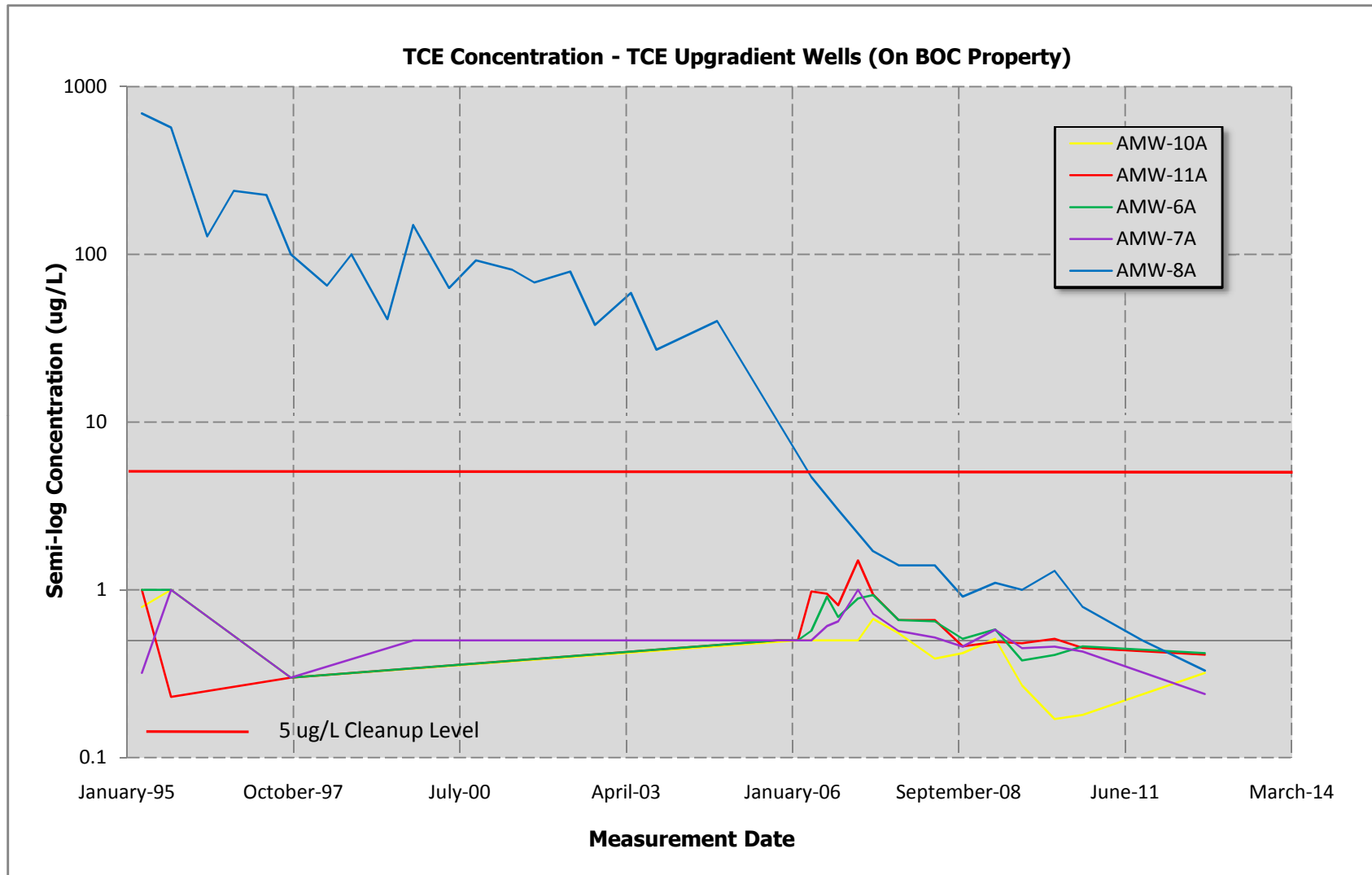
UJ = The analyte was not detected, but the associated limit of quantitation is estimated due to discrepancies in quality control criteria.

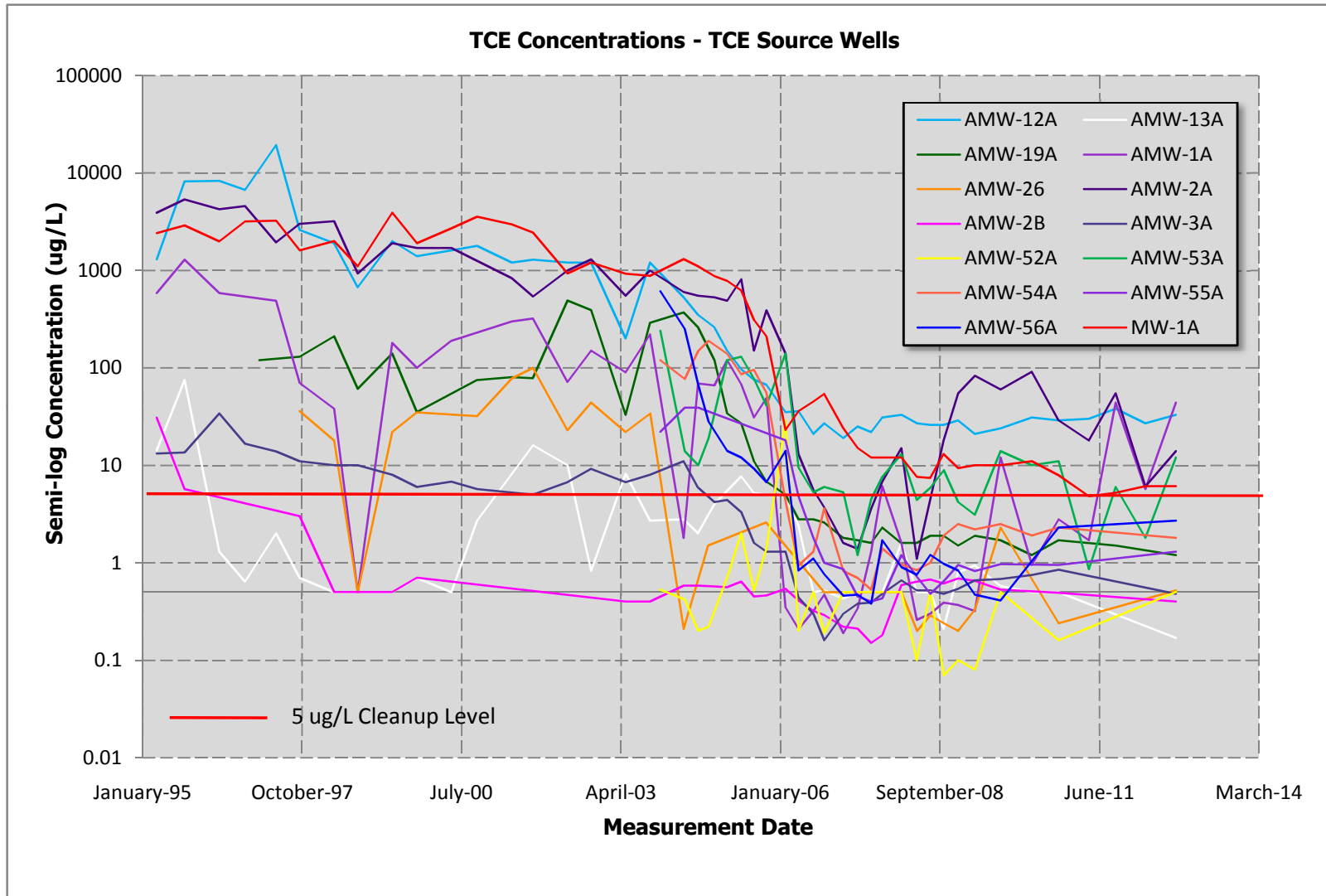
* = Well AMW-15 TCE is from the last time it was sampled in 2004. Per EPA request, the well was sampled during the Spring 2012 event prior decommissioning in April 2012.

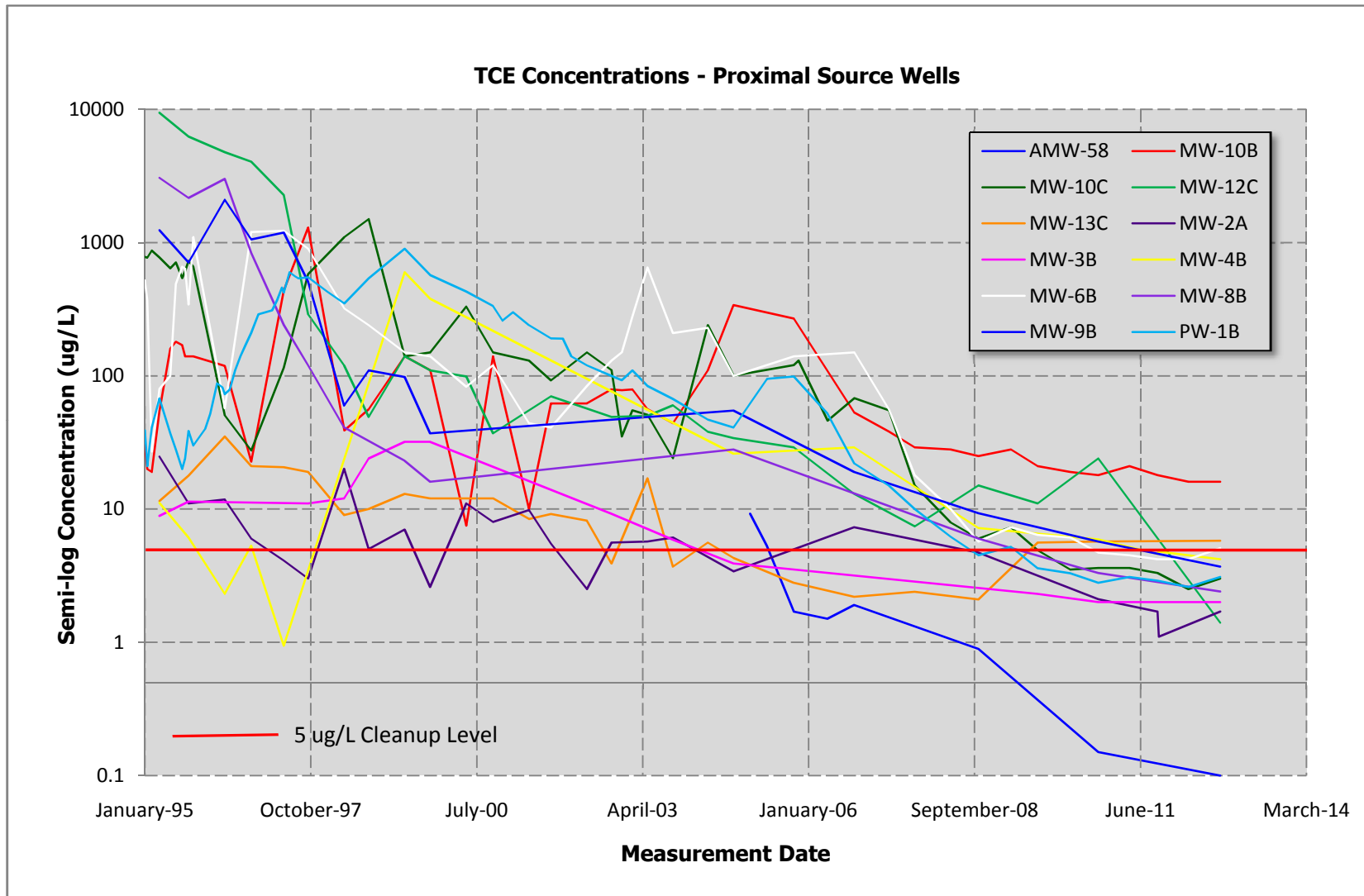
Results shown in **bold and shaded** are above the cleanup level of 5.0 $\mu\text{g/L}$.

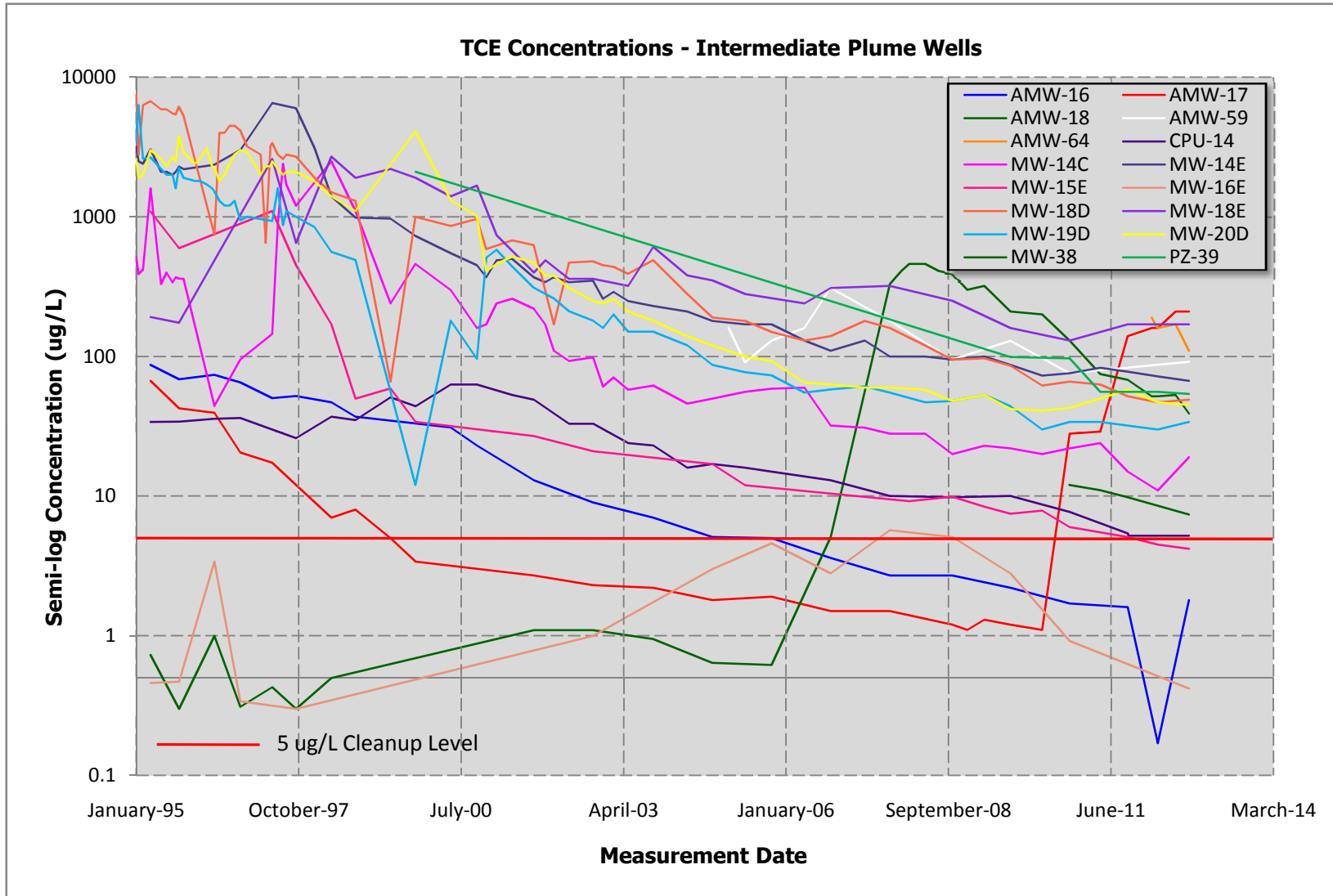
APPENDIX B-2

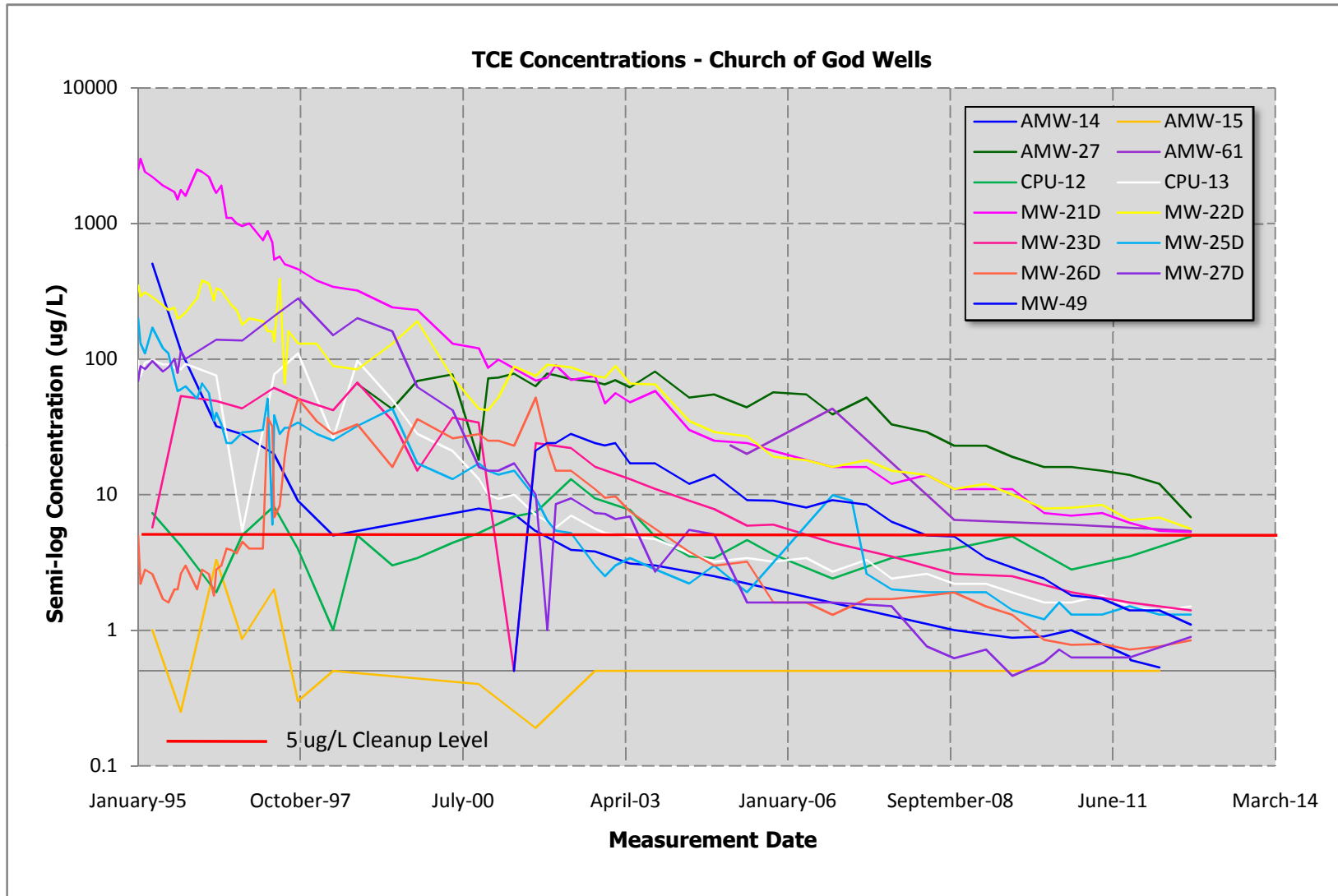
**TCE CONCENTRATIONS –
BY WELL GROUPING**

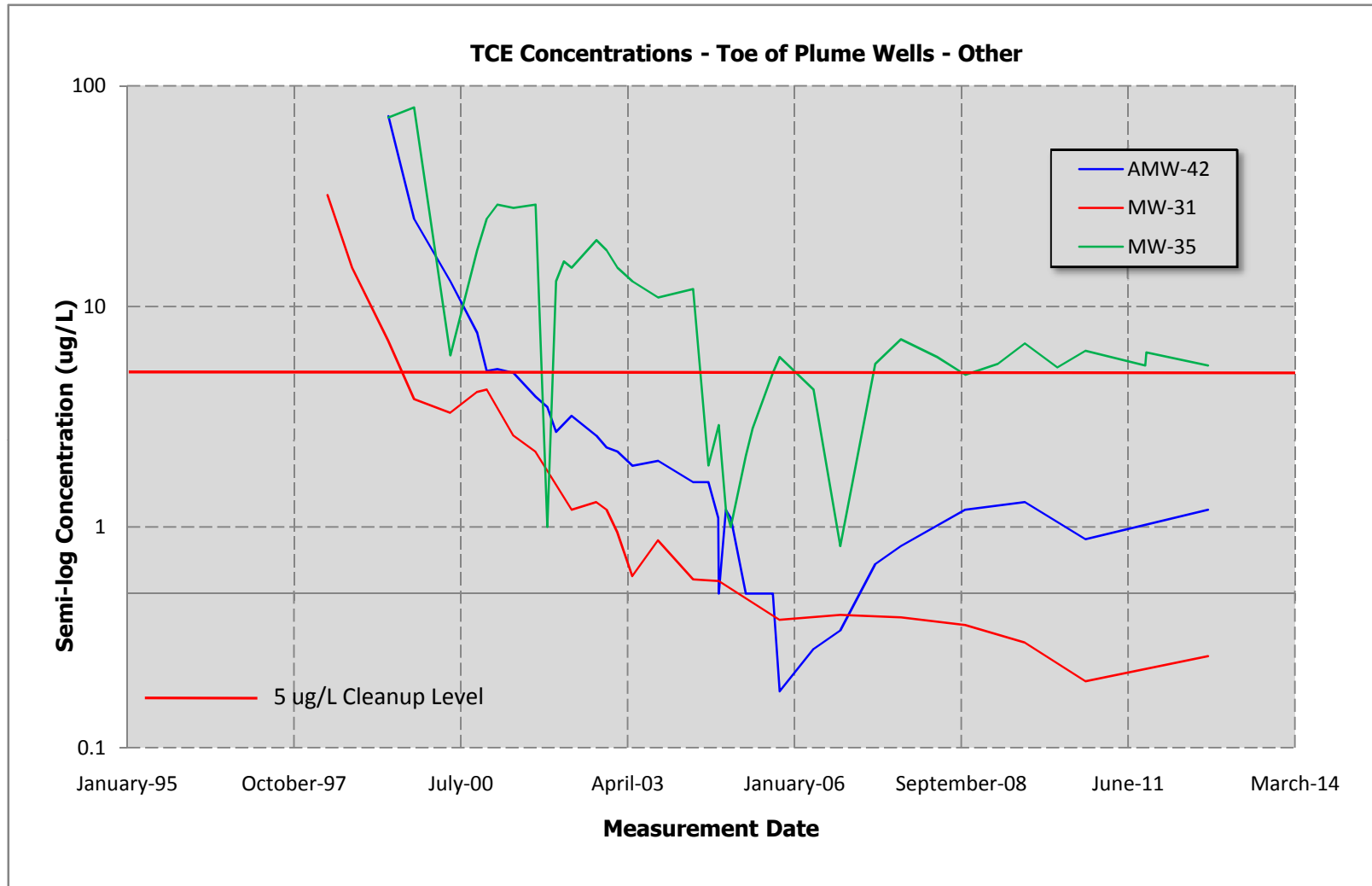


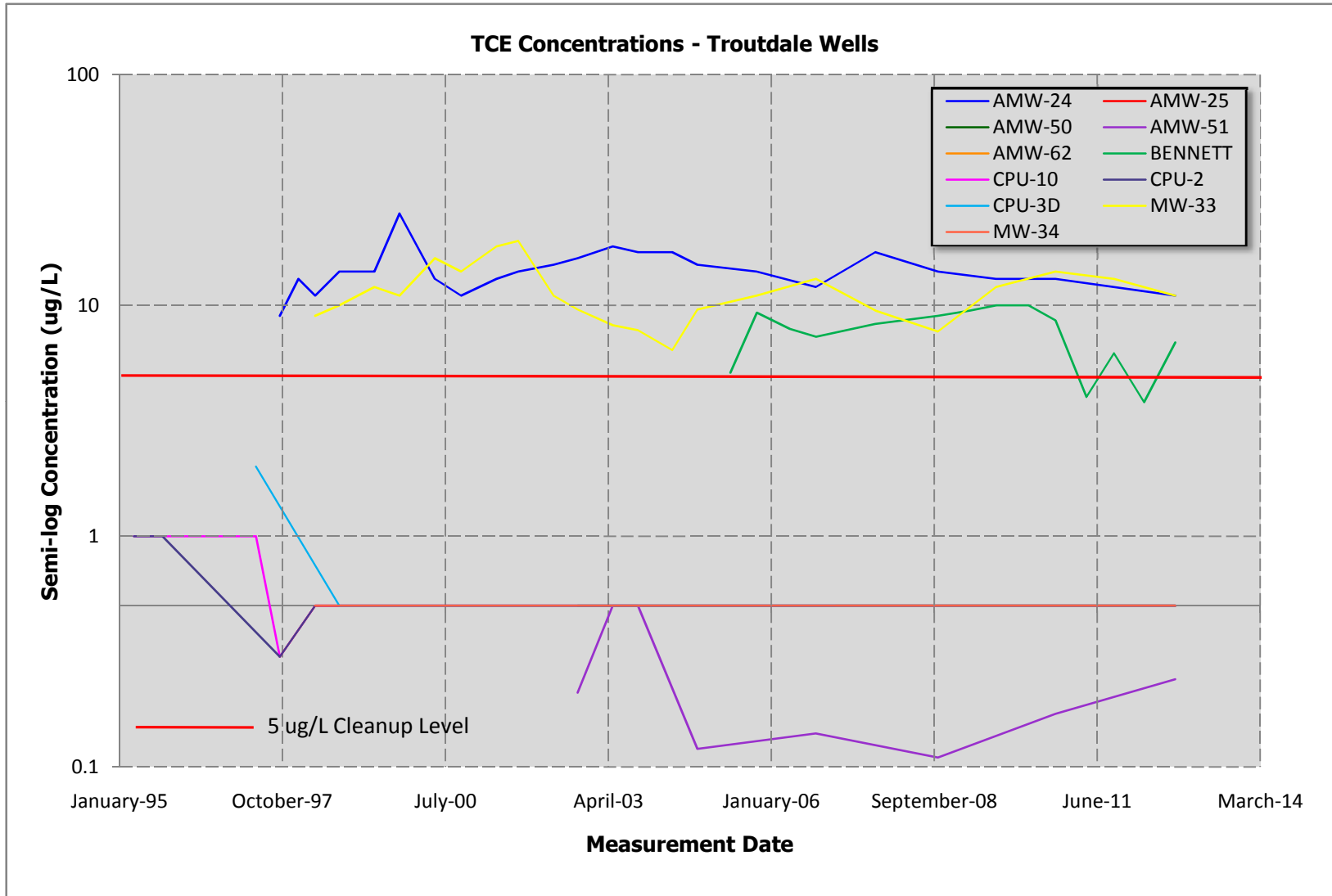












APPENDIX B-3

**TCE CONCENTRATIONS –
INDIVIDUAL WELLS**

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Upgradient Wells	
AMW-6A	1
AMW-7A	2
AMW-8A	3
AMW-10A	4
AMW-11A	5
TCE Source Wells	
AMW-1A	1
AMW-2A	2
AMW-2B	3
AMW-3A	4
AMW-12A	5
AMW-13A	6
AMW-19A	7
AMW-26	8
AMW-52A	9
AMW-53A	10
AMW-54A	11
AMW-55A	12
AMW-56A	13
MW-1A	14
Proximal Wells	
AMW-58	1
MW-2A	2
MW-3B	3
MW-4B	4
MW-4BShed	5
MW-6B	6
MW-7B	7
MW-8B	8
MW-9B	9
MW-10B	10
MW-10C	11
MW-12C	12
MW-13C	13
PW-1B	14

Intermediate Wells

AMW-16 1
AMW-17 2
AMW-18 3
AMW-59 4
CPU-14 5
MW-14C 6
MW-14E 7
MW-15E 8
MW-16E 9
MW-18D 10
MW-18E 11
MW-19D 12
MW-20D 13
MW-38 14

Church of God Wells

AMW-14 1
AMW-27 2
AMW-61 3
CPU-12 4
CPU-13 5
MW-21D 6
MW-22D 7
MW-23D 8
MW-25D 9
MW-26D 10
MW-27D 11
MW-49 12

Toe of Plume – Other Toe Wells

AMW-42 1
AMW-63 2
MW-31 3
MW-35 4
MW-41 5

Troutdale Wells

AMW-24 1
AMW-25 2
AMW-50 3
AMW-51 4
AMW-62 5
BENNETT 6

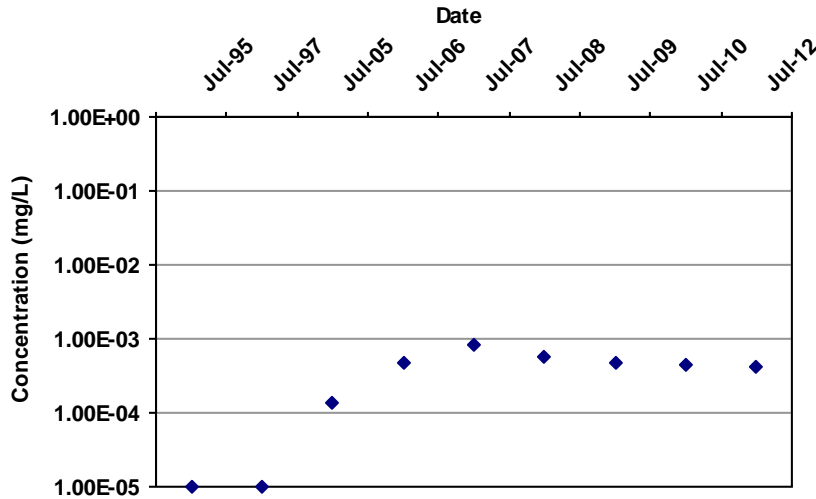
CPU-2	7
CPU-3D.....	8
CPU-10	9
MW-33.....	10
MW-34.....	11

UPGRADIENT WELLS

MAROS Mann-Kendall Statistics Summary

Well: AMW-6A
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

9

Confidence in Trend:

79.2%

Coefficient of Variation:

0.72

Mann Kendall Concentration Trend: (See Note)

NT

Data Table:

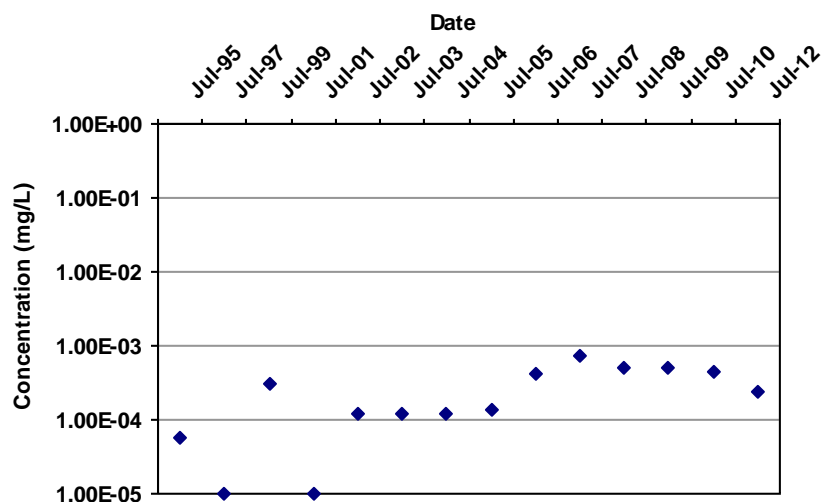
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-6A	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.0E-05	ND	2	0
AMW-6A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.0E-05	ND	1	0
AMW-6A	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.4E-04	ND	1	0
AMW-6A	T	7/1/2006	TRICHLOROETHYLENE (TCE)	4.7E-04		4	3
AMW-6A	T	7/1/2007	TRICHLOROETHYLENE (TCE)	8.2E-04		3	3
AMW-6A	T	7/1/2008	TRICHLOROETHYLENE (TCE)	5.8E-04		2	2
AMW-6A	T	7/1/2009	TRICHLOROETHYLENE (TCE)	4.7E-04		2	2
AMW-6A	T	7/1/2010	TRICHLOROETHYLENE (TCE)	4.3E-04		2	2
AMW-6A	T	7/1/2012	TRICHLOROETHYLENE (TCE)	4.2E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-7A
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

51

Confidence in Trend:

99.8%

Coefficient of Variation:

0.84

Mann Kendall Concentration Trend:
(See Note)

I

Data Table:

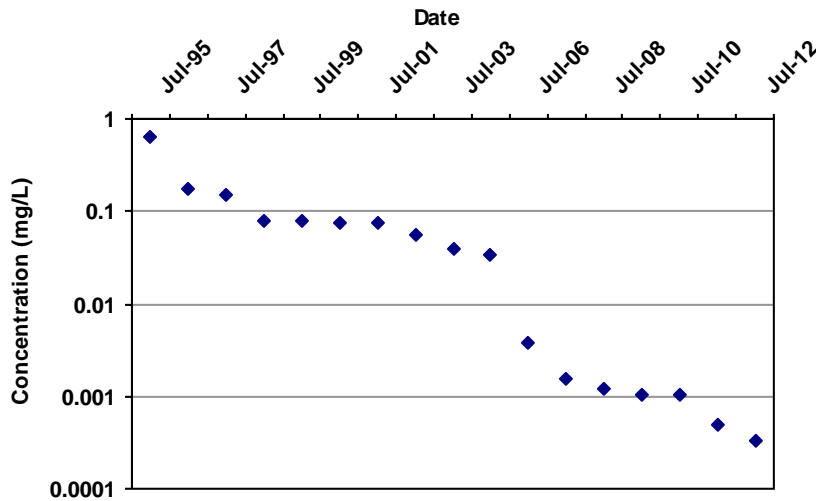
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-7A	T	7/1/1995	TRICHLOROETHYLENE (TCE)	5.7E-05		2	1
AMW-7A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.0E-05	ND	1	0
AMW-7A	T	7/1/1999	TRICHLOROETHYLENE (TCE)	3.0E-04	ND	1	0
AMW-7A	T	7/1/2001	TRICHLOROETHYLENE (TCE)	1.0E-05	ND	2	0
AMW-7A	T	7/1/2002	TRICHLOROETHYLENE (TCE)	1.2E-04	ND	2	0
AMW-7A	T	7/1/2003	TRICHLOROETHYLENE (TCE)	1.2E-04	ND	2	0
AMW-7A	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.2E-04	ND	2	0
AMW-7A	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.4E-04	ND	1	0
AMW-7A	T	7/1/2006	TRICHLOROETHYLENE (TCE)	4.1E-04		4	3
AMW-7A	T	7/1/2007	TRICHLOROETHYLENE (TCE)	7.4E-04		3	3
AMW-7A	T	7/1/2008	TRICHLOROETHYLENE (TCE)	4.9E-04		2	2
AMW-7A	T	7/1/2009	TRICHLOROETHYLENE (TCE)	5.1E-04		2	2
AMW-7A	T	7/1/2010	TRICHLOROETHYLENE (TCE)	4.4E-04		2	2
AMW-7A	T	7/1/2012	TRICHLOROETHYLENE (TCE)	2.4E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-8A
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-136

Confidence in Trend:

100.0%

Coefficient of Variation:

1.83

Mann Kendall Concentration Trend:
(See Note)

D

Data Table:

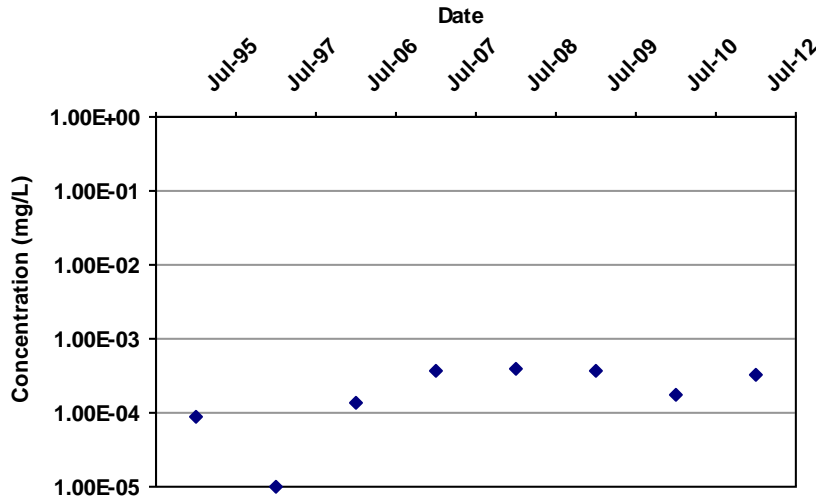
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-8A	T	7/1/1995	TRICHLOROETHYLENE (TCE)	6.3E-01		2	2
AMW-8A	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.7E-01		2	2
AMW-8A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.5E-01		2	2
AMW-8A	T	7/1/1998	TRICHLOROETHYLENE (TCE)	8.1E-02		2	2
AMW-8A	T	7/1/1999	TRICHLOROETHYLENE (TCE)	7.8E-02		2	2
AMW-8A	T	7/1/2000	TRICHLOROETHYLENE (TCE)	7.6E-02		2	2
AMW-8A	T	7/1/2001	TRICHLOROETHYLENE (TCE)	7.4E-02		2	2
AMW-8A	T	7/1/2002	TRICHLOROETHYLENE (TCE)	5.5E-02		2	2
AMW-8A	T	7/1/2003	TRICHLOROETHYLENE (TCE)	4.0E-02		2	2
AMW-8A	T	7/1/2004	TRICHLOROETHYLENE (TCE)	3.4E-02		2	2
AMW-8A	T	7/1/2006	TRICHLOROETHYLENE (TCE)	3.8E-03		2	2
AMW-8A	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.5E-03		2	2
AMW-8A	T	7/1/2008	TRICHLOROETHYLENE (TCE)	1.2E-03		3	3
AMW-8A	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.0E-03		2	2
AMW-8A	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.0E-03		2	2
AMW-8A	T	7/1/2011	TRICHLOROETHYLENE (TCE)	5.0E-04		1	1
AMW-8A	T	7/1/2012	TRICHLOROETHYLENE (TCE)	3.3E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-10A
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

10

Confidence in Trend:

86.2%

Coefficient of Variation:

0.64

Mann Kendall Concentration Trend: (See Note)

NT

Data Table:

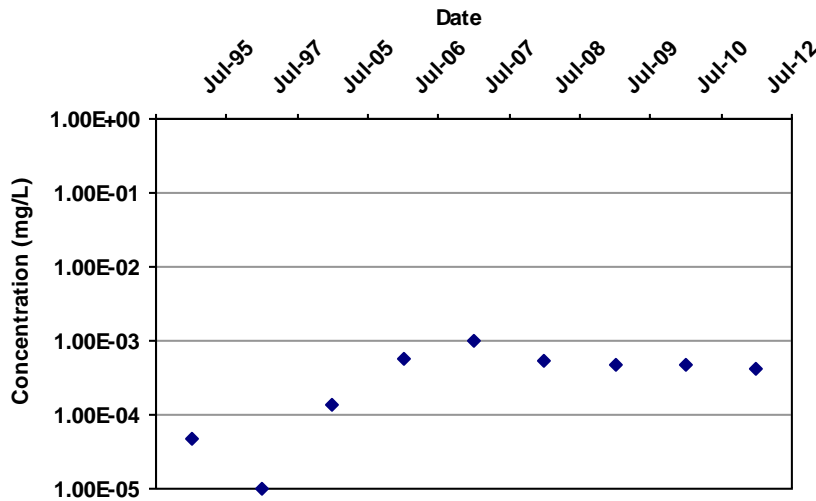
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-10A	T	7/1/1995	TRICHLOROETHYLENE (TCE)	8.9E-05		2	1
AMW-10A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.0E-05	ND	1	0
AMW-10A	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.4E-04	ND	4	0
AMW-10A	T	7/1/2007	TRICHLOROETHYLENE (TCE)	3.7E-04		3	2
AMW-10A	T	7/1/2008	TRICHLOROETHYLENE (TCE)	4.0E-04		2	2
AMW-10A	T	7/1/2009	TRICHLOROETHYLENE (TCE)	3.7E-04		2	2
AMW-10A	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.7E-04		2	2
AMW-10A	T	7/1/2012	TRICHLOROETHYLENE (TCE)	3.2E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-11A
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

6

Confidence in Trend:

69.4%

Coefficient of Variation:

0.75

Mann Kendall Concentration Trend:
(See Note)

NT

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-11A	T	7/1/1995	TRICHLOROETHYLENE (TCE)	4.8E-05		2	1
AMW-11A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.0E-05	ND	1	0
AMW-11A	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.4E-04	ND	1	0
AMW-11A	T	7/1/2006	TRICHLOROETHYLENE (TCE)	5.7E-04		4	3
AMW-11A	T	7/1/2007	TRICHLOROETHYLENE (TCE)	9.8E-04		3	3
AMW-11A	T	7/1/2008	TRICHLOROETHYLENE (TCE)	5.5E-04		2	2
AMW-11A	T	7/1/2009	TRICHLOROETHYLENE (TCE)	4.8E-04		2	2
AMW-11A	T	7/1/2010	TRICHLOROETHYLENE (TCE)	4.8E-04		2	2
AMW-11A	T	7/1/2012	TRICHLOROETHYLENE (TCE)	4.1E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

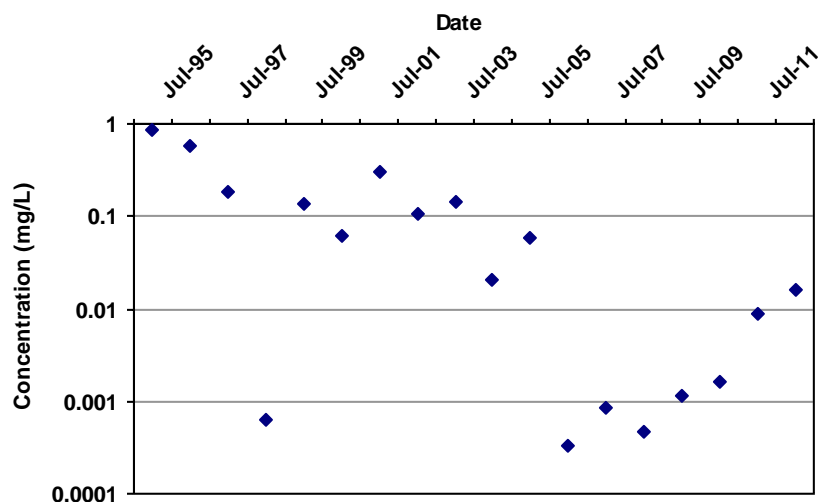
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TCE SOURCE WELLS

MAROS Mann-Kendall Statistics Summary

Well: AMW-1A
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-73

Confidence in Trend:

99.7%

Coefficient of Variation:

1.69

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

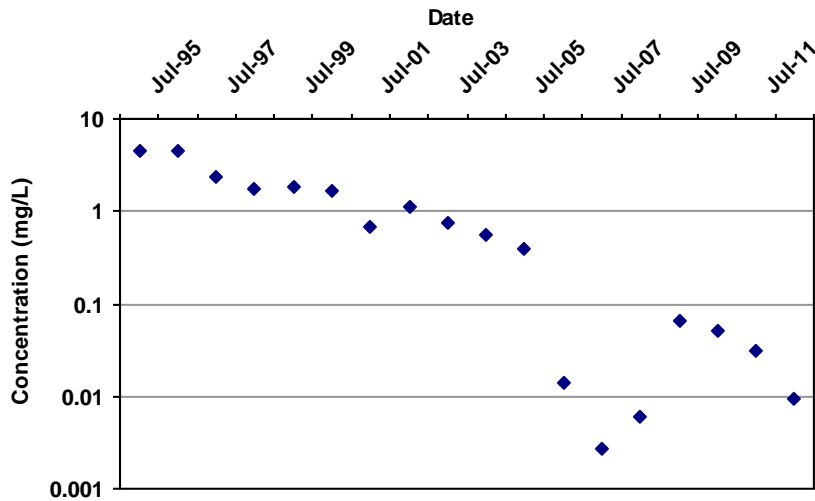
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-1A	S	7/1/1995	TRICHLOROETHYLENE (TCE)	8.7E-01		2	2
AMW-1A	S	7/1/1996	TRICHLOROETHYLENE (TCE)	5.9E-01		1	1
AMW-1A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	1.8E-01		2	2
AMW-1A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	6.2E-04		2	1
AMW-1A	S	7/1/1999	TRICHLOROETHYLENE (TCE)	1.3E-01		2	2
AMW-1A	S	7/1/2000	TRICHLOROETHYLENE (TCE)	6.0E-02		2	2
AMW-1A	S	7/1/2001	TRICHLOROETHYLENE (TCE)	3.1E-01		2	2
AMW-1A	S	7/1/2002	TRICHLOROETHYLENE (TCE)	1.0E-01		2	2
AMW-1A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	1.4E-01		2	2
AMW-1A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	2.0E-02		3	3
AMW-1A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	5.9E-02		4	4
AMW-1A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	3.2E-04		4	4
AMW-1A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	8.5E-04		4	4
AMW-1A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	4.7E-04		4	4
AMW-1A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	1.1E-03		3	3
AMW-1A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	1.6E-03		2	2
AMW-1A	S	7/1/2011	TRICHLOROETHYLENE (TCE)	8.6E-03		2	2
AMW-1A	S	7/1/2012	TRICHLOROETHYLENE (TCE)	1.6E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-2A
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-123

Confidence in Trend:

100.0%

Coefficient of Variation:

