2011 Annual Status Report
for the Boomsnub/Airco Superfund Site
Hazel Dell, Washington

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AFCEE	Air Force Center for Environmental Excellence
Boomsnub	Boomsnub Corporation
CAS	Columbia Analytical Services
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
City	City of Vancouver
COV	Coefficient of variation
1,1-DCE	1,1-Dichloroethene
DPT	Direct push technique
EA	EA Engineering, Science, and Technology, Inc.
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ft	Feet
GAC	Granular activated carbon
IWS	In-well stripping
LTMP	Long-Term Monitoring Plan
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
TOC	Total organic carbon
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 2011 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.

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 an air stripper system to remove TCE and other volatile contaminants from groundwater. The OU-3 system continues to remove chromium from the extracted groundwater using an ion-exchange system. VOCs are removed from the extracted groundwater using air stripping with granular activated carbon (GAC) 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 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. Additional investigation of the Northern Plume area was performed in 2011. The source of this plume is unknown; however, it does not appear to be due to activities on the Boomsnub or Linde properties.

2011 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 98 percent of the reporting period.

The system has removed more than 95% of the mass of TCE since system start-up, as measured in October 2010, the last time a comparable set of wells was measured. The system has reached asymptotic removal rates, and TCE concentrations have not been significantly reduced in the last 3 years. Since 2009, TCE concentrations have remained relatively similar, with fluctuations slightly above, then slightly below cleanup levels for all wells except MW-12A and MW-2A, which have remained above cleanup levels in that time frame. However, since system start up, TCE concentrations have decreased 97% in AMW-12A and 95% in AMW-2A. Since contaminant concentrations have barely changed in the last 3 years, it is recommended that the system be shut down, but not decommissioned. Contaminant concentrations will continue to be monitored.

2011 OU-3 System Operations

During 2011, 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 2011 and Fall 2011. 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) version 2.2, 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 2011 annual screening of the groundwater monitoring data, the following conclusions have been made:

- No modifications to system operations are necessary at this time.
- Several changes to sampling frequencies are recommended based on the results of the MAROS evaluation and on the qualitative review. The majority of these sampling frequency changes are for wells that monitor the offsite Northern Plume area.

Status of 2011 Recommendations

In order to meet the operating objectives for OU-2 and OU-3, planned activities for 2011 were recommended in the 2010 Annual Status report. The status of these planned activities is summarized below:

- **System modifications on Church of God property** – Wells on the Church of God property were sampled at the frequencies recommended in the 2010 Annual Status Report. Chromium and TCE concentrations in groundwater from most of the extraction wells in the current toe-of-plume area (on Church of God property) are below the Site cleanup levels. An evaluation to determine if changes to pumping rates or discontinuation of pumping of additional wells were appropriate in this area was planned for 2011; however, this task was delayed due to temporary pumping rate adjustments made in Intermediate grouping wells in the vicinity of the Northern Plume.
- **Discontinue Toe-of-Plume Pilot Study (TOPPS) Sampling** – Sampling of wells in the TOPPS treatment area was discontinued, as recommended in the 2010 Annual Status Report.
- **Toe of Plume hotspots** – The use of an *in situ* treatment for reducing contamination in the MW-35 and AMW-27 areas, similar to that used in the successful TOPPS program, was planned to be evaluated in 2011. This evaluation has been delayed until 2012.
- **Continue to work on obtaining easements and access agreements.** Although no additional agreements were recorded in 2011, negotiations are underway with several property owners.
- **Well modifications on the Clark County property** – Decommissioning of two unused wells (AMW-22 and SW-1) on the Clark County sports field property was conducted on 8 March 2011 prior to the start of construction. Monitoring wells remaining on the sports field property were modified as needed, to accommodate changes in the land elevation. Additional unused Site monitoring wells (MW-28, MW-29, MW-36 and CPU-16) on the Chapman/Holtgrieve (parcel no. 144718.000) and Bonneville Power Administration properties were also decommissioned at the same time, with EPA approval.

- **Continue to cooperate with EPA on investigation of the Northern Plume –** In May 2011, EA performed a field investigation in the Northern Plume area using direct push techniques (DPT) to collect groundwater samples from 17 locations. Based on the results of the investigation, EPA requested installation and sampling of a new monitoring well in the DPT17 location to monitor VOC concentrations in groundwater in the area. EA submitted a draft work plan for installing a new Northern Plume well in late 2011 (finalized in January 2012; EA 2012a).

- **Wells were sampled in accordance with the updated sampling schedule.**

Recommendations and Planned Activities for 2012

The following activities are planned for the 2012 reporting period:

- **New Northern Plume Well** – As requested by EPA, a new well will be installed in the Northern Plume area in order to gain more information on the status of the plume. The new well will be sampled quarterly along with Northern Plume wells AMW-17 and AMW-18 (EA 2012a).
- **System modifications on Church of God property** – Chromium and TCE concentrations in groundwater from most of the extraction wells in the current toe-of-plume area (on Church of God property) are below the Site cleanup levels. An evaluation will be performed to determine if changes to pumping rates or discontinuation of pumping wells in this area is appropriate. The Site groundwater model will be used to evaluate the impact of proposed extraction system pumping rate changes on groundwater flow and contaminant capture.
- **Toe of Plume hotspots** – The use of an *in situ* treatment, similar to that used in the successful TOPPS program, will be evaluated for reducing contamination in the MW-35 and AMW-27 areas.
- **Continue to work on obtaining easements and access agreements.**
- **Sample wells in accordance with the updated sampling schedule.**
- **Survey well elevations on the Clark County property** – Construction of the sports fields is nearing completion. Monitoring wells remaining on the sports field property were modified to accommodate changes in the land elevation. Well elevations will be re-surveyed in early 2012.