1.28

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

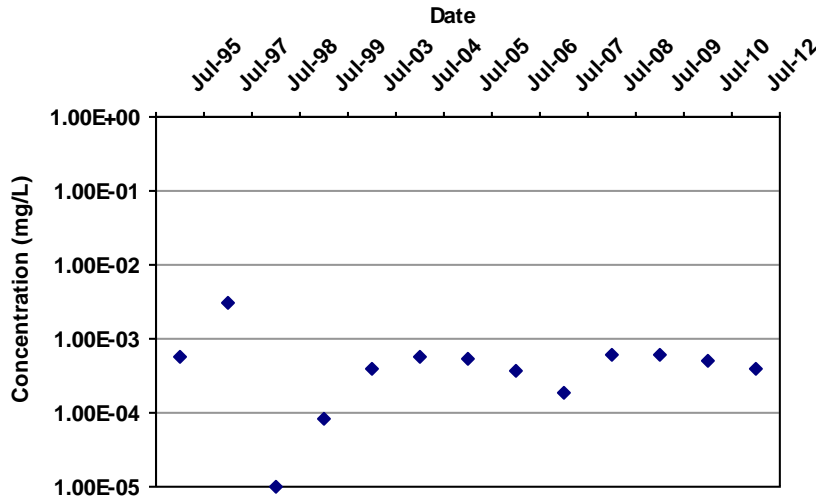
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-2A	S	7/1/1995	TRICHLOROETHYLENE (TCE)	4.6E+00		2	2
AMW-2A	S	7/1/1996	TRICHLOROETHYLENE (TCE)	4.4E+00		2	2
AMW-2A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	2.4E+00		2	2
AMW-2A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	1.7E+00		2	2
AMW-2A	S	7/1/1999	TRICHLOROETHYLENE (TCE)	1.8E+00		2	2
AMW-2A	S	7/1/2000	TRICHLOROETHYLENE (TCE)	1.7E+00		2	2
AMW-2A	S	7/1/2001	TRICHLOROETHYLENE (TCE)	6.7E-01		2	2
AMW-2A	S	7/1/2002	TRICHLOROETHYLENE (TCE)	1.1E+00		2	2
AMW-2A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	7.4E-01		2	2
AMW-2A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	5.6E-01		3	3
AMW-2A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	3.9E-01		4	4
AMW-2A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	1.4E-02		4	4
AMW-2A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	2.7E-03		4	4
AMW-2A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	6.0E-03		4	4
AMW-2A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	6.5E-02		3	3
AMW-2A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	5.1E-02		2	2
AMW-2A	S	7/1/2011	TRICHLOROETHYLENE (TCE)	3.1E-02		2	2
AMW-2A	S	7/1/2012	TRICHLOROETHYLENE (TCE)	9.2E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-2B
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

3

Confidence in Trend:

54.8%

Coefficient of Variation:

1.24

Mann Kendall Concentration Trend:
(See Note)

NT

Data Table:

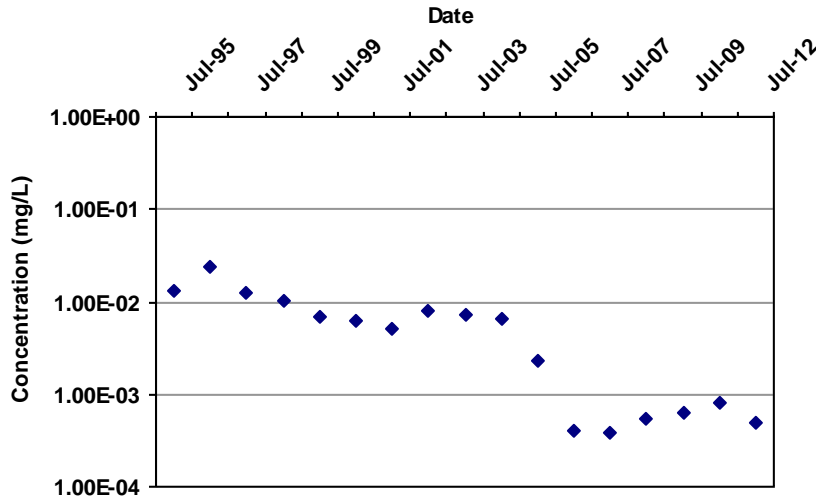
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-2B	S	7/1/1995	TRICHLOROETHYLENE (TCE)	5.5E-04		2	1
AMW-2B	S	7/1/1997	TRICHLOROETHYLENE (TCE)	3.0E-03		1	1
AMW-2B	S	7/1/1998	TRICHLOROETHYLENE (TCE)	1.0E-05	ND	2	0
AMW-2B	S	7/1/1999	TRICHLOROETHYLENE (TCE)	8.4E-05		2	1
AMW-2B	S	7/1/2003	TRICHLOROETHYLENE (TCE)	4.0E-04		2	2
AMW-2B	S	7/1/2004	TRICHLOROETHYLENE (TCE)	5.8E-04		3	3
AMW-2B	S	7/1/2005	TRICHLOROETHYLENE (TCE)	5.2E-04		4	4
AMW-2B	S	7/1/2006	TRICHLOROETHYLENE (TCE)	3.8E-04		4	4
AMW-2B	S	7/1/2007	TRICHLOROETHYLENE (TCE)	1.9E-04		4	4
AMW-2B	S	7/1/2008	TRICHLOROETHYLENE (TCE)	6.3E-04		4	4
AMW-2B	S	7/1/2009	TRICHLOROETHYLENE (TCE)	6.2E-04		3	3
AMW-2B	S	7/1/2010	TRICHLOROETHYLENE (TCE)	4.9E-04		1	1
AMW-2B	S	7/1/2012	TRICHLOROETHYLENE (TCE)	4.0E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-3A
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-96

Confidence in Trend:

100.0%

Coefficient of Variation:

1.01

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

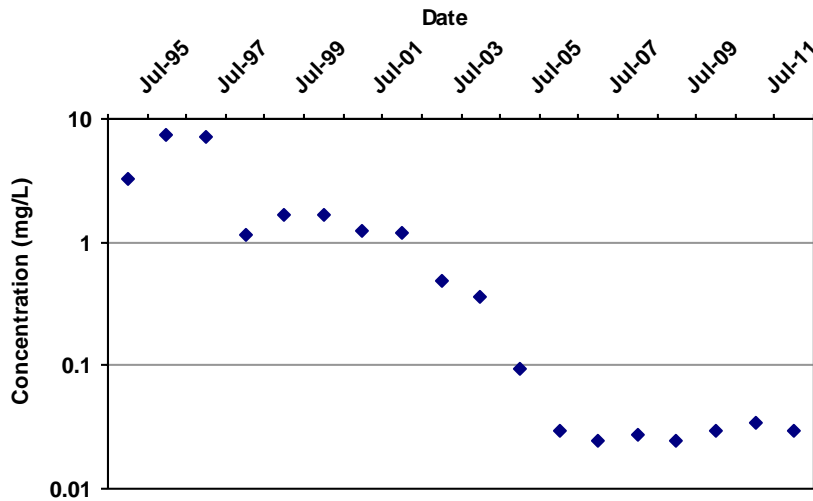
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-3A	S	7/1/1995	TRICHLOROETHYLENE (TCE)	1.3E-02		2	2
AMW-3A	S	7/1/1996	TRICHLOROETHYLENE (TCE)	2.4E-02		2	2
AMW-3A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	1.2E-02		2	2
AMW-3A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	1.0E-02		2	2
AMW-3A	S	7/1/1999	TRICHLOROETHYLENE (TCE)	6.9E-03		2	2
AMW-3A	S	7/1/2000	TRICHLOROETHYLENE (TCE)	6.2E-03		2	2
AMW-3A	S	7/1/2001	TRICHLOROETHYLENE (TCE)	5.0E-03		1	1
AMW-3A	S	7/1/2002	TRICHLOROETHYLENE (TCE)	7.9E-03		2	2
AMW-3A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	7.3E-03		2	2
AMW-3A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	6.5E-03		3	3
AMW-3A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	2.3E-03		4	4
AMW-3A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	4.1E-04		4	4
AMW-3A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	3.8E-04		4	4
AMW-3A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	5.4E-04		4	4
AMW-3A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	6.2E-04		3	3
AMW-3A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	8.0E-04		2	2
AMW-3A	S	7/1/2012	TRICHLOROETHYLENE (TCE)	4.8E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-12A
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-109

Confidence in Trend:

100.0%

Coefficient of Variation:

1.60

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

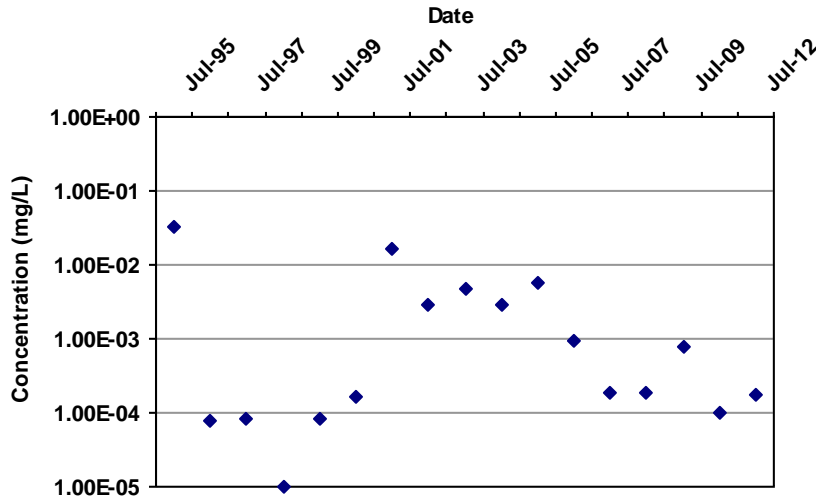
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-12A	S	7/1/1995	TRICHLOROETHYLENE (TCE)	3.3E+00		2	2
AMW-12A	S	7/1/1996	TRICHLOROETHYLENE (TCE)	7.5E+00		2	2
AMW-12A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	7.1E+00		2	2
AMW-12A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	1.1E+00		2	2
AMW-12A	S	7/1/1999	TRICHLOROETHYLENE (TCE)	1.7E+00		2	2
AMW-12A	S	7/1/2000	TRICHLOROETHYLENE (TCE)	1.7E+00		2	2
AMW-12A	S	7/1/2001	TRICHLOROETHYLENE (TCE)	1.2E+00		2	2
AMW-12A	S	7/1/2002	TRICHLOROETHYLENE (TCE)	1.2E+00		2	2
AMW-12A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	4.9E-01		2	2
AMW-12A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	3.6E-01		3	3
AMW-12A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	9.3E-02		4	4
AMW-12A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	2.9E-02		4	4
AMW-12A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	2.4E-02		4	4
AMW-12A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	2.8E-02		4	4
AMW-12A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	2.4E-02		3	3
AMW-12A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	3.0E-02		2	2
AMW-12A	S	7/1/2011	TRICHLOROETHYLENE (TCE)	3.4E-02		2	2
AMW-12A	S	7/1/2012	TRICHLOROETHYLENE (TCE)	3.0E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-13A
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

3

Confidence in Trend:

53.2%

Coefficient of Variation:

2.11

Mann Kendall Concentration Trend: (See Note)

NT

Data Table:

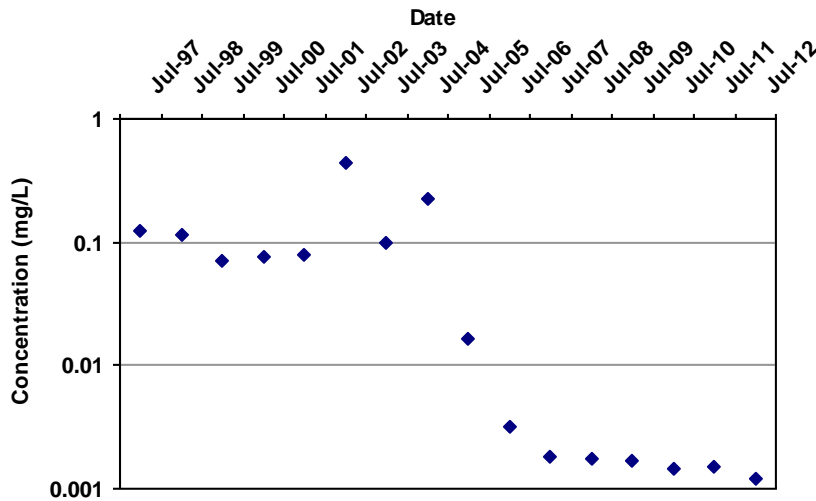
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-13A	S	7/1/1995	TRICHLOROETHYLENE (TCE)	3.3E-02		2	2
AMW-13A	S	7/1/1996	TRICHLOROETHYLENE (TCE)	8.0E-05		2	1
AMW-13A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	8.4E-05		2	1
AMW-13A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	1.0E-05	ND	2	0
AMW-13A	S	7/1/1999	TRICHLOROETHYLENE (TCE)	8.4E-05		2	1
AMW-13A	S	7/1/2000	TRICHLOROETHYLENE (TCE)	1.6E-04		2	1
AMW-13A	S	7/1/2001	TRICHLOROETHYLENE (TCE)	1.6E-02		1	1
AMW-13A	S	7/1/2002	TRICHLOROETHYLENE (TCE)	2.9E-03		2	2
AMW-13A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	4.7E-03		2	2
AMW-13A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	2.8E-03		3	3
AMW-13A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	5.8E-03		4	4
AMW-13A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	9.7E-04		4	3
AMW-13A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	1.9E-04		4	1
AMW-13A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	1.9E-04		4	2
AMW-13A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	7.6E-04		3	3
AMW-13A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	1.0E-04	ND	2	0
AMW-13A	S	7/1/2012	TRICHLOROETHYLENE (TCE)	1.7E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-19A
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-84

Confidence in Trend:

100.0%

Coefficient of Variation:

1.47

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

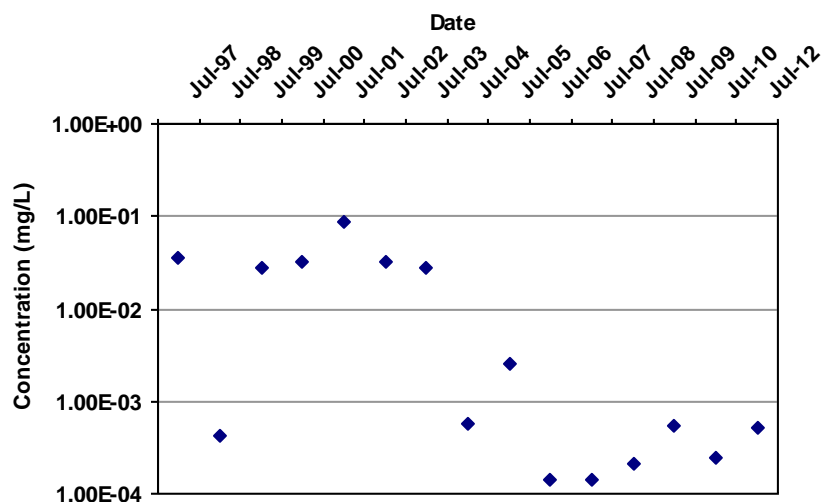
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-19A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	1.2E-01		2	2
AMW-19A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	1.1E-01		2	2
AMW-19A	S	7/1/1999	TRICHLOROETHYLENE (TCE)	7.0E-02		2	2
AMW-19A	S	7/1/2000	TRICHLOROETHYLENE (TCE)	7.5E-02		1	1
AMW-19A	S	7/1/2001	TRICHLOROETHYLENE (TCE)	7.9E-02		2	2
AMW-19A	S	7/1/2002	TRICHLOROETHYLENE (TCE)	4.4E-01		2	2
AMW-19A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	9.8E-02		2	2
AMW-19A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	2.3E-01		3	3
AMW-19A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	1.6E-02		4	4
AMW-19A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	3.2E-03		4	4
AMW-19A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	1.8E-03		4	4
AMW-19A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	1.7E-03		4	4
AMW-19A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	1.7E-03		3	3
AMW-19A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	1.4E-03		2	2
AMW-19A	S	7/1/2011	TRICHLOROETHYLENE (TCE)	1.5E-03		1	1
AMW-19A	S	7/1/2012	TRICHLOROETHYLENE (TCE)	1.2E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-26
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-50

Confidence in Trend:

99.3%

Coefficient of Variation:

1.49

Mann Kendall Concentration Trend:
(See Note)

D

Data Table:

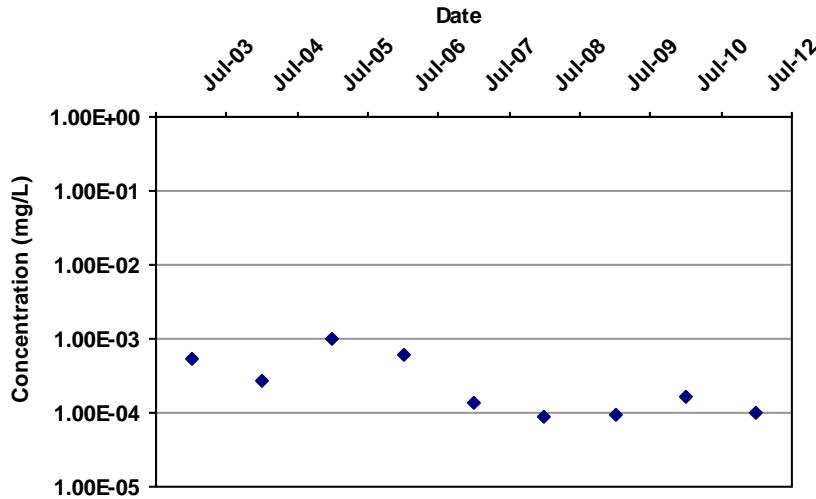
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-26	S	7/1/1997	TRICHLOROETHYLENE (TCE)	3.6E-02		1	1
AMW-26	S	7/1/1998	TRICHLOROETHYLENE (TCE)	4.2E-04		2	1
AMW-26	S	7/1/1999	TRICHLOROETHYLENE (TCE)	2.8E-02		2	2
AMW-26	S	7/1/2000	TRICHLOROETHYLENE (TCE)	3.3E-02		2	2
AMW-26	S	7/1/2001	TRICHLOROETHYLENE (TCE)	8.8E-02		2	2
AMW-26	S	7/1/2002	TRICHLOROETHYLENE (TCE)	3.2E-02		2	2
AMW-26	S	7/1/2003	TRICHLOROETHYLENE (TCE)	2.7E-02		2	2
AMW-26	S	7/1/2004	TRICHLOROETHYLENE (TCE)	5.6E-04		2	2
AMW-26	S	7/1/2005	TRICHLOROETHYLENE (TCE)	2.6E-03		1	1
AMW-26	S	7/1/2006	TRICHLOROETHYLENE (TCE)	1.4E-04	ND	1	0
AMW-26	S	7/1/2007	TRICHLOROETHYLENE (TCE)	1.4E-04	ND	1	0
AMW-26	S	7/1/2008	TRICHLOROETHYLENE (TCE)	2.1E-04		4	3
AMW-26	S	7/1/2009	TRICHLOROETHYLENE (TCE)	5.3E-04		3	3
AMW-26	S	7/1/2010	TRICHLOROETHYLENE (TCE)	2.4E-04		1	1
AMW-26	S	7/1/2012	TRICHLOROETHYLENE (TCE)	5.2E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-52A
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-16

Confidence in Trend:

94.0%

Coefficient of Variation:

0.96

Mann Kendall Concentration Trend: (See Note)

PD

Data Table:

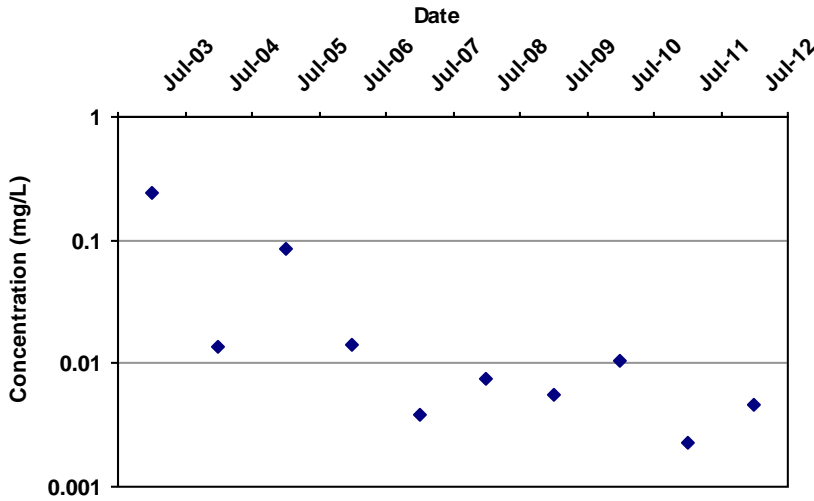
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-52A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	5.3E-04		1	1
AMW-52A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	2.6E-04		3	3
AMW-52A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	1.0E-03		4	4
AMW-52A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	6.3E-04		4	3
AMW-52A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	1.4E-04	ND	4	0
AMW-52A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	8.8E-05		4	2
AMW-52A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	9.3E-05		3	2
AMW-52A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	1.6E-04		1	1
AMW-52A	S	7/1/2012	TRICHLOROETHYLENE (TCE)	1.0E-04	ND	1	0

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-53A
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-27

Confidence in Trend:

99.2%

Coefficient of Variation:

1.94

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

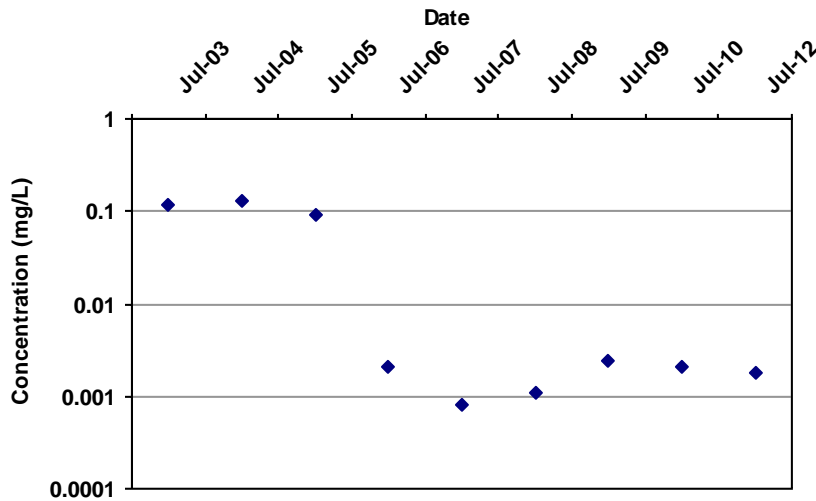
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-53A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	2.4E-01		1	1
AMW-53A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	1.4E-02		3	3
AMW-53A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	8.4E-02		4	4
AMW-53A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	1.4E-02		4	4
AMW-53A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	3.8E-03		4	4
AMW-53A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	7.4E-03		4	4
AMW-53A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	5.7E-03		3	3
AMW-53A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	1.0E-02		2	2
AMW-53A	S	7/1/2011	TRICHLOROETHYLENE (TCE)	2.3E-03		2	2
AMW-53A	S	7/1/2012	TRICHLOROETHYLENE (TCE)	4.6E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-54A
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-16

Confidence in Trend:

94.0%

Coefficient of Variation:

1.46

Mann Kendall Concentration Trend:
(See Note)

PD

Data Table:

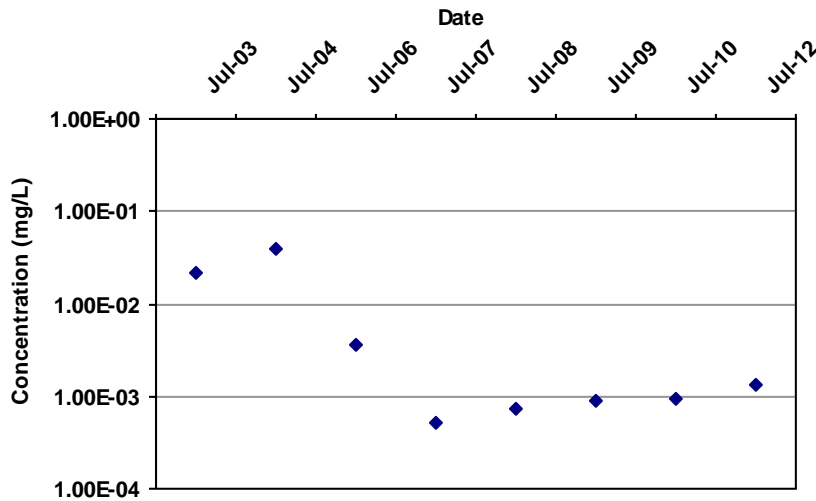
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-54A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	1.2E-01		1	1
AMW-54A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	1.3E-01		3	3
AMW-54A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	9.0E-02		4	4
AMW-54A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	2.1E-03		4	4
AMW-54A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	8.1E-04		4	4
AMW-54A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	1.1E-03		4	4
AMW-54A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	2.4E-03		3	3
AMW-54A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	2.1E-03		2	2
AMW-54A	S	7/1/2012	TRICHLOROETHYLENE (TCE)	1.8E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-55A
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-6

Confidence in Trend:

72.6%

Coefficient of Variation:

1.66

Mann Kendall Concentration Trend:
(See Note)

NT

Data Table:

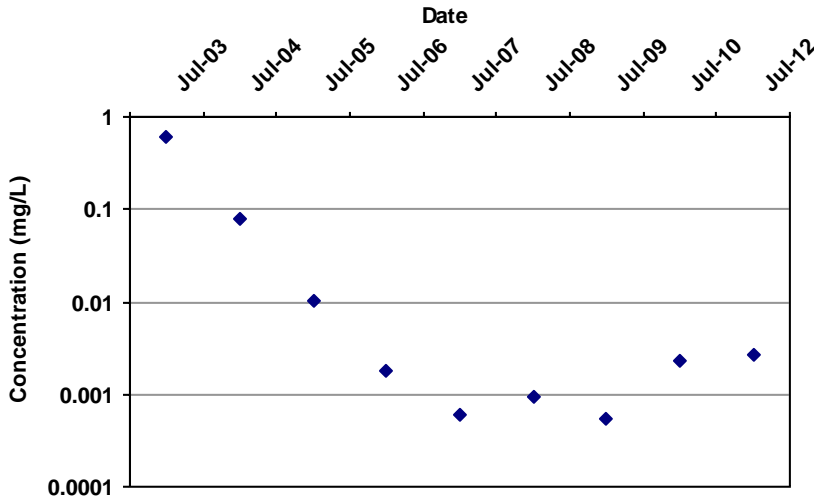
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-55A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	2.2E-02		1	1
AMW-55A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	3.9E-02		2	2
AMW-55A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	3.5E-03		4	4
AMW-55A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	5.1E-04		4	4
AMW-55A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	7.2E-04		4	4
AMW-55A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	9.1E-04		3	3
AMW-55A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	9.5E-04		1	1
AMW-55A	S	7/1/2012	TRICHLOROETHYLENE (TCE)	1.3E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-56A
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-16

Confidence in Trend:

94.0%

Coefficient of Variation:

2.56

Mann Kendall Concentration Trend:
(See Note)

PD

Data Table:

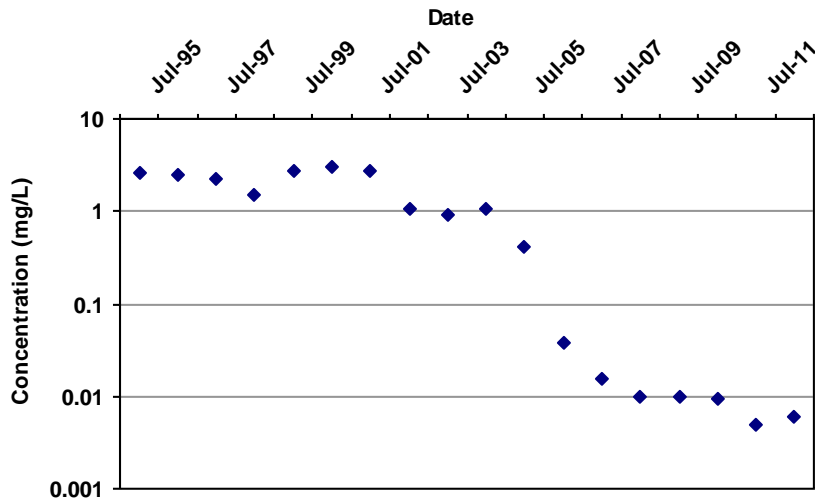
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-56A	T	7/1/2003	TRICHLOROETHYLENE (TCE)	6.1E-01		1	1
AMW-56A	T	7/1/2004	TRICHLOROETHYLENE (TCE)	7.8E-02		3	3
AMW-56A	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.0E-02		4	4
AMW-56A	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.8E-03		4	4
AMW-56A	T	7/1/2007	TRICHLOROETHYLENE (TCE)	6.1E-04		4	4
AMW-56A	T	7/1/2008	TRICHLOROETHYLENE (TCE)	9.4E-04		4	4
AMW-56A	T	7/1/2009	TRICHLOROETHYLENE (TCE)	5.4E-04		3	3
AMW-56A	T	7/1/2010	TRICHLOROETHYLENE (TCE)	2.3E-03		1	1
AMW-56A	T	7/1/2012	TRICHLOROETHYLENE (TCE)	2.7E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-1A
 Well Type: S
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-119

Confidence in Trend:

100.0%

Coefficient of Variation:

1.01

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-1A	S	7/1/1995	TRICHLOROETHYLENE (TCE)	2.6E+00		2	2
MW-1A	S	7/1/1996	TRICHLOROETHYLENE (TCE)	2.5E+00		2	2
MW-1A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	2.3E+00		2	2
MW-1A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	1.5E+00		2	2
MW-1A	S	7/1/1999	TRICHLOROETHYLENE (TCE)	2.7E+00		2	2
MW-1A	S	7/1/2000	TRICHLOROETHYLENE (TCE)	3.1E+00		2	2
MW-1A	S	7/1/2001	TRICHLOROETHYLENE (TCE)	2.7E+00		2	2
MW-1A	S	7/1/2002	TRICHLOROETHYLENE (TCE)	1.1E+00		2	2
MW-1A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	9.0E-01		2	2
MW-1A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	1.1E+00		3	3
MW-1A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	4.2E-01		4	4
MW-1A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	3.8E-02		4	4
MW-1A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	1.5E-02		4	4
MW-1A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	9.7E-03		4	4
MW-1A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	9.8E-03		3	3
MW-1A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	9.3E-03		2	2
MW-1A	S	7/1/2011	TRICHLOROETHYLENE (TCE)	5.0E-03		2	2
MW-1A	S	7/1/2012	TRICHLOROETHYLENE (TCE)	6.1E-03		2	2

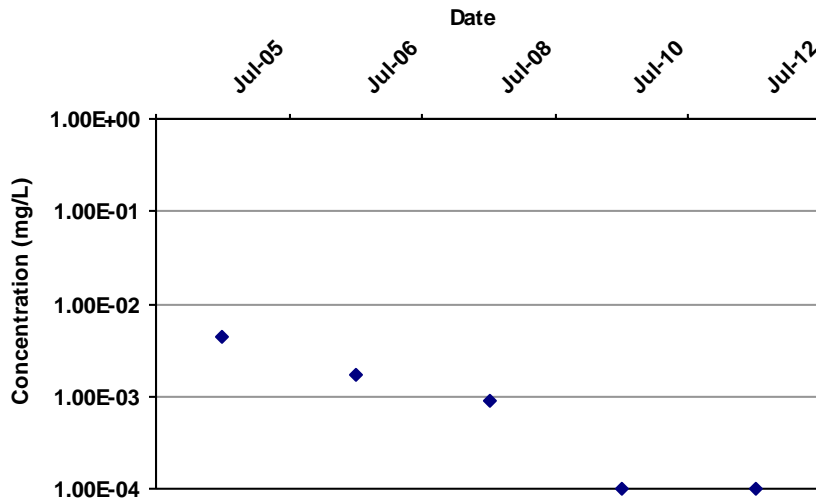
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

PROXIMAL WELLS

MAROS Mann-Kendall Statistics Summary

Well: AMW-58
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-10

Confidence in Trend:

99.2%

Coefficient of Variation:

1.24

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

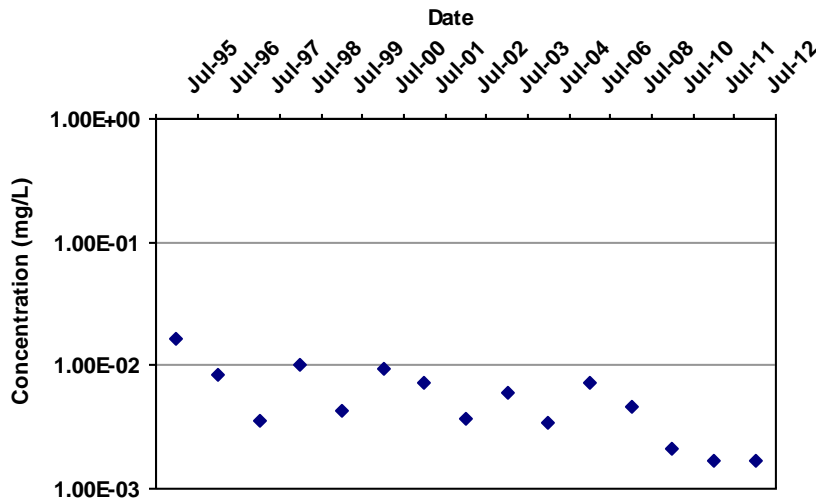
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-58	T	7/1/2005	TRICHLOROETHYLENE (TCE)	4.4E-03		3	3
AMW-58	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.7E-03		2	2
AMW-58	T	7/1/2008	TRICHLOROETHYLENE (TCE)	8.9E-04		1	1
AMW-58	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.0E-04	ND	1	0
AMW-58	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.0E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-2A
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-62

Confidence in Trend:

99.9%

Coefficient of Variation:

0.66

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

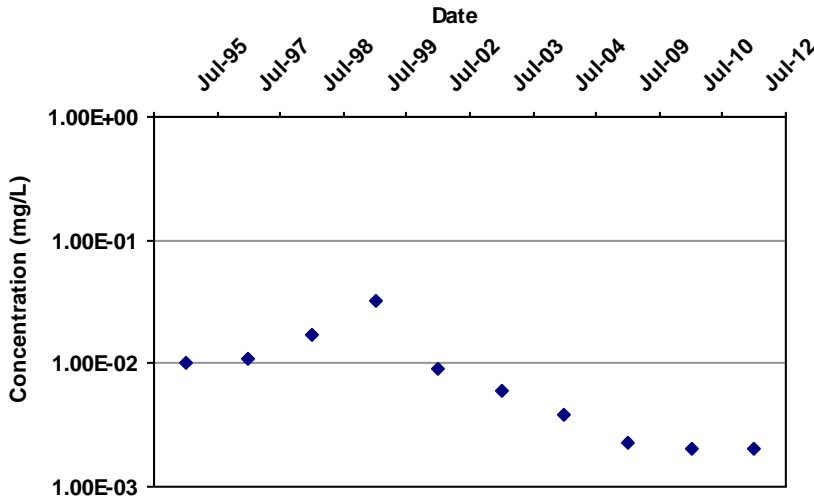
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-2A	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.6E-02		2	2
MW-2A	T	7/1/1996	TRICHLOROETHYLENE (TCE)	8.4E-03		2	2
MW-2A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	3.5E-03		2	2
MW-2A	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.0E-02		2	2
MW-2A	T	7/1/1999	TRICHLOROETHYLENE (TCE)	4.3E-03		2	2
MW-2A	T	7/1/2000	TRICHLOROETHYLENE (TCE)	9.4E-03		2	2
MW-2A	T	7/1/2001	TRICHLOROETHYLENE (TCE)	7.3E-03		2	2
MW-2A	T	7/1/2002	TRICHLOROETHYLENE (TCE)	3.7E-03		2	2
MW-2A	T	7/1/2003	TRICHLOROETHYLENE (TCE)	5.9E-03		2	2
MW-2A	T	7/1/2004	TRICHLOROETHYLENE (TCE)	3.4E-03		1	1
MW-2A	T	7/1/2006	TRICHLOROETHYLENE (TCE)	7.3E-03		1	1
MW-2A	T	7/1/2008	TRICHLOROETHYLENE (TCE)	4.7E-03		1	1
MW-2A	T	7/1/2010	TRICHLOROETHYLENE (TCE)	2.1E-03		1	1
MW-2A	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.7E-03		1	1
MW-2A	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.7E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-3B
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-32

Confidence in Trend:

99.9%

Coefficient of Variation:

0.97

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

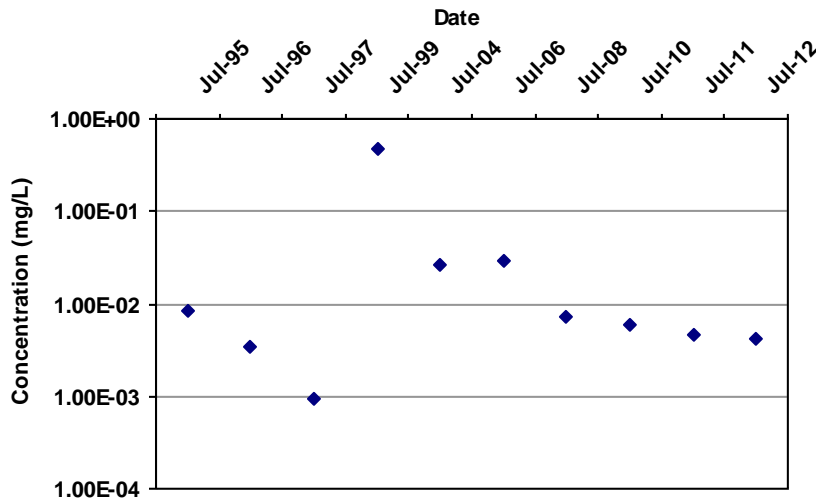
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-3B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.0E-02		2	2
MW-3B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.1E-02		1	1
MW-3B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.7E-02		2	2
MW-3B	T	7/1/1999	TRICHLOROETHYLENE (TCE)	3.2E-02		2	2
MW-3B	T	7/1/2002	TRICHLOROETHYLENE (TCE)	9.2E-03		1	1
MW-3B	T	7/1/2003	TRICHLOROETHYLENE (TCE)	5.9E-03		1	1
MW-3B	T	7/1/2004	TRICHLOROETHYLENE (TCE)	3.9E-03		1	1
MW-3B	T	7/1/2009	TRICHLOROETHYLENE (TCE)	2.3E-03		1	1
MW-3B	T	7/1/2010	TRICHLOROETHYLENE (TCE)	2.0E-03		1	1
MW-3B	T	7/1/2012	TRICHLOROETHYLENE (TCE)	2.0E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-4B
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-9

Confidence in Trend:

75.8%

Coefficient of Variation:

2.61

Mann Kendall Concentration Trend:
(See Note)

NT

Data Table:

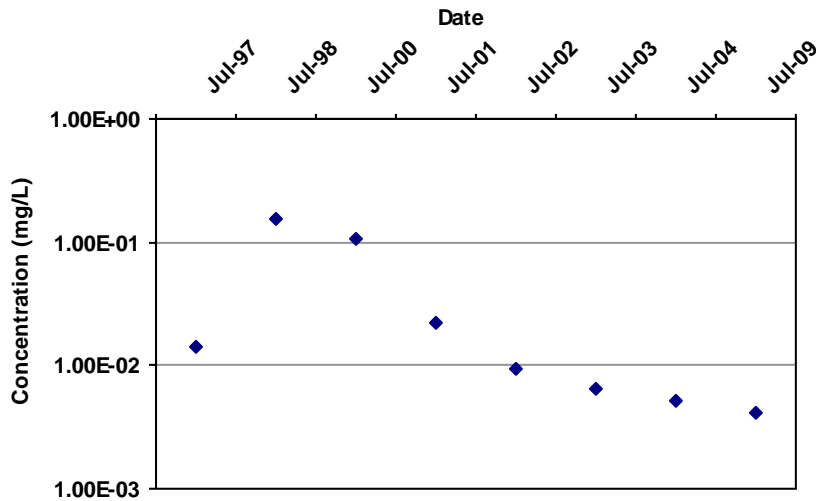
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-4B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	8.2E-03		2	2
MW-4B	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.5E-03		2	2
MW-4B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	9.4E-04		1	1
MW-4B	T	7/1/1999	TRICHLOROETHYLENE (TCE)	4.8E-01		2	2
MW-4B	T	7/1/2004	TRICHLOROETHYLENE (TCE)	2.6E-02		1	1
MW-4B	T	7/1/2006	TRICHLOROETHYLENE (TCE)	2.9E-02		1	1
MW-4B	T	7/1/2008	TRICHLOROETHYLENE (TCE)	7.2E-03		1	1
MW-4B	T	7/1/2010	TRICHLOROETHYLENE (TCE)	5.9E-03		1	1
MW-4B	T	7/1/2011	TRICHLOROETHYLENE (TCE)	4.6E-03		1	1
MW-4B	T	7/1/2012	TRICHLOROETHYLENE (TCE)	4.2E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-4BSHE
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-22

Confidence in Trend:

99.8%

Coefficient of Variation:

1.43

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

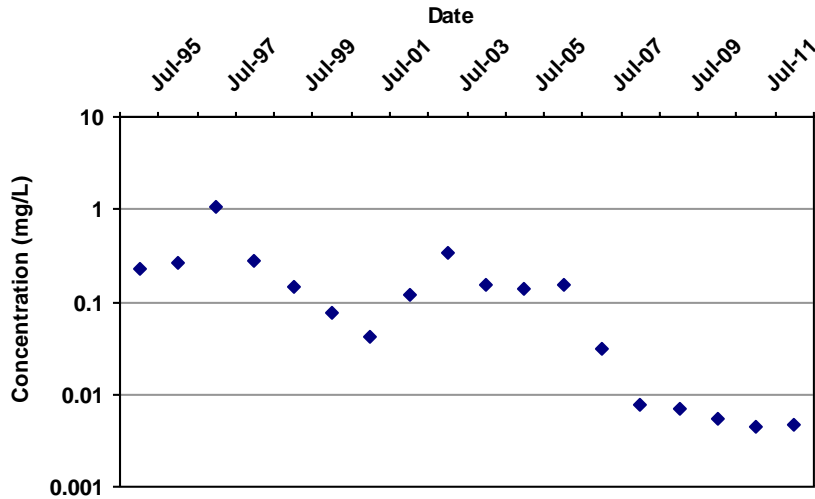
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-4BSHED	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.4E-02		2	2
MW-4BSHED	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.6E-01		2	2
MW-4BSHED	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.1E-01		2	2
MW-4BSHED	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.2E-02		2	2
MW-4BSHED	T	7/1/2002	TRICHLOROETHYLENE (TCE)	9.5E-03		2	2
MW-4BSHED	T	7/1/2003	TRICHLOROETHYLENE (TCE)	6.5E-03		2	2
MW-4BSHED	T	7/1/2004	TRICHLOROETHYLENE (TCE)	5.2E-03		1	1
MW-4BSHED	T	7/1/2009	TRICHLOROETHYLENE (TCE)	4.1E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-6B
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-99

Confidence in Trend:

100.0%

Coefficient of Variation:

1.45

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

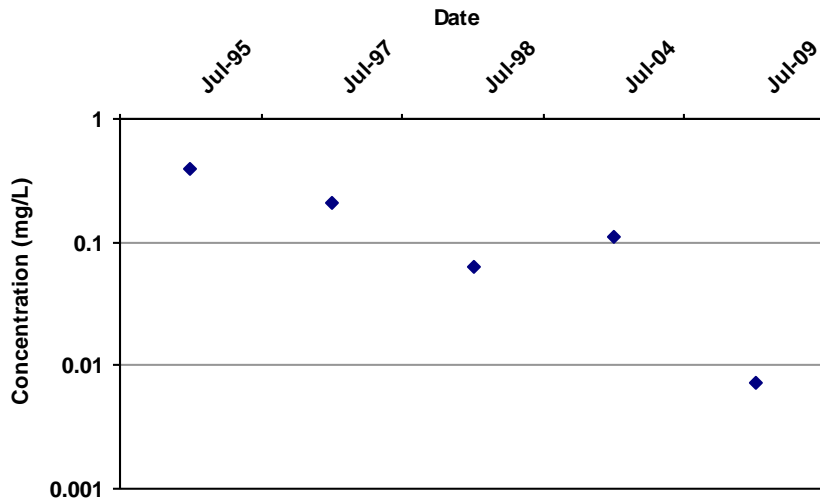
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-6B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.3E-01		11	11
MW-6B	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.6E-01		2	2
MW-6B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.1E+00		2	2
MW-6B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	2.8E-01		2	2
MW-6B	T	7/1/1999	TRICHLOROETHYLENE (TCE)	1.4E-01		2	2
MW-6B	T	7/1/2000	TRICHLOROETHYLENE (TCE)	7.6E-02		3	3
MW-6B	T	7/1/2001	TRICHLOROETHYLENE (TCE)	4.2E-02		2	2
MW-6B	T	7/1/2002	TRICHLOROETHYLENE (TCE)	1.2E-01		3	3
MW-6B	T	7/1/2003	TRICHLOROETHYLENE (TCE)	3.4E-01		3	3
MW-6B	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.5E-01		2	2
MW-6B	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.4E-01		1	1
MW-6B	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.5E-01		1	1
MW-6B	T	7/1/2007	TRICHLOROETHYLENE (TCE)	3.2E-02		2	2
MW-6B	T	7/1/2008	TRICHLOROETHYLENE (TCE)	7.5E-03		2	2
MW-6B	T	7/1/2009	TRICHLOROETHYLENE (TCE)	6.8E-03		2	2
MW-6B	T	7/1/2010	TRICHLOROETHYLENE (TCE)	5.4E-03		2	2
MW-6B	T	7/1/2011	TRICHLOROETHYLENE (TCE)	4.3E-03		2	2
MW-6B	T	7/1/2012	TRICHLOROETHYLENE (TCE)	4.6E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-7B
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-8

Confidence in Trend:

95.8%

Coefficient of Variation:

0.97

Mann Kendall Concentration Trend:
(See Note)

D

Data Table:

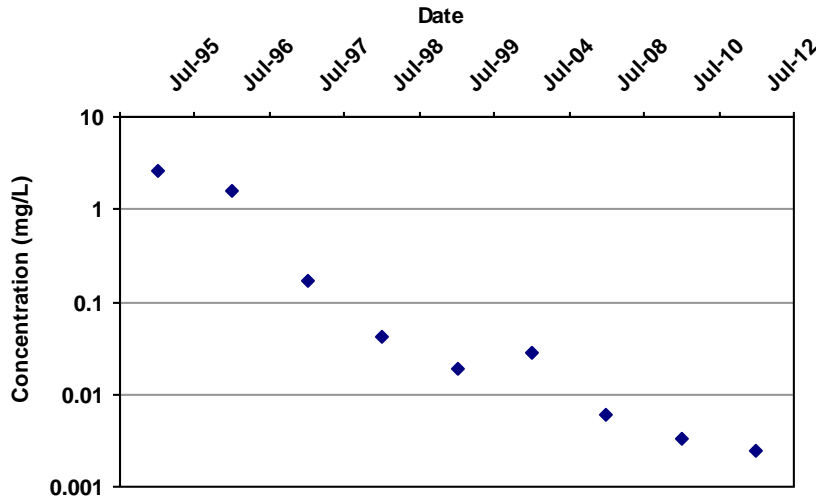
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-7B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	3.9E-01		2	2
MW-7B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.1E-01		1	1
MW-7B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	6.2E-02		1	1
MW-7B	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.1E-01		1	1
MW-7B	T	7/1/2009	TRICHLOROETHYLENE (TCE)	7.3E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-8B
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-34

Confidence in Trend:

100.0%

Coefficient of Variation:

1.90

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

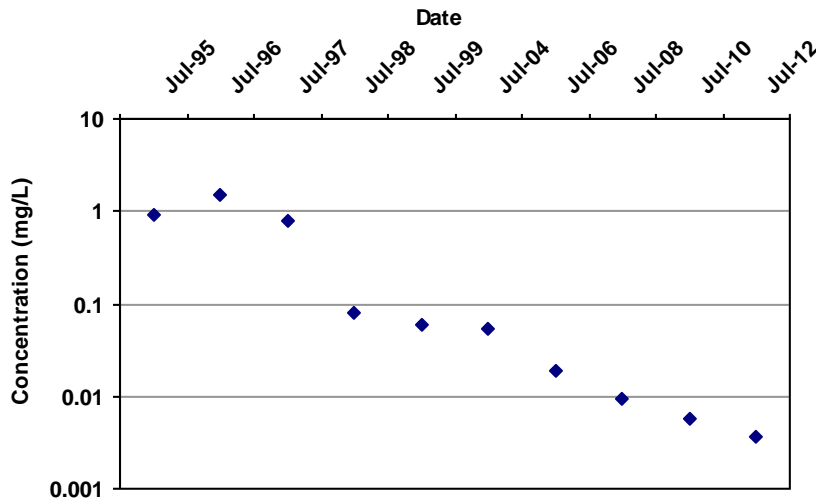
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-8B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.6E+00		2	2
MW-8B	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.6E+00		2	2
MW-8B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.7E-01		2	2
MW-8B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	4.1E-02		1	1
MW-8B	T	7/1/1999	TRICHLOROETHYLENE (TCE)	1.9E-02		2	2
MW-8B	T	7/1/2004	TRICHLOROETHYLENE (TCE)	2.8E-02		1	1
MW-8B	T	7/1/2008	TRICHLOROETHYLENE (TCE)	6.0E-03		1	1
MW-8B	T	7/1/2010	TRICHLOROETHYLENE (TCE)	3.3E-03		1	1
MW-8B	T	7/1/2012	TRICHLOROETHYLENE (TCE)	2.4E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-9B
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-43

Confidence in Trend:

100.0%

Coefficient of Variation:

1.54

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

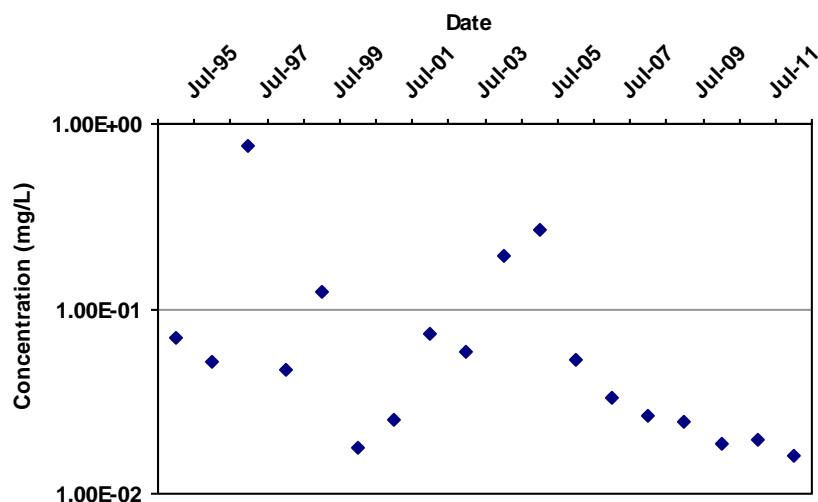
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-9B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	9.4E-01		2	2
MW-9B	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.5E+00		2	2
MW-9B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	7.8E-01		2	2
MW-9B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	8.1E-02		2	2
MW-9B	T	7/1/1999	TRICHLOROETHYLENE (TCE)	6.0E-02		2	2
MW-9B	T	7/1/2004	TRICHLOROETHYLENE (TCE)	5.5E-02		1	1
MW-9B	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.9E-02		1	1
MW-9B	T	7/1/2008	TRICHLOROETHYLENE (TCE)	9.3E-03		1	1
MW-9B	T	7/1/2010	TRICHLOROETHYLENE (TCE)	5.7E-03		1	1
MW-9B	T	7/1/2012	TRICHLOROETHYLENE (TCE)	3.7E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-10B
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-65

Confidence in Trend:

99.3%

Coefficient of Variation:

1.69

Mann Kendall Concentration Trend:
(See Note)

D

Data Table:

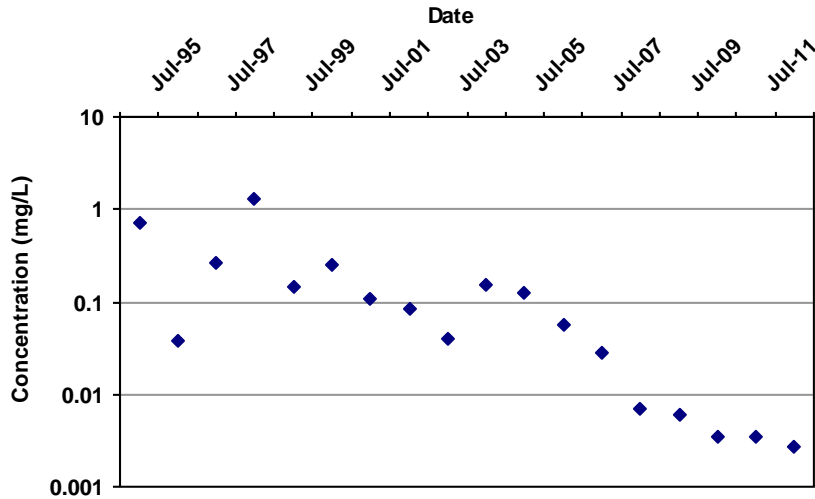
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-10B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	7.0E-02		11	11
MW-10B	T	7/1/1996	TRICHLOROETHYLENE (TCE)	5.2E-02		2	2
MW-10B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	7.5E-01		2	2
MW-10B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	4.7E-02		2	2
MW-10B	T	7/1/1999	TRICHLOROETHYLENE (TCE)	1.2E-01		2	2
MW-10B	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.8E-02		3	3
MW-10B	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.5E-02		2	2
MW-10B	T	7/1/2002	TRICHLOROETHYLENE (TCE)	7.3E-02		3	3
MW-10B	T	7/1/2003	TRICHLOROETHYLENE (TCE)	5.8E-02		3	3
MW-10B	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.9E-01		2	2
MW-10B	T	7/1/2005	TRICHLOROETHYLENE (TCE)	2.7E-01		1	1
MW-10B	T	7/1/2006	TRICHLOROETHYLENE (TCE)	5.3E-02		1	1
MW-10B	T	7/1/2007	TRICHLOROETHYLENE (TCE)	3.3E-02		2	2
MW-10B	T	7/1/2008	TRICHLOROETHYLENE (TCE)	2.6E-02		2	2
MW-10B	T	7/1/2009	TRICHLOROETHYLENE (TCE)	2.4E-02		2	2
MW-10B	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.8E-02		2	2
MW-10B	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.9E-02		2	2
MW-10B	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.6E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-10C
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-111

Confidence in Trend:

100.0%

Coefficient of Variation:

1.75

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

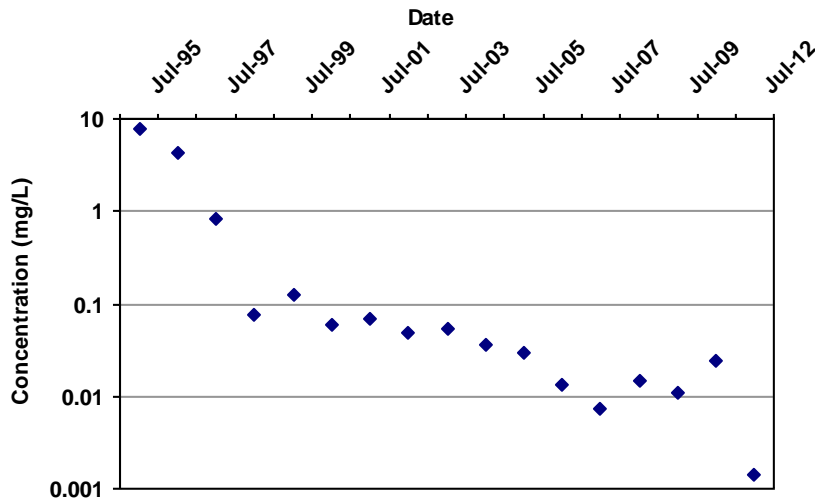
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-10C	T	7/1/1995	TRICHLOROETHYLENE (TCE)	7.0E-01		11	11
MW-10C	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.7E-02		2	2
MW-10C	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.6E-01		2	2
MW-10C	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.3E+00		2	2
MW-10C	T	7/1/1999	TRICHLOROETHYLENE (TCE)	1.4E-01		2	2
MW-10C	T	7/1/2000	TRICHLOROETHYLENE (TCE)	2.5E-01		3	3
MW-10C	T	7/1/2001	TRICHLOROETHYLENE (TCE)	1.1E-01		2	2
MW-10C	T	7/1/2002	TRICHLOROETHYLENE (TCE)	8.3E-02		3	3
MW-10C	T	7/1/2003	TRICHLOROETHYLENE (TCE)	4.1E-02		3	3
MW-10C	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.5E-01		2	2
MW-10C	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.2E-01		2	2
MW-10C	T	7/1/2006	TRICHLOROETHYLENE (TCE)	5.6E-02		2	2
MW-10C	T	7/1/2007	TRICHLOROETHYLENE (TCE)	2.9E-02		2	2
MW-10C	T	7/1/2008	TRICHLOROETHYLENE (TCE)	6.9E-03		2	2
MW-10C	T	7/1/2009	TRICHLOROETHYLENE (TCE)	6.0E-03		2	2
MW-10C	T	7/1/2010	TRICHLOROETHYLENE (TCE)	3.5E-03		2	2
MW-10C	T	7/1/2011	TRICHLOROETHYLENE (TCE)	3.4E-03		2	2
MW-10C	T	7/1/2012	TRICHLOROETHYLENE (TCE)	2.7E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-12C
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-116

Confidence in Trend:

100.0%

Coefficient of Variation:

2.61

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

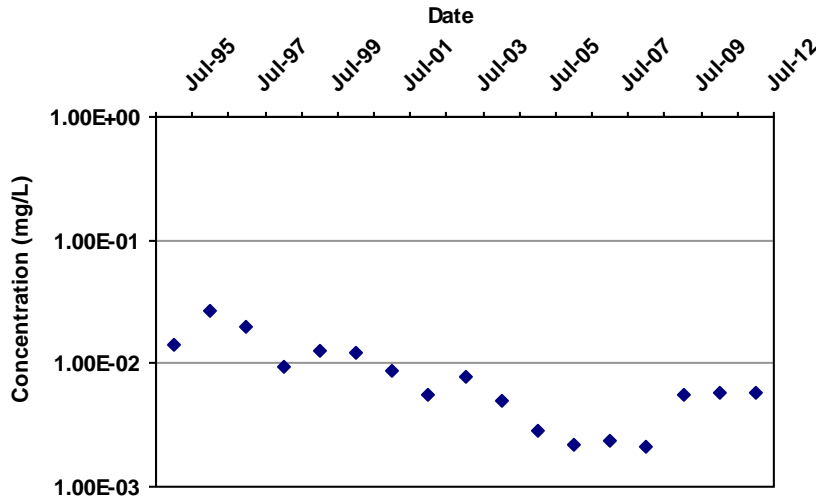
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-12C	T	7/1/1995	TRICHLOROETHYLENE (TCE)	7.7E+00		2	2
MW-12C	T	7/1/1996	TRICHLOROETHYLENE (TCE)	4.4E+00		2	2
MW-12C	T	7/1/1997	TRICHLOROETHYLENE (TCE)	8.1E-01		2	2
MW-12C	T	7/1/1998	TRICHLOROETHYLENE (TCE)	7.7E-02		2	2
MW-12C	T	7/1/1999	TRICHLOROETHYLENE (TCE)	1.2E-01		2	2
MW-12C	T	7/1/2000	TRICHLOROETHYLENE (TCE)	6.1E-02		2	2
MW-12C	T	7/1/2001	TRICHLOROETHYLENE (TCE)	7.0E-02		1	1
MW-12C	T	7/1/2002	TRICHLOROETHYLENE (TCE)	4.9E-02		1	1
MW-12C	T	7/1/2003	TRICHLOROETHYLENE (TCE)	5.5E-02		2	2
MW-12C	T	7/1/2004	TRICHLOROETHYLENE (TCE)	3.6E-02		2	2
MW-12C	T	7/1/2005	TRICHLOROETHYLENE (TCE)	2.9E-02		1	1
MW-12C	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.3E-02		1	1
MW-12C	T	7/1/2007	TRICHLOROETHYLENE (TCE)	7.4E-03		1	1
MW-12C	T	7/1/2008	TRICHLOROETHYLENE (TCE)	1.5E-02		1	1
MW-12C	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.1E-02		1	1
MW-12C	T	7/1/2010	TRICHLOROETHYLENE (TCE)	2.4E-02		1	1
MW-12C	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.4E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-13C
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-84

Confidence in Trend:

100.0%

Coefficient of Variation:

0.77

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

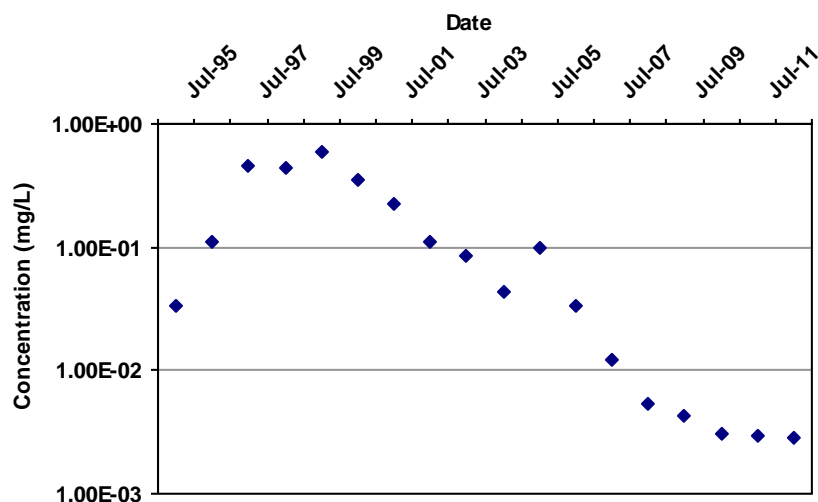
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-13C	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.4E-02		2	2
MW-13C	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.7E-02		2	2
MW-13C	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.0E-02		2	2
MW-13C	T	7/1/1998	TRICHLOROETHYLENE (TCE)	9.5E-03		2	2
MW-13C	T	7/1/1999	TRICHLOROETHYLENE (TCE)	1.2E-02		2	2
MW-13C	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.2E-02		2	2
MW-13C	T	7/1/2001	TRICHLOROETHYLENE (TCE)	8.8E-03		2	2
MW-13C	T	7/1/2002	TRICHLOROETHYLENE (TCE)	5.7E-03		2	2
MW-13C	T	7/1/2003	TRICHLOROETHYLENE (TCE)	7.9E-03		2	2
MW-13C	T	7/1/2004	TRICHLOROETHYLENE (TCE)	4.9E-03		2	2
MW-13C	T	7/1/2005	TRICHLOROETHYLENE (TCE)	2.8E-03		1	1
MW-13C	T	7/1/2006	TRICHLOROETHYLENE (TCE)	2.2E-03		1	1
MW-13C	T	7/1/2007	TRICHLOROETHYLENE (TCE)	2.4E-03		1	1
MW-13C	T	7/1/2008	TRICHLOROETHYLENE (TCE)	2.1E-03		1	1
MW-13C	T	7/1/2009	TRICHLOROETHYLENE (TCE)	5.6E-03		1	1
MW-13C	T	7/1/2010	TRICHLOROETHYLENE (TCE)	5.7E-03		1	1
MW-13C	T	7/1/2012	TRICHLOROETHYLENE (TCE)	5.8E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: PW-1B
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-111

Confidence in Trend:

100.0%

Coefficient of Variation:

1.29

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
PW-1B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	3.3E-02		11	11
PW-1B	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.1E-01		12	12
PW-1B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	4.6E-01		9	9
PW-1B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	4.3E-01		3	3
PW-1B	T	7/1/1999	TRICHLOROETHYLENE (TCE)	5.9E-01		3	3
PW-1B	T	7/1/2000	TRICHLOROETHYLENE (TCE)	3.5E-01		5	5
PW-1B	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.3E-01		4	4
PW-1B	T	7/1/2002	TRICHLOROETHYLENE (TCE)	1.1E-01		4	4
PW-1B	T	7/1/2003	TRICHLOROETHYLENE (TCE)	8.5E-02		3	3
PW-1B	T	7/1/2004	TRICHLOROETHYLENE (TCE)	4.4E-02		2	2
PW-1B	T	7/1/2005	TRICHLOROETHYLENE (TCE)	9.7E-02		2	2
PW-1B	T	7/1/2006	TRICHLOROETHYLENE (TCE)	3.4E-02		2	2
PW-1B	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.2E-02		2	2
PW-1B	T	7/1/2008	TRICHLOROETHYLENE (TCE)	5.3E-03		2	2
PW-1B	T	7/1/2009	TRICHLOROETHYLENE (TCE)	4.3E-03		2	2
PW-1B	T	7/1/2010	TRICHLOROETHYLENE (TCE)	3.0E-03		2	2
PW-1B	T	7/1/2011	TRICHLOROETHYLENE (TCE)	3.0E-03		3	3
PW-1B	T	7/1/2012	TRICHLOROETHYLENE (TCE)	2.8E-03		2	2

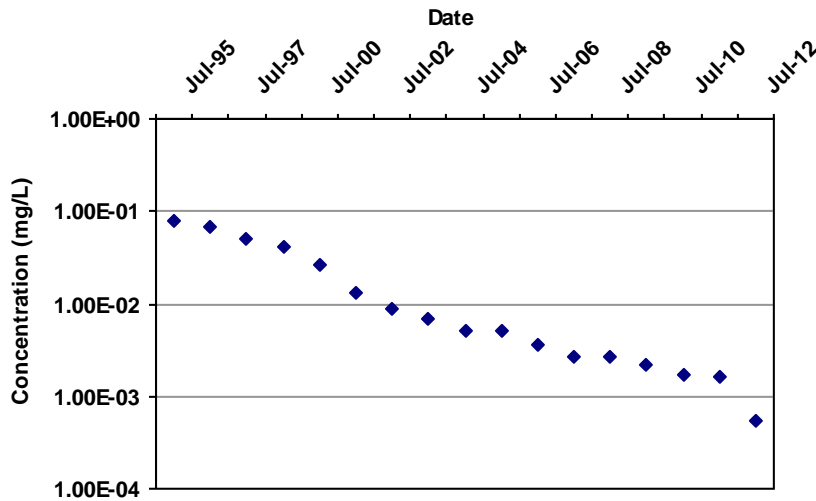
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

INTERMEDIATE WELLS

MAROS Mann-Kendall Statistics Summary

Well: AMW-16
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-135

Confidence in Trend:

100.0%

Coefficient of Variation:

1.34

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

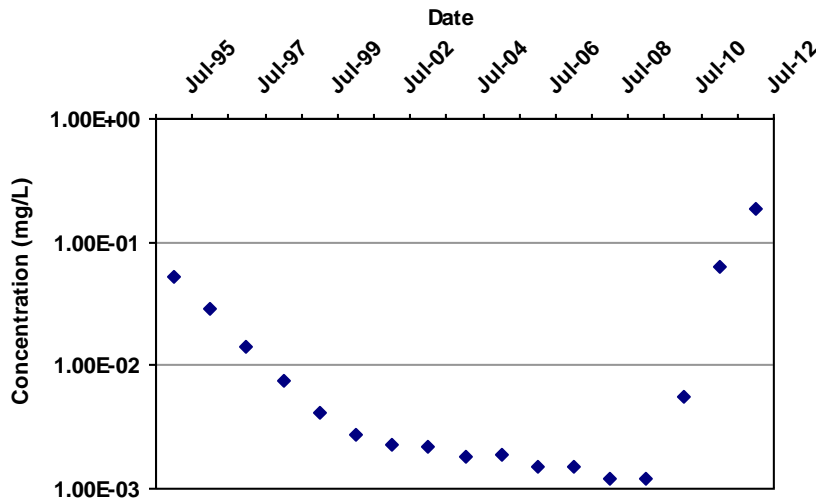
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-16	T	7/1/1995	TRICHLOROETHYLENE (TCE)	7.7E-02		2	2
AMW-16	T	7/1/1996	TRICHLOROETHYLENE (TCE)	6.9E-02		2	2
AMW-16	T	7/1/1997	TRICHLOROETHYLENE (TCE)	5.1E-02		2	2
AMW-16	T	7/1/1998	TRICHLOROETHYLENE (TCE)	4.2E-02		2	2
AMW-16	T	7/1/2000	TRICHLOROETHYLENE (TCE)	2.7E-02		2	2
AMW-16	T	7/1/2001	TRICHLOROETHYLENE (TCE)	1.3E-02		1	1
AMW-16	T	7/1/2002	TRICHLOROETHYLENE (TCE)	9.0E-03		1	1
AMW-16	T	7/1/2003	TRICHLOROETHYLENE (TCE)	7.0E-03		1	1
AMW-16	T	7/1/2004	TRICHLOROETHYLENE (TCE)	5.1E-03		1	1
AMW-16	T	7/1/2005	TRICHLOROETHYLENE (TCE)	5.0E-03		1	1
AMW-16	T	7/1/2006	TRICHLOROETHYLENE (TCE)	3.6E-03		1	1
AMW-16	T	7/1/2007	TRICHLOROETHYLENE (TCE)	2.7E-03		1	1
AMW-16	T	7/1/2008	TRICHLOROETHYLENE (TCE)	2.7E-03		1	1
AMW-16	T	7/1/2009	TRICHLOROETHYLENE (TCE)	2.2E-03		1	1
AMW-16	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.7E-03		1	1
AMW-16	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.6E-03		1	1
AMW-16	T	7/1/2012	TRICHLOROETHYLENE (TCE)	5.5E-04		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-17
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-51

Confidence in Trend:

98.1%

Coefficient of Variation:

2.06

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

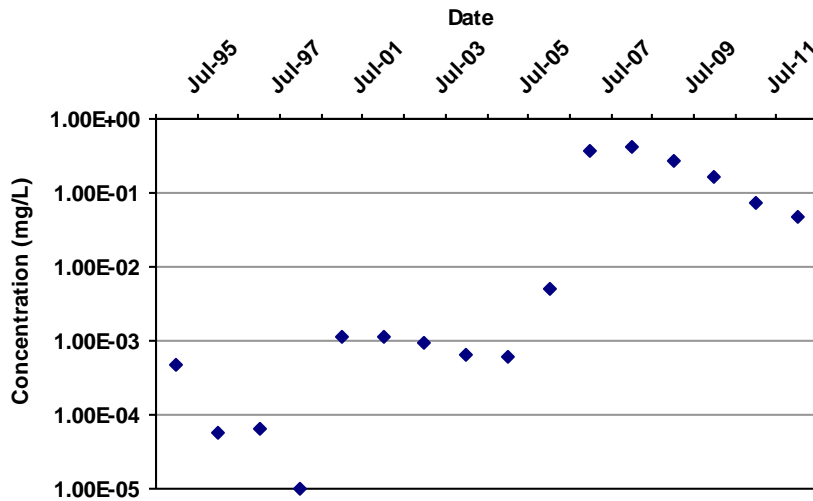
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-17	T	7/1/1995	TRICHLOROETHYLENE (TCE)	5.3E-02		2	2
AMW-17	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.8E-02		2	2
AMW-17	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.4E-02		2	2
AMW-17	T	7/1/1998	TRICHLOROETHYLENE (TCE)	7.5E-03		2	2
AMW-17	T	7/1/1999	TRICHLOROETHYLENE (TCE)	4.1E-03		2	2
AMW-17	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.7E-03		1	1
AMW-17	T	7/1/2002	TRICHLOROETHYLENE (TCE)	2.3E-03		1	1
AMW-17	T	7/1/2003	TRICHLOROETHYLENE (TCE)	2.2E-03		1	1
AMW-17	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.8E-03		1	1
AMW-17	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.9E-03		1	1
AMW-17	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.5E-03		1	1
AMW-17	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.5E-03		1	1
AMW-17	T	7/1/2008	TRICHLOROETHYLENE (TCE)	1.2E-03		1	1
AMW-17	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.2E-03		3	3
AMW-17	T	7/1/2010	TRICHLOROETHYLENE (TCE)	5.5E-03		2	2
AMW-17	T	7/1/2011	TRICHLOROETHYLENE (TCE)	6.4E-02		2	2
AMW-17	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.8E-01		4	4

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-18
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

63

Confidence in Trend:

99.8%

Coefficient of Variation:

1.69

Mann Kendall Concentration Trend:
(See Note)

I

Data Table:

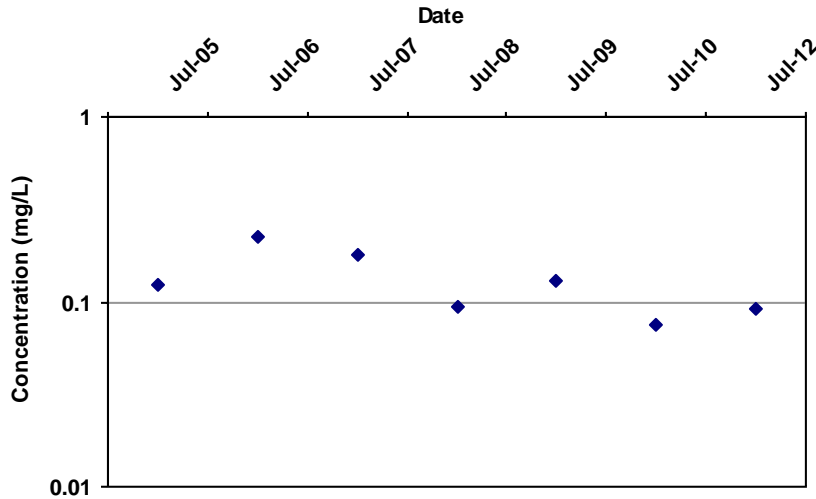
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-18	T	7/1/1995	TRICHLOROETHYLENE (TCE)	4.7E-04		2	2
AMW-18	T	7/1/1996	TRICHLOROETHYLENE (TCE)	5.6E-05		2	1
AMW-18	T	7/1/1997	TRICHLOROETHYLENE (TCE)	6.6E-05		2	1
AMW-18	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.0E-05	ND	1	0
AMW-18	T	7/1/2001	TRICHLOROETHYLENE (TCE)	1.1E-03		1	1
AMW-18	T	7/1/2002	TRICHLOROETHYLENE (TCE)	1.1E-03		1	1
AMW-18	T	7/1/2003	TRICHLOROETHYLENE (TCE)	9.5E-04		1	1
AMW-18	T	7/1/2004	TRICHLOROETHYLENE (TCE)	6.4E-04		1	1
AMW-18	T	7/1/2005	TRICHLOROETHYLENE (TCE)	6.2E-04		1	1
AMW-18	T	7/1/2006	TRICHLOROETHYLENE (TCE)	5.1E-03		1	1
AMW-18	T	7/1/2007	TRICHLOROETHYLENE (TCE)	3.7E-01		2	2
AMW-18	T	7/1/2008	TRICHLOROETHYLENE (TCE)	4.3E-01		4	4
AMW-18	T	7/1/2009	TRICHLOROETHYLENE (TCE)	2.7E-01		3	3
AMW-18	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.6E-01		2	2
AMW-18	T	7/1/2011	TRICHLOROETHYLENE (TCE)	7.1E-02		2	2
AMW-18	T	7/1/2012	TRICHLOROETHYLENE (TCE)	4.9E-02		4	4

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-59
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-11

Confidence in Trend:

93.2%

Coefficient of Variation:

0.40

Mann Kendall Concentration Trend:
(See Note)

PD

Data Table:

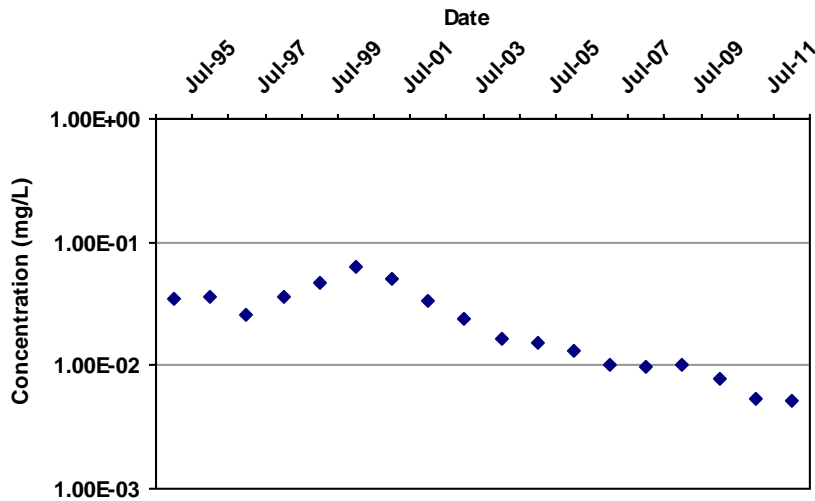
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-59	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.2E-01		3	3
AMW-59	T	7/1/2006	TRICHLOROETHYLENE (TCE)	2.2E-01		2	2
AMW-59	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.8E-01		1	1
AMW-59	T	7/1/2008	TRICHLOROETHYLENE (TCE)	9.5E-02		1	1
AMW-59	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.3E-01		1	1
AMW-59	T	7/1/2010	TRICHLOROETHYLENE (TCE)	7.6E-02		1	1
AMW-59	T	7/1/2012	TRICHLOROETHYLENE (TCE)	9.2E-02		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: CPU-14
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-114

Confidence in Trend:

100.0%

Coefficient of Variation:

0.70

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

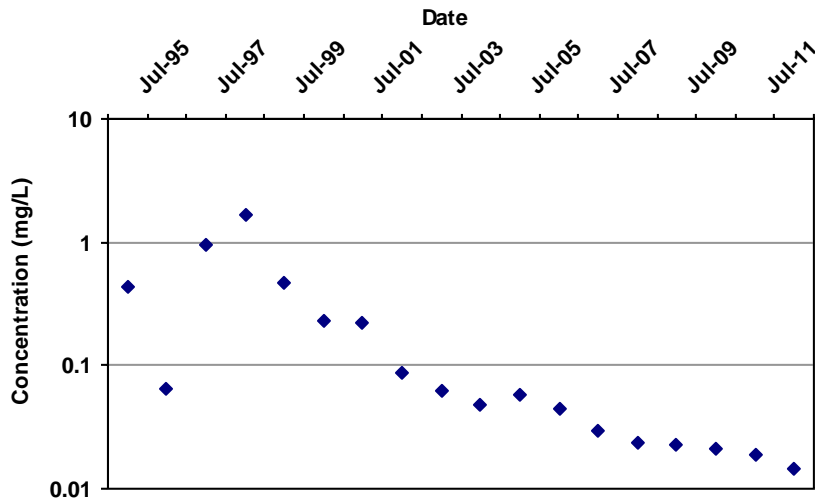
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
CPU-14	T	7/1/1995	TRICHLOROETHYLENE (TCE)	3.4E-02		2	2
CPU-14	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.6E-02		2	2
CPU-14	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.6E-02		1	1
CPU-14	T	7/1/1998	TRICHLOROETHYLENE (TCE)	3.6E-02		2	2
CPU-14	T	7/1/1999	TRICHLOROETHYLENE (TCE)	4.7E-02		2	2
CPU-14	T	7/1/2000	TRICHLOROETHYLENE (TCE)	6.3E-02		2	2
CPU-14	T	7/1/2001	TRICHLOROETHYLENE (TCE)	5.1E-02		2	2
CPU-14	T	7/1/2002	TRICHLOROETHYLENE (TCE)	3.3E-02		2	2
CPU-14	T	7/1/2003	TRICHLOROETHYLENE (TCE)	2.3E-02		2	2
CPU-14	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.6E-02		2	2
CPU-14	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.5E-02		2	2
CPU-14	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.3E-02		1	1
CPU-14	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.0E-02		1	1
CPU-14	T	7/1/2008	TRICHLOROETHYLENE (TCE)	9.8E-03		1	1
CPU-14	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.0E-02		1	1
CPU-14	T	7/1/2010	TRICHLOROETHYLENE (TCE)	7.7E-03		1	1
CPU-14	T	7/1/2011	TRICHLOROETHYLENE (TCE)	5.4E-03		1	1
CPU-14	T	7/1/2012	TRICHLOROETHYLENE (TCE)	5.2E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-14C
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-131

Confidence in Trend:

100.0%

Coefficient of Variation:

1.72

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

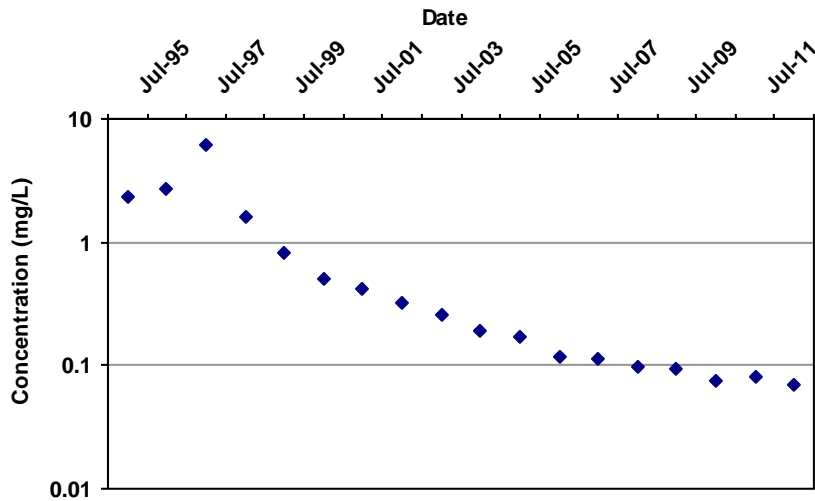
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-14C	T	7/1/1995	TRICHLOROETHYLENE (TCE)	4.4E-01		11	11
MW-14C	T	7/1/1996	TRICHLOROETHYLENE (TCE)	6.5E-02		2	2
MW-14C	T	7/1/1997	TRICHLOROETHYLENE (TCE)	9.4E-01		6	6
MW-14C	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.7E+00		2	2
MW-14C	T	7/1/1999	TRICHLOROETHYLENE (TCE)	4.6E-01		3	3
MW-14C	T	7/1/2000	TRICHLOROETHYLENE (TCE)	2.3E-01		5	5
MW-14C	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.2E-01		4	4
MW-14C	T	7/1/2002	TRICHLOROETHYLENE (TCE)	8.9E-02		4	4
MW-14C	T	7/1/2003	TRICHLOROETHYLENE (TCE)	6.3E-02		3	3
MW-14C	T	7/1/2004	TRICHLOROETHYLENE (TCE)	4.8E-02		2	2
MW-14C	T	7/1/2005	TRICHLOROETHYLENE (TCE)	5.7E-02		2	2
MW-14C	T	7/1/2006	TRICHLOROETHYLENE (TCE)	4.4E-02		2	2
MW-14C	T	7/1/2007	TRICHLOROETHYLENE (TCE)	2.9E-02		2	2
MW-14C	T	7/1/2008	TRICHLOROETHYLENE (TCE)	2.4E-02		2	2
MW-14C	T	7/1/2009	TRICHLOROETHYLENE (TCE)	2.2E-02		2	2
MW-14C	T	7/1/2010	TRICHLOROETHYLENE (TCE)	2.1E-02		2	2
MW-14C	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.9E-02		2	2
MW-14C	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.4E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-14E
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-145

Confidence in Trend:

100.0%

Coefficient of Variation:

1.73

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

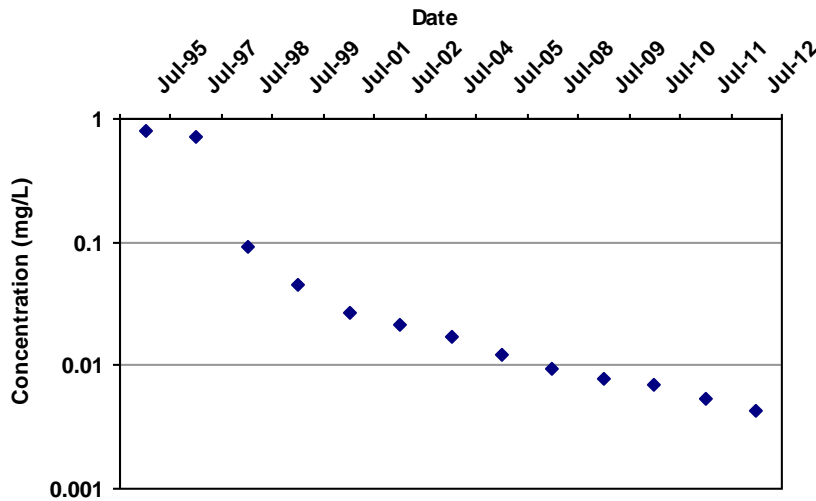
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-14E	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.3E+00		11	11
MW-14E	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.7E+00		2	2
MW-14E	T	7/1/1997	TRICHLOROETHYLENE (TCE)	6.3E+00		2	2
MW-14E	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.6E+00		3	3
MW-14E	T	7/1/1999	TRICHLOROETHYLENE (TCE)	8.2E-01		4	4
MW-14E	T	7/1/2000	TRICHLOROETHYLENE (TCE)	5.1E-01		5	5
MW-14E	T	7/1/2001	TRICHLOROETHYLENE (TCE)	4.2E-01		4	4
MW-14E	T	7/1/2002	TRICHLOROETHYLENE (TCE)	3.3E-01		4	4
MW-14E	T	7/1/2003	TRICHLOROETHYLENE (TCE)	2.6E-01		3	3
MW-14E	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.9E-01		2	2
MW-14E	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.7E-01		2	2
MW-14E	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.2E-01		2	2
MW-14E	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.1E-01		2	2
MW-14E	T	7/1/2008	TRICHLOROETHYLENE (TCE)	9.7E-02		2	2
MW-14E	T	7/1/2009	TRICHLOROETHYLENE (TCE)	9.3E-02		2	2
MW-14E	T	7/1/2010	TRICHLOROETHYLENE (TCE)	7.4E-02		2	2
MW-14E	T	7/1/2011	TRICHLOROETHYLENE (TCE)	8.0E-02		2	2
MW-14E	T	7/1/2012	TRICHLOROETHYLENE (TCE)	6.9E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-15E
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-78

Confidence in Trend:

100.0%

Coefficient of Variation:

2.05

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

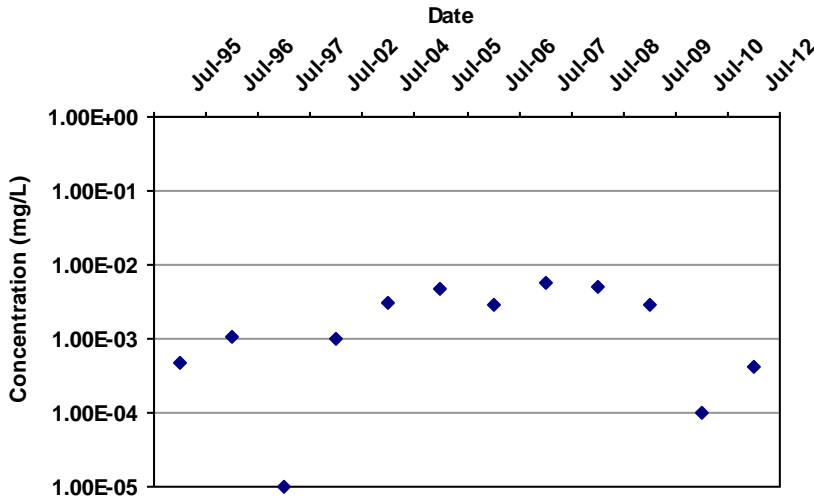
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-15E	T	7/1/1995	TRICHLOROETHYLENE (TCE)	8.1E-01		2	2
MW-15E	T	7/1/1997	TRICHLOROETHYLENE (TCE)	7.0E-01		2	2
MW-15E	T	7/1/1998	TRICHLOROETHYLENE (TCE)	9.2E-02		2	2
MW-15E	T	7/1/1999	TRICHLOROETHYLENE (TCE)	4.5E-02		2	2
MW-15E	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.7E-02		1	1
MW-15E	T	7/1/2002	TRICHLOROETHYLENE (TCE)	2.1E-02		1	1
MW-15E	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.7E-02		1	1
MW-15E	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.2E-02		1	1
MW-15E	T	7/1/2008	TRICHLOROETHYLENE (TCE)	9.5E-03		2	2
MW-15E	T	7/1/2009	TRICHLOROETHYLENE (TCE)	7.9E-03		2	2
MW-15E	T	7/1/2010	TRICHLOROETHYLENE (TCE)	6.9E-03		2	2
MW-15E	T	7/1/2011	TRICHLOROETHYLENE (TCE)	5.3E-03		2	2
MW-15E	T	7/1/2012	TRICHLOROETHYLENE (TCE)	4.3E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-16E
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

9

Confidence in Trend:

70.4%

Coefficient of Variation:

0.90

Mann Kendall Concentration Trend:
(See Note)

NT

Data Table:

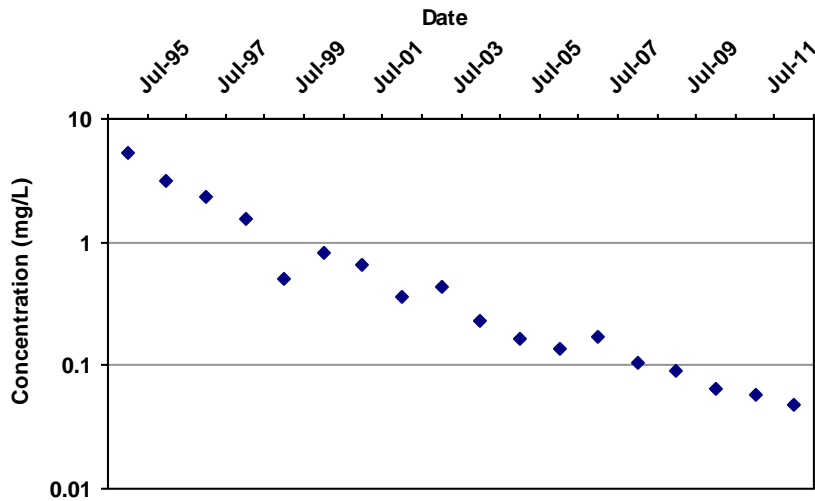
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-16E	T	7/1/1995	TRICHLOROETHYLENE (TCE)	4.6E-04		2	2
MW-16E	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.1E-05		2	2
MW-16E	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.0E-05	ND	1	0
MW-16E	T	7/1/2002	TRICHLOROETHYLENE (TCE)	1.0E-03		1	1
MW-16E	T	7/1/2004	TRICHLOROETHYLENE (TCE)	3.0E-03		1	1
MW-16E	T	7/1/2005	TRICHLOROETHYLENE (TCE)	4.6E-03		1	1
MW-16E	T	7/1/2006	TRICHLOROETHYLENE (TCE)	2.8E-03		1	1
MW-16E	T	7/1/2007	TRICHLOROETHYLENE (TCE)	5.7E-03		1	1
MW-16E	T	7/1/2008	TRICHLOROETHYLENE (TCE)	5.1E-03		1	1
MW-16E	T	7/1/2009	TRICHLOROETHYLENE (TCE)	2.8E-03		1	1
MW-16E	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.0E-04	ND	1	0
MW-16E	T	7/1/2012	TRICHLOROETHYLENE (TCE)	4.2E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-18D
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-143

Confidence in Trend:

100.0%

Coefficient of Variation:

1.56

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

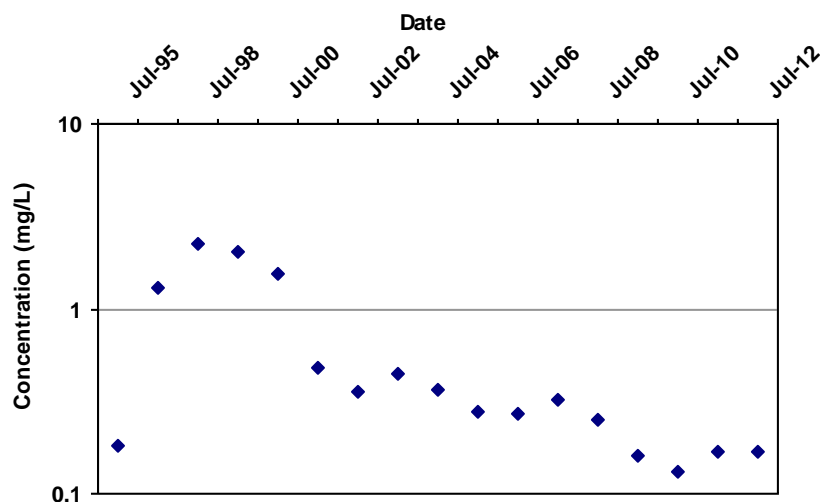
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-18D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	5.3E+00		11	11
MW-18D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.2E+00		8	8
MW-18D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.3E+00		9	9
MW-18D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.5E+00		3	3
MW-18D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	5.0E-01		4	4
MW-18D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	8.1E-01		5	5
MW-18D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	6.5E-01		2	2
MW-18D	T	7/1/2002	TRICHLOROETHYLENE (TCE)	3.6E-01		4	4
MW-18D	T	7/1/2003	TRICHLOROETHYLENE (TCE)	4.4E-01		3	3
MW-18D	T	7/1/2004	TRICHLOROETHYLENE (TCE)	2.3E-01		2	2
MW-18D	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.6E-01		2	2
MW-18D	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.3E-01		2	2
MW-18D	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.7E-01		2	2
MW-18D	T	7/1/2008	TRICHLOROETHYLENE (TCE)	1.1E-01		2	2
MW-18D	T	7/1/2009	TRICHLOROETHYLENE (TCE)	9.1E-02		2	2
MW-18D	T	7/1/2010	TRICHLOROETHYLENE (TCE)	6.4E-02		2	2
MW-18D	T	7/1/2011	TRICHLOROETHYLENE (TCE)	5.7E-02		2	2
MW-18D	T	7/1/2012	TRICHLOROETHYLENE (TCE)	4.8E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-18E
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-89

Confidence in Trend:

100.0%

Coefficient of Variation:

1.10

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

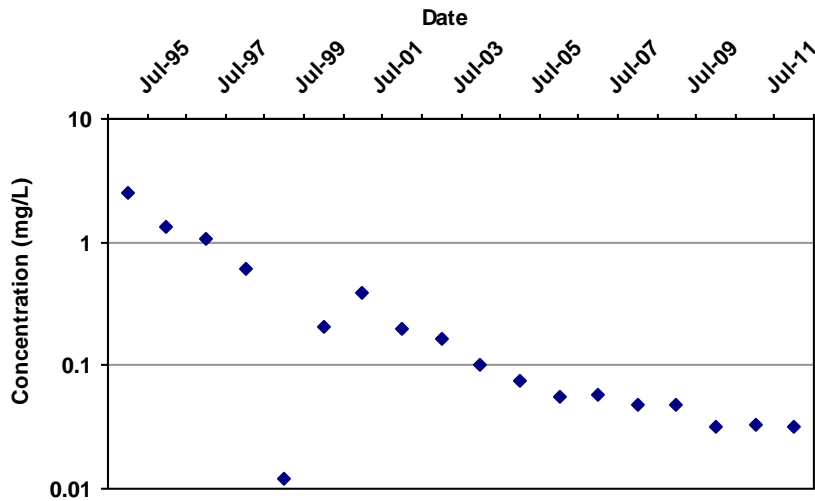
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-18E	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.8E-01		2	2
MW-18E	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.3E+00		2	2
MW-18E	T	7/1/1998	TRICHLOROETHYLENE (TCE)	2.3E+00		2	2
MW-18E	T	7/1/1999	TRICHLOROETHYLENE (TCE)	2.0E+00		2	2
MW-18E	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.5E+00		2	2
MW-18E	T	7/1/2001	TRICHLOROETHYLENE (TCE)	4.8E-01		3	3
MW-18E	T	7/1/2002	TRICHLOROETHYLENE (TCE)	3.6E-01		2	2
MW-18E	T	7/1/2003	TRICHLOROETHYLENE (TCE)	4.4E-01		2	2
MW-18E	T	7/1/2004	TRICHLOROETHYLENE (TCE)	3.6E-01		2	2
MW-18E	T	7/1/2005	TRICHLOROETHYLENE (TCE)	2.8E-01		1	1
MW-18E	T	7/1/2006	TRICHLOROETHYLENE (TCE)	2.7E-01		2	2
MW-18E	T	7/1/2007	TRICHLOROETHYLENE (TCE)	3.2E-01		1	1
MW-18E	T	7/1/2008	TRICHLOROETHYLENE (TCE)	2.5E-01		1	1
MW-18E	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.6E-01		1	1
MW-18E	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.3E-01		1	1
MW-18E	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.7E-01		1	1
MW-18E	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.7E-01		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-19D
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-118

Confidence in Trend:

100.0%

Coefficient of Variation:

1.67

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

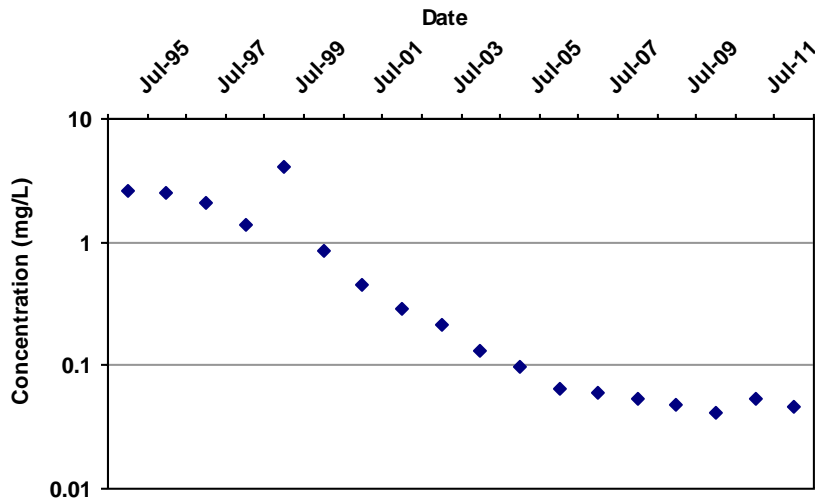
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-19D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.5E+00		11	11
MW-19D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.3E+00		12	12
MW-19D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.1E+00		6	6
MW-19D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	6.1E-01		3	3
MW-19D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	1.2E-02		1	1
MW-19D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	2.1E-01		3	3
MW-19D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	3.9E-01		4	4
MW-19D	T	7/1/2002	TRICHLOROETHYLENE (TCE)	2.0E-01		4	4
MW-19D	T	7/1/2003	TRICHLOROETHYLENE (TCE)	1.7E-01		3	3
MW-19D	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.0E-01		2	2
MW-19D	T	7/1/2005	TRICHLOROETHYLENE (TCE)	7.5E-02		2	2
MW-19D	T	7/1/2006	TRICHLOROETHYLENE (TCE)	5.6E-02		2	2
MW-19D	T	7/1/2007	TRICHLOROETHYLENE (TCE)	5.8E-02		2	2
MW-19D	T	7/1/2008	TRICHLOROETHYLENE (TCE)	4.7E-02		2	2
MW-19D	T	7/1/2009	TRICHLOROETHYLENE (TCE)	4.8E-02		2	2
MW-19D	T	7/1/2010	TRICHLOROETHYLENE (TCE)	3.2E-02		2	2
MW-19D	T	7/1/2011	TRICHLOROETHYLENE (TCE)	3.3E-02		2	2
MW-19D	T	7/1/2012	TRICHLOROETHYLENE (TCE)	3.2E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-20D
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-137

Confidence in Trend:

100.0%

Coefficient of Variation:

1.43

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

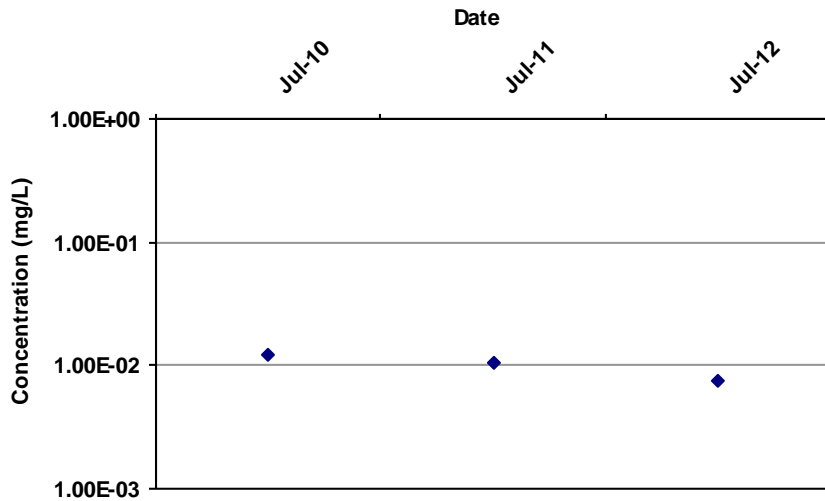
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-20D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.6E+00		11	11
MW-20D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.5E+00		12	12
MW-20D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.1E+00		9	9
MW-20D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.4E+00		3	3
MW-20D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	4.1E+00		1	1
MW-20D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	8.6E-01		4	4
MW-20D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	4.5E-01		4	4
MW-20D	T	7/1/2002	TRICHLOROETHYLENE (TCE)	2.9E-01		4	4
MW-20D	T	7/1/2003	TRICHLOROETHYLENE (TCE)	2.1E-01		3	3
MW-20D	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.3E-01		2	2
MW-20D	T	7/1/2005	TRICHLOROETHYLENE (TCE)	9.6E-02		2	2
MW-20D	T	7/1/2006	TRICHLOROETHYLENE (TCE)	6.4E-02		2	2
MW-20D	T	7/1/2007	TRICHLOROETHYLENE (TCE)	6.0E-02		2	2
MW-20D	T	7/1/2008	TRICHLOROETHYLENE (TCE)	5.3E-02		2	2
MW-20D	T	7/1/2009	TRICHLOROETHYLENE (TCE)	4.7E-02		2	2
MW-20D	T	7/1/2010	TRICHLOROETHYLENE (TCE)	4.2E-02		2	2
MW-20D	T	7/1/2011	TRICHLOROETHYLENE (TCE)	5.4E-02		2	2
MW-20D	T	7/1/2012	TRICHLOROETHYLENE (TCE)	4.6E-02		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-38
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

0

Confidence in Trend:

0.0%

Coefficient of Variation:

0.00

Mann Kendall Concentration Trend: (See Note)

N/A

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-38	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.2E-02		1	1
MW-38	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.0E-02		2	2
MW-38	T	7/1/2012	TRICHLOROETHYLENE (TCE)	7.4E-03		1	1

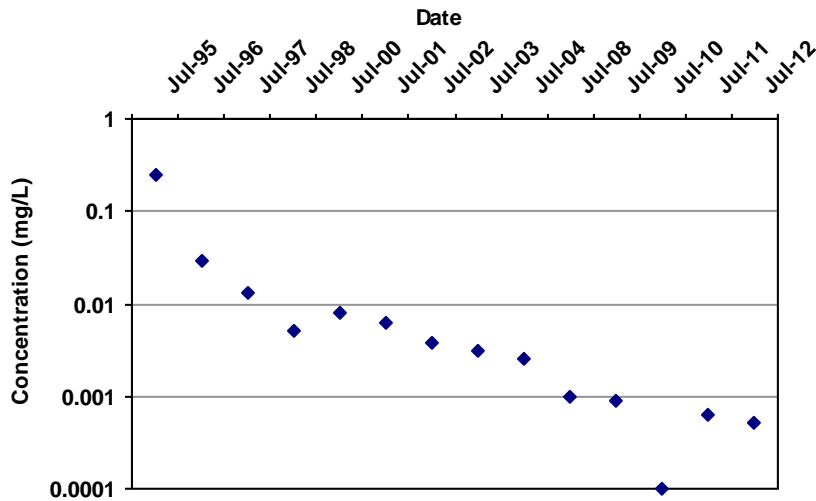
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

CHURCH OF GOD WELLS

MAROS Mann-Kendall Statistics Summary

Well: AMW-14
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-83

Confidence in Trend:

100.0%

Coefficient of Variation:

2.81

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

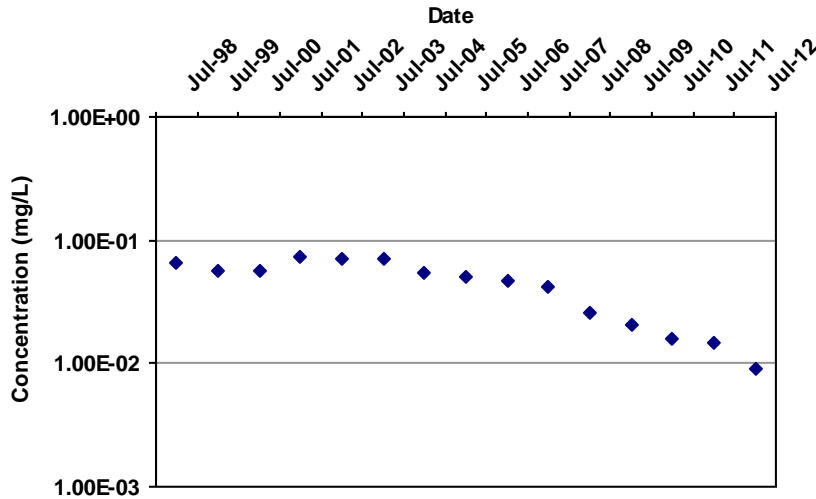
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-14	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.4E-01		2	2
AMW-14	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.0E-02		2	2
AMW-14	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.3E-02		2	2
AMW-14	T	7/1/1998	TRICHLOROETHYLENE (TCE)	5.0E-03		1	1
AMW-14	T	7/1/2000	TRICHLOROETHYLENE (TCE)	7.9E-03		1	1
AMW-14	T	7/1/2001	TRICHLOROETHYLENE (TCE)	6.2E-03		2	2
AMW-14	T	7/1/2002	TRICHLOROETHYLENE (TCE)	3.8E-03		2	2
AMW-14	T	7/1/2003	TRICHLOROETHYLENE (TCE)	3.0E-03		2	2
AMW-14	T	7/1/2004	TRICHLOROETHYLENE (TCE)	2.5E-03		1	1
AMW-14	T	7/1/2008	TRICHLOROETHYLENE (TCE)	1.0E-03		1	1
AMW-14	T	7/1/2009	TRICHLOROETHYLENE (TCE)	8.8E-04		1	1
AMW-14	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.0E-04	ND	2	0
AMW-14	T	7/1/2011	TRICHLOROETHYLENE (TCE)	6.4E-04		1	1
AMW-14	T	7/1/2012	TRICHLOROETHYLENE (TCE)	5.3E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-27
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-85

Confidence in Trend:

100.0%

Coefficient of Variation:

0.50

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

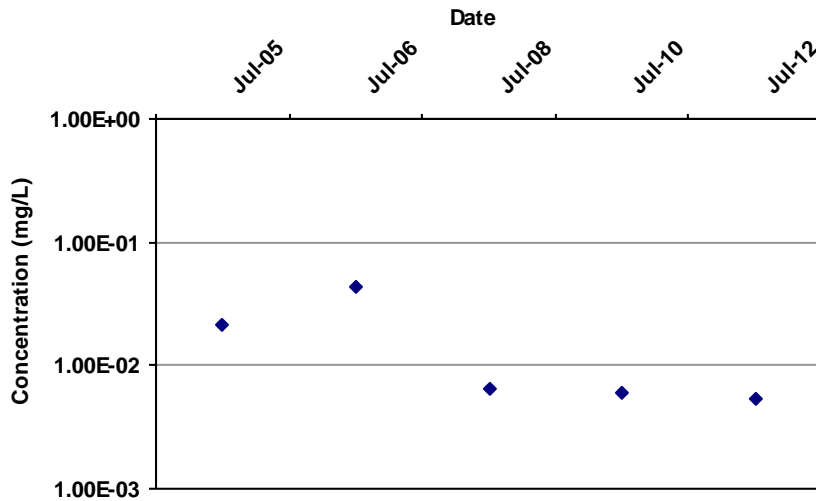
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-27	T	7/1/1998	TRICHLOROETHYLENE (TCE)	6.6E-02		1	1
AMW-27	T	7/1/1999	TRICHLOROETHYLENE (TCE)	5.7E-02		3	3
AMW-27	T	7/1/2000	TRICHLOROETHYLENE (TCE)	5.6E-02		5	5
AMW-27	T	7/1/2001	TRICHLOROETHYLENE (TCE)	7.3E-02		4	4
AMW-27	T	7/1/2002	TRICHLOROETHYLENE (TCE)	7.0E-02		4	4
AMW-27	T	7/1/2003	TRICHLOROETHYLENE (TCE)	7.1E-02		3	3
AMW-27	T	7/1/2004	TRICHLOROETHYLENE (TCE)	5.3E-02		2	2
AMW-27	T	7/1/2005	TRICHLOROETHYLENE (TCE)	5.0E-02		2	2
AMW-27	T	7/1/2006	TRICHLOROETHYLENE (TCE)	4.6E-02		2	2
AMW-27	T	7/1/2007	TRICHLOROETHYLENE (TCE)	4.1E-02		2	2
AMW-27	T	7/1/2008	TRICHLOROETHYLENE (TCE)	2.6E-02		2	2
AMW-27	T	7/1/2009	TRICHLOROETHYLENE (TCE)	2.1E-02		2	2
AMW-27	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.6E-02		2	2
AMW-27	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.4E-02		2	2
AMW-27	T	7/1/2012	TRICHLOROETHYLENE (TCE)	9.0E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-61
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-8

Confidence in Trend:

95.8%

Coefficient of Variation:

0.99

Mann Kendall Concentration Trend:
(See Note)

D

Data Table:

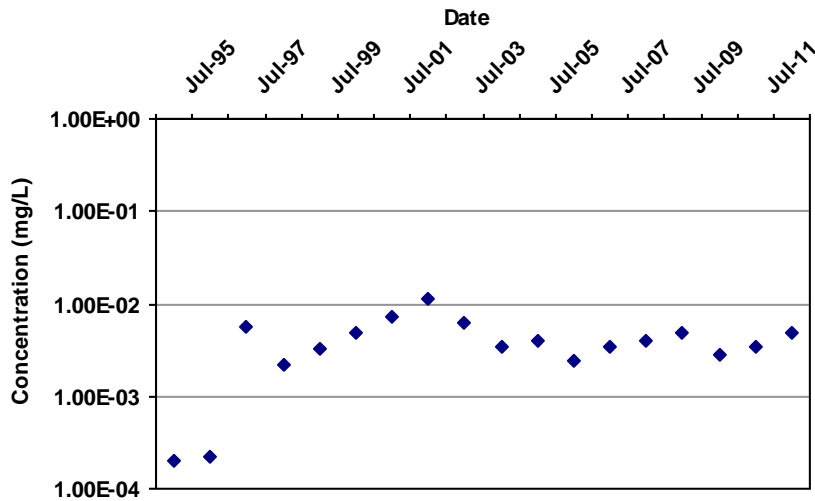
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-61	T	7/1/2005	TRICHLOROETHYLENE (TCE)	2.1E-02		2	2
AMW-61	T	7/1/2006	TRICHLOROETHYLENE (TCE)	4.3E-02		1	1
AMW-61	T	7/1/2008	TRICHLOROETHYLENE (TCE)	6.5E-03		1	1
AMW-61	T	7/1/2010	TRICHLOROETHYLENE (TCE)	6.0E-03		1	1
AMW-61	T	7/1/2012	TRICHLOROETHYLENE (TCE)	5.4E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: CPU-12
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

26

Confidence in Trend:

82.6%

Coefficient of Variation:

0.61

Mann Kendall Concentration Trend: (See Note)

NT

Data Table:

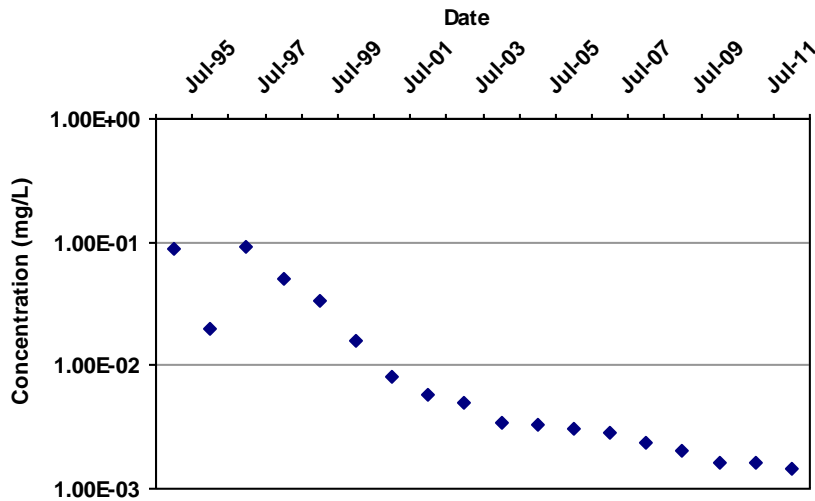
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
CPU-12	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.0E-04		2	1
CPU-12	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.2E-04		2	1
CPU-12	T	7/1/1997	TRICHLOROETHYLENE (TCE)	5.7E-03		2	2
CPU-12	T	7/1/1998	TRICHLOROETHYLENE (TCE)	2.2E-03		2	2
CPU-12	T	7/1/1999	TRICHLOROETHYLENE (TCE)	3.2E-03		2	2
CPU-12	T	7/1/2000	TRICHLOROETHYLENE (TCE)	4.8E-03		2	2
CPU-12	T	7/1/2001	TRICHLOROETHYLENE (TCE)	7.1E-03		2	2
CPU-12	T	7/1/2002	TRICHLOROETHYLENE (TCE)	1.1E-02		2	2
CPU-12	T	7/1/2003	TRICHLOROETHYLENE (TCE)	6.1E-03		2	2
CPU-12	T	7/1/2004	TRICHLOROETHYLENE (TCE)	3.4E-03		2	2
CPU-12	T	7/1/2005	TRICHLOROETHYLENE (TCE)	4.1E-03		2	2
CPU-12	T	7/1/2006	TRICHLOROETHYLENE (TCE)	2.4E-03		1	1
CPU-12	T	7/1/2007	TRICHLOROETHYLENE (TCE)	3.4E-03		1	1
CPU-12	T	7/1/2008	TRICHLOROETHYLENE (TCE)	4.0E-03		1	1
CPU-12	T	7/1/2009	TRICHLOROETHYLENE (TCE)	4.9E-03		1	1
CPU-12	T	7/1/2010	TRICHLOROETHYLENE (TCE)	2.8E-03		1	1
CPU-12	T	7/1/2011	TRICHLOROETHYLENE (TCE)	3.5E-03		1	1
CPU-12	T	7/1/2012	TRICHLOROETHYLENE (TCE)	4.9E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: CPU-13
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-143

Confidence in Trend:

100.0%

Coefficient of Variation:

1.54

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

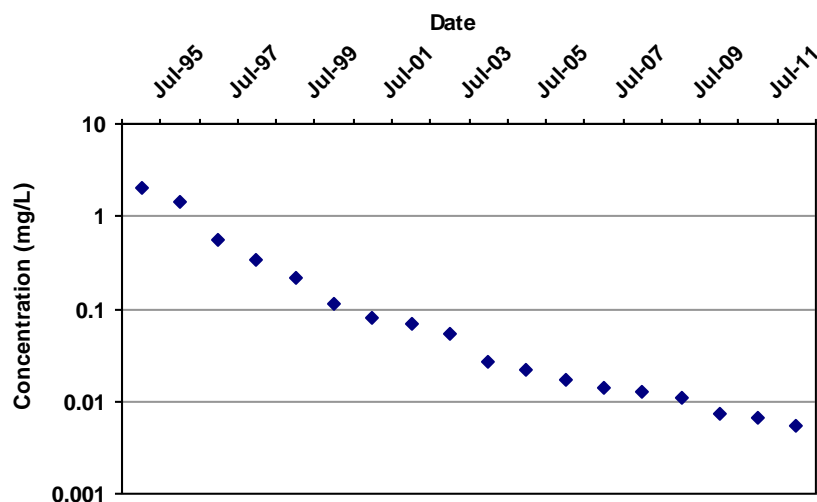
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
CPU-13	T	7/1/1995	TRICHLOROETHYLENE (TCE)	9.0E-02		11	11
CPU-13	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.0E-02		2	2
CPU-13	T	7/1/1997	TRICHLOROETHYLENE (TCE)	9.2E-02		2	2
CPU-13	T	7/1/1998	TRICHLOROETHYLENE (TCE)	5.0E-02		2	2
CPU-13	T	7/1/1999	TRICHLOROETHYLENE (TCE)	3.4E-02		4	4
CPU-13	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.6E-02		5	5
CPU-13	T	7/1/2001	TRICHLOROETHYLENE (TCE)	8.0E-03		4	4
CPU-13	T	7/1/2002	TRICHLOROETHYLENE (TCE)	5.8E-03		4	4
CPU-13	T	7/1/2003	TRICHLOROETHYLENE (TCE)	4.9E-03		3	3
CPU-13	T	7/1/2004	TRICHLOROETHYLENE (TCE)	3.4E-03		2	2
CPU-13	T	7/1/2005	TRICHLOROETHYLENE (TCE)	3.3E-03		2	2
CPU-13	T	7/1/2006	TRICHLOROETHYLENE (TCE)	3.0E-03		2	2
CPU-13	T	7/1/2007	TRICHLOROETHYLENE (TCE)	2.8E-03		2	2
CPU-13	T	7/1/2008	TRICHLOROETHYLENE (TCE)	2.4E-03		2	2
CPU-13	T	7/1/2009	TRICHLOROETHYLENE (TCE)	2.0E-03		2	2
CPU-13	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.6E-03		2	2
CPU-13	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.6E-03		2	2
CPU-13	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.4E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-21D
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-153

Confidence in Trend:

100.0%

Coefficient of Variation:

1.99

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

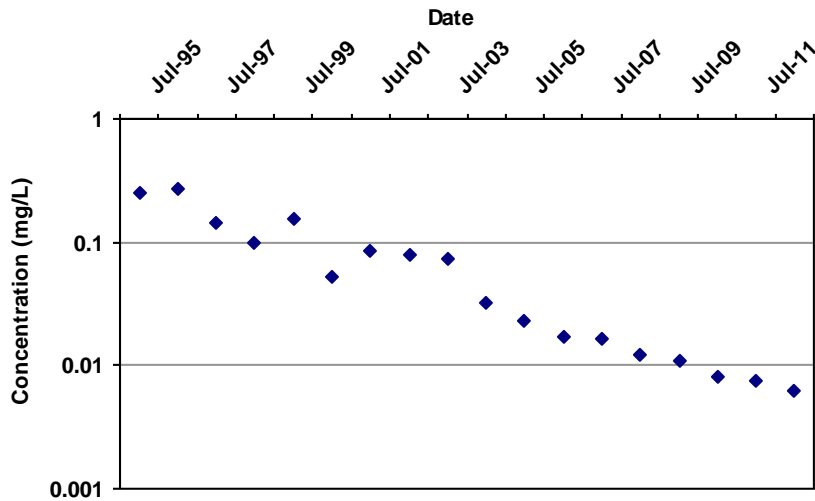
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-21D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.0E+00		11	11
MW-21D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.4E+00		12	12
MW-21D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	5.5E-01		9	9
MW-21D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	3.5E-01		3	3
MW-21D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	2.1E-01		3	3
MW-21D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.1E-01		5	5
MW-21D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	8.1E-02		4	4
MW-21D	T	7/1/2002	TRICHLOROETHYLENE (TCE)	6.9E-02		4	4
MW-21D	T	7/1/2003	TRICHLOROETHYLENE (TCE)	5.4E-02		3	3
MW-21D	T	7/1/2004	TRICHLOROETHYLENE (TCE)	2.7E-02		2	2
MW-21D	T	7/1/2005	TRICHLOROETHYLENE (TCE)	2.2E-02		2	2
MW-21D	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.7E-02		2	2
MW-21D	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.4E-02		2	2
MW-21D	T	7/1/2008	TRICHLOROETHYLENE (TCE)	1.2E-02		2	2
MW-21D	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.1E-02		2	2
MW-21D	T	7/1/2010	TRICHLOROETHYLENE (TCE)	7.1E-03		2	2
MW-21D	T	7/1/2011	TRICHLOROETHYLENE (TCE)	6.7E-03		2	2
MW-21D	T	7/1/2012	TRICHLOROETHYLENE (TCE)	5.3E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-22D
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-141

Confidence in Trend:

100.0%

Coefficient of Variation:

1.11

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

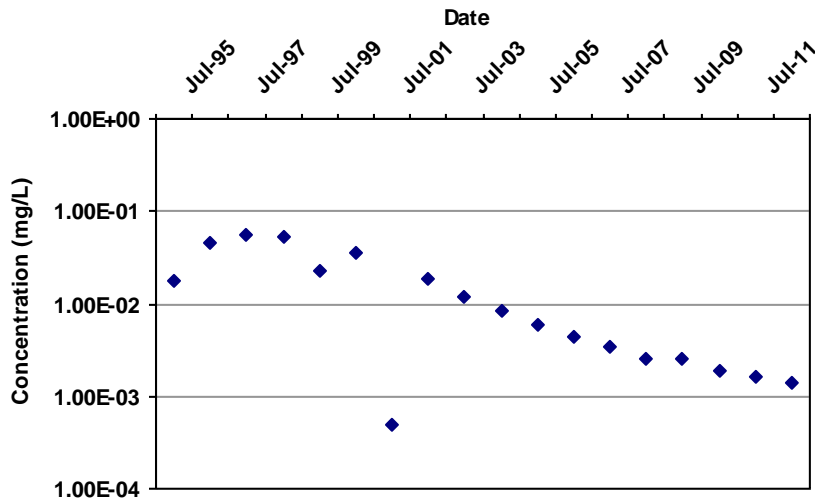
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-22D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.5E-01		11	11
MW-22D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.7E-01		11	11
MW-22D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.4E-01		9	9
MW-22D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	9.9E-02		3	3
MW-22D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	1.6E-01		2	2
MW-22D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	5.3E-02		4	4
MW-22D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	8.4E-02		3	3
MW-22D	T	7/1/2002	TRICHLOROETHYLENE (TCE)	7.8E-02		3	3
MW-22D	T	7/1/2003	TRICHLOROETHYLENE (TCE)	7.3E-02		3	3
MW-22D	T	7/1/2004	TRICHLOROETHYLENE (TCE)	3.2E-02		2	2
MW-22D	T	7/1/2005	TRICHLOROETHYLENE (TCE)	2.3E-02		2	2
MW-22D	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.7E-02		2	2
MW-22D	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.6E-02		2	2
MW-22D	T	7/1/2008	TRICHLOROETHYLENE (TCE)	1.2E-02		2	2
MW-22D	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.1E-02		2	2
MW-22D	T	7/1/2010	TRICHLOROETHYLENE (TCE)	7.9E-03		2	2
MW-22D	T	7/1/2011	TRICHLOROETHYLENE (TCE)	7.4E-03		2	2
MW-22D	T	7/1/2012	TRICHLOROETHYLENE (TCE)	6.2E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-23D
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-113

Confidence in Trend:

100.0%

Coefficient of Variation:

1.15

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

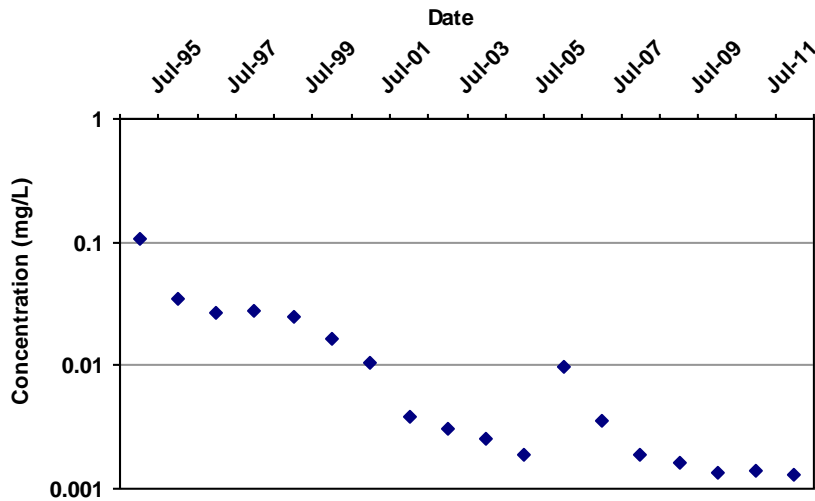
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-23D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.7E-02		2	2
MW-23D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	4.6E-02		2	2
MW-23D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	5.6E-02		2	2
MW-23D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	5.3E-02		2	2
MW-23D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	2.3E-02		2	2
MW-23D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	3.5E-02		2	2
MW-23D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	4.9E-04		2	1
MW-23D	T	7/1/2002	TRICHLOROETHYLENE (TCE)	1.9E-02		2	2
MW-23D	T	7/1/2003	TRICHLOROETHYLENE (TCE)	1.2E-02		2	2
MW-23D	T	7/1/2004	TRICHLOROETHYLENE (TCE)	8.4E-03		2	2
MW-23D	T	7/1/2005	TRICHLOROETHYLENE (TCE)	5.9E-03		2	2
MW-23D	T	7/1/2006	TRICHLOROETHYLENE (TCE)	4.4E-03		1	1
MW-23D	T	7/1/2007	TRICHLOROETHYLENE (TCE)	3.5E-03		1	1
MW-23D	T	7/1/2008	TRICHLOROETHYLENE (TCE)	2.6E-03		1	1
MW-23D	T	7/1/2009	TRICHLOROETHYLENE (TCE)	2.5E-03		1	1
MW-23D	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.9E-03		1	1
MW-23D	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.6E-03		1	1
MW-23D	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.4E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-25D
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-134

Confidence in Trend:

100.0%

Coefficient of Variation:

1.61

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

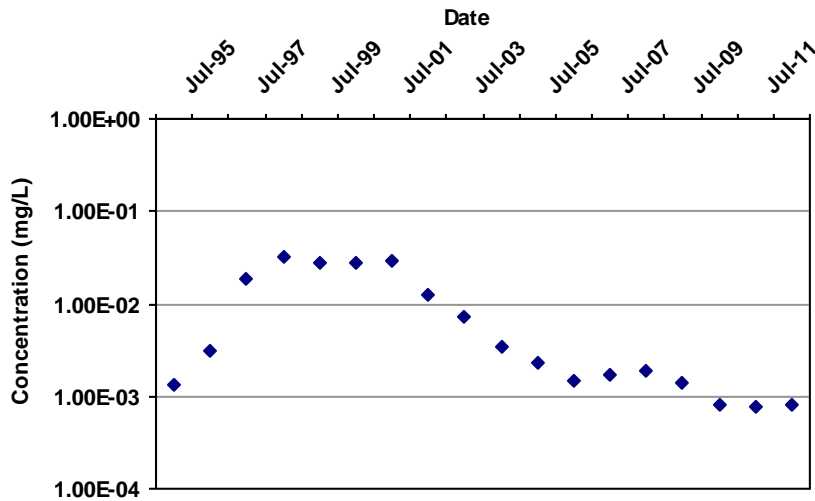
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-25D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.1E-01		12	12
MW-25D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.4E-02		12	12
MW-25D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.7E-02		9	9
MW-25D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	2.8E-02		3	3
MW-25D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	2.4E-02		4	4
MW-25D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.6E-02		5	5
MW-25D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	1.1E-02		4	4
MW-25D	T	7/1/2002	TRICHLOROETHYLENE (TCE)	3.8E-03		4	4
MW-25D	T	7/1/2003	TRICHLOROETHYLENE (TCE)	3.1E-03		3	3
MW-25D	T	7/1/2004	TRICHLOROETHYLENE (TCE)	2.6E-03		2	2
MW-25D	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.9E-03		1	1
MW-25D	T	7/1/2006	TRICHLOROETHYLENE (TCE)	9.9E-03		1	1
MW-25D	T	7/1/2007	TRICHLOROETHYLENE (TCE)	3.6E-03		3	3
MW-25D	T	7/1/2008	TRICHLOROETHYLENE (TCE)	1.9E-03		2	2
MW-25D	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.6E-03		2	2
MW-25D	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.4E-03		3	3
MW-25D	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.4E-03		2	2
MW-25D	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.3E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-26D
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-89

Confidence in Trend:

100.0%

Coefficient of Variation:

1.21

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

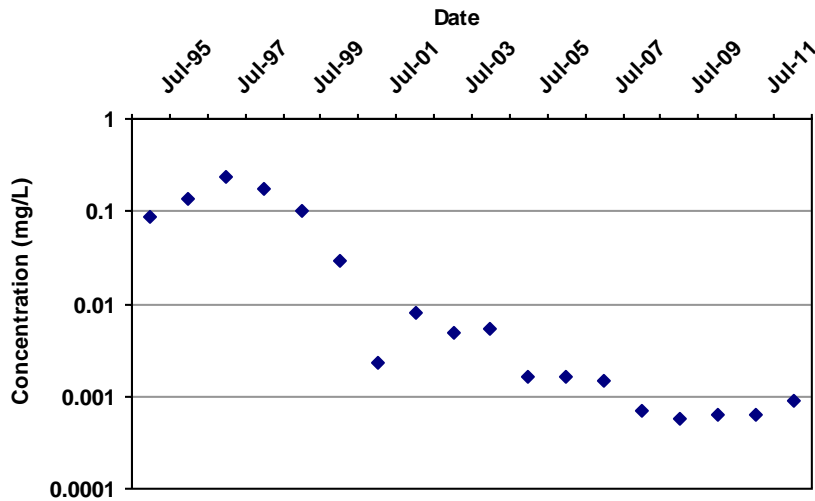
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-26D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.3E-03		11	10
MW-26D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.1E-03		12	12
MW-26D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.9E-02		9	9
MW-26D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	3.2E-02		3	3
MW-26D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	2.7E-02		4	4
MW-26D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	2.7E-02		5	5
MW-26D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.9E-02		4	4
MW-26D	T	7/1/2002	TRICHLOROETHYLENE (TCE)	1.2E-02		4	4
MW-26D	T	7/1/2003	TRICHLOROETHYLENE (TCE)	7.4E-03		3	3
MW-26D	T	7/1/2004	TRICHLOROETHYLENE (TCE)	3.4E-03		2	2
MW-26D	T	7/1/2005	TRICHLOROETHYLENE (TCE)	2.3E-03		2	2
MW-26D	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.4E-03		2	2
MW-26D	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.7E-03		2	2
MW-26D	T	7/1/2008	TRICHLOROETHYLENE (TCE)	1.8E-03		2	2
MW-26D	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.4E-03		2	2
MW-26D	T	7/1/2010	TRICHLOROETHYLENE (TCE)	8.1E-04		2	2
MW-26D	T	7/1/2011	TRICHLOROETHYLENE (TCE)	7.5E-04		2	2
MW-26D	T	7/1/2012	TRICHLOROETHYLENE (TCE)	8.0E-04		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-27D
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-120

Confidence in Trend:

100.0%

Coefficient of Variation:

1.64

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

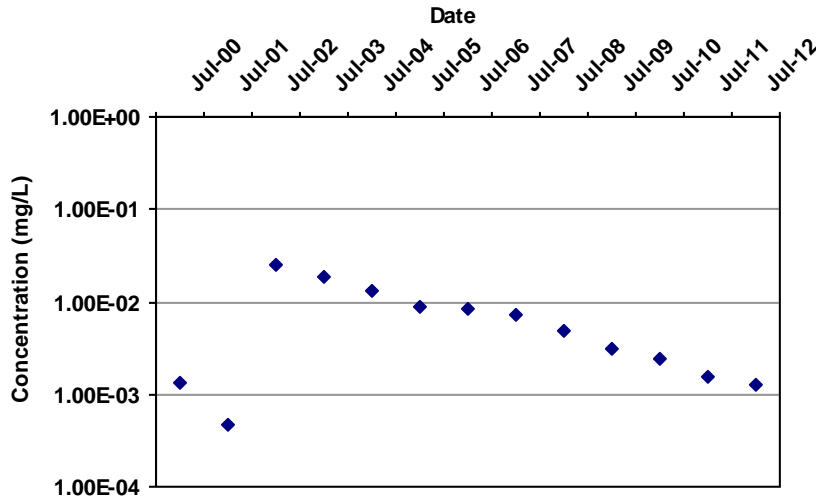
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-27D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	8.9E-02		11	11
MW-27D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.4E-01		2	2
MW-27D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.4E-01		2	2
MW-27D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.7E-01		2	2
MW-27D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	1.0E-01		2	2
MW-27D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	3.0E-02		4	4
MW-27D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.2E-03		4	3
MW-27D	T	7/1/2002	TRICHLOROETHYLENE (TCE)	8.1E-03		4	4
MW-27D	T	7/1/2003	TRICHLOROETHYLENE (TCE)	5.0E-03		3	3
MW-27D	T	7/1/2004	TRICHLOROETHYLENE (TCE)	5.3E-03		2	2
MW-27D	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.6E-03		1	1
MW-27D	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.6E-03		1	1
MW-27D	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.5E-03		1	1
MW-27D	T	7/1/2008	TRICHLOROETHYLENE (TCE)	6.9E-04		2	2
MW-27D	T	7/1/2009	TRICHLOROETHYLENE (TCE)	5.8E-04		2	2
MW-27D	T	7/1/2010	TRICHLOROETHYLENE (TCE)	6.4E-04		3	3
MW-27D	T	7/1/2011	TRICHLOROETHYLENE (TCE)	6.3E-04		1	1
MW-27D	T	7/1/2012	TRICHLOROETHYLENE (TCE)	8.9E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-49
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-36

Confidence in Trend:

98.5%

Coefficient of Variation:

1.01

Mann Kendall Concentration Trend:
(See Note)

D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-49	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.3E-03		3	2
MW-49	T	7/1/2001	TRICHLOROETHYLENE (TCE)	4.7E-04		4	2
MW-49	T	7/1/2002	TRICHLOROETHYLENE (TCE)	2.5E-02		4	4
MW-49	T	7/1/2003	TRICHLOROETHYLENE (TCE)	1.9E-02		3	3
MW-49	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.3E-02		2	2
MW-49	T	7/1/2005	TRICHLOROETHYLENE (TCE)	9.0E-03		2	2
MW-49	T	7/1/2006	TRICHLOROETHYLENE (TCE)	8.5E-03		2	2
MW-49	T	7/1/2007	TRICHLOROETHYLENE (TCE)	7.3E-03		2	2
MW-49	T	7/1/2008	TRICHLOROETHYLENE (TCE)	4.9E-03		2	2
MW-49	T	7/1/2009	TRICHLOROETHYLENE (TCE)	3.1E-03		2	2
MW-49	T	7/1/2010	TRICHLOROETHYLENE (TCE)	2.4E-03		1	1
MW-49	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.5E-03		2	2
MW-49	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.2E-03		2	2

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

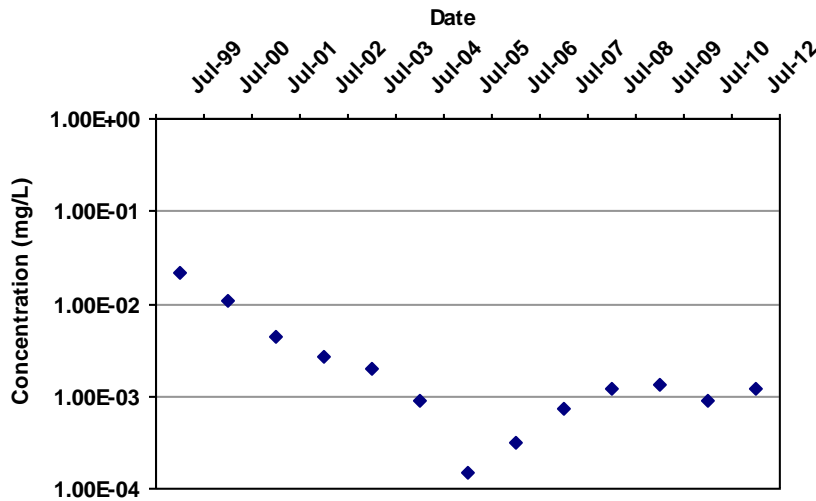
TOE OF PLUME

Other Toe Wells

MAROS Mann-Kendall Statistics Summary

Well: AMW-42
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-35

Confidence in Trend:

98.2%

Coefficient of Variation:

1.63

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

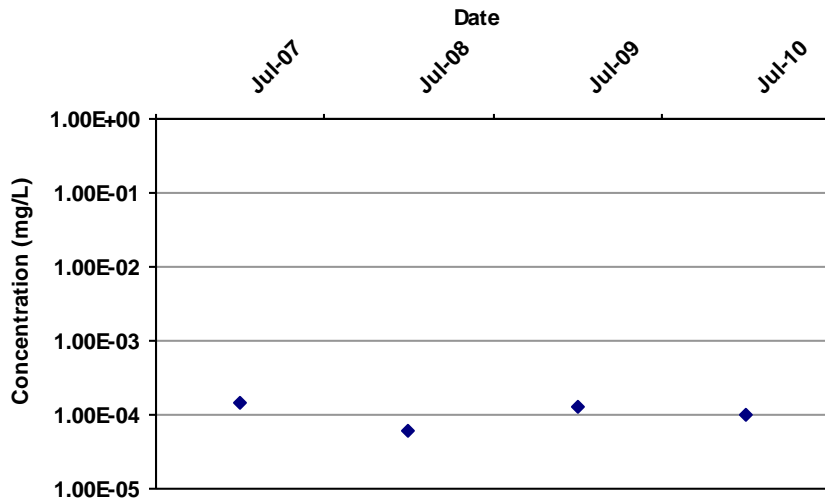
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-42	T	7/1/1999	TRICHLOROETHYLENE (TCE)	2.1E-02		9	9
AMW-42	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.1E-02		13	13
AMW-42	T	7/1/2001	TRICHLOROETHYLENE (TCE)	4.3E-03		4	4
AMW-42	T	7/1/2002	TRICHLOROETHYLENE (TCE)	2.7E-03		4	4
AMW-42	T	7/1/2003	TRICHLOROETHYLENE (TCE)	2.0E-03		3	3
AMW-42	T	7/1/2004	TRICHLOROETHYLENE (TCE)	8.7E-04		6	5
AMW-42	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.5E-04		4	1
AMW-42	T	7/1/2006	TRICHLOROETHYLENE (TCE)	3.1E-04		2	2
AMW-42	T	7/1/2007	TRICHLOROETHYLENE (TCE)	7.5E-04		2	2
AMW-42	T	7/1/2008	TRICHLOROETHYLENE (TCE)	1.2E-03		1	1
AMW-42	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.3E-03		1	1
AMW-42	T	7/1/2010	TRICHLOROETHYLENE (TCE)	8.8E-04		1	1
AMW-42	T	7/1/2012	TRICHLOROETHYLENE (TCE)	1.2E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AMW-63
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-2

Confidence in Trend:

62.5%

Coefficient of Variation:

0.34

Mann Kendall Concentration Trend: (See Note)

S

Data Table:

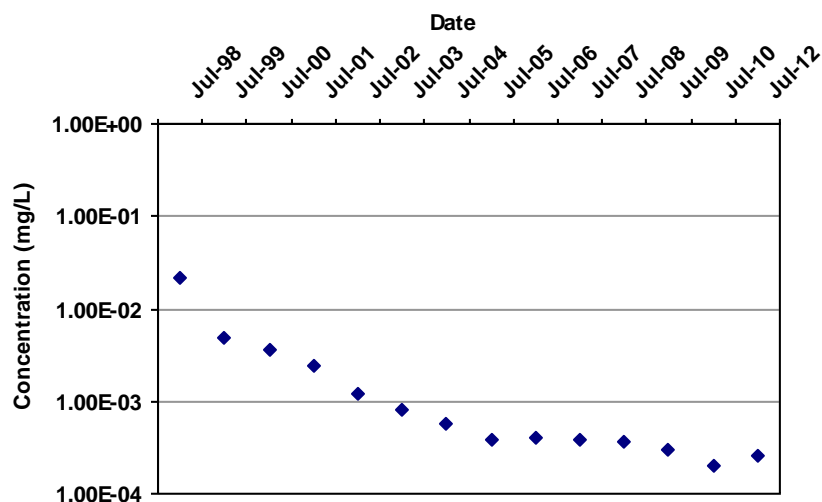
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-63	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.5E-04		4	1
AMW-63	T	7/1/2008	TRICHLOROETHYLENE (TCE)	6.1E-05	ND	2	0
AMW-63	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.3E-04		2	2
AMW-63	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.0E-04	ND	1	0

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-31
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-85

Confidence in Trend:

100.0%

Coefficient of Variation:

2.12

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

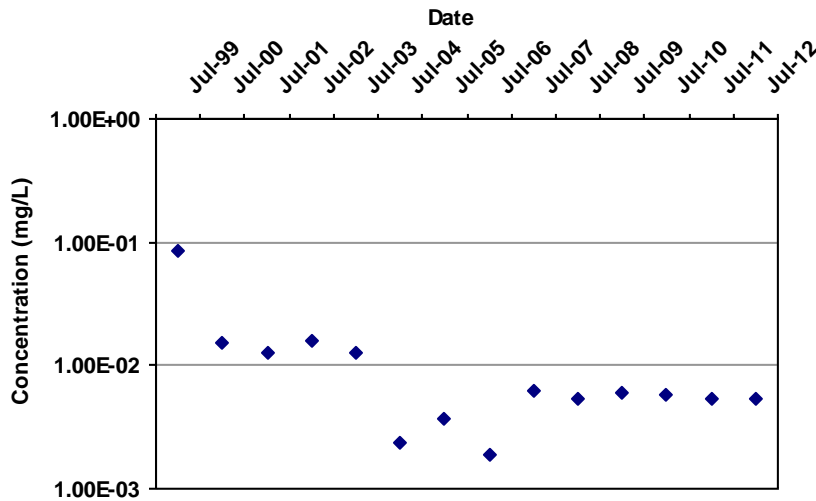
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-31	T	7/1/1998	TRICHLOROETHYLENE (TCE)	2.2E-02		2	2
MW-31	T	7/1/1999	TRICHLOROETHYLENE (TCE)	4.9E-03		8	8
MW-31	T	7/1/2000	TRICHLOROETHYLENE (TCE)	3.7E-03		13	13
MW-31	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.4E-03		2	2
MW-31	T	7/1/2002	TRICHLOROETHYLENE (TCE)	1.2E-03		3	3
MW-31	T	7/1/2003	TRICHLOROETHYLENE (TCE)	7.9E-04		3	3
MW-31	T	7/1/2004	TRICHLOROETHYLENE (TCE)	5.7E-04		2	2
MW-31	T	7/1/2005	TRICHLOROETHYLENE (TCE)	3.8E-04		1	1
MW-31	T	7/1/2006	TRICHLOROETHYLENE (TCE)	4.0E-04		1	1
MW-31	T	7/1/2007	TRICHLOROETHYLENE (TCE)	3.9E-04		1	1
MW-31	T	7/1/2008	TRICHLOROETHYLENE (TCE)	3.6E-04		1	1
MW-31	T	7/1/2009	TRICHLOROETHYLENE (TCE)	3.0E-04		1	1
MW-31	T	7/1/2010	TRICHLOROETHYLENE (TCE)	2.0E-04		1	1
MW-31	T	7/1/2012	TRICHLOROETHYLENE (TCE)	2.6E-04		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-35
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-38

Confidence in Trend:

97.9%

Coefficient of Variation:

1.62

Mann Kendall Concentration Trend: (See Note)

D

Data Table:

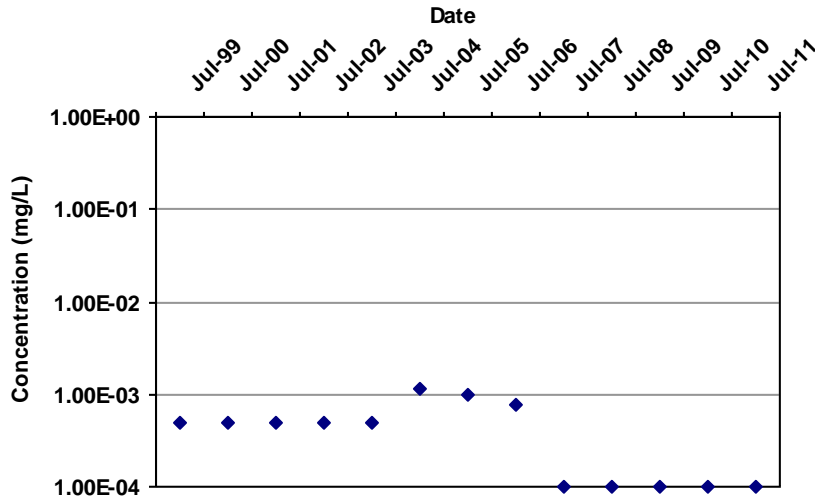
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-35	T	7/1/1999	TRICHLOROETHYLENE (TCE)	8.5E-02		6	6
MW-35	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.5E-02		12	12
MW-35	T	7/1/2001	TRICHLOROETHYLENE (TCE)	1.2E-02		12	11
MW-35	T	7/1/2002	TRICHLOROETHYLENE (TCE)	1.6E-02		7	7
MW-35	T	7/1/2003	TRICHLOROETHYLENE (TCE)	1.3E-02		3	3
MW-35	T	7/1/2004	TRICHLOROETHYLENE (TCE)	2.4E-03		5	5
MW-35	T	7/1/2005	TRICHLOROETHYLENE (TCE)	3.6E-03		4	4
MW-35	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.9E-03		2	2
MW-35	T	7/1/2007	TRICHLOROETHYLENE (TCE)	6.2E-03		2	2
MW-35	T	7/1/2008	TRICHLOROETHYLENE (TCE)	5.4E-03		2	2
MW-35	T	7/1/2009	TRICHLOROETHYLENE (TCE)	6.1E-03		2	2
MW-35	T	7/1/2010	TRICHLOROETHYLENE (TCE)	5.8E-03		2	2
MW-35	T	7/1/2011	TRICHLOROETHYLENE (TCE)	5.4E-03		1	1
MW-35	T	7/1/2012	TRICHLOROETHYLENE (TCE)	5.4E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: MW-41
 Well Type: T
 COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 to 10/24/2012
 Consolidation Period: Yearly
 Consolidation Type: Geometric Mean
 Duplicate Consolidation: Maximum
 ND Values: Detection Limit
 J Flag Values : Actual Value



Mann Kendall S Statistic:

-26

Confidence in Trend:

93.6%

Coefficient of Variation:

0.78

Mann Kendall Concentration Trend: (See Note)

PD

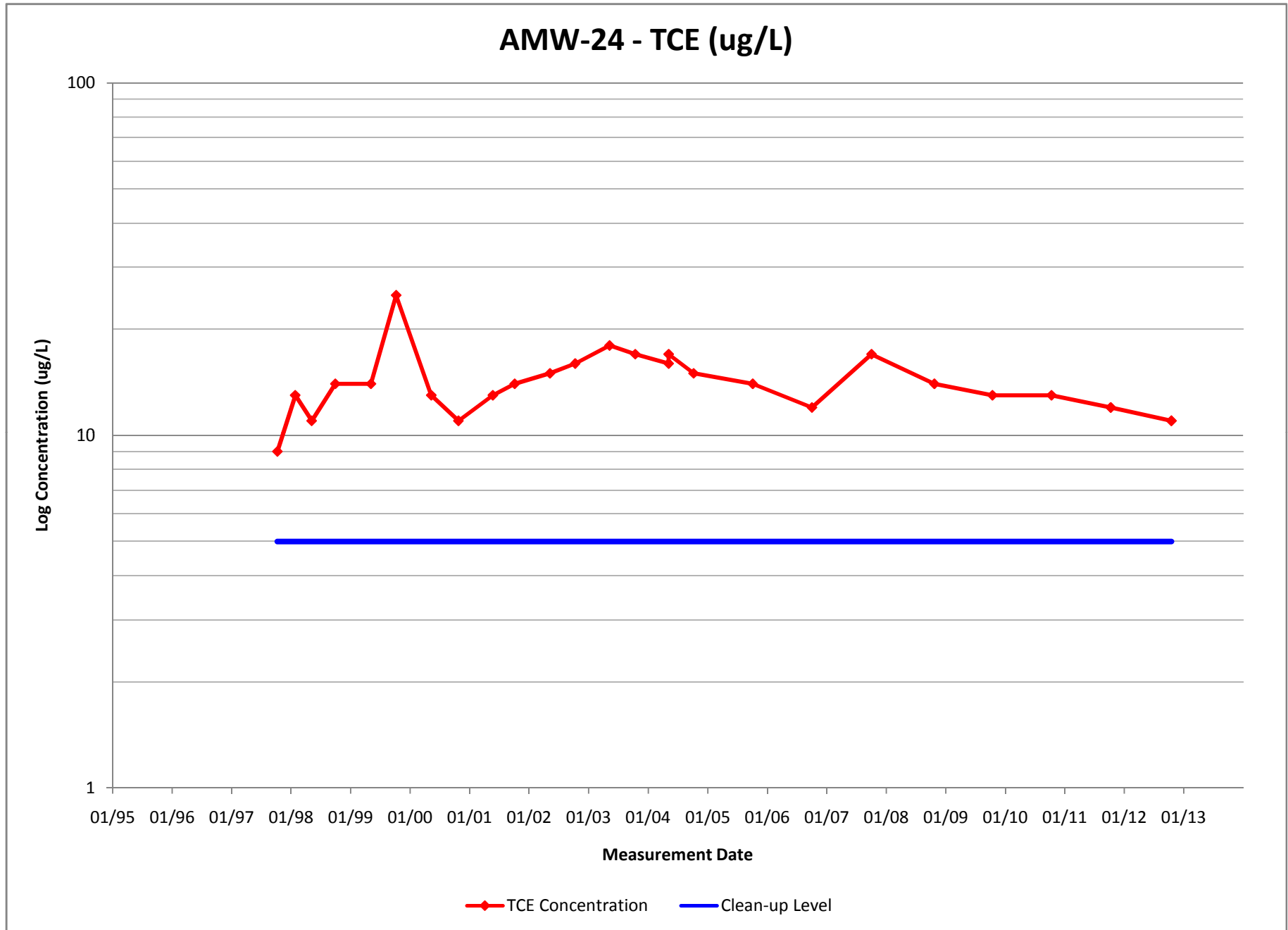
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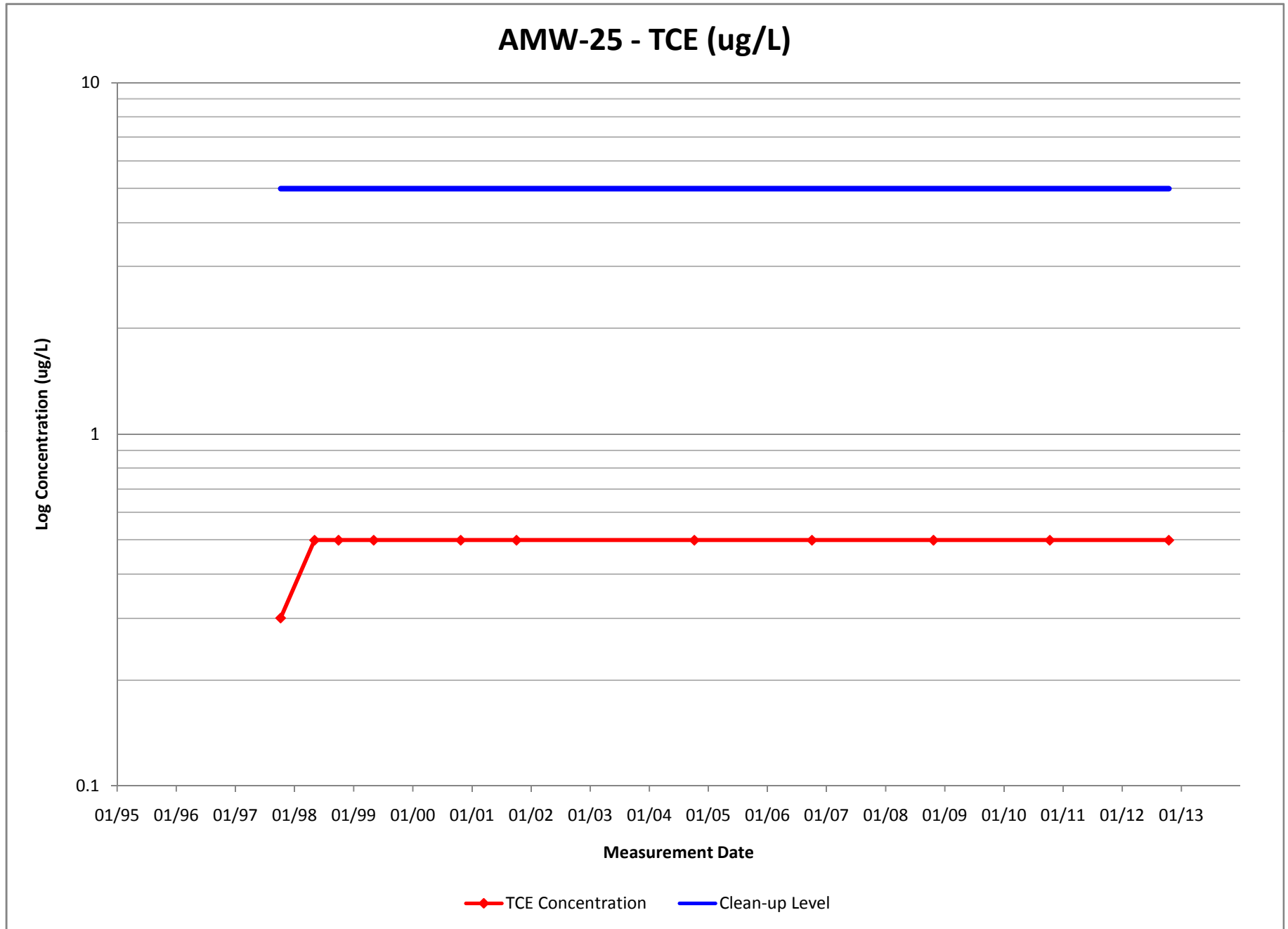
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-41	T	7/1/1999	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	9	0
MW-41	T	7/1/2000	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	13	0
MW-41	T	7/1/2001	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	4	0
MW-41	T	7/1/2002	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	4	0
MW-41	T	7/1/2003	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	3	0
MW-41	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.1E-03		6	2
MW-41	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.0E-03		5	4
MW-41	T	7/1/2006	TRICHLOROETHYLENE (TCE)	7.9E-04		2	1
MW-41	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.0E-04	ND	4	0
MW-41	T	7/1/2008	TRICHLOROETHYLENE (TCE)	1.0E-04	ND	2	0
MW-41	T	7/1/2009	TRICHLOROETHYLENE (TCE)	1.0E-04	ND	2	0
MW-41	T	7/1/2010	TRICHLOROETHYLENE (TCE)	1.0E-04	ND	1	0
MW-41	T	7/1/2011	TRICHLOROETHYLENE (TCE)	1.0E-04	ND	1	0

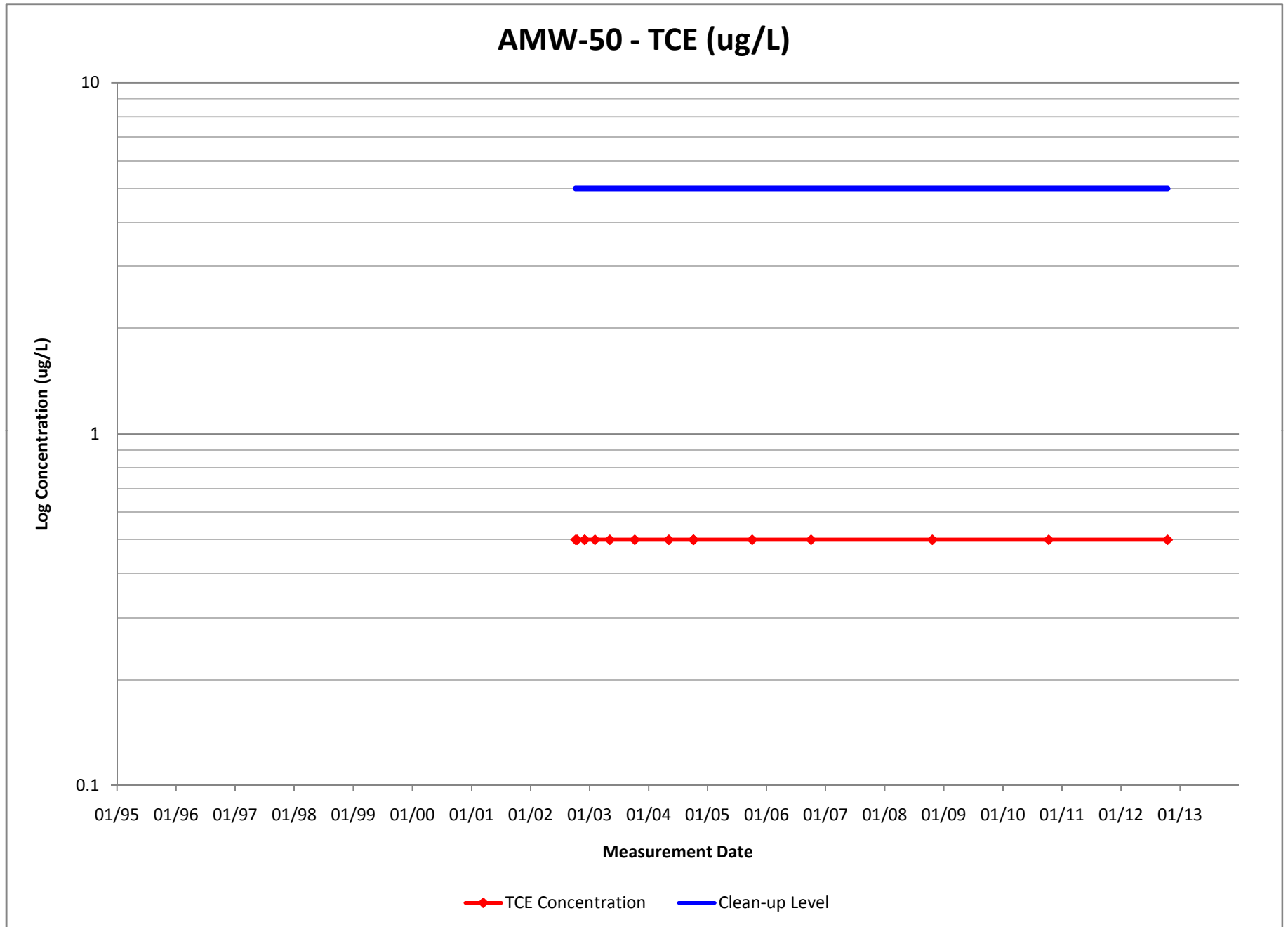
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

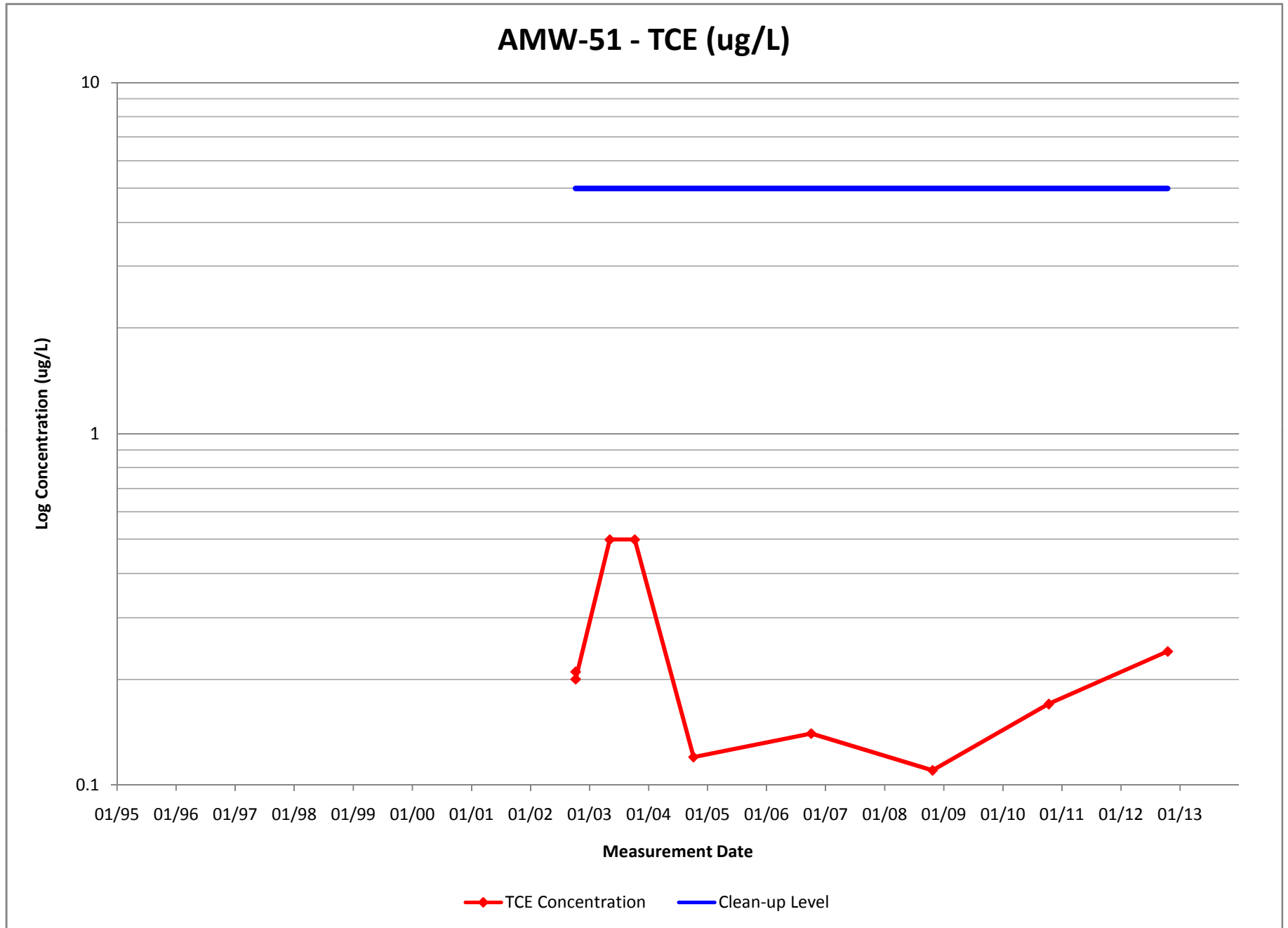
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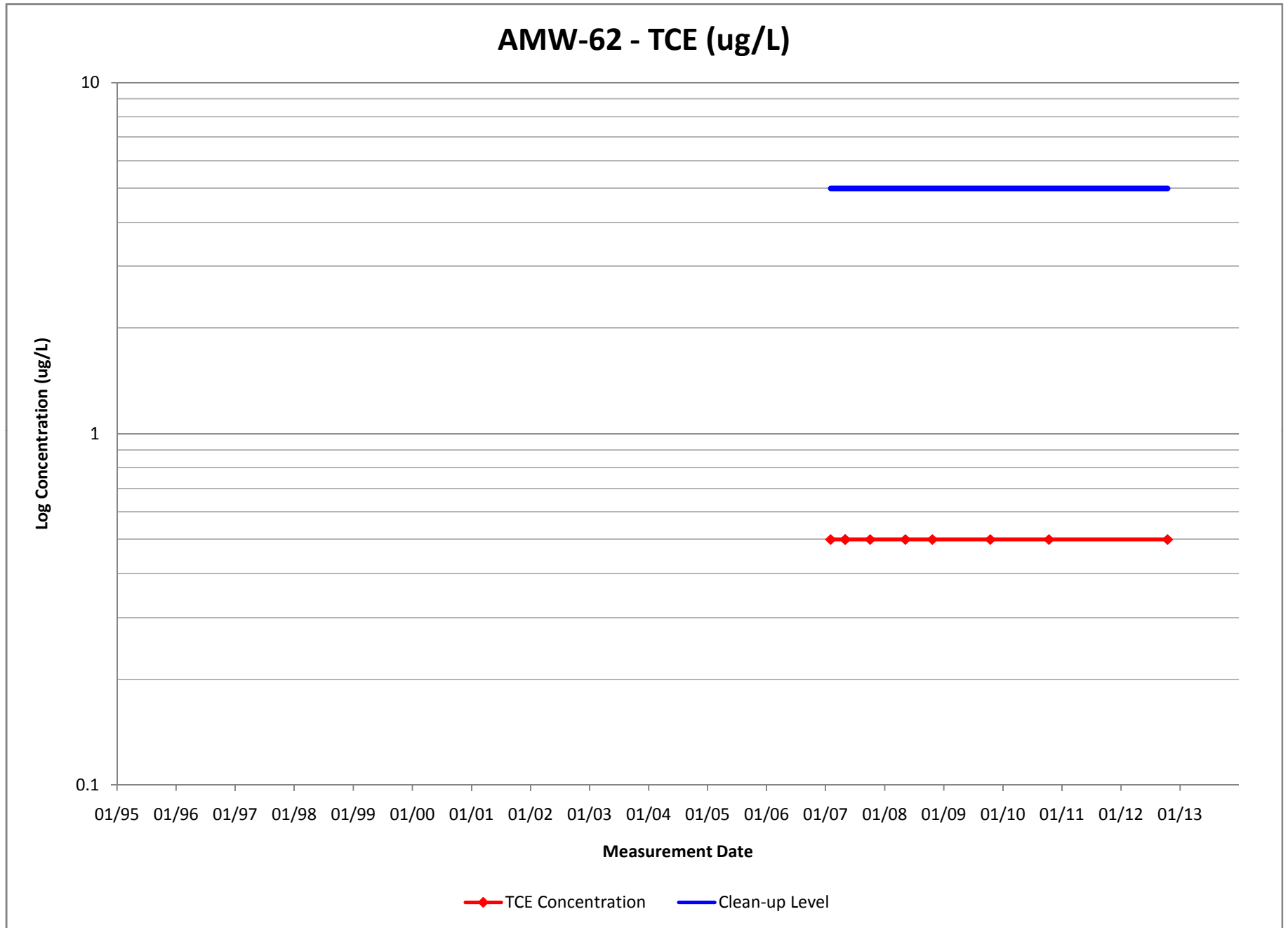
TROUTDALE WELLS

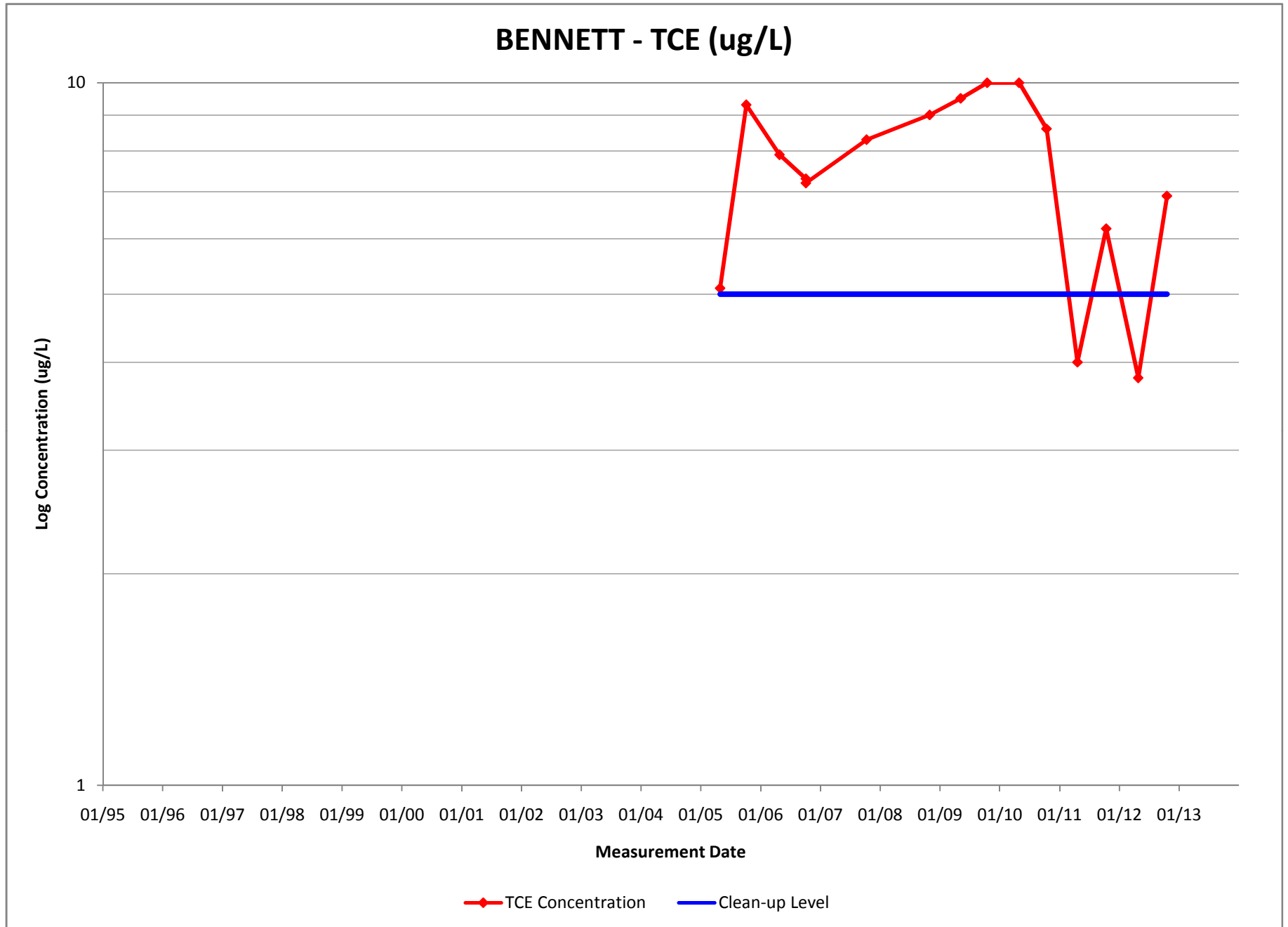


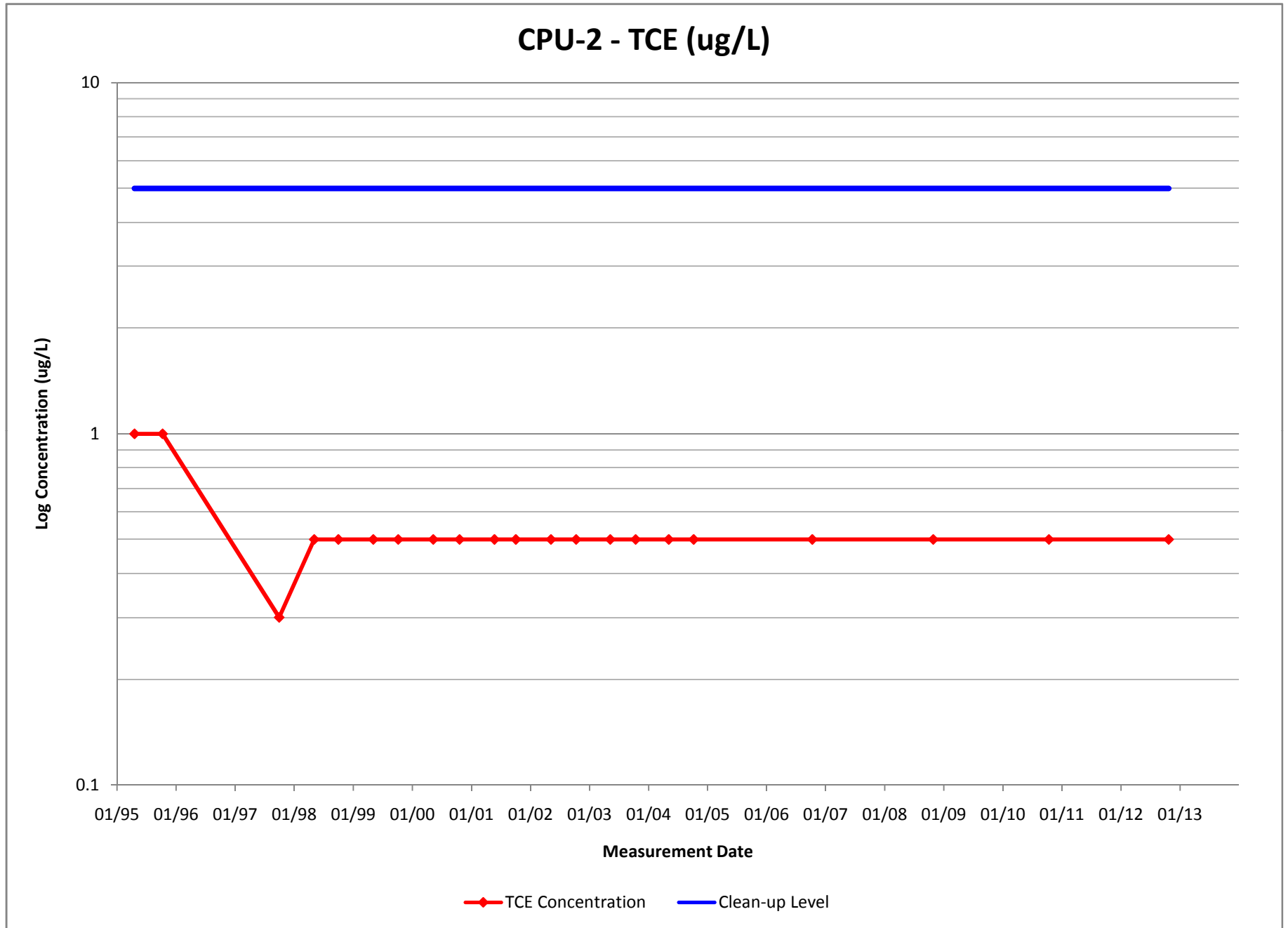


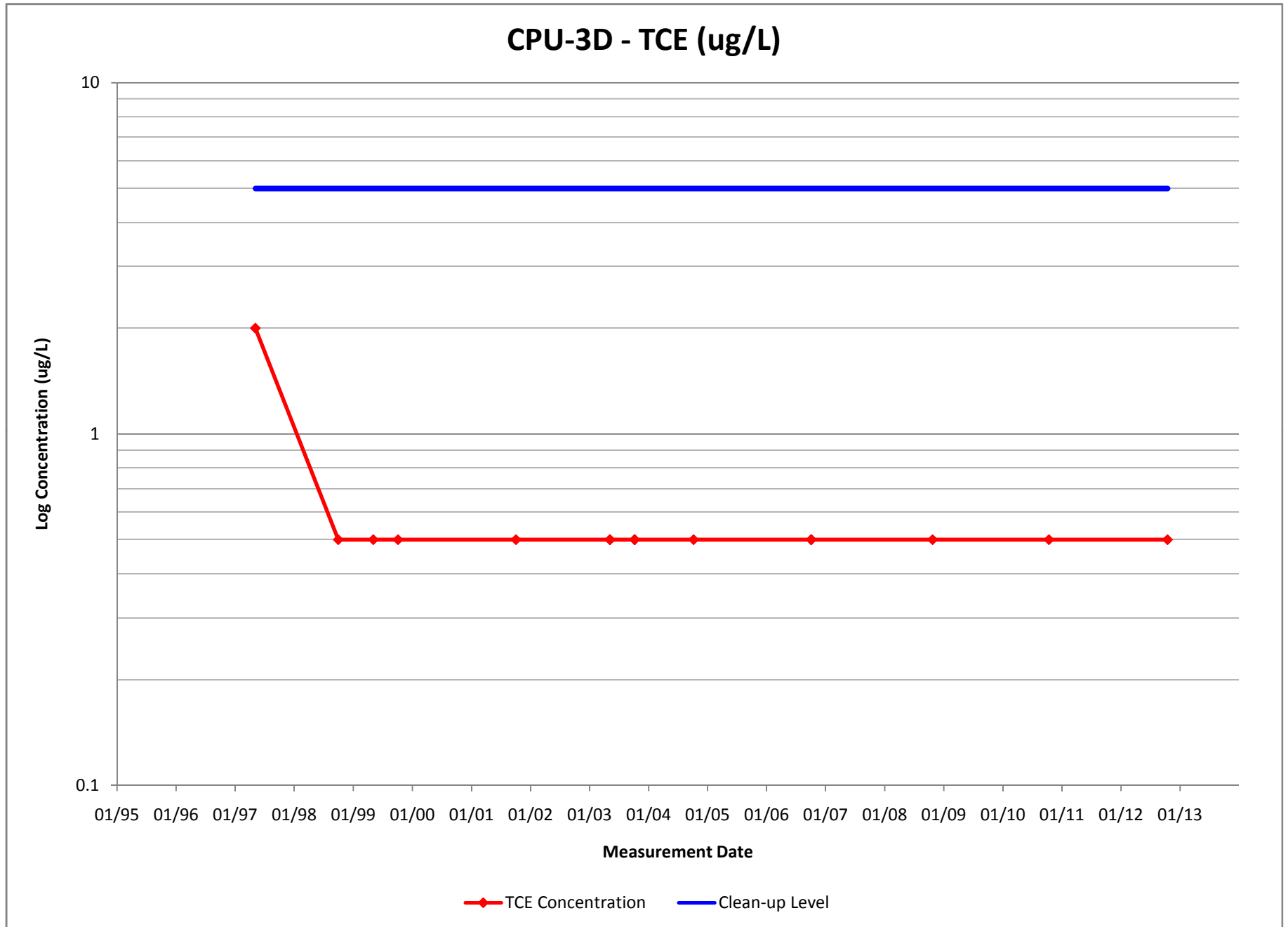


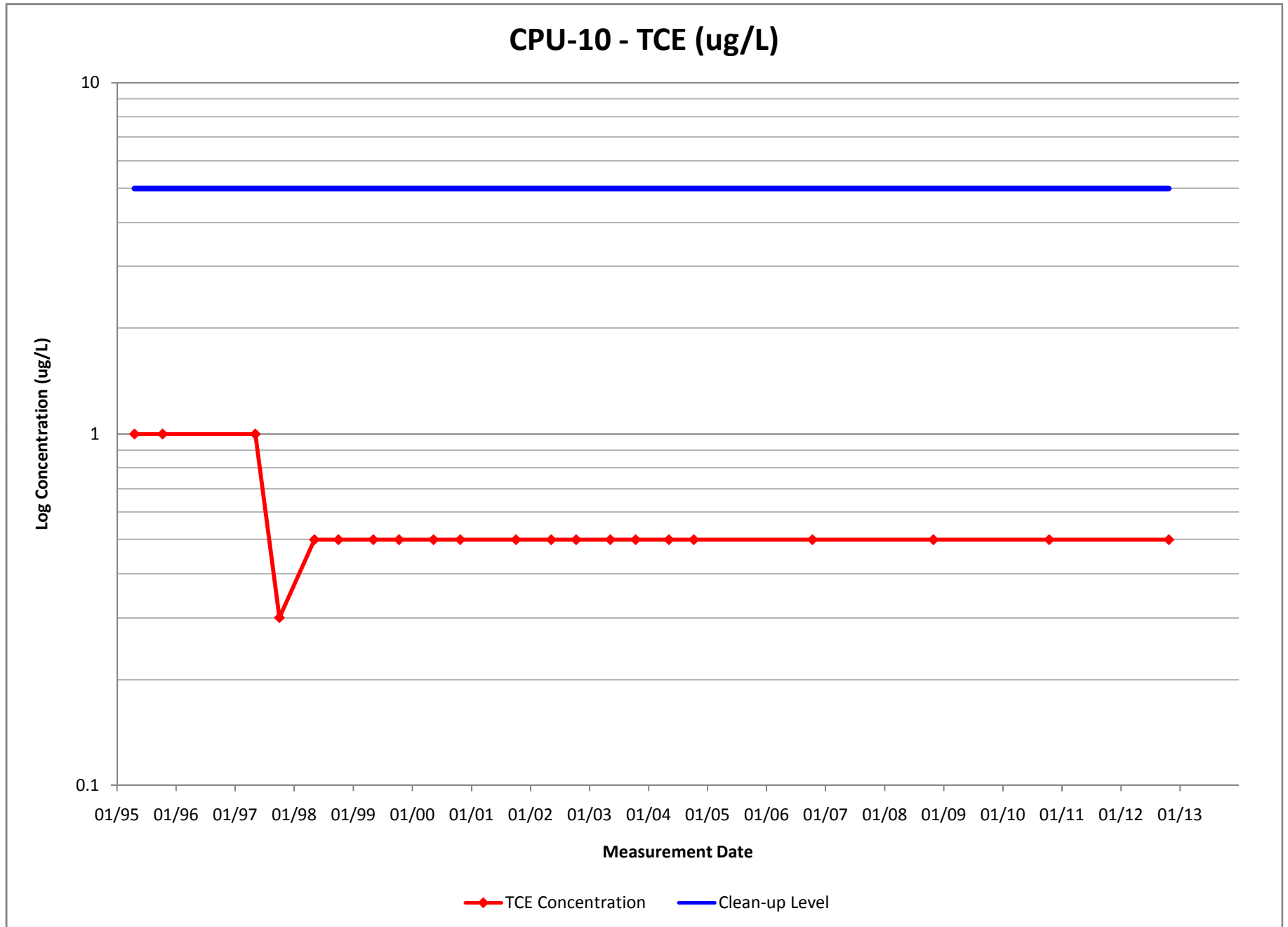


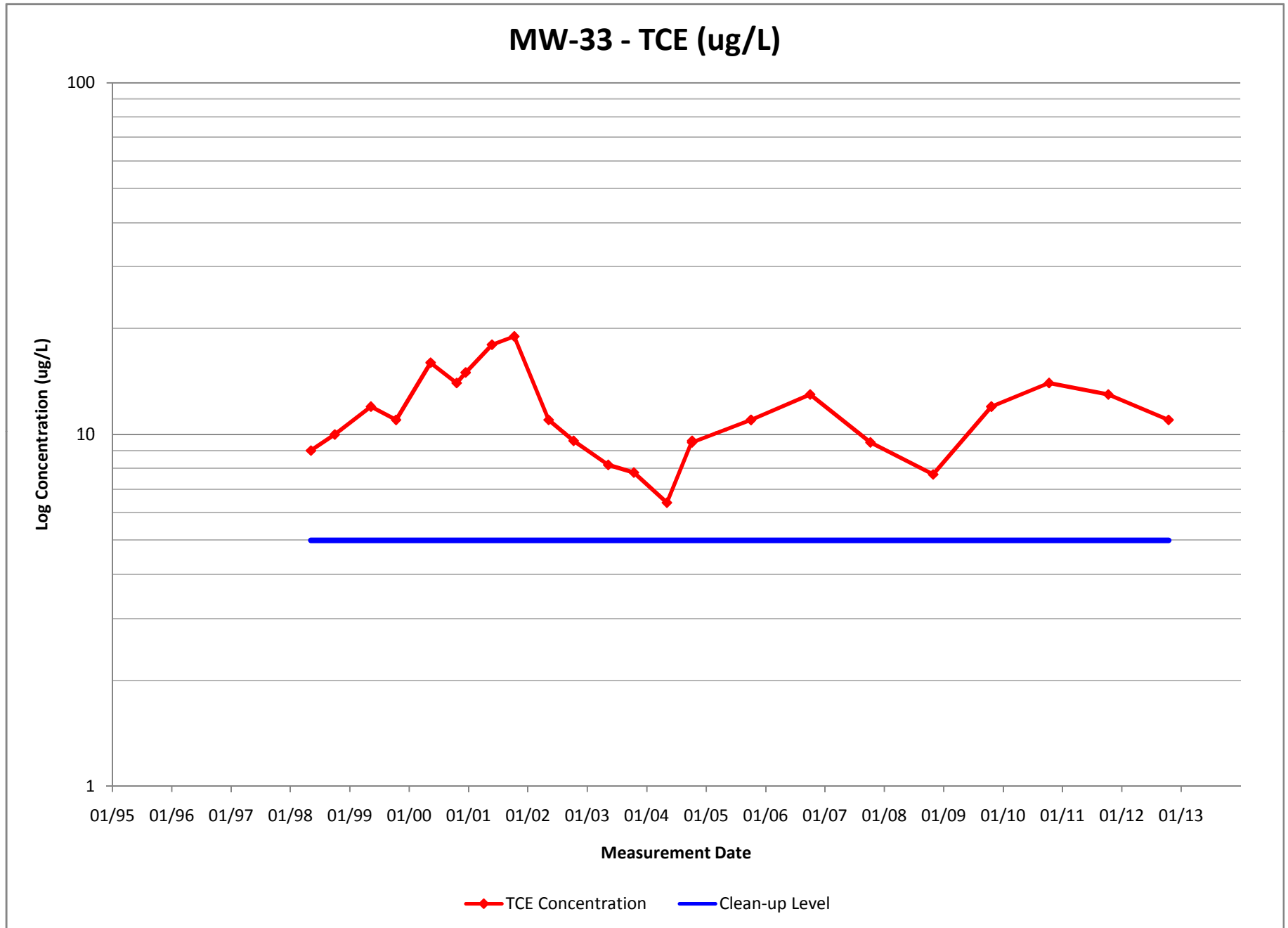


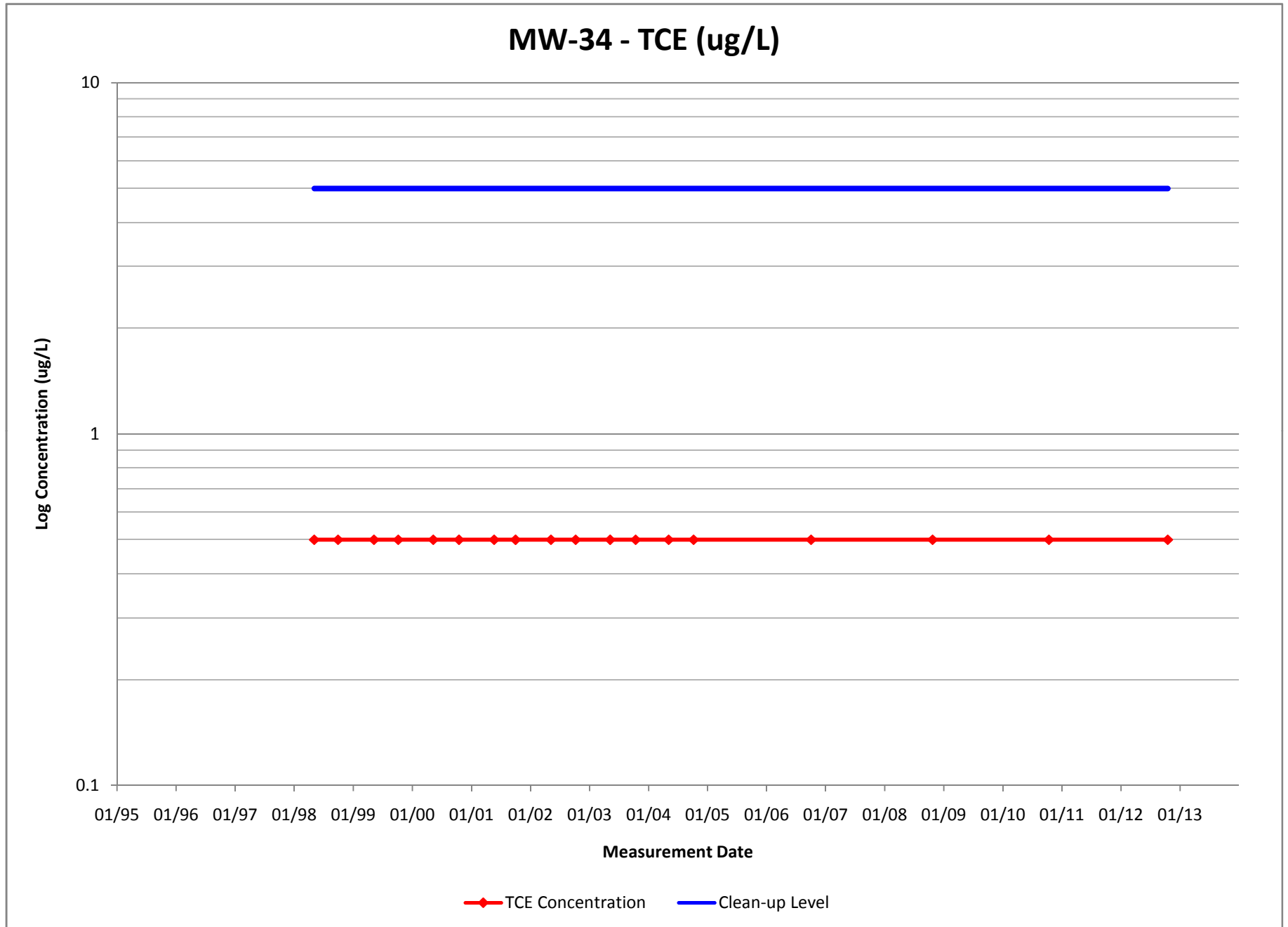












APPENDIX C

WELL EVALUATION TABLES
AND
ADDITIONAL MAROS OUTPUTS

APPENDIX C-1
WELL EVALUATION TABLES

TABLE C-1. 2012 MAROS RESULTS SUMMARY

Well Name	TCE									Chromium									MAROS Recommended Sampling Frequency	
	Sample Size	MK Trend	Coefficient of Variation (COV)	Sequential T-Test Result		Cleanup Status ¹	Conc. Below Cleanup Levels	Conc. Statistically Below Cleanup Levels	MAROS Statistically Redundant	Sample Size	MK Trend	Coefficient of Variation (COV)	Sequential T-Test Result		Cleanup Status ¹	Conc. Below Cleanup Levels	Conc. Statistically Below Cleanup Levels	MAROS Statistically Redundant	TCE	Chromium
				Normal Distribution	Lognormal Distribution								Normal Distribution	Lognormal Distribution						
Upgradient Wells																				
AMW-6A	9	NT	0.72	Attained	Cont Sampling	Attained	Yes	Yes		8	S	0.38	Attained	Attained	Attained	Yes	Yes		NFS	NFS
AMW-7A	14	I	0.84	Attained	Cont Sampling	Attained	Yes	Yes		9	S	0.45	Attained	Attained	Attained	Yes	Yes		NFS	NFS
AMW-8A	17	D	1.83	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-10A	8	NT	0.64	Attained	Cont Sampling	Attained	Yes	Yes		7	NT	0.69	Attained	Cont Sampling	Attained	Yes	Yes		NFS	NFS
AMW-11A	9	NT	0.75	Attained	Cont Sampling	Attained	Yes	Yes		8	NT	0.53	Attained	Cont Sampling	Attained	Yes	Yes		NFS	NFS
TCE Source Wells																				
AMW-1A	18	D	1.69	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
AMW-2A	18	D	1.28	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
AMW-2B	13	NT	1.24	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-3A	17	D	1.01	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-12A	18	D	1.60	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
AMW-13A	17	NT	2.11	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-19A	16	D	1.47	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-26	15	D	1.49	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-52A	9	PD	0.96	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-53A	10	D	1.94	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
AMW-54A	9	PD	1.46	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-55A	8	NT	1.66	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-56A	9	PD	2.56	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-1A	18	D	1.01	Cont Sampling	Cont Sampling	Cont Sampling	No	No		13	I	1.93	Attained	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
Proximal Wells																				
AMW-58	5	D	1.24	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-2A	15	D	0.66	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		17	NT	1.14	Cont Sampling	Cont Sampling	Cont Sampling	No	No		Annual	Annual
MW-3A										15	D	0.68	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		NA	Annual
MW-3B	10	D	0.97	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-4A								NA		13	D	0.91	Cont Sampling	Cont Sampling	Cont Sampling	No	No		NA	Annual
MW-4B	10	NT	2.61	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		11	D	0.84	Cont Sampling	Cont Sampling	Cont Sampling	No	No		Annual	Annual
MW-4BShed	8	D	1.43	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		9	D	1.45	Cont Sampling	Cont Sampling	Cont Sampling	No	No		Annual	Annual
MW-6A										3	N/A	0.00	N/C	N/C	N/C	No	No		NA	Quarterly
MW-6B	18	D	1.45	Cont Sampling	Cont Sampling	Cont Sampling	No	No		18	D	2.06	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-7B	5	D	0.97	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
MW-8B	9	D	1.90	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-9B	10	D	1.54	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-10B	18	D	1.69	Cont Sampling	Cont Sampling	Cont Sampling	No	No		18	D	0.96	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-10C	18	D	1.75	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		18	D	2.01	Cont Sampling	Cont Sampling	Cont Sampling	No	No		Annual	Annual
MW-12C	17	D	2.61	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-13C	17	D	0.77	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
PW-1B	18	D	1.29	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		18	D	1.68	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
Intermediate Wells																				
AMW-16	17	D	1.34	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-17	17	D	2.06	Cont Sampling	Cont Sampling	Cont Sampling	No	No											SemiAnnual	NA
AMW-18	16	I	1.69	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Quarterly	NA
AMW-59	7	PD	0.40	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
CPU-14	18	D	0.70	Cont Sampling	Not Attained	Cont Sampling	No	No		18	D	0.96	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual

TABLE C-1. 2012 MAROS RESULTS SUMMARY

Well Name	TCE									Chromium									MAROS Recommended Sampling Frequency	
	Sample Size	MK Trend	Coefficient of Variation (COV)	Sequential T-Test Result		Cleanup Status ¹	Conc. Below Cleanup Levels	Conc. Statistically Below Cleanup Levels	MAROS Statistically Redundant	Sample Size	MK Trend	Coefficient of Variation (COV)	Sequential T-Test Result		Cleanup Status ¹	Conc. Below Cleanup Levels	Conc. Statistically Below Cleanup Levels	MAROS Statistically Redundant	TCE	Chromium
				Normal Distribution	Lognormal Distribution								Normal Distribution	Lognormal Distribution						
MW-14C	18	D	1.72	Cont Sampling	Cont Sampling	Cont Sampling	No	No		18	D	1.52	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-14E	18	D	1.73	Cont Sampling	Cont Sampling	Cont Sampling	No	No		18	D	2.21	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-15E	13	D	2.05	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-16E	12	NT	0.90	Attained	Cont Sampling	Attained	Yes	Yes											NFS	NA
MW-18D	18	D	1.56	Cont Sampling	Cont Sampling	Cont Sampling	No	No		18	D	1.76	Cont Sampling	Cont Sampling	Cont Sampling	No	No		Annual	Annual
MW-18E	17	D	1.10	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
MW-19D	18	D	1.67	Cont Sampling	Cont Sampling	Cont Sampling	No	No	TRUE	18	D	1.96	Cont Sampling	Cont Sampling	Cont Sampling	No	No		Annual	Annual
MW-20D	18	D	1.43	Cont Sampling	Cont Sampling	Cont Sampling	No	No		18	D	1.95	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
Church of God Wells																				
AMW-14	14	D	2.81	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		14	D	2.54	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
AMW-27	15	D	0.50	Cont Sampling	Not Attained	Cont Sampling	No	No		15	D	1.16	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
AMW-61	5	D	0.99	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
CPU-12	18	NT	0.61	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
CPU-13	18	D	1.54	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		18	D	1.61	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-21D	18	D	1.99	Cont Sampling	Cont Sampling	Cont Sampling	No	No		18	D	2.46	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-22D	18	D	1.11	Cont Sampling	Cont Sampling	Cont Sampling	No	No		18	D	1.63	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-23D	18	D	1.15	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-25D	18	D	1.61	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		18	D	2.71	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-26D	18	D	1.21	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		18	D	1.37	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-27D	18	D	1.64	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		18	D	2.12	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-49	13	D	1.01	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		13	D	1.18	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
Toe Wells																				
AMW-42	13	D	1.63	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		13	D	1.60	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
AMW-63	4	NT	0.27	Attained	Cont Sampling	Attained	Yes	Yes		4	NT	0.38	Attained	Cont Sampling	Attained	Yes	Yes		NFS	NFS
MW-31	14	D	2.12	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		14	D	2.41	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-35	14	D	1.62	Cont Sampling	Cont Sampling	Cont Sampling	No	No		14	D	3.24	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-41	13	PD	0.78	Attained	Cont Sampling	Attained	Yes	Yes		13	D	1.00	Attained	Cont Sampling	Attained	Yes	Yes		NFS	NFS

NOTES:
D = decreasing
I = increasing
MAROS = Monitoring and Remediation Optimization System
MK = Mann-Kendall
N/A = not applicable
N/C = not conducted due to small sample size (<4 samples)
NT = no trend
PD = probably decreasing
PI = probably increasing
S = stable
TCE = trichloroethene

¹ Not Attained indicates the mean concentration is higher than the cleanup goal. Cont. Sampling indicates that the mean concentration is below the cleanup goal, but additional sampling is required because the data are not statistically significant.

² The "concentration statistically below cleanup levels" determination is per the MAROS evaluation; this does not meet the EPA requirements for determining site closure.

TABLE C-2. SUMMARY OF WELLS REQUIRING NO FURTHER SAMPLING FOR TCE AND/OR CHROMIUM

Well Name	TCE					Chromium				
	Min	Max	No. of Samples	NFS Year ¹	NFS Rationale	Min	Max	No. of Samples	NFS Year ¹	NFS Rationale
TCE Source Wells										
RAMW-2C	U	0.90	23	2009	All results except the first sample have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
AMW-1B	U	82.20	31	2010	All results since 1999 have been below the cleanup level.				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
AMW-1C	U	73.9	24	2009	All results since 1997 (22 samples) have been below the cleanup level and MRL.				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
AMW-4A	U	0.40	12	2009	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
AMW-19B	U	0.77	17	2009	All results have been below the cleanup level and <1 ug/L. TCE is statistically below the cleanup level according to the MAROS evaluation.				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
AMW-52C	U	U	15	2009	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
AMW-53B	0.43 J	2.70	15	2009	All results have been below the cleanup level. TCE is statistically below the cleanup level according to the MAROS evaluation.				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
AMW-53C	U	0.21 J	15	2009	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
AMW-54C	U	0.36 J	15	2009	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
AMW-55C	U	0.39 J	15	2009	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
AMW-56C	U	0.44 J	23	2009	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
MW-1B	U	400	28	2009	All results have been below the cleanup level and MRL since 2000 (22 samples).				NA	Not sampled for chromium. Well is upgradient of the chromium plume.
MW-1C	U	92.0	20	2009	All results except the first sample have been below the cleanup level. Since 1997, all results have been below the MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.	U	10	6	2009	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
Proximal Wells										
AMW-58	0.1 J	9.2	8	2012	TCE concentrations in this silt well have been below the cleanup level since 2005.	U	34.7	7	2010	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-2B	2.40	29.0	14	2010	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness. TCE is currently below the cleanup level.	U	26.4	14	2009	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.

TABLE C-2. SUMMARY OF WELLS REQUIRING NO FURTHER SAMPLING FOR TCE AND/OR CHROMIUM

Well Name	TCE					Chromium				
	Min	Max	No. of Samples	NFS Year ¹	NFS Rationale	Min	Max	No. of Samples	NFS Year ¹	NFS Rationale
MW-2C	0.36 J	40.5	8	2009	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness. TCE has been below the cleanup level since 2002 (4 samples).	U	21.4	8	2009	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-3A	U	2.40	19	2009	All results have been below the cleanup level. TCE is statistically below the cleanup level according to the MAROS evaluation.				NA	NA (still sampling)
MW-3B				NA	NA (still sampling)	5.20	23.3	11	2009	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-3C	3.80	20.4	7	2008	This well is redundant for TCE, according to the MAROS evaluation.	U	9.30	7	2008	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-4A	0.80	210	19	2010	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness.				NA	NA (still sampling)
MW-4BShed	4.10	198	15	2010	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness.				NA	NA (still sampling)
MW-4C	3.80	40.0	8	2009	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness. TCE has been on a decreasing trend and is currently below the cleanup level (1 sample).	61.0	248	47	2009	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness. Chromium has been on a decreasing trend and was below the cleanup level (one sample).
MW-6A	U	38.1	5	2009	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness. TCE has been below the cleanup level since 1995 (4 samples) and below the detection limit since 1997.				NA	NA (still sampling)
MW-6C	0.54	66.7	10	2010	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness.	8.63	400	10	2009	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness. Chromium has been below the cleanup level since 1995 (9 samples).
MW-6D	4.30	63.5	8	2010	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness.	U	29.8	8	2009	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-7B				NA	NA (still sampling)	9.80	932	6	2009	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness. Chromium has been below the cleanup level since 1997 (4 samples).
MW-7C	0.18 J	26.5	6	2009	This well is part of a well cluster (adjacent to the MW-4 cluster) but is not the most impacted well in the cluster and therefore provides data of limited usefulness. TCE has been below the cleanup level since 1997 (4 samples).	U	174	8	2009	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness. Chromium has been below the cleanup level since 1995 (7 samples).
MW-8B				NA	NA (still sampling)	U	13.0	11	2009	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.

TABLE C-2. SUMMARY OF WELLS REQUIRING NO FURTHER SAMPLING FOR TCE AND/OR CHROMIUM

Well Name	TCE					Chromium				
	Min	Max	No. of Samples	NFS Year ¹	NFS Rationale	Min	Max	No. of Samples	NFS Year ¹	NFS Rationale
MW-9B				NA	NA (still sampling)	U	429	16	2009	Chromium has been below the cleanup level since 1997 (12 samples).
MW-9C	3.80	2,280	9	2010	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness.	U	65.4	22	2010	This well is part of a well cluster but is not the most impacted well in the cluster and therefore provides data of limited usefulness. Chromium has never exceeded the cleanup level.
MW-12C				NA	NA (still sampling)	U	19.0	38	2010	Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-13C				NA	NA (still sampling)	27.5	122	38	2010	Chromium is statistically below the cleanup level according to the MAROS evaluation.
Intermediate Wells										
AMW-16				NA	NA (still sampling)	U	3.0	21	2010	Chromium is statistically below the cleanup level according to the MAROS evaluation.
AMW-17				NA	NA (still sampling)	U	4.60	19	2008	All results have been below the cleanup level and all have been below the MRL except one. Chromium is statistically below the cleanup level according to the MAROS evaluation.
AMW-18				NA	NA (still sampling)	U	2.40	14	2008	All results have been below the cleanup level and all have been below the MRL except one. Chromium is statistically below the cleanup level according to the MAROS evaluation.
AMW-59				NA	NA (still sampling)	U	7.90	8	2009	All results have been below the cleanup level and all but one have been below the MRL. Chromium is statistically below the cleanup level according to the MAROS evaluation.
AMW-60	U	0.94	3	2009	All results have been below the cleanup level and near or below the MRL. This is a silt well.	U	8.90	3	2009	All results have been below the cleanup level and near or below the MRL. This is a silt well.
MW-15E				NA	NA (still sampling)	U	18.0	13	2008	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-16E					NA (still sampling)	U	16.1	19	2010	Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-17E	U	0.85 J	5	2008	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.	U	U	5	2008	All results have been below the cleanup level and the MRL. Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-18E				NA	NA (still sampling)	U	597	35	2010	With the exception of three outliers, chromium concentrations have been below the cleanup level in all samples collected since the well was installed in 1993.
PZ-39				NA	NA (still sampling)	6.7	11.0	3	2010	Chromium has never exceeded the cleanup level.
MW-40	1.2	36	6	2009	Replaced with PZ-39.	97.6	443	6	2009	Replaced with PZ-39.
Church of God										
AMW-61				NA	NA (still sampling)	17.3	1410	5	2010	Chromium is below the cleanup level. Due to excessive drawdown during low-flow pumping of this silt well, use of a PDB is recommended for VOC sampling only.
CPU-12				NA	NA (still sampling)	U	245	27	2010	Chromium concentrations have been below the cleanup level since 2002.
MW-23D				NA	NA (still sampling)	U	6.7	40	2010	Chromium is statistically below the cleanup level according to the MAROS evaluation.

TABLE C-2. SUMMARY OF WELLS REQUIRING NO FURTHER SAMPLING FOR TCE AND/OR CHROMIUM

Well Name	TCE					Chromium				
	Min	Max	No. of Samples	NFS Year ¹	NFS Rationale	Min	Max	No. of Samples	NFS Year ¹	NFS Rationale
Other Toe Wells										
MW-37	U	U	28	2008	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.	U	18.0	28	2008	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-46	U	U	41	2009	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.	U	28.0	42	2009	All results have been below the cleanup level.
MW-48	U	U	38	2009	All results have been below the cleanup level and MRL except one outlier in 2001. TCE is statistically below the cleanup level according to the MAROS evaluation (outlier excluded).	U	37.8	39	2009	All results have been below the cleanup level.
Sentinel Toe Wells										
AMW-43	U	U	38	2009	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.	U	7.80	39	2009	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
AMW-44	U	U	40	2008	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.	U	57.8	41	2008	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
AMW-45	U	U	44	2008	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.	U	30.8	47	2008	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-30	U	U	21	2008	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.	U	5.80	24	2008	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
MW-47	U	U	32	2008	All results have been below the cleanup level and MRL. TCE is statistically below the cleanup level according to the MAROS evaluation.	U	17.0	34	2008	All results have been below the cleanup level. Chromium is statistically below the cleanup level according to the MAROS evaluation.
Notes: ¹ Year = the Annual Status Report in which this recommendation was made. Data used are from 1995 to the present. 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. MAROS = Monitoring and Remediation Optimization Software. MRL = Method reporting limit. NA = Not applicable. NFS = No further sampling. TCE = Trichloroethene. U = Analyte not detected above the specified reporting limit.										

APPENDIX C-2
CHROMIUM OUTPUTS

MAROS Site Results

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

User Defined Site and Data Assumptions:

Hydrogeology and Plume Information:

Groundwater
Seepage Velocity: 180 ft/yr
Current Plume Length: 2500 ft
Current Plume Width: 500 ft
Number of Tail Wells: 28
Number of Source Wells: 10

Down-gradient Information:

Distance from Edge of Tail to Nearest:
Down-gradient receptor: 9850 ft
Down-gradient property: -149 ft
Distance from Source to Nearest:
Down-gradient receptor: 10000 ft
Down-gradient property: 1 ft

Source Information:

Source Treatment: Pump and Treat

NAPL is not observed at this site.

Data Consolidation Assumptions:

Time Period: 1/19/1995 to 10/24/2012
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values: Actual Value

Plume Information Weighting Assumptions:

Consolidation Step 1. Weight Plume Information by Chemical
Summary Weighting: Weighting Applied to All Chemicals Equally
Consolidation Step 2. Weight Well Information by Chemical
Well Weighting: No Weighting of Wells was Applied.
Chemical Weighting: No Weighting of Chemicals was Applied.

Note: These assumptions were made when consolidating the historical monitoring data and lumping the Wells and COCs.

1. Compliance Monitoring/Remediation Optimization Results:

Preliminary Monitoring System Optimization Results: Based on site classification, source treatment and Monitoring System Category the following suggestions are made for site Sampling Frequency, Duration of Sampling before reassessment, and Well Density. These criteria take into consideration: Plume Stability, Type of Plume, and Groundwater Velocity.

COC	Tail Stability	Source Stability	Level of Effort	Sampling Duration	Sampling Frequency	Sampling Density
CHROMIUM, HEXAVALENT	PD	PD	L	Continue remediation mechanism until reach stable trend or	No Recommendation	37

Note:

Plume Status: (I) Increasing; (PI) Probably Increasing; (S) Stable; (NT) No Trend; (PD) Probably Decreasing; (D) Decreasing

Design Categories: (E) Extensive; (M) Moderate; (L) Limited (N/A) Not Applicable, Insufficient Data Available

Level of Monitoring Effort Indicated by Analysis Limited

2. Spatial Moment Analysis Results:

Moment Type	Constituent	Coefficient of Variation	Mann-Kendall S Statistic	Confidence in Trend	Moment Trend
Zeroth Moment: Mass					
	CHROMIUM, HEXAVALENT	1.48	-145	100.0%	D
1st Moment: Distance to Source					
	CHROMIUM, HEXAVALENT	0.20	-131	100.0%	D
2nd Moment: Sigma XX					
	CHROMIUM, HEXAVALENT	0.18	71	99.7%	I
2nd Moment: Sigma YY					
	CHROMIUM, HEXAVALENT	0.15	55	98.0%	I

Note: The following assumptions were applied for the calculation of the Zeroth Moment:

Porosity: 0.30 Saturated Thickness: Uniform: 65 ft

Mann-Kendall Trend test performed on all sample events for each constituent. Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A)-Due to insufficient Data (< 4 sampling events).

MAROS Linear Regression Statistics Summary

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Time Period: 1/19/1995 to 10/24/2012

Consolidation Period: Yearly

Consolidation Type: Geometric Mean

Duplicate Consolidation: Maximum

ND Values: Detection Limit

J Flag Values : Actual Value

Well	Source/ Tail	Average Conc (mg/L)	Median Conc (mg/L)	Standard Deviation	All Samples "ND" ?	Ln Slope	Coefficient of Variation	Confidence in Trend	Concentration Trend
CHROMIUM, HEXAVALENT									
MW-6B	S	2.1E-01	4.6E-02	4.4E-01	No	-5.1E-04	2.06	100.0%	D
MW-2A	S	6.1E-01	3.4E-01	6.9E-01	No	-6.5E-05	1.14	66.2%	NT
PW-1B	S	8.7E-01	2.6E-01	1.5E+00	No	-7.6E-04	1.68	100.0%	D
MW-6A	S	5.6E-02	5.2E-04	9.6E-02	No	0.0E+00	0.00	0.0%	N/A
MW-4BSHED	S	1.5E+00	2.6E-01	2.1E+00	No	-1.1E-03	1.45	99.8%	D
MW-4B	S	1.1E+00	7.1E-01	9.6E-01	No	-1.8E-04	0.84	98.7%	D
MW-4A	S	1.4E+00	9.7E-01	1.2E+00	No	-2.4E-04	0.91	99.1%	D
MW-3A	S	4.5E-01	3.8E-01	3.0E-01	No	-3.2E-04	0.68	100.0%	D
MW-2C	S	5.2E-03	3.8E-03	4.8E-03	No	7.2E-04	0.93	86.8%	NT
MW-2B	S	7.5E-03	6.3E-03	6.2E-03	No	1.1E-03	0.83	96.0%	I
CPU-13	T	8.9E-01	1.3E-01	1.4E+00	No	-9.8E-04	1.61	100.0%	D
AMW-7A	T	2.8E-03	3.0E-03	1.3E-03	No	3.7E-04	0.45	98.7%	I
AMW-11A	T	3.3E-03	3.5E-03	1.7E-03	No	9.7E-04	0.53	99.7%	I
AMW-14	T	5.0E-01	1.1E-01	1.3E+00	No	-5.1E-04	2.54	100.0%	D
AMW-18	T	1.7E-03	2.0E-03	1.4E-03	No	1.4E-03	0.82	99.6%	I
AMW-27	T	1.8E+00	9.8E-01	2.1E+00	No	-1.2E-03	1.16	100.0%	D
AMW-42	T	9.4E-02	2.6E-02	1.5E-01	No	-6.6E-04	1.60	99.9%	D
AMW-63	T	5.1E-03	5.1E-03	3.3E-03	No	-2.0E-05	0.63	50.6%	S
AMW-10A	T	7.5E-03	5.7E-03	5.2E-03	No	7.2E-05	0.69	71.9%	NT
MW-1A	T	1.6E-02	3.1E-03	3.1E-02	No	8.1E-04	1.93	97.1%	I
MW-41	T	8.0E-03	4.5E-03	8.0E-03	No	-3.7E-04	1.00	97.2%	D
MW-35	T	2.7E-01	2.9E-02	8.9E-01	No	-9.1E-04	3.24	99.9%	D
MW-31	T	4.0E-02	1.1E-02	9.6E-02	No	-4.5E-04	2.41	99.3%	D
MW-27D	T	6.7E-01	4.3E-02	1.4E+00	No	-1.1E-03	2.12	100.0%	D
MW-26D	T	8.6E-01	1.1E-01	1.2E+00	No	-1.1E-03	1.37	100.0%	D
MW-25D	T	1.0E+00	2.0E-02	2.8E+00	No	-1.3E-03	2.71	100.0%	D
MW-22D	T	1.4E+00	3.8E-01	2.3E+00	No	-9.3E-04	1.63	100.0%	D
AMW-6A	T	7.4E-03	6.4E-03	2.8E-03	No	4.6E-05	0.38	70.6%	NT
MW-20D	T	5.5E+00	5.2E-01	1.1E+01	No	-1.0E-03	1.95	100.0%	D
MW-49	T	1.9E-01	1.3E-01	2.2E-01	No	-6.7E-04	1.18	99.0%	D
MW-19D	T	2.2E+00	3.5E-01	4.3E+00	No	-7.0E-04	1.96	100.0%	D
MW-18D	T	2.8E+00	5.2E-01	5.0E+00	No	-7.9E-04	1.76	100.0%	D
MW-14E	T	2.4E+00	1.6E-01	5.4E+00	No	-9.6E-04	2.21	100.0%	D
MW-14C	T	7.5E-01	3.6E-01	1.1E+00	No	-5.5E-04	1.52	100.0%	D
MW-10C	T	5.3E-01	1.8E-01	1.1E+00	No	-3.5E-04	2.01	99.9%	D
MW-10B	T	2.8E-01	1.9E-01	2.7E-01	No	-5.0E-04	0.96	100.0%	D
CPU-14	T	3.1E-01	1.6E-01	2.9E-01	No	-5.6E-04	0.96	100.0%	D
MW-21D	T	2.6E+00	1.2E-01	6.4E+00	No	-1.2E-03	2.46	100.0%	D

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Source/ Tail	Average Conc (mg/L)	Median Conc (mg/L)	Standard Deviation	All Samples "ND" ?	Ln Slope	Coefficient of Variation	Confidence in Trend	Concentration Trend
CHROMIUM, HEXAVALENT									

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); COV = Coefficient of Variation

MAROS Mann-Kendall Statistics Summary

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Time Period: 1/19/1995 to 10/24/2012

Consolidation Period: Yearly

Consolidation Type: Geometric Mean

Duplicate Consolidation: Maximum

ND Values: Detection Limit

J Flag Values : Actual Value

Well	Source/ Tail	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
CHROMIUM, HEXAVALENT								
MW-2C	S	7	5	0.93	3	61.4%	No	NT
PW-1B	S	18	18	1.68	-141	100.0%	No	D
MW-2B	S	10	7	0.83	8	72.9%	No	NT
MW-3A	S	15	15	0.68	-71	100.0%	No	D
MW-4A	S	13	13	0.91	-34	97.9%	No	D
MW-4BSHED	S	9	9	1.45	-32	100.0%	No	D
MW-6B	S	18	18	2.06	-85	100.0%	No	D
MW-6A	S	3	2	0.00	0	0.0%	No	N/A
MW-4B	S	11	11	0.84	-33	99.5%	No	D
MW-2A	S	17	17	1.14	-18	75.5%	No	NT
MW-14C	T	18	18	1.52	-119	100.0%	No	D
MW-10C	T	18	18	2.01	-83	99.9%	No	D
MW-10B	T	18	18	0.96	-113	100.0%	No	D
CPU-14	T	18	18	0.96	-115	100.0%	No	D
CPU-13	T	18	18	1.61	-149	100.0%	No	D
AMW-7A	T	9	8	0.45	-4	61.9%	No	S
AMW-6A	T	8	8	0.38	0	45.2%	No	S
AMW-42	T	13	13	1.60	-50	99.9%	No	D
MW-21D	T	18	18	2.46	-153	100.0%	No	D
AMW-27	T	15	15	1.16	-99	100.0%	No	D
AMW-18	T	11	1	0.82	24	96.4%	No	I
AMW-14	T	14	14	2.54	-85	100.0%	No	D
AMW-11A	T	8	7	0.53	4	64.0%	No	NT
AMW-63	T	4	3	0.63	0	37.5%	No	S
MW-14E	T	18	18	2.21	-145	100.0%	No	D
MW-18D	T	18	18	1.76	-151	100.0%	No	D
MW-19D	T	18	18	1.96	-143	100.0%	No	D
AMW-10A	T	7	7	0.69	7	80.9%	No	NT
MW-20D	T	18	18	1.95	-147	100.0%	No	D
MW-22D	T	18	18	1.63	-149	100.0%	No	D
MW-25D	T	18	17	2.71	-127	100.0%	No	D
MW-26D	T	18	18	1.37	-149	100.0%	No	D
MW-27D	T	18	18	2.12	-127	100.0%	No	D
MW-31	T	14	14	2.41	-38	97.9%	No	D
MW-35	T	14	13	3.24	-53	99.8%	No	D
MW-41	T	13	7	1.00	-30	96.2%	No	D
MW-49	T	13	13	1.18	-48	99.9%	No	D
MW-1A	T	13	9	1.93	28	95.0%	No	I

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Source/ Tail	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
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CHROMIUM, HEXAVALENT

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A)-
Due to insufficient Data (< 4 sampling events); Source/Tail (S/T)

The Number of Samples and Number of Detects shown above are post-consolidation values.

MAROS Power Analysis for Individual Well Cleanup Status

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

From Period: 1/19/1995 to 10/24/2012

Well	Sample Size	Sample Mean	Sample Stdev.	Normal Distribution Assumption Cleanup Status	Lognormal Distribution Assumption Cleanup Status	Alpha Level	Expected Power
CHROMIUM, HEXAVALENT			Cleanup Goal (mg/L) = 0.08	Target Level (mg/L) = 0.064			
AMW-10A	7	7.91E-03	5.08E-03	Attained	Cont Sampling	0.05	0.95
AMW-11A	8	3.42E-03	1.84E-03	Attained	Cont Sampling	0.05	0.95
AMW-14	14	5.54E-01	1.46E+00	Cont Sampling	Cont Sampling	0.05	0.95
AMW-18	11	1.68E-03	1.37E-03	Attained	Cont Sampling	0.05	0.95
AMW-27	15	1.96E+00	2.24E+00	Cont Sampling	Cont Sampling	0.05	0.95
AMW-42	13	1.31E-01	2.43E-01	Cont Sampling	Cont Sampling	0.05	0.95
AMW-63	4	6.09E-03	2.96E-03	Attained	Cont Sampling	0.05	0.95
AMW-6A	8	7.64E-03	3.17E-03	Attained	Attained	0.05	0.95
AMW-7A	9	3.18E-03	7.80E-04	Attained	Attained	0.05	0.95
CPU-13	18	8.97E-01	1.44E+00	Cont Sampling	Cont Sampling	0.05	0.95
CPU-14	18	3.11E-01	2.98E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-10B	18	3.39E-01	3.53E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-10C	18	5.48E-01	1.10E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-14C	18	8.10E-01	1.33E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-14E	18	2.51E+00	5.43E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-18D	18	2.91E+00	5.12E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-19D	18	2.27E+00	4.39E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-1A	13	2.11E-02	3.24E-02	Attained	Cont Sampling	0.05	0.95
MW-20D	18	5.66E+00	1.10E+01	Cont Sampling	Cont Sampling	0.05	0.95
MW-21D	18	2.73E+00	6.66E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-22D	18	1.47E+00	2.38E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-25D	18	1.06E+00	2.86E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-26D	18	8.76E-01	1.20E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-27D	18	6.87E-01	1.47E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-2A	17	6.35E-01	7.09E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-2B	10	7.63E-03	6.45E-03	Attained	Cont Sampling	0.05	0.95
MW-2C	7	5.60E-03	4.47E-03	Attained	Cont Sampling	0.05	0.95
MW-31	14	4.16E-02	1.00E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-35	14	3.12E-01	9.11E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-3A	15	4.69E-01	3.38E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-41	13	2.22E-02	3.22E-02	Attained	Cont Sampling	0.05	0.95
MW-49	13	1.64E+00	5.04E+00	Cont Sampling	Cont Sampling	0.05	0.95

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Sample Size	Sample Mean	Sample Stdev.	Normal Distribution Assumption Cleanup Status	Lognormal Distribution Assumption Cleanup Status	Alpha Level	Expected Power
CHROMIUM, HEXAVALENT			Cleanup Goal (mg/L) = 0.08	Target Level (mg/L) = 0.064			
MW-4A	13	1.41E+00	1.26E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-4B	11	1.56E+00	2.24E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-4BSHED	9	1.57E+00	2.30E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-6A	3	6.03E-02	9.27E-02	N/C	N/C	0.05	0.95
MW-6B	18	2.73E-01	6.41E-01	Cont Sampling	Cont Sampling	0.05	0.95
PW-1B	18	9.53E-01	1.67E+00	Cont Sampling	Cont Sampling	0.05	0.95

Note: N/C refers to "not conducted" because of insufficient data (N<4); S/E indicates the sample mean significantly exceeds the cleanup level and thus no analysis is conducted; Sample Size is the number of concentration data in a sampling location that are used in the analysis; The Target Level is the expected mean concentration in wells after cleanup attainment, it is only used in individual well cleanup status evaluation. The test for evaluating attainment status is from EPA (1992). Refer to Appendix A.6 of MAROS Manual for details.

Individual Well Cleanup Status - Optional Analysis Results

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

From Period: 1/19/1995 to 10/24/2012

Well	Sample Size	Sample Mean	Sample Stdev.	Normal Distribution Assumption			Lognormal Distribution Assumption		
				Significantly < Cleanup Goal?	Power	Expected Sample Size	Significantly < Cleanup Goal?	Power	Expected Sample Size
CHROMIUM, HEXAVALENT		Cleanup Goal (mg/L) = 0.08			Alpha Level = 0.05		Expected Power = 0.95		
AMW-10A	7	7.91E-03	5.08E-03	YES	1.000	<=3	YES	1.000	<=3
AMW-11A	8	3.42E-03	1.84E-03	YES	1.000	<=3	YES	0.638	21
AMW-14	14	5.54E-01	1.46E+00	NO	S/E	S/E	NO	S/E	S/E
AMW-18	11	1.68E-03	1.37E-03	YES	1.000	<=3	NO	0.532	39
AMW-27	15	1.96E+00	2.24E+00	NO	S/E	S/E	NO	S/E	S/E
AMW-42	13	1.31E-01	2.43E-01	NO	S/E	S/E	NO	S/E	S/E
AMW-63	4	6.09E-03	2.96E-03	YES	1.000	<=3	YES	1.000	<=3
AMW-6A	8	7.64E-03	3.17E-03	YES	1.000	<=3	YES	1.000	<=3
AMW-7A	9	3.18E-03	7.80E-04	YES	1.000	<=3	YES	1.000	<=3
CPU-13	18	8.97E-01	1.44E+00	NO	S/E	S/E	NO	S/E	S/E
CPU-14	18	3.11E-01	2.98E-01	NO	S/E	S/E	NO	S/E	S/E
MW-10B	18	3.39E-01	3.53E-01	NO	S/E	S/E	NO	S/E	S/E
MW-10C	18	5.48E-01	1.10E+00	NO	S/E	S/E	NO	S/E	S/E
MW-14C	18	8.10E-01	1.33E+00	NO	S/E	S/E	NO	S/E	S/E
MW-14E	18	2.51E+00	5.43E+00	NO	S/E	S/E	NO	S/E	S/E
MW-18D	18	2.91E+00	5.12E+00	NO	S/E	S/E	NO	S/E	S/E
MW-19D	18	2.27E+00	4.39E+00	NO	S/E	S/E	NO	S/E	S/E
MW-1A	13	2.11E-02	3.24E-02	YES	1.000	5	NO	S/E	S/E
MW-20D	18	5.66E+00	1.10E+01	NO	S/E	S/E	NO	S/E	S/E
MW-21D	18	2.73E+00	6.66E+00	NO	S/E	S/E	NO	S/E	S/E
MW-22D	18	1.47E+00	2.38E+00	NO	S/E	S/E	NO	S/E	S/E
MW-25D	18	1.06E+00	2.86E+00	NO	S/E	S/E	NO	S/E	S/E
MW-26D	18	8.76E-01	1.20E+00	NO	S/E	S/E	NO	S/E	S/E
MW-27D	18	6.87E-01	1.47E+00	NO	S/E	S/E	NO	S/E	S/E
MW-2A	17	6.35E-01	7.09E-01	NO	S/E	S/E	NO	S/E	S/E
MW-2B	10	7.63E-03	6.45E-03	YES	1.000	<=3	NO	S/E	S/E
MW-2C	7	5.60E-03	4.47E-03	YES	1.000	<=3	NO	0.142	>100
MW-31	14	4.16E-02	1.00E-01	NO	0.402	75	YES	0.963	13
MW-35	14	3.12E-01	9.11E-01	NO	S/E	S/E	NO	S/E	S/E
MW-3A	15	4.69E-01	3.38E-01	NO	S/E	S/E	NO	S/E	S/E
MW-41	13	2.22E-02	3.22E-02	YES	1.000	5	YES	0.880	18
MW-49	13	1.64E+00	5.04E+00	NO	S/E	S/E	NO	S/E	S/E

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Sample Size	Sample Mean	Sample Stdev.	Normal Distribution Assumption			Lognormal Distribution Assumption		
				Significantly < Cleanup Goal?	Power	Expected Sample Size	Significantly < Cleanup Goal?	Power	Expected Sample Size
CHROMIUM, HEXAVALENT				Cleanup Goal (mg/L) = 0.08		Alpha Level = 0.05		Expected Power = 0.95	
MW-4A	13	1.41E+00	1.26E+00	NO	S/E	S/E	NO	S/E	S/E
MW-4B	11	1.56E+00	2.24E+00	NO	S/E	S/E	NO	S/E	S/E
MW-4BSHED	9	1.57E+00	2.30E+00	NO	S/E	S/E	NO	S/E	S/E
MW-6A	3	6.03E-02	9.27E-02	N/C	N/C	N/C	N/C	S/E	S/E
MW-6B	18	2.73E-01	6.41E-01	NO	S/E	S/E	NO	S/E	S/E
PW-1B	18	9.53E-01	1.67E+00	NO	S/E	S/E	NO	S/E	S/E

Note: N/C refers to "not conducted" because of insufficient data (N<4); S/E indicates the sample mean significantly exceeds the cleanup level and thus no analysis is conducted; Sample Size is the number of concentration data in a sampling location that are used in the power analysis; Expected Sample Size is the number of concentration data needed to reach the Expected Power under current sample variability; The Target Level is the expected mean concentration in wells after cleanup attainment, it is only used in individual well cleanup status evaluation. The Student's t-test on mean difference is used in this analysis. Refer to Appendix A.6 of MAROS Manual for details.

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Recommended Sampling Frequency	Frequency Based on Recent Data	Frequency Based on Overall Data
MW-2A	Annual	Annual	Annual
MW-2B	Biennial	Annual	Annual
MW-2C	Biennial	Annual	Annual
MW-31	Annual	Annual	Annual
MW-35	Annual	Annual	Annual
MW-3A	Annual	Annual	Annual
MW-41	Annual	Annual	Annual
MW-49	Annual	Annual	Annual
MW-4A	Annual	Annual	Annual
MW-4B	Annual	Annual	Annual
MW-4BSHED	Annual	Annual	Annual
MW-6A	Quarterly	Quarterly	Quarterly
MW-6B	Annual	Annual	Annual
PW-1B	Annual	Annual	Annual

Note: Sampling frequency is determined considering both recent and overall concentration trends. Sampling Frequency is the final recommendation; Frequency Based on Recent Data is the frequency determined using recent (short) period of monitoring data; Frequency Based on Overall Data is the frequency determined using overall (long) period of monitoring data. If the "recent period" is defined using a different series of sampling events, the results could be different.

MAROS Sampling Location Optimization Results

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Sampling Events Analyzed: From Sample Event 1 to Sample Event 314
1/19/1995 10/24/2012

Parameters used:

Constituent	Inside SF	Hull SF	Area Ratio	Conc. Ratio
CHROMIUM, HEXAVALENT	0.1	0.01	0.95	0.95

Well	X (feet)	Y (feet)	Removable?	Average Slope Factor*	Minimum Slope Factor*	Maximum Slope Factor*	Eliminated?
CHROMIUM, HEXAVALENT							
AMW-10A	1098266.25	132923.33	<input checked="" type="checkbox"/>	0.470	0.355	0.682	<input type="checkbox"/>
AMW-11A	1098270.63	132756.36	<input checked="" type="checkbox"/>	0.494	0.101	1.000	<input type="checkbox"/>
AMW-14	1095174.75	133490.42	<input checked="" type="checkbox"/>	0.347	0.035	0.587	<input type="checkbox"/>
AMW-18	1096976.25	133403.75	<input checked="" type="checkbox"/>		0.000	0.000	<input type="checkbox"/>
AMW-27	1094386.13	133515.81	<input checked="" type="checkbox"/>	0.317	0.138	0.623	<input type="checkbox"/>
AMW-42	1093570.50	133791.39	<input checked="" type="checkbox"/>	0.331	0.066	0.923	<input type="checkbox"/>
AMW-63	1093510.88	133815.56	<input checked="" type="checkbox"/>	0.398	0.234	0.528	<input type="checkbox"/>
AMW-6A	1098315.50	132581.84	<input checked="" type="checkbox"/>	0.369	0.175	0.499	<input type="checkbox"/>
AMW-7A	1098542.13	132679.81	<input checked="" type="checkbox"/>	0.431	0.149	0.685	<input type="checkbox"/>
CPU-13	1094877.75	133397.00	<input checked="" type="checkbox"/>	0.142	0.005	0.656	<input type="checkbox"/>
CPU-14	1096130.75	133152.42	<input checked="" type="checkbox"/>	0.249	0.010	0.620	<input type="checkbox"/>
MW-10B	1097254.00	132970.84	<input checked="" type="checkbox"/>	0.315	0.001	0.912	<input type="checkbox"/>
MW-10C	1097250.75	132971.34	<input checked="" type="checkbox"/>	0.310	0.000	0.846	<input type="checkbox"/>
MW-14C	1097053.75	133070.84	<input checked="" type="checkbox"/>	0.198	0.013	0.952	<input type="checkbox"/>
MW-14E	1097068.38	133032.61	<input checked="" type="checkbox"/>	0.198	0.029	0.574	<input type="checkbox"/>
MW-18D	1096779.50	133113.73	<input checked="" type="checkbox"/>	0.192	0.012	0.691	<input type="checkbox"/>
MW-19D	1096403.13	133254.94	<input checked="" type="checkbox"/>	0.109	0.002	0.416	<input type="checkbox"/>
MW-1A	1097744.75	132827.19	<input checked="" type="checkbox"/>	0.820	0.763	0.855	<input type="checkbox"/>
MW-20D	1095961.75	133409.30	<input checked="" type="checkbox"/>	0.211	0.016	0.447	<input type="checkbox"/>
MW-21D	1095484.63	133561.14	<input checked="" type="checkbox"/>	0.218	0.006	0.664	<input type="checkbox"/>
MW-22D	1095455.50	133368.55	<input checked="" type="checkbox"/>	0.176	0.008	0.452	<input type="checkbox"/>
MW-25D	1094389.25	133662.33	<input checked="" type="checkbox"/>	0.417	0.047	0.868	<input type="checkbox"/>
MW-26D	1094375.13	133433.91	<input checked="" type="checkbox"/>	0.219	0.008	0.748	<input type="checkbox"/>
MW-27D	1094883.38	133637.58	<input checked="" type="checkbox"/>	0.211	0.008	0.855	<input type="checkbox"/>
MW-2A	1097544.25	132767.69	<input checked="" type="checkbox"/>	0.310	0.009	0.699	<input type="checkbox"/>
MW-2B	1097544.25	132767.67	<input checked="" type="checkbox"/>	0.716	0.690	0.736	<input type="checkbox"/>
MW-2C	1097544.25	132767.66	<input checked="" type="checkbox"/>		0.000	0.000	<input type="checkbox"/>
MW-31	1093810.00	133700.70	<input checked="" type="checkbox"/>	0.428	0.086	0.925	<input type="checkbox"/>

Project: Boomsnub/Airco Superfund Site

User Name:

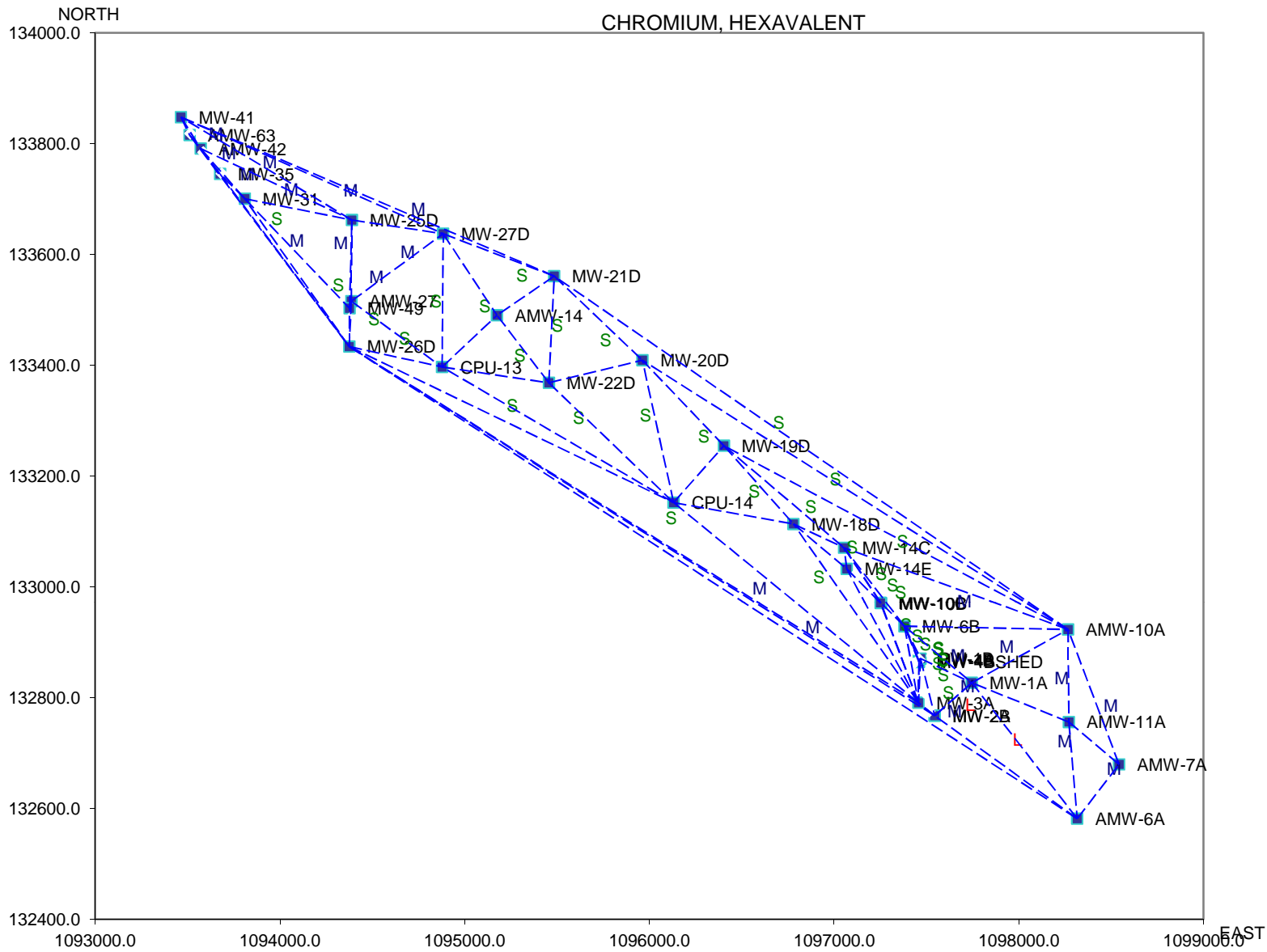
Location: Hazel Dell

State: Washington

Well	X (feet)	Y (feet)	Removable?	Average Slope Factor*	Minimum Slope Factor*	Maximum Slope Factor*	Eliminated?
MW-35	1093675.75	133745.42	<input checked="" type="checkbox"/>	0.263	0.003	0.822	<input type="checkbox"/>
MW-3A	1097456.25	132791.06	<input checked="" type="checkbox"/>	0.042	0.005	0.098	<input type="checkbox"/>
MW-41	1093463.88	133848.02	<input checked="" type="checkbox"/>	0.557	0.015	0.798	<input type="checkbox"/>
MW-49	1094376.50	133503.09	<input checked="" type="checkbox"/>	0.211	0.028	0.761	<input type="checkbox"/>
MW-4A	1097458.00	132868.42	<input checked="" type="checkbox"/>	0.197	0.105	0.297	<input type="checkbox"/>
MW-4B	1097458.00	132868.41	<input checked="" type="checkbox"/>	0.260	0.136	0.318	<input type="checkbox"/>
MW-4BSHED	1097459.00	132864.77	<input checked="" type="checkbox"/>	0.221	0.007	0.440	<input type="checkbox"/>
MW-6A	1097386.13	132930.42	<input checked="" type="checkbox"/>		0.000	0.000	<input type="checkbox"/>
MW-6B	1097380.50	132929.25	<input checked="" type="checkbox"/>	0.345	0.004	0.981	<input type="checkbox"/>
PW-1B	1097467.75	132870.81	<input checked="" type="checkbox"/>	0.255	0.001	0.754	<input type="checkbox"/>

Note: The Slope Factor indicates the relative importance of a well in the monitoring network at a given sampling event; the larger the SF value of a well, the more important the well is and vice versa; the Average Slope Factor measures the overall well importance in the selected time period; the state coordinates system (i.e., X and Y refer to Easting and Northing respectively) or local coordinates systems may be used; wells that are NOT selected for analysis are not shown above.

* When the report is generated after running the Excel module, SF values will NOT be shown above.



New Location Analysis for

- Existing Locations

Potential areas for new locations are indicated by triangles with a high SF level.

Estimated SF Level:

- S - Small
- M - Moderate
- L - Large
- E - Extremely large

High SF -> high estimation error -> possible need for new locations

Low SF -> low estimation error -> no need for new locations

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MAROS Zeroth Moment Analysis

Project: Boomsnub/Airco Superfund Site

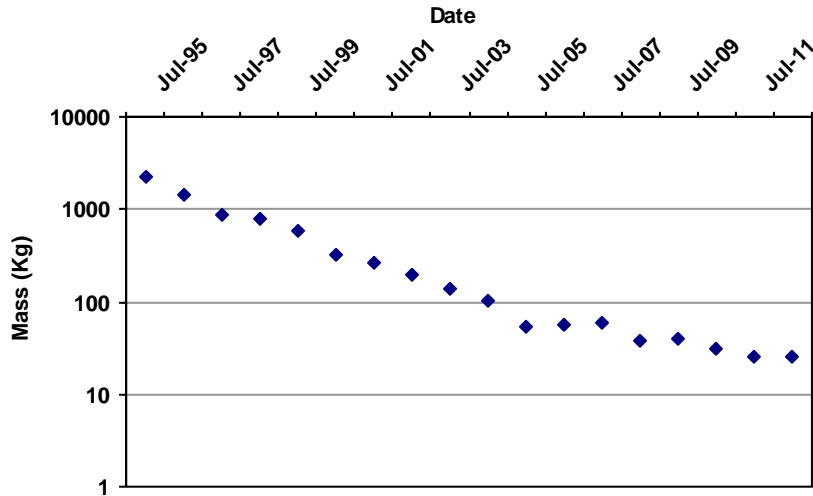
User Name:

Location: Hazel Dell

State: Washington

COC: CHROMIUM, HEXAVALENT

Change in Dissolved Mass Over Time



Porosity: 0.30

Saturated Thickness:

Uniform: 65 ft

Mann Kendall S Statistic:

-145

Confidence in Trend:

100.0%

Coefficient of Variation:

1.48

Zeroth Moment Trend:

D

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/1995	CHROMIUM, HEXAVALENT	2.2E+03	30
7/1/1996	CHROMIUM, HEXAVALENT	1.5E+03	20
7/1/1997	CHROMIUM, HEXAVALENT	8.8E+02	27
7/1/1998	CHROMIUM, HEXAVALENT	8.0E+02	27
7/1/1999	CHROMIUM, HEXAVALENT	6.0E+02	27
7/1/2000	CHROMIUM, HEXAVALENT	3.2E+02	29
7/1/2001	CHROMIUM, HEXAVALENT	2.7E+02	30
7/1/2002	CHROMIUM, HEXAVALENT	1.9E+02	31
7/1/2003	CHROMIUM, HEXAVALENT	1.4E+02	32
7/1/2004	CHROMIUM, HEXAVALENT	1.0E+02	32
7/1/2005	CHROMIUM, HEXAVALENT	5.3E+01	26
7/1/2006	CHROMIUM, HEXAVALENT	5.7E+01	31
7/1/2007	CHROMIUM, HEXAVALENT	6.0E+01	30
7/1/2008	CHROMIUM, HEXAVALENT	3.7E+01	32
7/1/2009	CHROMIUM, HEXAVALENT	3.9E+01	36
7/1/2010	CHROMIUM, HEXAVALENT	3.2E+01	33
7/1/2011	CHROMIUM, HEXAVALENT	2.6E+01	25
7/1/2012	CHROMIUM, HEXAVALENT	2.6E+01	31

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect. Moments are not calculated for sample events with less than 6 wells.

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MAROS First Moment Analysis

Project: Boomsnub/Airco Superfund Site

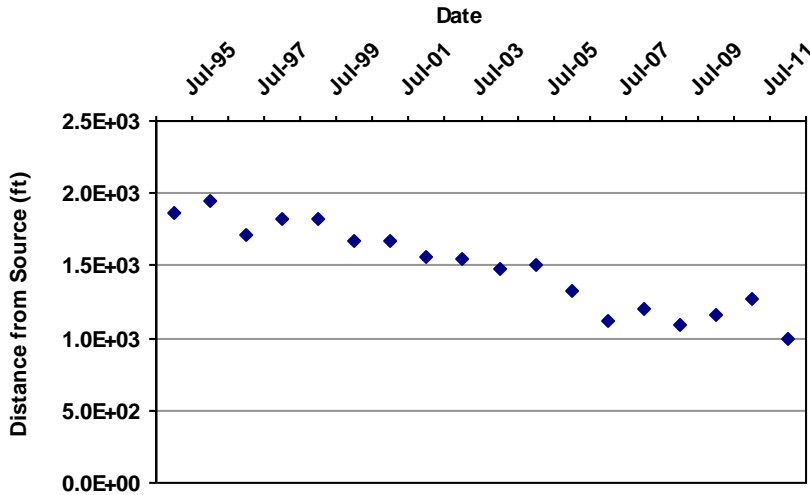
User Name:

Location: Hazel Dell

State: Washington

COC: CHROMIUM, HEXAVALENT

Distance from Source to Center of Mass



Mann Kendall S Statistic:

-131

Confidence in Trend:

100.0%

Coefficient of Variation:

0.20

First Moment Trend:

D

Data Table:

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source (ft)	Number of Wells
7/1/1995	CHROMIUM, HEXAVALENT	1,095,671	133,361	1,859	30
7/1/1996	CHROMIUM, HEXAVALENT	1,095,578	133,379	1,953	20
7/1/1997	CHROMIUM, HEXAVALENT	1,095,813	133,299	1,706	27
7/1/1998	CHROMIUM, HEXAVALENT	1,095,698	133,308	1,819	27
7/1/1999	CHROMIUM, HEXAVALENT	1,095,700	133,313	1,819	27
7/1/2000	CHROMIUM, HEXAVALENT	1,095,844	133,269	1,668	29
7/1/2001	CHROMIUM, HEXAVALENT	1,095,846	133,259	1,664	30
7/1/2002	CHROMIUM, HEXAVALENT	1,095,949	133,257	1,564	31
7/1/2003	CHROMIUM, HEXAVALENT	1,095,967	133,265	1,548	32
7/1/2004	CHROMIUM, HEXAVALENT	1,096,035	133,245	1,478	32
7/1/2005	CHROMIUM, HEXAVALENT	1,096,012	133,272	1,507	26
7/1/2006	CHROMIUM, HEXAVALENT	1,096,176	133,210	1,333	31
7/1/2007	CHROMIUM, HEXAVALENT	1,096,388	133,157	1,114	30
7/1/2008	CHROMIUM, HEXAVALENT	1,096,306	133,189	1,202	32
7/1/2009	CHROMIUM, HEXAVALENT	1,096,406	133,159	1,097	36
7/1/2010	CHROMIUM, HEXAVALENT	1,096,341	133,172	1,163	33
7/1/2011	CHROMIUM, HEXAVALENT	1,096,227	133,175	1,275	25
7/1/2012	CHROMIUM, HEXAVALENT	1,096,508	133,146	995	31

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

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MAROS First Moment Analysis

Project: Boomsnub/Airco Superfund Site

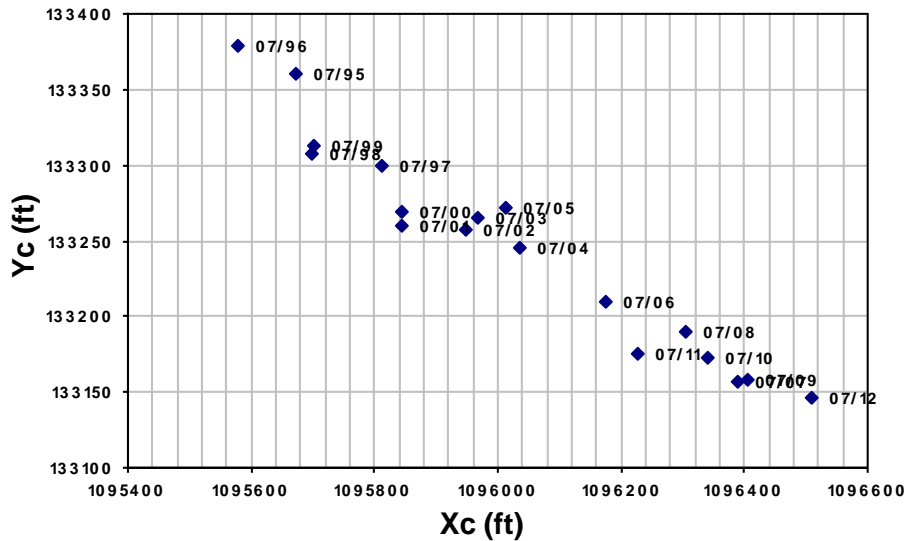
User Name:

Location: Hazel Dell

State: Washington

COC: CHROMIUM, HEXAVALENT

Change in Location of Center of Mass Over Time



Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source (ft)	Number of Wells
7/1/1995	CHROMIUM, HEXAVALENT	1,095,671	133,361	1,859	30
7/1/1996	CHROMIUM, HEXAVALENT	1,095,578	133,379	1,953	20
7/1/1997	CHROMIUM, HEXAVALENT	1,095,813	133,299	1,706	27
7/1/1998	CHROMIUM, HEXAVALENT	1,095,698	133,308	1,819	27
7/1/1999	CHROMIUM, HEXAVALENT	1,095,700	133,313	1,819	27
7/1/2000	CHROMIUM, HEXAVALENT	1,095,844	133,269	1,668	29
7/1/2001	CHROMIUM, HEXAVALENT	1,095,846	133,259	1,664	30
7/1/2002	CHROMIUM, HEXAVALENT	1,095,949	133,257	1,564	31
7/1/2003	CHROMIUM, HEXAVALENT	1,095,967	133,265	1,548	32
7/1/2004	CHROMIUM, HEXAVALENT	1,096,035	133,245	1,478	32
7/1/2005	CHROMIUM, HEXAVALENT	1,096,012	133,272	1,507	26
7/1/2006	CHROMIUM, HEXAVALENT	1,096,176	133,210	1,333	31
7/1/2007	CHROMIUM, HEXAVALENT	1,096,388	133,157	1,114	30
7/1/2008	CHROMIUM, HEXAVALENT	1,096,306	133,189	1,202	32
7/1/2009	CHROMIUM, HEXAVALENT	1,096,406	133,159	1,097	36
7/1/2010	CHROMIUM, HEXAVALENT	1,096,341	133,172	1,163	33
7/1/2011	CHROMIUM, HEXAVALENT	1,096,227	133,175	1,275	25
7/1/2012	CHROMIUM, HEXAVALENT	1,096,508	133,146	995	31

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

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MAROS Second Moment Analysis

Project: Boomsnub/Airco Superfund Site

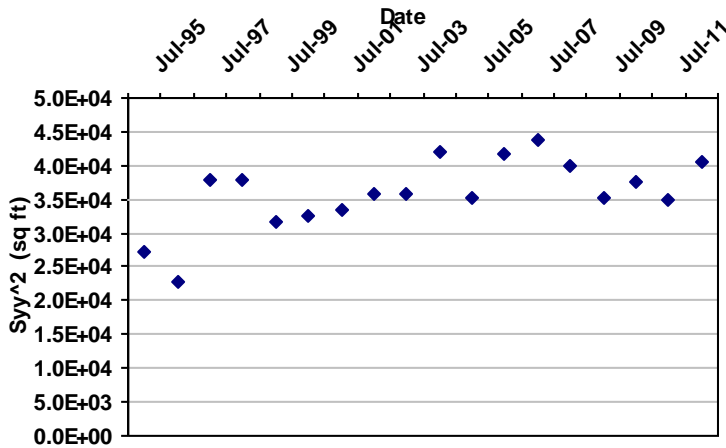
User Name:

Location: Hazel Dell

State: Washington

COC: CHROMIUM, HEXAVALENT

Change in Plume Spread Over Time



Mann Kendall S Statistic:

55

Confidence in Trend:

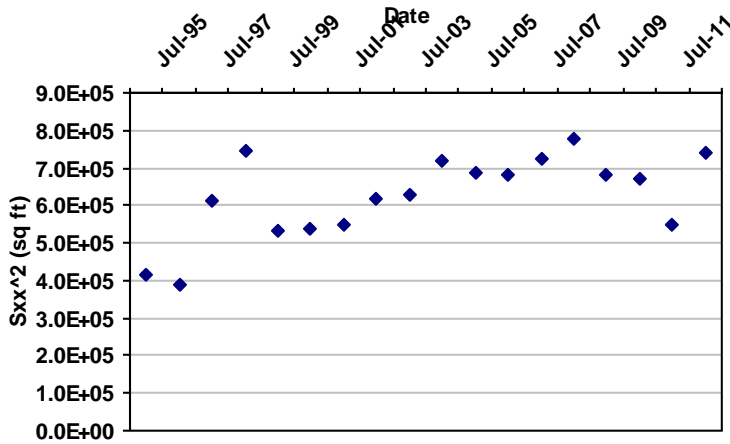
98.0%

Coefficient of Variation:

0.15

Second Moment Trend:

1



Mann Kendall S Statistic:

71

Confidence in Trend:

99.7%

Coefficient of Variation:

0.18

Second Moment Trend:

1

Data Table:

Effective Date	Constituent	Sigma XX (sq ft)	Sigma YY (sq ft)	Number of Wells
7/1/1995	CHROMIUM, HEXAVALENT	417,890	27,320	30
7/1/1996	CHROMIUM, HEXAVALENT	389,269	22,669	20
7/1/1997	CHROMIUM, HEXAVALENT	613,776	37,925	27
7/1/1998	CHROMIUM, HEXAVALENT	745,066	37,809	27
7/1/1999	CHROMIUM, HEXAVALENT	531,548	31,553	27
7/1/2000	CHROMIUM, HEXAVALENT	535,839	32,453	29
7/1/2001	CHROMIUM, HEXAVALENT	547,527	33,544	30
7/1/2002	CHROMIUM, HEXAVALENT	616,625	35,654	31
7/1/2003	CHROMIUM, HEXAVALENT	629,681	35,886	32
7/1/2004	CHROMIUM, HEXAVALENT	720,164	42,134	32
7/1/2005	CHROMIUM, HEXAVALENT	687,859	35,097	26
7/1/2006	CHROMIUM, HEXAVALENT	679,600	41,835	31

MAROS Second Moment Analysis

Effective Date	Constituent	Sigma XX (sq ft)	Sigma YY (sq ft)	Number of Wells
7/1/2007	CHROMIUM, HEXAVALENT	725,078	43,765	30
7/1/2008	CHROMIUM, HEXAVALENT	777,265	40,054	32
7/1/2009	CHROMIUM, HEXAVALENT	680,259	35,120	36
7/1/2010	CHROMIUM, HEXAVALENT	670,279	37,563	33
7/1/2011	CHROMIUM, HEXAVALENT	548,311	34,862	25
7/1/2012	CHROMIUM, HEXAVALENT	739,264	40,459	31

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events)

The Sigma XX and Sigma YY components are estimated using the given field coordinate system and then rotated to align with the estimated groundwater flow direction. Moments are not calculated for sample events with less than 6 wells.

MAROS Plume Analysis Summary

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Time Period: 1/19/1995 to 10/24/2012

Consolidation Period: Yearly

Consolidation Type: Geometric Mean

Duplicate Consolidation: Maximum

ND Values: Detection Limit

J Flag Values : Actual Value

Constituent	Well	Source/ Tail	Number of Samples	Number of Detects	Average (mg/L)	Median (mg/L)	All Samples "ND" ?	Mann- Kendall	Linear Regression	Modeling	Empirical
CHROMIUM, HEXAVALENT											
	MW-2C	S	7	5	5.2E-03	3.8E-03	No	NT	NT	N/A	N/A
	PW-1B	S	18	18	8.7E-01	2.6E-01	No	D	D	N/A	N/A
	MW-2B	S	10	7	7.5E-03	6.3E-03	No	NT	I	N/A	N/A
	MW-3A	S	15	15	4.5E-01	3.8E-01	No	D	D	N/A	N/A
	MW-4A	S	13	13	1.4E+00	9.7E-01	No	D	D	N/A	N/A
	MW-4BSHED	S	9	9	1.5E+00	2.6E-01	No	D	D	N/A	N/A
	MW-6B	S	18	18	2.1E-01	4.6E-02	No	D	D	N/A	N/A
	MW-6A	S	3	2	5.6E-02	5.2E-04	No	N/A	N/A	N/A	N/A
	MW-4B	S	11	11	1.1E+00	7.1E-01	No	D	D	N/A	N/A
	MW-2A	S	17	17	6.1E-01	3.4E-01	No	NT	NT	N/A	N/A
	MW-14C	T	18	18	7.5E-01	3.6E-01	No	D	D	N/A	N/A
	MW-10C	T	18	18	5.3E-01	1.8E-01	No	D	D	N/A	N/A
	MW-10B	T	18	18	2.8E-01	1.9E-01	No	D	D	N/A	N/A
	CPU-14	T	18	18	3.1E-01	1.6E-01	No	D	D	N/A	N/A
	CPU-13	T	18	18	8.9E-01	1.3E-01	No	D	D	N/A	N/A
	AMW-7A	T	9	8	2.8E-03	3.0E-03	No	S	I	N/A	N/A
	AMW-6A	T	8	8	7.4E-03	6.4E-03	No	S	NT	N/A	N/A
	AMW-42	T	13	13	9.4E-02	2.6E-02	No	D	D	N/A	N/A
	MW-21D	T	18	18	2.6E+00	1.2E-01	No	D	D	N/A	N/A
	AMW-27	T	15	15	1.8E+00	9.8E-01	No	D	D	N/A	N/A
	AMW-18	T	11	1	1.7E-03	2.0E-03	No	I	I	N/A	N/A
	AMW-14	T	14	14	5.0E-01	1.1E-01	No	D	D	N/A	N/A

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Constituent	Well	Source/ Tail	Number of Samples	Number of Detects	Average (mg/L)	Median (mg/L)	All Samples "ND" ?	Mann- Kendall	Linear Regression	Modeling	Empirical
CHROMIUM, HEXAVALENT											
	AMW-11A	T	8	7	3.3E-03	3.5E-03	No	NT	I	N/A	N/A
	AMW-63	T	4	3	5.1E-03	5.1E-03	No	S	S	N/A	N/A
	MW-14E	T	18	18	2.4E+00	1.6E-01	No	D	D	N/A	N/A
	MW-18D	T	18	18	2.8E+00	5.2E-01	No	D	D	N/A	N/A
	MW-19D	T	18	18	2.2E+00	3.5E-01	No	D	D	N/A	N/A
	AMW-10A	T	7	7	7.5E-03	5.7E-03	No	NT	NT	N/A	N/A
	MW-20D	T	18	18	5.5E+00	5.2E-01	No	D	D	N/A	N/A
	MW-22D	T	18	18	1.4E+00	3.8E-01	No	D	D	N/A	N/A
	MW-25D	T	18	17	1.0E+00	2.0E-02	No	D	D	N/A	N/A
	MW-26D	T	18	18	8.6E-01	1.1E-01	No	D	D	N/A	N/A
	MW-27D	T	18	18	6.7E-01	4.3E-02	No	D	D	N/A	N/A
	MW-31	T	14	14	4.0E-02	1.1E-02	No	D	D	N/A	N/A
	MW-35	T	14	13	2.7E-01	2.9E-02	No	D	D	N/A	N/A
	MW-41	T	13	7	8.0E-03	4.5E-03	No	D	D	N/A	N/A
	MW-49	T	13	13	1.9E-01	1.3E-01	No	D	D	N/A	N/A
	MW-1A	T	13	9	1.6E-02	3.1E-03	No	I	I	N/A	N/A

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); Source/Tail (S/T)

The Number of Samples and Number of Detects shown above are post-consolidation values.

APPENDIX C-3

TCE OUTPUTS

MAROS Site Results

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

User Defined Site and Data Assumptions:

Hydrogeology and Plume Information:

Groundwater
Seepage Velocity: 180 ft/yr
Current Plume Length: 3000 ft
Current Plume Width: 500 ft
Number of Tail Wells: 51
Number of Source Wells: 13

Down-gradient Information:

Distance from Edge of Tail to Nearest:
Down-gradient receptor: 9850 ft
Down-gradient property: -149 ft
Distance from Source to Nearest:
Down-gradient receptor: 10000 ft
Down-gradient property: 1 ft

Source Information:

Source Treatment: Pump and Treat

NAPL is not observed at this site.

Data Consolidation Assumptions:

Time Period: 1/19/1995 to 10/24/2012
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values: Actual Value

Plume Information Weighting Assumptions:

Consolidation Step 1. Weight Plume Information by Chemical
Summary Weighting: Weighting Applied to All Chemicals Equally
Consolidation Step 2. Weight Well Information by Chemical
Well Weighting: No Weighting of Wells was Applied.
Chemical Weighting: No Weighting of Chemicals was Applied.

Note: These assumptions were made when consolidating the historical monitoring data and lumping the Wells and COCs.

1. Compliance Monitoring/Remediation Optimization Results:

Preliminary Monitoring System Optimization Results: Based on site classification, source treatment and Monitoring System Category the following suggestions are made for site Sampling Frequency, Duration of Sampling before reassessment, and Well Density. These criteria take into consideration: Plume Stability, Type of Plume, and Groundwater Velocity.

COC	Tail Stability	Source Stability	Level of Effort	Sampling Duration	Sampling Frequency	Sampling Density
TRICHLOROETHYLENE (TCE)	PD	PD	L	Continue remediation mechanism until reach stable trend or	No Recommendation	40

Note:

Plume Status: (I) Increasing; (PI) Probably Increasing; (S) Stable; (NT) No Trend; (PD) Probably Decreasing; (D) Decreasing

Design Categories: (E) Extensive; (M) Moderate; (L) Limited (N/A) Not Applicable, Insufficient Data Available

Level of Monitoring Effort Indicated by Analysis Limited

2. Spatial Moment Analysis Results:

Moment Type	Constituent	Coefficient of Variation	Mann-Kendall S Statistic	Confidence in Trend	Moment Trend
Zeroth Moment: Mass					
	TRICHLOROETHYLENE (TCE)	1.12	-145	100.0%	D
1st Moment: Distance to Source					
	TRICHLOROETHYLENE (TCE)	0.10	-5	55.9%	S
2nd Moment: Sigma XX					
	TRICHLOROETHYLENE (TCE)	0.24	-63	99.1%	D
2nd Moment: Sigma YY					
	TRICHLOROETHYLENE (TCE)	0.32	-79	99.9%	D

Note: The following assumptions were applied for the calculation of the Zeroth Moment:

Porosity: 0.30 Saturated Thickness: Uniform: 65 ft

Mann-Kendall Trend test performed on all sample events for each constituent. Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A)-Due to insufficient Data (< 4 sampling events).

MAROS Linear Regression Statistics Summary

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Time Period: 1/19/1995 to 10/24/2012

Consolidation Period: Yearly

Consolidation Type: Geometric Mean

Duplicate Consolidation: Maximum

ND Values: Detection Limit

J Flag Values : Actual Value

Well	Source/ Tail	Average Conc (mg/L)	Median Conc (mg/L)	Standard Deviation	All Samples "ND" ?	Ln Slope	Coefficient of Variation	Confidence in Trend	Concentration Trend
TRICHLOROETHYLENE (TCE)									
AMW-54A	S	3.9E-02	2.1E-03	5.7E-02	No	-1.5E-03	1.46	99.1%	D
AMW-12A	S	1.4E+00	4.3E-01	2.3E+00	No	-1.0E-03	1.60	100.0%	D
AMW-55A	S	8.6E-03	1.1E-03	1.4E-02	No	-1.1E-03	1.66	98.7%	D
AMW-53A	S	3.9E-02	8.9E-03	7.5E-02	No	-1.0E-03	1.94	99.6%	D
AMW-52A	S	3.3E-04	1.6E-04	3.2E-04	No	-6.2E-04	0.96	98.7%	D
AMW-3A	S	6.2E-03	6.2E-03	6.3E-03	No	-6.8E-04	1.01	100.0%	D
AMW-13A	S	4.0E-03	1.9E-04	8.4E-03	No	-4.7E-05	2.11	56.1%	NT
AMW-2A	S	1.1E+00	6.1E-01	1.4E+00	No	-1.1E-03	1.28	100.0%	D
AMW-26	S	1.7E-02	5.6E-04	2.5E-02	No	-9.9E-04	1.49	99.8%	D
AMW-1A	S	1.4E-01	4.0E-02	2.4E-01	No	-8.6E-04	1.69	99.8%	D
AMW-19A	S	7.8E-02	4.3E-02	1.2E-01	No	-1.1E-03	1.47	100.0%	D
AMW-2B	S	6.0E-04	4.9E-04	7.5E-04	No	1.3E-04	1.24	73.1%	NT
MW-1A	S	1.2E+00	9.8E-01	1.2E+00	No	-1.2E-03	1.01	100.0%	D
AMW-59	T	1.3E-01	1.2E-01	5.3E-02	No	-2.9E-04	0.40	94.6%	PD
AMW-61	T	1.6E-02	6.5E-03	1.6E-02	No	-7.4E-04	0.99	95.9%	D
AMW-63	T	1.1E-04	1.2E-04	3.8E-05	No	-1.1E-04	0.34	56.6%	S
AMW-6A	T	3.7E-04	4.3E-04	2.7E-04	No	7.6E-04	0.72	100.0%	I
AMW-7A	T	2.7E-04	1.9E-04	2.2E-04	No	5.2E-04	0.84	99.7%	I
CPU-12	T	4.1E-03	3.8E-03	2.5E-03	No	2.4E-04	0.61	97.0%	I
AMW-58	T	1.4E-03	8.9E-04	1.8E-03	No	-1.6E-03	1.24	99.5%	D
AMW-14	T	2.3E-02	3.4E-03	6.4E-02	No	-8.2E-04	2.81	100.0%	D
AMW-8A	T	8.2E-02	4.0E-02	1.5E-01	No	-1.2E-03	1.83	100.0%	D
AMW-56A	T	7.9E-02	2.3E-03	2.0E-01	No	-1.6E-03	2.56	98.3%	D
AMW-42	T	3.7E-03	1.2E-03	6.0E-03	No	-5.7E-04	1.63	98.9%	D
AMW-27	T	4.5E-02	5.0E-02	2.2E-02	No	-3.7E-04	0.50	100.0%	D
AMW-18	T	8.5E-02	1.1E-03	1.4E-01	No	1.5E-03	1.69	100.0%	I
CPU-14	T	2.5E-02	2.0E-02	1.7E-02	No	-3.6E-04	0.70	100.0%	D
AMW-16	T	1.9E-02	5.1E-03	2.5E-02	No	-7.4E-04	1.34	100.0%	D
MW-10B	T	1.0E-01	4.9E-02	1.8E-01	No	-2.7E-04	1.69	98.3%	D
AMW-11A	T	4.1E-04	4.8E-04	3.0E-04	No	5.9E-04	0.75	99.8%	I
AMW-10A	T	2.4E-04	2.5E-04	1.5E-04	No	4.2E-04	0.64	98.7%	I
AMW-17	T	2.2E-02	2.7E-03	4.6E-02	No	-6.9E-05	2.06	62.9%	NT
MW-49	T	7.4E-03	4.9E-03	7.5E-03	No	-1.7E-04	1.01	74.8%	NT
CPU-13	T	1.9E-02	4.2E-03	2.9E-02	No	-6.7E-04	1.54	100.0%	D
MW-2A	T	6.0E-03	4.7E-03	4.0E-03	No	-2.6E-04	0.66	100.0%	D
MW-31	T	2.7E-03	4.9E-04	5.7E-03	No	-7.9E-04	2.12	100.0%	D
MW-35	T	1.3E-02	5.9E-03	2.1E-02	No	-3.8E-04	1.62	99.0%	D
MW-38	T	9.9E-03	1.0E-02	2.3E-03	No	0.0E+00	0.00	0.0%	N/A
MW-26D	T	9.6E-03	2.7E-03	1.2E-02	No	-4.8E-04	1.21	99.9%	D

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Source/ Tail	Average Conc (mg/L)	Median Conc (mg/L)	Standard Deviation	All Samples "ND" ?	Ln Slope	Coefficient of Variation	Confidence in Trend	Concentration Trend
TRICHLOROETHYLENE (TCE)									
MW-41	T	4.5E-04	5.0E-04	3.5E-04	No	-4.9E-04	0.78	99.7%	D
MW-25D	T	1.5E-02	3.7E-03	2.5E-02	No	-6.5E-04	1.61	100.0%	D
MW-4B	T	5.7E-02	6.6E-03	1.5E-01	No	-5.2E-05	2.61	58.1%	NT
MW-4BSHED	T	4.1E-02	1.2E-02	5.8E-02	No	-6.9E-04	1.43	97.3%	D
MW-6B	T	1.7E-01	1.3E-01	2.4E-01	No	-7.4E-04	1.45	100.0%	D
MW-7B	T	1.6E-01	1.1E-01	1.5E-01	No	-6.3E-04	0.97	97.3%	D
MW-8B	T	4.9E-01	2.8E-02	9.4E-01	No	-9.4E-04	1.90	99.9%	D
MW-9B	T	3.4E-01	5.8E-02	5.3E-01	No	-9.0E-04	1.54	100.0%	D
MW-3B	T	9.5E-03	7.6E-03	9.3E-03	No	-3.9E-04	0.97	99.9%	D
MW-18D	T	9.0E-01	3.0E-01	1.4E+00	No	-7.2E-04	1.56	100.0%	D
MW-10C	T	1.8E-01	7.0E-02	3.2E-01	No	-8.1E-04	1.75	100.0%	D
MW-12C	T	7.9E-01	4.9E-02	2.1E+00	No	-1.0E-03	2.61	100.0%	D
MW-13C	T	8.8E-03	5.8E-03	6.8E-03	No	-3.1E-04	0.77	100.0%	D
MW-14C	T	2.5E-01	6.0E-02	4.2E-01	No	-6.3E-04	1.72	100.0%	D
MW-14E	T	9.0E-01	2.2E-01	1.6E+00	No	-6.8E-04	1.73	100.0%	D
MW-27D	T	4.4E-02	3.6E-03	7.3E-02	No	-1.0E-03	1.64	100.0%	D
MW-16E	T	2.3E-03	1.9E-03	2.0E-03	No	3.0E-04	0.90	85.0%	NT
PW-1B	T	1.5E-01	6.5E-02	1.9E-01	No	-8.2E-04	1.29	100.0%	D
MW-18E	T	6.3E-01	3.2E-01	6.9E-01	No	-3.4E-04	1.10	99.9%	D
MW-19D	T	3.9E-01	8.9E-02	6.4E-01	No	-6.0E-04	1.67	100.0%	D
MW-20D	T	8.4E-01	1.7E-01	1.2E+00	No	-8.1E-04	1.43	100.0%	D
MW-21D	T	2.8E-01	4.1E-02	5.5E-01	No	-9.3E-04	1.99	100.0%	D
MW-22D	T	7.5E-02	4.3E-02	8.3E-02	No	-6.3E-04	1.11	100.0%	D
MW-23D	T	1.6E-02	7.2E-03	1.9E-02	No	-5.6E-04	1.15	100.0%	D
MW-15E	T	1.4E-01	1.7E-02	2.8E-01	No	-7.5E-04	2.05	100.0%	D

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); COV = Coefficient of Variation

MAROS Mann-Kendall Statistics Summary

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Time Period: 1/19/1995 to 10/24/2012

Consolidation Period: Yearly

Consolidation Type: Geometric Mean

Duplicate Consolidation: Maximum

ND Values: Detection Limit

J Flag Values : Actual Value

Well	Source/ Tail	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
TRICHLOROETHYLENE (TCE)								
AMW-52A	S	9	7	0.96	-16	94.0%	No	PD
MW-1A	S	18	18	1.01	-119	100.0%	No	D
AMW-55A	S	8	8	1.66	-6	72.6%	No	NT
AMW-54A	S	9	9	1.46	-16	94.0%	No	PD
AMW-53A	S	10	10	1.94	-27	99.2%	No	D
AMW-3A	S	17	17	1.01	-96	100.0%	No	D
AMW-2B	S	13	12	1.24	3	54.8%	No	NT
AMW-2A	S	18	18	1.28	-123	100.0%	No	D
AMW-26	S	15	13	1.49	-50	99.3%	No	D
AMW-12A	S	18	18	1.60	-109	100.0%	No	D
AMW-19A	S	16	16	1.47	-84	100.0%	No	D
AMW-13A	S	17	15	2.11	3	53.2%	No	NT
AMW-1A	S	18	18	1.69	-73	99.7%	No	D
CPU-13	T	18	18	1.54	-143	100.0%	No	D
CPU-12	T	18	18	0.61	26	82.6%	No	NT
AMW-8A	T	17	17	1.83	-136	100.0%	No	D
AMW-7A	T	14	7	0.84	51	99.8%	No	I
AMW-6A	T	9	6	0.72	9	79.2%	No	NT
AMW-63	T	4	2	0.34	-2	62.5%	No	S
AMW-61	T	5	5	0.99	-8	95.8%	No	D
AMW-59	T	7	7	0.40	-11	93.2%	No	PD
AMW-58	T	5	4	1.24	-10	99.2%	No	D
AMW-42	T	13	13	1.63	-35	98.2%	No	D
AMW-56A	T	9	9	2.56	-16	94.0%	No	PD
AMW-10A	T	8	6	0.64	10	86.2%	No	NT
AMW-14	T	14	13	2.81	-83	100.0%	No	D
MW-10C	T	18	18	1.75	-111	100.0%	No	D
AMW-16	T	17	17	1.34	-135	100.0%	No	D
AMW-17	T	17	17	2.06	-51	98.1%	No	D
AMW-18	T	16	15	1.69	63	99.8%	No	I
AMW-27	T	15	15	0.50	-85	100.0%	No	D
AMW-11A	T	9	7	0.75	6	69.4%	No	NT
MW-49	T	13	13	1.01	-36	98.5%	No	D
CPU-14	T	18	18	0.70	-114	100.0%	No	D
MW-2A	T	15	15	0.66	-62	99.9%	No	D
MW-31	T	14	14	2.12	-85	100.0%	No	D
MW-35	T	14	14	1.62	-38	97.9%	No	D
MW-38	T	3	3	0.00	0	0.0%	No	N/A

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Source/ Tail	Number of Samples	Number of Detects	Coefficient of Variation	Mann-Kendall Statistic	Confidence in Trend	All Samples "ND" ?	Concentration Trend
TRICHLOROETHYLENE (TCE)								
MW-26D	T	18	18	1.21	-89	100.0%	No	D
MW-41	T	13	3	0.78	-26	93.6%	No	PD
MW-25D	T	18	18	1.61	-134	100.0%	No	D
MW-4B	T	10	10	2.61	-9	75.8%	No	NT
MW-4BSHED	T	8	8	1.43	-22	99.8%	No	D
MW-6B	T	18	18	1.45	-99	100.0%	No	D
MW-7B	T	5	5	0.97	-8	95.8%	No	D
MW-8B	T	9	9	1.90	-34	100.0%	No	D
MW-9B	T	10	10	1.54	-43	100.0%	No	D
MW-3B	T	10	10	0.97	-32	99.9%	No	D
MW-18D	T	18	18	1.56	-143	100.0%	No	D
PW-1B	T	18	18	1.29	-111	100.0%	No	D
MW-12C	T	17	17	2.61	-116	100.0%	No	D
MW-13C	T	17	17	0.77	-84	100.0%	No	D
MW-14C	T	18	18	1.72	-131	100.0%	No	D
MW-14E	T	18	18	1.73	-145	100.0%	No	D
MW-27D	T	18	18	1.64	-120	100.0%	No	D
MW-16E	T	12	10	0.90	9	70.4%	No	NT
MW-10B	T	18	18	1.69	-65	99.3%	No	D
MW-18E	T	17	17	1.10	-89	100.0%	No	D
MW-19D	T	18	18	1.67	-118	100.0%	No	D
MW-20D	T	18	18	1.43	-137	100.0%	No	D
MW-21D	T	18	18	1.99	-153	100.0%	No	D
MW-22D	T	18	18	1.11	-141	100.0%	No	D
MW-23D	T	18	18	1.15	-113	100.0%	No	D
MW-15E	T	13	13	2.05	-78	100.0%	No	D

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A)-
Due to insufficient Data (< 4 sampling events); Source/Tail (S/T)

The Number of Samples and Number of Detects shown above are post-consolidation values.

MAROS Power Analysis for Individual Well Cleanup Status

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

From Period: 1/19/1995 to 10/24/2012

Well	Sample Size	Sample Mean	Sample Stdev.	Normal Distribution Assumption Cleanup Status	Lognormal Distribution Assumption Cleanup Status	Alpha Level	Expected Power
TRICHLOROETHYLENE (TCE)			Cleanup Goal (mg/L) = 0.005	Target Level (mg/L) = 0.004			
AMW-10A	8	2.87E-04	1.59E-04	Attained	Cont Sampling	0.05	0.95
AMW-11A	9	4.40E-04	3.21E-04	Attained	Cont Sampling	0.05	0.95
AMW-12A	18	1.76E+00	3.01E+00	Cont Sampling	Cont Sampling	0.05	0.95
AMW-13A	17	5.08E-03	1.09E-02	Cont Sampling	Cont Sampling	0.05	0.95
AMW-14	14	2.77E-02	8.19E-02	Cont Sampling	Cont Sampling	0.05	0.95
AMW-16	17	1.89E-02	2.54E-02	Cont Sampling	Cont Sampling	0.05	0.95
AMW-17	17	2.42E-02	4.73E-02	Cont Sampling	Cont Sampling	0.05	0.95
AMW-18	16	8.58E-02	1.45E-01	Cont Sampling	Cont Sampling	0.05	0.95
AMW-19A	16	8.66E-02	1.20E-01	Cont Sampling	Cont Sampling	0.05	0.95
AMW-1A	18	1.56E-01	2.47E-01	Cont Sampling	Cont Sampling	0.05	0.95
AMW-26	15	1.75E-02	2.46E-02	Cont Sampling	Cont Sampling	0.05	0.95
AMW-27	15	4.55E-02	2.26E-02	Cont Sampling	Not Attained	0.05	0.95
AMW-2A	18	1.16E+00	1.46E+00	Cont Sampling	Cont Sampling	0.05	0.95
AMW-2B	13	1.77E-03	4.16E-03	Cont Sampling	Cont Sampling	0.05	0.95
AMW-3A	17	6.34E-03	6.52E-03	Cont Sampling	Cont Sampling	0.05	0.95
AMW-42	13	4.15E-03	7.34E-03	Cont Sampling	Cont Sampling	0.05	0.95
AMW-52A	9	1.10E-03	2.38E-03	Cont Sampling	Cont Sampling	0.05	0.95
AMW-53A	10	4.27E-02	7.45E-02	Cont Sampling	Cont Sampling	0.05	0.95
AMW-54A	9	4.05E-02	5.91E-02	Cont Sampling	Cont Sampling	0.05	0.95
AMW-55A	8	8.98E-03	1.42E-02	Cont Sampling	Cont Sampling	0.05	0.95
AMW-56A	9	8.30E-02	2.01E-01	Cont Sampling	Cont Sampling	0.05	0.95
AMW-58	5	1.64E-03	2.20E-03	Cont Sampling	Cont Sampling	0.05	0.95
AMW-59	7	1.34E-01	5.63E-02	Cont Sampling	Cont Sampling	0.05	0.95
AMW-61	5	1.65E-02	1.63E-02	Cont Sampling	Cont Sampling	0.05	0.95
AMW-63	4	1.11E-04	3.89E-05	Attained	Cont Sampling	0.05	0.95
AMW-6A	9	3.87E-04	2.79E-04	Attained	Cont Sampling	0.05	0.95
AMW-7A	14	2.80E-04	2.25E-04	Attained	Cont Sampling	0.05	0.95
AMW-8A	17	8.55E-02	1.52E-01	Cont Sampling	Cont Sampling	0.05	0.95
CPU-12	18	4.43E-03	2.21E-03	Cont Sampling	Cont Sampling	0.05	0.95
CPU-13	18	2.10E-02	3.07E-02	Cont Sampling	Cont Sampling	0.05	0.95
CPU-14	18	2.46E-02	1.73E-02	Cont Sampling	Not Attained	0.05	0.95
MW-10B	18	1.18E-01	2.00E-01	Cont Sampling	Cont Sampling	0.05	0.95

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Sample Size	Sample Mean	Sample Stdev.	Normal Distribution Assumption	Lognormal Distribution Assumption	Alpha Level	Expected Power
				Cleanup Status	Cleanup Status		
TRICHLOROETHYLENE (TCE)				Cleanup Goal (mg/L) = 0.005	Target Level (mg/L) = 0.004		
MW-10C	18	1.93E-01	3.26E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-12C	17	8.30E-01	2.10E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-13C	17	9.01E-03	6.92E-03	Cont Sampling	Cont Sampling	0.05	0.95
MW-14C	18	2.79E-01	4.87E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-14E	18	9.16E-01	1.57E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-15E	13	1.45E-01	2.96E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-16E	12	2.32E-03	2.01E-03	Attained	Cont Sampling	0.05	0.95
MW-18D	18	9.60E-01	1.48E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-18E	17	6.54E-01	7.24E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-19D	18	4.04E-01	6.84E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-1A	18	1.20E+00	1.21E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-20D	18	8.48E-01	1.21E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-21D	18	2.87E-01	5.72E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-22D	18	7.70E-02	8.56E-02	Cont Sampling	Cont Sampling	0.05	0.95
MW-23D	18	1.79E-02	1.89E-02	Cont Sampling	Cont Sampling	0.05	0.95
MW-25D	18	1.65E-02	2.70E-02	Cont Sampling	Cont Sampling	0.05	0.95
MW-26D	18	1.02E-02	1.22E-02	Cont Sampling	Cont Sampling	0.05	0.95
MW-27D	18	4.63E-02	7.39E-02	Cont Sampling	Cont Sampling	0.05	0.95
MW-2A	15	6.37E-03	4.45E-03	Cont Sampling	Cont Sampling	0.05	0.95
MW-31	14	2.84E-03	6.14E-03	Cont Sampling	Cont Sampling	0.05	0.95
MW-35	14	1.46E-02	2.17E-02	Cont Sampling	Cont Sampling	0.05	0.95
MW-38	3	9.93E-03	2.34E-03	N/C	N/C	0.05	0.95
MW-3B	10	9.65E-03	9.37E-03	Cont Sampling	Cont Sampling	0.05	0.95
MW-41	13	9.09E-04	1.19E-03	Attained	Cont Sampling	0.05	0.95
MW-49	13	1.69E-02	2.99E-02	Cont Sampling	Cont Sampling	0.05	0.95
MW-4B	10	5.80E-02	1.52E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-4BSHED	8	4.37E-02	6.27E-02	Cont Sampling	Cont Sampling	0.05	0.95
MW-6B	18	2.03E-01	2.74E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-7B	5	1.92E-01	2.24E-01	Cont Sampling	Cont Sampling	0.05	0.95
MW-8B	9	5.37E-01	1.00E+00	Cont Sampling	Cont Sampling	0.05	0.95
MW-9B	10	3.65E-01	5.63E-01	Cont Sampling	Cont Sampling	0.05	0.95
PW-1B	18	1.51E-01	1.94E-01	Cont Sampling	Cont Sampling	0.05	0.95

Note: N/C refers to "not conducted" because of insufficient data (N<4); S/E indicates the sample mean significantly exceeds the cleanup level and thus no analysis is conducted; Sample Size is the number of concentration data in a sampling location that are used in the analysis; The Target Level is the expected mean concentration in wells after cleanup attainment, it is only used in individual well cleanup status evaluation. The test for evaluating attainment status is from EPA (1992). Refer to Appendix A.6 of MAROS Manual for details.

Individual Well Cleanup Status - Optional Analysis Results

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

From Period: 1/19/1995 to 10/24/2012

Well	Sample Size	Sample Mean	Sample Stdev.	Normal Distribution Assumption			Lognormal Distribution Assumption		
				Significantly < Cleanup Goal?	Power	Expected Sample Size	Significantly < Cleanup Goal?	Power	Expected Sample Size
TRICHLOROETHYLENE (TCE)				Cleanup Goal (mg/L) = 0.005			Alpha Level = 0.05		
							Expected Power = 0.95		
AMW-10A	8	2.87E-04	1.59E-04	YES	1.000	<=3	YES	1.000	4
AMW-11A	9	4.40E-04	3.21E-04	YES	1.000	<=3	YES	0.988	7
AMW-12A	18	1.76E+00	3.01E+00	NO	S/E	S/E	NO	S/E	S/E
AMW-13A	17	5.08E-03	1.09E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-14	14	2.77E-02	8.19E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-16	17	1.89E-02	2.54E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-17	17	2.42E-02	4.73E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-18	16	8.58E-02	1.45E-01	NO	S/E	S/E	NO	S/E	S/E
AMW-19A	16	8.66E-02	1.20E-01	NO	S/E	S/E	NO	S/E	S/E
AMW-1A	18	1.56E-01	2.47E-01	NO	S/E	S/E	NO	S/E	S/E
AMW-26	15	1.75E-02	2.46E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-27	15	4.55E-02	2.26E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-2A	18	1.16E+00	1.46E+00	NO	S/E	S/E	NO	S/E	S/E
AMW-2B	13	1.77E-03	4.16E-03	YES	0.859	19	YES	0.690	30
AMW-3A	17	6.34E-03	6.52E-03	NO	S/E	S/E	NO	S/E	S/E
AMW-42	13	4.15E-03	7.34E-03	NO	0.107	>100	NO	0.124	>100
AMW-52A	9	1.10E-03	2.38E-03	YES	0.999	5	YES	0.954	9
AMW-53A	10	4.27E-02	7.45E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-54A	9	4.05E-02	5.91E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-55A	8	8.98E-03	1.42E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-56A	9	8.30E-02	2.01E-01	NO	S/E	S/E	NO	S/E	S/E
AMW-58	5	1.64E-03	2.20E-03	YES	0.932	6	NO	0.157	>100
AMW-59	7	1.34E-01	5.63E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-61	5	1.65E-02	1.63E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-63	4	1.11E-04	3.89E-05	YES	1.000	<=3	YES	1.000	<=3
AMW-6A	9	3.87E-04	2.79E-04	YES	1.000	<=3	YES	0.893	12
AMW-7A	14	2.80E-04	2.25E-04	YES	1.000	<=3	YES	1.000	4
AMW-8A	17	8.55E-02	1.52E-01	NO	S/E	S/E	NO	S/E	S/E
CPU-12	18	4.43E-03	2.21E-03	NO	0.282	>100	NO	0.324	>100
CPU-13	18	2.10E-02	3.07E-02	NO	S/E	S/E	NO	S/E	S/E
CPU-14	18	2.46E-02	1.73E-02	NO	S/E	S/E	NO	S/E	S/E
MW-10B	18	1.18E-01	2.00E-01	NO	S/E	S/E	NO	S/E	S/E

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Sample Size	Sample Mean	Sample Stdev.	Normal Distribution Assumption			Lognormal Distribution Assumption		
				Significantly < Cleanup Goal?	Power	Expected Sample Size	Significantly < Cleanup Goal?	Power	Expected Sample Size
TRICHLOROETHYLENE (TCE)				Cleanup Goal (mg/L) = 0.005			Alpha Level = 0.05		
				Expected Power = 0.95					
MW-10C	18	1.93E-01	3.26E-01	NO	S/E	S/E	NO	S/E	S/E
MW-12C	17	8.30E-01	2.10E+00	NO	S/E	S/E	NO	S/E	S/E
MW-13C	17	9.01E-03	6.92E-03	NO	S/E	S/E	NO	S/E	S/E
MW-14C	18	2.79E-01	4.87E-01	NO	S/E	S/E	NO	S/E	S/E
MW-14E	18	9.16E-01	1.57E+00	NO	S/E	S/E	NO	S/E	S/E
MW-15E	13	1.45E-01	2.96E-01	NO	S/E	S/E	NO	S/E	S/E
MW-16E	12	2.32E-03	2.01E-03	YES	0.998	7	NO	S/E	S/E
MW-18D	18	9.60E-01	1.48E+00	NO	S/E	S/E	NO	S/E	S/E
MW-18E	17	6.54E-01	7.24E-01	NO	S/E	S/E	NO	S/E	S/E
MW-19D	18	4.04E-01	6.84E-01	NO	S/E	S/E	NO	S/E	S/E
MW-1A	18	1.20E+00	1.21E+00	NO	S/E	S/E	NO	S/E	S/E
MW-20D	18	8.48E-01	1.21E+00	NO	S/E	S/E	NO	S/E	S/E
MW-21D	18	2.87E-01	5.72E-01	NO	S/E	S/E	NO	S/E	S/E
MW-22D	18	7.70E-02	8.56E-02	NO	S/E	S/E	NO	S/E	S/E
MW-23D	18	1.79E-02	1.89E-02	NO	S/E	S/E	NO	S/E	S/E
MW-25D	18	1.65E-02	2.70E-02	NO	S/E	S/E	NO	S/E	S/E
MW-26D	18	1.02E-02	1.22E-02	NO	S/E	S/E	NO	S/E	S/E
MW-27D	18	4.63E-02	7.39E-02	NO	S/E	S/E	NO	S/E	S/E
MW-2A	15	6.37E-03	4.45E-03	NO	S/E	S/E	NO	S/E	S/E
MW-31	14	2.84E-03	6.14E-03	NO	0.358	89	YES	0.636	37
MW-35	14	1.46E-02	2.17E-02	NO	S/E	S/E	NO	S/E	S/E
MW-38	3	9.93E-03	2.34E-03	N/C	S/E	S/E	N/C	S/E	S/E
MW-3B	10	9.65E-03	9.37E-03	NO	S/E	S/E	NO	S/E	S/E
MW-41	13	9.09E-04	1.19E-03	YES	1.000	<=3	YES	0.995	9
MW-49	13	1.69E-02	2.99E-02	NO	S/E	S/E	NO	S/E	S/E
MW-4B	10	5.80E-02	1.52E-01	NO	S/E	S/E	NO	S/E	S/E
MW-4BSHED	8	4.37E-02	6.27E-02	NO	S/E	S/E	NO	S/E	S/E
MW-6B	18	2.03E-01	2.74E-01	NO	S/E	S/E	NO	S/E	S/E
MW-7B	5	1.92E-01	2.24E-01	NO	S/E	S/E	NO	S/E	S/E
MW-8B	9	5.37E-01	1.00E+00	NO	S/E	S/E	NO	S/E	S/E
MW-9B	10	3.65E-01	5.63E-01	NO	S/E	S/E	NO	S/E	S/E
PW-1B	18	1.51E-01	1.94E-01	NO	S/E	S/E	NO	S/E	S/E

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Sample Size	Sample Mean	Sample Stdev.	Normal Distribution Assumption			Lognormal Distribution Assumption		
				Significantly < Cleanup Goal?	Power	Expected Sample Size	Significantly < Cleanup Goal?	Power	Expected Sample Size
TRICHLOROETHYLENE (TCE)				Cleanup Goal (mg/L) = 0.005	Alpha Level = 0.05		Expected Power = 0.95		

Note: N/C refers to "not conducted" because of insufficient data (N<4); S/E indicates the sample mean significantly exceeds the cleanup level and thus no analysis is conducted; Sample Size is the number of concentration data in a sampling location that are used in the power analysis; Expected Sample Size is the number of concentration data needed to reach the Expected Power under current sample variability; The Target Level is the expected mean concentration in wells after cleanup attainment, it is only used in individual well cleanup status evaluation. The Student's t-test on mean difference is used in this analysis. Refer to Appendix A.6 of MAROS Manual for details.

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Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Recommended Sampling Frequency	Frequency Based on Recent Data	Frequency Based on Overall Data
AMW-63	Biennial	Annual	Annual
AMW-6A	Biennial	Annual	Annual
AMW-7A	Annual	Annual	Annual
AMW-8A	Annual	Annual	Annual
CPU-12	Annual	Annual	Annual
CPU-13	Annual	Annual	Annual
CPU-14	Annual	Annual	Annual
MW-10B	Annual	Annual	Annual
MW-10C	Annual	Annual	Annual
MW-12C	Annual	Annual	Annual
MW-13C	Annual	Annual	Annual
MW-14C	Annual	Annual	Annual
MW-14E	Annual	Annual	Annual
MW-15E	Annual	Annual	Annual
MW-16E	Annual	Annual	Annual
MW-18D	Annual	Annual	Annual
MW-18E	Annual	Annual	Annual
MW-19D	Annual	Annual	Annual
MW-1A	Annual	Annual	Annual
MW-20D	Annual	Annual	Annual
MW-21D	Annual	Annual	Annual
MW-22D	Annual	Annual	Annual
MW-23D	Annual	Annual	Annual
MW-25D	Annual	Annual	Annual
MW-26D	Annual	Annual	Annual
MW-27D	Annual	Annual	Annual
MW-2A	Annual	Annual	Annual
MW-31	Annual	Annual	Annual
MW-35	Annual	Annual	Annual
MW-38	Quarterly	Quarterly	Quarterly
MW-3B	Annual	Annual	Annual
MW-41	Annual	Annual	Annual
MW-49	Annual	Annual	Annual
MW-4B	Annual	Annual	Annual
MW-4BSHED	Annual	Annual	Annual
MW-6B	Annual	Annual	Annual
MW-7B	Annual	Annual	Annual
MW-8B	Annual	Annual	Annual

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	Recommended Sampling Frequency	Frequency Based on Recent Data	Frequency Based on Overall Data
MW-9B	Annual	Annual	Annual
PW-1B	Annual	Annual	Annual

Note: Sampling frequency is determined considering both recent and overall concentration trends. Sampling Frequency is the final recommendation; Frequency Based on Recent Data is the frequency determined using recent (short) period of monitoring data; Frequency Based on Overall Data is the frequency determined using overall (long) period of monitoring data. If the "recent period" is defined using a different series of sampling events, the results could be different.

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MAROS Sampling Location Optimization Results

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Sampling Events Analyzed: From Sample Event 1 to Sample Event 348
1/19/1995 10/24/2012

Parameters used:

Constituent	Inside SF	Hull SF	Area Ratio	Conc. Ratio
TRICHLOROETHYLENE (TCE)	0.1	0.01	0.95	0.95

Well	X (feet)	Y (feet)	Removable?	Average Slope Factor*	Minimum Slope Factor*	Maximum Slope Factor*	Eliminated?
TRICHLOROETHYLENE (TCE)							
AMW-10A	1098266.25	132923.33	<input checked="" type="checkbox"/>	0.513	0.000	1.000	<input type="checkbox"/>
AMW-11A	1098270.63	132756.36	<input checked="" type="checkbox"/>	0.265	0.000	1.000	<input type="checkbox"/>
AMW-12A	1097891.63	132766.36	<input checked="" type="checkbox"/>	0.376	0.041	0.709	<input type="checkbox"/>
AMW-13A	1097844.38	133039.89	<input checked="" type="checkbox"/>	0.538	0.000	1.000	<input type="checkbox"/>
AMW-14	1095174.75	133490.42	<input checked="" type="checkbox"/>	0.360	0.087	0.862	<input type="checkbox"/>
AMW-16	1095978.25	133652.06	<input checked="" type="checkbox"/>	0.299	0.023	0.848	<input type="checkbox"/>
AMW-17	1096562.13	133519.91	<input checked="" type="checkbox"/>	0.488	0.047	0.888	<input type="checkbox"/>
AMW-18	1096976.25	133403.75	<input checked="" type="checkbox"/>	0.589	0.327	1.000	<input type="checkbox"/>
AMW-19A	1097961.38	132745.06	<input checked="" type="checkbox"/>	0.186	0.007	0.705	<input type="checkbox"/>
AMW-1A	1097845.25	132893.08	<input checked="" type="checkbox"/>	0.329	0.015	1.000	<input type="checkbox"/>
AMW-26	1097846.25	132924.05	<input checked="" type="checkbox"/>	0.430	0.025	1.000	<input type="checkbox"/>
AMW-27	1094386.13	133515.81	<input checked="" type="checkbox"/>	0.306	0.051	0.653	<input type="checkbox"/>
AMW-2A	1097832.00	132820.73	<input checked="" type="checkbox"/>	0.426	0.033	0.895	<input type="checkbox"/>
AMW-2B	1097831.75	132828.42	<input checked="" type="checkbox"/>	0.691	0.119	1.000	<input type="checkbox"/>
AMW-3A	1097892.63	132637.25	<input checked="" type="checkbox"/>	0.520	0.212	1.000	<input type="checkbox"/>
AMW-42	1093570.50	133791.39	<input checked="" type="checkbox"/>	0.389	0.001	0.937	<input type="checkbox"/>
AMW-52A	1097747.50	132981.05	<input checked="" type="checkbox"/>	0.803	0.519	1.000	<input type="checkbox"/>
AMW-53A	1097744.75	132910.84	<input checked="" type="checkbox"/>	0.358	0.001	0.922	<input type="checkbox"/>
AMW-54A	1097745.50	132769.86	<input checked="" type="checkbox"/>	0.206	0.014	0.490	<input type="checkbox"/>
AMW-55A	1097744.50	132704.05	<input checked="" type="checkbox"/>	0.242	0.076	0.489	<input type="checkbox"/>
AMW-56A	1097844.25	132760.16	<input checked="" type="checkbox"/>	0.370	0.008	0.708	<input type="checkbox"/>
AMW-58	1097533.63	132838.81	<input checked="" type="checkbox"/>	0.777	0.480	1.000	<input type="checkbox"/>
AMW-59	1097015.63	133051.66	<input checked="" type="checkbox"/>	0.239	0.146	0.501	<input type="checkbox"/>
AMW-61	1094367.25	133467.44	<input checked="" type="checkbox"/>	0.263	0.116	0.409	<input type="checkbox"/>
AMW-63	1093510.88	133815.56	<input checked="" type="checkbox"/>	0.841	0.708	1.000	<input type="checkbox"/>
AMW-6A	1098315.50	132581.84	<input checked="" type="checkbox"/>	0.271	0.000	1.000	<input type="checkbox"/>
AMW-7A	1098542.13	132679.81	<input checked="" type="checkbox"/>	0.491	0.000	1.000	<input type="checkbox"/>
AMW-8A	1098555.38	133089.64	<input checked="" type="checkbox"/>	0.296	0.016	0.825	<input type="checkbox"/>

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	X (feet)	Y (feet)	Removable?	Average Slope Factor*	Minimum Slope Factor*	Maximum Slope Factor*	Eliminated?
CPU-12	1095433.88	133157.64	<input checked="" type="checkbox"/>	0.433	0.020	1.000	<input type="checkbox"/>
CPU-13	1094877.75	133397.00	<input checked="" type="checkbox"/>	0.222	0.001	0.758	<input type="checkbox"/>
CPU-14	1096130.75	133152.42	<input checked="" type="checkbox"/>	0.318	0.003	0.753	<input type="checkbox"/>
MW-10B	1097254.00	132970.84	<input checked="" type="checkbox"/>	0.252	0.003	0.713	<input type="checkbox"/>
MW-10C	1097250.75	132971.34	<input checked="" type="checkbox"/>	0.254	0.003	0.679	<input type="checkbox"/>
MW-12C	1097182.25	133074.94	<input checked="" type="checkbox"/>	0.313	0.094	0.773	<input type="checkbox"/>
MW-13C	1097114.13	132873.94	<input checked="" type="checkbox"/>	0.286	0.001	0.697	<input type="checkbox"/>
MW-14C	1097053.75	133070.84	<input checked="" type="checkbox"/>	0.150	0.001	0.513	<input type="checkbox"/>
MW-14E	1097068.38	133032.61	<input checked="" type="checkbox"/>	0.191	0.025	0.593	<input type="checkbox"/>
MW-15E	1096785.25	133249.44	<input checked="" type="checkbox"/>	0.225	0.011	0.438	<input type="checkbox"/>
MW-16E	1096698.50	133044.53	<input checked="" type="checkbox"/>	0.650	0.124	1.000	<input type="checkbox"/>
MW-18D	1096779.50	133113.73	<input checked="" type="checkbox"/>	0.209	0.026	0.524	<input type="checkbox"/>
MW-18E	1096799.50	133118.36	<input checked="" type="checkbox"/>	0.361	0.038	0.721	<input type="checkbox"/>
MW-19D	1096403.13	133254.94	<input checked="" type="checkbox"/>	0.097	0.000	0.502	<input checked="" type="checkbox"/>
MW-1A	1097744.75	132827.19	<input checked="" type="checkbox"/>	0.299	0.023	0.652	<input type="checkbox"/>
MW-20D	1095961.75	133409.30	<input checked="" type="checkbox"/>	0.197	0.002	0.391	<input type="checkbox"/>
MW-21D	1095484.63	133561.14	<input checked="" type="checkbox"/>	0.177	0.003	0.654	<input type="checkbox"/>
MW-22D	1095455.50	133368.55	<input checked="" type="checkbox"/>	0.147	0.001	0.818	<input type="checkbox"/>
MW-23D	1095517.25	133764.77	<input checked="" type="checkbox"/>	0.214	0.065	0.409	<input type="checkbox"/>
MW-25D	1094389.25	133662.33	<input checked="" type="checkbox"/>	0.378	0.001	1.000	<input type="checkbox"/>
MW-26D	1094375.13	133433.91	<input checked="" type="checkbox"/>	0.476	0.014	1.000	<input type="checkbox"/>
MW-27D	1094883.38	133637.58	<input checked="" type="checkbox"/>	0.254	0.007	1.000	<input type="checkbox"/>
MW-2A	1097544.25	132767.69	<input checked="" type="checkbox"/>	0.462	0.146	0.977	<input type="checkbox"/>
MW-31	1093810.00	133700.70	<input checked="" type="checkbox"/>	0.454	0.097	0.832	<input type="checkbox"/>
MW-35	1093675.75	133745.42	<input checked="" type="checkbox"/>	0.396	0.056	1.000	<input type="checkbox"/>
MW-38	1096184.13	133439.30	<input checked="" type="checkbox"/>	0.162	0.020	0.218	<input type="checkbox"/>
MW-3B	1097456.25	132791.05	<input checked="" type="checkbox"/>	0.306	0.082	0.744	<input type="checkbox"/>
MW-41	1093463.88	133848.02	<input checked="" type="checkbox"/>	0.566	0.000	1.000	<input type="checkbox"/>
MW-49	1094376.50	133503.09	<input checked="" type="checkbox"/>	0.231	0.071	1.000	<input type="checkbox"/>
MW-4B	1097458.00	132868.41	<input checked="" type="checkbox"/>	0.443	0.239	0.807	<input type="checkbox"/>
MW-4BSHED	1097459.00	132864.77	<input checked="" type="checkbox"/>	0.243	0.022	0.551	<input type="checkbox"/>
MW-6B	1097380.50	132929.25	<input checked="" type="checkbox"/>	0.137	0.016	0.753	<input type="checkbox"/>
MW-7B	1097465.63	132874.84	<input checked="" type="checkbox"/>	0.271	0.112	0.429	<input type="checkbox"/>
MW-8B	1097500.63	133005.73	<input checked="" type="checkbox"/>	0.204	0.009	0.418	<input type="checkbox"/>
MW-9B	1097327.25	133029.19	<input checked="" type="checkbox"/>	0.143	0.011	0.478	<input type="checkbox"/>
PW-1B	1097467.75	132870.81	<input checked="" type="checkbox"/>	0.227	0.004	0.780	<input type="checkbox"/>

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Well	X (feet)	Y (feet)	Removable?	Average Slope Factor*	Minimum Slope Factor*	Maximum Slope Factor*	Eliminated?
-------------	-----------------	-----------------	-------------------	----------------------------------	----------------------------------	----------------------------------	--------------------

Note: The Slope Factor indicates the relative importance of a well in the monitoring network at a given sampling event; the larger the SF value of a well, the more important the well is and vice versa; the Average Slope Factor measures the overall well importance in the selected time period; the state coordinates system (i.e., X and Y refer to Easting and Northing respectively) or local coordinates systems may be used; wells that are NOT selected for analysis are not shown above.

* When the report is generated after running the Excel module, SF values will NOT be shown above.

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MAROS Zeroth Moment Analysis

Project: Boomsnub/Airco Superfund Site

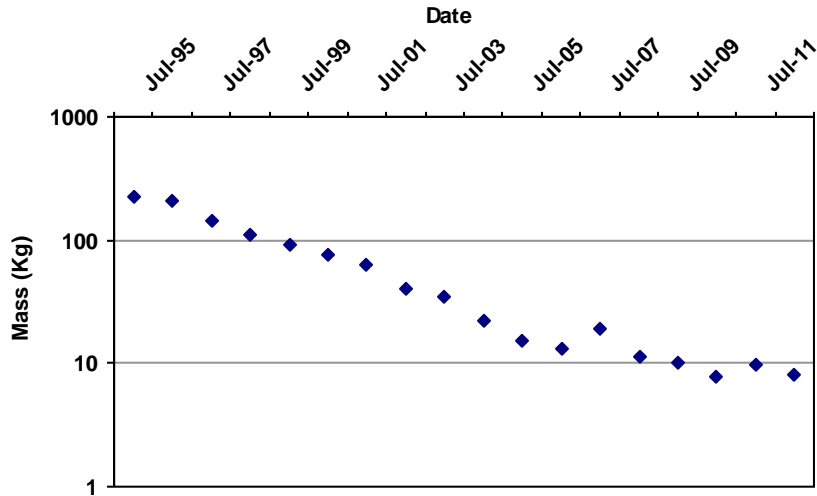
User Name:

Location: Hazel Dell

State: Washington

COC: TRICHLOROETHYLENE (TCE)

Change in Dissolved Mass Over Time



Porosity: 0.30

Saturated Thickness:

Uniform: 65 ft

Mann Kendall S Statistic:

-145

Confidence in Trend:

100.0%

Coefficient of Variation:

1.12

Zeroth Moment Trend:

D

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/1995	TRICHLOROETHYLENE (TCE)	2.2E+02	45
7/1/1996	TRICHLOROETHYLENE (TCE)	2.1E+02	36
7/1/1997	TRICHLOROETHYLENE (TCE)	1.4E+02	48
7/1/1998	TRICHLOROETHYLENE (TCE)	1.1E+02	44
7/1/1999	TRICHLOROETHYLENE (TCE)	9.1E+01	44
7/1/2000	TRICHLOROETHYLENE (TCE)	7.5E+01	40
7/1/2001	TRICHLOROETHYLENE (TCE)	6.2E+01	44
7/1/2002	TRICHLOROETHYLENE (TCE)	4.0E+01	46
7/1/2003	TRICHLOROETHYLENE (TCE)	3.5E+01	50
7/1/2004	TRICHLOROETHYLENE (TCE)	2.2E+01	56
7/1/2005	TRICHLOROETHYLENE (TCE)	1.5E+01	51
7/1/2006	TRICHLOROETHYLENE (TCE)	1.3E+01	56
7/1/2007	TRICHLOROETHYLENE (TCE)	1.9E+01	52
7/1/2008	TRICHLOROETHYLENE (TCE)	1.1E+01	60
7/1/2009	TRICHLOROETHYLENE (TCE)	1.0E+01	57
7/1/2010	TRICHLOROETHYLENE (TCE)	7.7E+00	62
7/1/2011	TRICHLOROETHYLENE (TCE)	9.7E+00	38
7/1/2012	TRICHLOROETHYLENE (TCE)	8.0E+00	60

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect. Moments are not calculated for sample events with less than 6 wells.

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MAROS First Moment Analysis

Project: Boomsnub/Airco Superfund Site

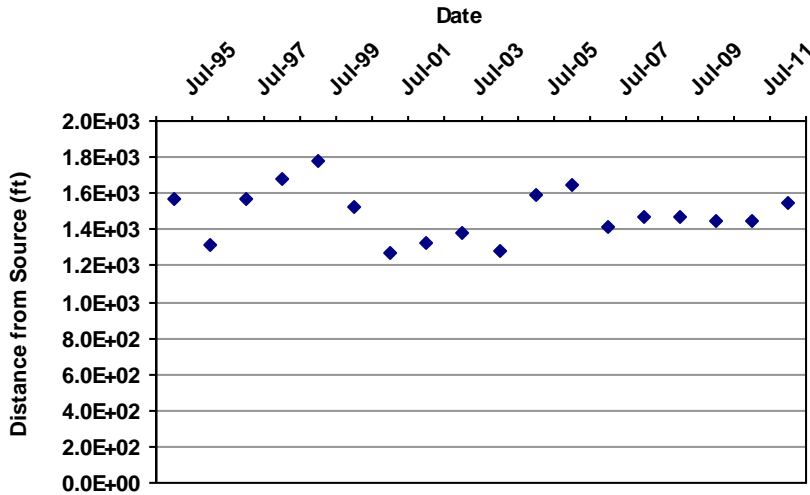
User Name:

Location: Hazel Dell

State: Washington

COC: TRICHLOROETHYLENE (TCE)

Distance from Source to Center of Mass



Mann Kendall S Statistic:

-5

Confidence in Trend:

55.9%

Coefficient of Variation:

0.10

First Moment Trend:

S

Data Table:

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source (ft)	Number of Wells
7/1/1995	TRICHLOROETHYLENE (TCE)	1,096,414	133,291	1,569	45
7/1/1996	TRICHLOROETHYLENE (TCE)	1,096,658	133,225	1,317	36
7/1/1997	TRICHLOROETHYLENE (TCE)	1,096,400	133,261	1,573	48
7/1/1998	TRICHLOROETHYLENE (TCE)	1,096,298	133,271	1,674	44
7/1/1999	TRICHLOROETHYLENE (TCE)	1,096,187	133,286	1,784	44
7/1/2000	TRICHLOROETHYLENE (TCE)	1,096,440	133,231	1,527	40
7/1/2001	TRICHLOROETHYLENE (TCE)	1,096,683	133,161	1,273	44
7/1/2002	TRICHLOROETHYLENE (TCE)	1,096,632	133,179	1,327	46
7/1/2003	TRICHLOROETHYLENE (TCE)	1,096,576	133,187	1,383	50
7/1/2004	TRICHLOROETHYLENE (TCE)	1,096,682	133,171	1,277	56
7/1/2005	TRICHLOROETHYLENE (TCE)	1,096,377	133,229	1,586	51
7/1/2006	TRICHLOROETHYLENE (TCE)	1,096,324	133,276	1,651	56
7/1/2007	TRICHLOROETHYLENE (TCE)	1,096,563	133,256	1,416	52
7/1/2008	TRICHLOROETHYLENE (TCE)	1,096,511	133,253	1,465	60
7/1/2009	TRICHLOROETHYLENE (TCE)	1,096,505	133,246	1,469	57
7/1/2010	TRICHLOROETHYLENE (TCE)	1,096,527	133,257	1,451	62
7/1/2011	TRICHLOROETHYLENE (TCE)	1,096,537	133,263	1,444	38
7/1/2012	TRICHLOROETHYLENE (TCE)	1,096,438	133,290	1,546	60

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

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MAROS First Moment Analysis

Project: Boomsnub/Airco Superfund Site

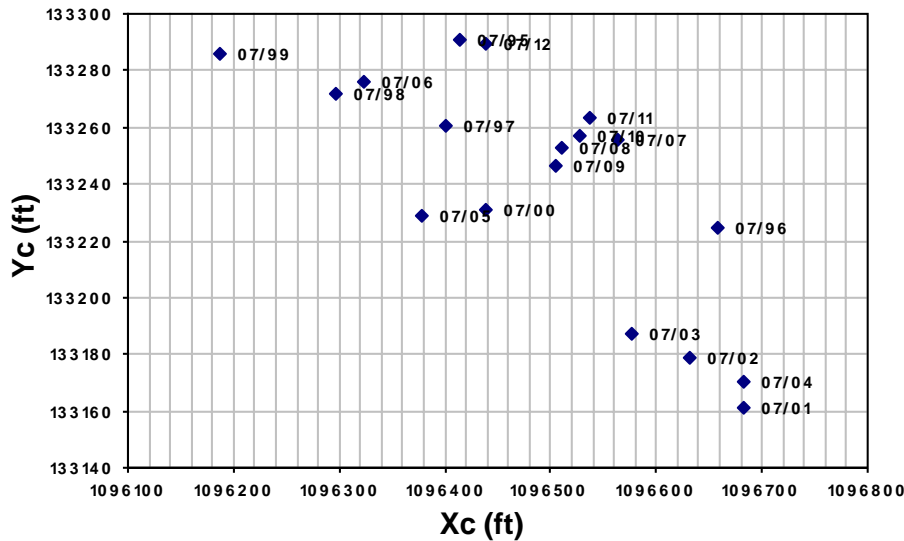
User Name:

Location: Hazel Dell

State: Washington

COC: TRICHLOROETHYLENE (TCE)

Change in Location of Center of Mass Over Time



Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source (ft)	Number of Wells
7/1/1995	TRICHLOROETHYLENE (TCE)	1,096,414	133,291	1,569	45
7/1/1996	TRICHLOROETHYLENE (TCE)	1,096,658	133,225	1,317	36
7/1/1997	TRICHLOROETHYLENE (TCE)	1,096,400	133,261	1,573	48
7/1/1998	TRICHLOROETHYLENE (TCE)	1,096,298	133,271	1,674	44
7/1/1999	TRICHLOROETHYLENE (TCE)	1,096,187	133,286	1,784	44
7/1/2000	TRICHLOROETHYLENE (TCE)	1,096,440	133,231	1,527	40
7/1/2001	TRICHLOROETHYLENE (TCE)	1,096,683	133,161	1,273	44
7/1/2002	TRICHLOROETHYLENE (TCE)	1,096,632	133,179	1,327	46
7/1/2003	TRICHLOROETHYLENE (TCE)	1,096,576	133,187	1,383	50
7/1/2004	TRICHLOROETHYLENE (TCE)	1,096,682	133,171	1,277	56
7/1/2005	TRICHLOROETHYLENE (TCE)	1,096,377	133,229	1,586	51
7/1/2006	TRICHLOROETHYLENE (TCE)	1,096,324	133,276	1,651	56
7/1/2007	TRICHLOROETHYLENE (TCE)	1,096,563	133,256	1,416	52
7/1/2008	TRICHLOROETHYLENE (TCE)	1,096,511	133,253	1,465	60
7/1/2009	TRICHLOROETHYLENE (TCE)	1,096,505	133,246	1,469	57
7/1/2010	TRICHLOROETHYLENE (TCE)	1,096,527	133,257	1,451	62
7/1/2011	TRICHLOROETHYLENE (TCE)	1,096,537	133,263	1,444	38
7/1/2012	TRICHLOROETHYLENE (TCE)	1,096,438	133,290	1,546	60

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events). Moments are not calculated for sample events with less than 6 wells.

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MAROS Second Moment Analysis

Project: Boomsnub/Airco Superfund Site

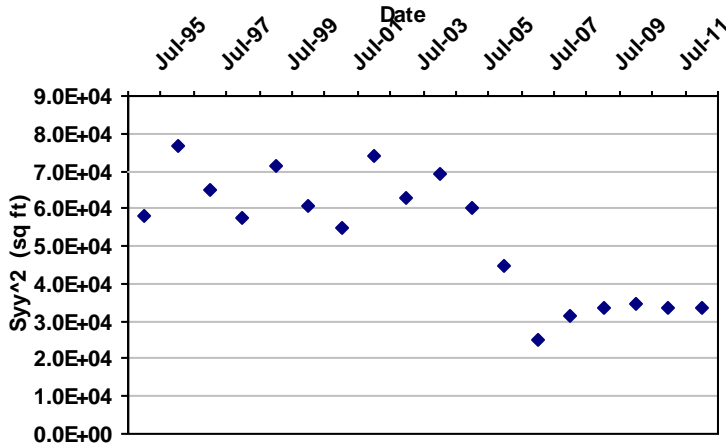
User Name:

Location: Hazel Dell

State: Washington

COC: TRICHLOROETHYLENE (TCE)

Change in Plume Spread Over Time



Mann Kendall S Statistic:

-79

Confidence in Trend:

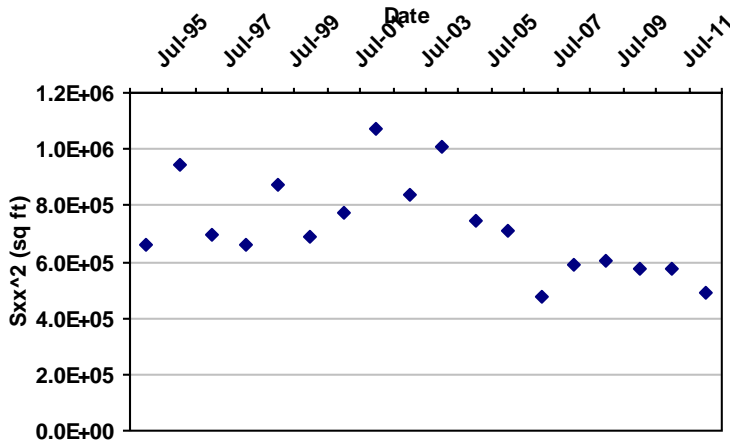
99.9%

Coefficient of Variation:

0.32

Second Moment Trend:

D



Mann Kendall S Statistic:

-63

Confidence in Trend:

99.1%

Coefficient of Variation:

0.24

Second Moment Trend:

D

Data Table:

Effective Date	Constituent	Sigma XX (sq ft)	Sigma YY (sq ft)	Number of Wells
7/1/1995	TRICHLOROETHYLENE (TCE)	658,847	57,884	45
7/1/1996	TRICHLOROETHYLENE (TCE)	941,377	76,506	36
7/1/1997	TRICHLOROETHYLENE (TCE)	693,339	64,987	48
7/1/1998	TRICHLOROETHYLENE (TCE)	657,323	57,309	44
7/1/1999	TRICHLOROETHYLENE (TCE)	871,141	71,237	44
7/1/2000	TRICHLOROETHYLENE (TCE)	690,664	60,939	40
7/1/2001	TRICHLOROETHYLENE (TCE)	776,214	54,803	44
7/1/2002	TRICHLOROETHYLENE (TCE)	1,071,529	73,950	46
7/1/2003	TRICHLOROETHYLENE (TCE)	840,010	62,657	50
7/1/2004	TRICHLOROETHYLENE (TCE)	1,007,936	69,343	56
7/1/2005	TRICHLOROETHYLENE (TCE)	743,184	60,080	51
7/1/2006	TRICHLOROETHYLENE (TCE)	708,210	44,822	56

MAROS Second Moment Analysis

Effective Date	Constituent	Sigma XX (sq ft)	Sigma YY (sq ft)	Number of Wells
7/1/2007	TRICHLOROETHYLENE (TCE)	473,705	24,766	52
7/1/2008	TRICHLOROETHYLENE (TCE)	591,816	31,563	60
7/1/2009	TRICHLOROETHYLENE (TCE)	606,847	33,556	57
7/1/2010	TRICHLOROETHYLENE (TCE)	571,768	34,741	62
7/1/2011	TRICHLOROETHYLENE (TCE)	571,711	33,694	38
7/1/2012	TRICHLOROETHYLENE (TCE)	488,645	33,497	60

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events)

The Sigma XX and Sigma YY components are estimated using the given field coordinate system and then rotated to align with the estimated groundwater flow direction. Moments are not calculated for sample events with less than 6 wells.

MAROS Plume Analysis Summary

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Time Period: 1/19/1995 to 10/24/2012

Consolidation Period: Yearly

Consolidation Type: Geometric Mean

Duplicate Consolidation: Maximum

ND Values: Detection Limit

J Flag Values : Actual Value

Constituent	Well	Source/ Tail	Number of Samples	Number of Detects	Average (mg/L)	Median (mg/L)	All Samples "ND" ?	Mann- Kendall	Linear Regression	Modeling	Empirical
TRICHLOROETHYLENE (TCE)											
	AMW-52A	S	9	7	3.3E-04	1.6E-04	No	PD	D	N/A	N/A
	MW-1A	S	18	18	1.2E+00	9.8E-01	No	D	D	N/A	N/A
	AMW-55A	S	8	8	8.6E-03	1.1E-03	No	NT	D	N/A	N/A
	AMW-54A	S	9	9	3.9E-02	2.1E-03	No	PD	D	N/A	N/A
	AMW-53A	S	10	10	3.9E-02	8.9E-03	No	D	D	N/A	N/A
	AMW-3A	S	17	17	6.2E-03	6.2E-03	No	D	D	N/A	N/A
	AMW-2B	S	13	12	6.0E-04	4.9E-04	No	NT	NT	N/A	N/A
	AMW-2A	S	18	18	1.1E+00	6.1E-01	No	D	D	N/A	N/A
	AMW-26	S	15	13	1.7E-02	5.6E-04	No	D	D	N/A	N/A
	AMW-12A	S	18	18	1.4E+00	4.3E-01	No	D	D	N/A	N/A
	AMW-19A	S	16	16	7.8E-02	4.3E-02	No	D	D	N/A	N/A
	AMW-13A	S	17	15	4.0E-03	1.9E-04	No	NT	NT	N/A	N/A
	AMW-1A	S	18	18	1.4E-01	4.0E-02	No	D	D	N/A	N/A
	CPU-13	T	18	18	1.9E-02	4.2E-03	No	D	D	N/A	N/A
	CPU-12	T	18	18	4.1E-03	3.8E-03	No	NT	I	N/A	N/A
	AMW-8A	T	17	17	8.2E-02	4.0E-02	No	D	D	N/A	N/A
	AMW-7A	T	14	7	2.7E-04	1.9E-04	No	I	I	N/A	N/A
	AMW-6A	T	9	6	3.7E-04	4.3E-04	No	NT	I	N/A	N/A
	AMW-63	T	4	2	1.1E-04	1.2E-04	No	S	S	N/A	N/A
	AMW-61	T	5	5	1.6E-02	6.5E-03	No	D	D	N/A	N/A
	AMW-59	T	7	7	1.3E-01	1.2E-01	No	PD	PD	N/A	N/A
	AMW-58	T	5	4	1.4E-03	8.9E-04	No	D	D	N/A	N/A

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Constituent	Well	Source/ Tail	Number of Samples	Number of Detects	Average (mg/L)	Median (mg/L)	All Samples "ND" ?	Mann- Kendall	Linear Regression	Modeling	Empirical
TRICHLOROETHYLENE (TCE)											
	AMW-42	T	13	13	3.7E-03	1.2E-03	No	D	D	N/A	N/A
	AMW-56A	T	9	9	7.9E-02	2.3E-03	No	PD	D	N/A	N/A
	AMW-10A	T	8	6	2.4E-04	2.5E-04	No	NT	I	N/A	N/A
	AMW-14	T	14	13	2.3E-02	3.4E-03	No	D	D	N/A	N/A
	MW-10C	T	18	18	1.8E-01	7.0E-02	No	D	D	N/A	N/A
	AMW-16	T	17	17	1.9E-02	5.1E-03	No	D	D	N/A	N/A
	AMW-17	T	17	17	2.2E-02	2.7E-03	No	D	NT	N/A	N/A
	AMW-18	T	16	15	8.5E-02	1.1E-03	No	I	I	N/A	N/A
	AMW-27	T	15	15	4.5E-02	5.0E-02	No	D	D	N/A	N/A
	AMW-11A	T	9	7	4.1E-04	4.8E-04	No	NT	I	N/A	N/A
	MW-49	T	13	13	7.4E-03	4.9E-03	No	D	NT	N/A	N/A
	CPU-14	T	18	18	2.5E-02	2.0E-02	No	D	D	N/A	N/A
	MW-2A	T	15	15	6.0E-03	4.7E-03	No	D	D	N/A	N/A
	MW-31	T	14	14	2.7E-03	4.9E-04	No	D	D	N/A	N/A
	MW-35	T	14	14	1.3E-02	5.9E-03	No	D	D	N/A	N/A
	MW-38	T	3	3	9.9E-03	1.0E-02	No	N/A	N/A	N/A	N/A
	MW-26D	T	18	18	9.6E-03	2.7E-03	No	D	D	N/A	N/A
	MW-41	T	13	3	4.5E-04	5.0E-04	No	PD	D	N/A	N/A
	MW-25D	T	18	18	1.5E-02	3.7E-03	No	D	D	N/A	N/A
	MW-4B	T	10	10	5.7E-02	6.6E-03	No	NT	NT	N/A	N/A
	MW-4BSHED	T	8	8	4.1E-02	1.2E-02	No	D	D	N/A	N/A
	MW-6B	T	18	18	1.7E-01	1.3E-01	No	D	D	N/A	N/A
	MW-7B	T	5	5	1.6E-01	1.1E-01	No	D	D	N/A	N/A
	MW-8B	T	9	9	4.9E-01	2.8E-02	No	D	D	N/A	N/A
	MW-9B	T	10	10	3.4E-01	5.8E-02	No	D	D	N/A	N/A
	MW-3B	T	10	10	9.5E-03	7.6E-03	No	D	D	N/A	N/A
	MW-18D	T	18	18	9.0E-01	3.0E-01	No	D	D	N/A	N/A
	PW-1B	T	18	18	1.5E-01	6.5E-02	No	D	D	N/A	N/A
	MW-12C	T	17	17	7.9E-01	4.9E-02	No	D	D	N/A	N/A
	MW-13C	T	17	17	8.8E-03	5.8E-03	No	D	D	N/A	N/A
	MW-14C	T	18	18	2.5E-01	6.0E-02	No	D	D	N/A	N/A
	MW-14E	T	18	18	9.0E-01	2.2E-01	No	D	D	N/A	N/A
	MW-27D	T	18	18	4.4E-02	3.6E-03	No	D	D	N/A	N/A
	MW-16E	T	12	10	2.3E-03	1.9E-03	No	NT	NT	N/A	N/A

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

Constituent	Well	Source/ Tail	Number of Samples	Number of Detects	Average (mg/L)	Median (mg/L)	All Samples "ND" ?	Mann- Kendall	Linear Regression	Modeling	Empirical
TRICHLOROETHYLENE (TCE)											
	MW-10B	T	18	18	1.0E-01	4.9E-02	No	D	D	N/A	N/A
	MW-18E	T	17	17	6.3E-01	3.2E-01	No	D	D	N/A	N/A
	MW-19D	T	18	18	3.9E-01	8.9E-02	No	D	D	N/A	N/A
	MW-20D	T	18	18	8.4E-01	1.7E-01	No	D	D	N/A	N/A
	MW-21D	T	18	18	2.8E-01	4.1E-02	No	D	D	N/A	N/A
	MW-22D	T	18	18	7.5E-02	4.3E-02	No	D	D	N/A	N/A
	MW-23D	T	18	18	1.6E-02	7.2E-03	No	D	D	N/A	N/A
	MW-15E	T	13	13	1.4E-01	1.7E-02	No	D	D	N/A	N/A

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); Source/Tail (S/T)

The Number of Samples and Number of Detects shown above are post-consolidation values.

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