- **IWS System Rebound Testing** – The system has removed more than 95% of the mass of TCE since system start-up, as measured in October 2010, the last time a comparable set of wells was measured and the system has reached asymptotic removal rates. Since contaminant concentrations have barely changed in the last 3 years, it is recommended that the system be shut down, but not decommissioned. Contaminant concentrations will continue to be monitored for potential rebound.

1. INTRODUCTION

This Annual Status Report summarizes information on activities that took place during 2011 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. There are two distinct contaminant areas of points, one for VOCs and one for chromium. 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. 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). Linde has conducted numerous site investigations, performed groundwater treatment, and conducted a removal action on their property at OU-2. Additionally, 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.

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 (GAC) 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; EPA 2000) 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. The remediation goals include the reduction of total chromium in groundwater to 80 micrograms per liter (μg/L) and the reduction of TCE to below 5 μg/L.

An Action Memorandum, dated September 2001 (EPA 2001), was issued by EPA identifying the requirements for remediation activities for OU-2. 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. Additional investigation of the Northern Plume area was performed in 2011 (EA 2011i). 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 the activities for OU-2 and OU-3 at the Site. The reporting period is 1 January through 31 December 2011.

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, as defined in the ROD (EPA 2000), include the following:

- Reduce contaminant migration within the alluvial aquifer (expansion of the plumes).
- Continue mass removal activities.
- Reduce contaminant migration into the Troutdale aquifer.

The operating objectives for the OU-3 system are to limit the potential for impacted groundwater to migrate beyond current limits and to maximize mass removal. Activities at the Site are designed to meet these overall objectives.

1.4 Organization of this Document

This report is divided into 8 sections and 3 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 conclusions and presents recommendations and planned activities for 2012.
- 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. The historical maximum concentration detected in each well sampled is also 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; C-2 contains additional chromium Monitoring and Remediation Optimization System (MAROS) outputs; and C-3 contains additional TCE MAROS outputs.

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 2011. 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 system is presented in the Progress Reports (EA 2011e and EA 2011h) which are submitted on a semiannual basis.

Since startup, the system has been running 24 hours per day, with the exception of downtime to perform routine maintenance activities. The system was in operation over 98 percent of the reporting period, exceeding the 90 percent availability specified in the CD. Minimal periods of down time 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 2011e and EA 2011h).

2.2 IWS System Monitoring

To monitor the IWS System performance, groundwater samples were collected from OU-2 monitoring wells in Spring and Fall 2011. The samples were submitted to Columbia Analytical Services (CAS) of Kelso, Washington and analyzed for VOCs using EPA Method 8260C.

Table 1 presents the TCE data from OU-2 wells sampled during the 2011 reporting period and includes data from 2010 for comparison purposes. During 2011, groundwater samples from five out of the six wells sampled had TCE concentrations above the cleanup level of 5 µg/L during the Fall sampling event: AMW-1A, AMW-2A, AMW-12A, AMW-53A, and MW-1A. The TCE concentrations from the five wells increased from the Spring 2011 sampling event. TCE concentrations were the highest in groundwater from well AMW-2A at 55 µg/L during the Fall sampling event. TCE concentrations in groundwater from well AMW-12A have never been below the cleanup level and, the TCE concentration in well MW-1A dropped below the cleanup level for the first time during Spring 2011. Concentrations in wells AMW-1A, AMW-53A, and MW-1A were below the cleanup level during Spring 2011 (1.7 µg/L, 0.86 µg/L and 4.8 µg/L respectively) but were above the cleanup level during Fall 2011 (44 µg/L, 6 µg/L, and 5.2 µg/L respectively). 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-56A	AMW-54, **MW-1A**
IWS-4	**AMW-12A,** AMW-56A, **AMW-2A**, AMW-2B	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-52A, **AMW-53A**

Notes: **Bolded** wells had TCE concentrations above the cleanup level of 5 µg/L in 2011. Not all of these wells were sampled during 2011.

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 2011. 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 2011e and EA 2011h) submitted to EPA twice a year. Pumping rates were temporarily decreased with EPA approval in several extraction wells closest to the Northern Plume in an effort to reduce potential impacts to Site remediation from that offsite plume. In May 2011, an investigation was jointly performed by EA and EPA in an effort to determine the extent and concentration of VOCs in groundwater in the Northern Plume area, and to allow evaluation of potential impacts to Site remedial activities. Following performance of the investigation, EPA required that pumping rates in these wells be set to contain the target capture zone. The following wells had reduced pumping rates from April through August 2011: MW-19D, MW-20D, and MW-21D. Pumping rates in these wells have been increased as directed by EPA.

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 93 percent and the air stripper system an average TCE removal rate of approximately 98 percent.

3.1.2.2 Linde Infiltration Gallery

Treated groundwater from the Site treatment system is discharged back into the alluvial aquifer through the infiltration gallery. The 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 2011 were 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 2011e and EA 2011h).

3.2 System Performance

OU-3 system performance for 2011 is provided on the following table.

Month	Hours/Month	Hours of Operation/Month	Availability	Flow
January	744	740.14	99.48%	7,119,637
February	672	665.93	99.10%	6,415,188
March	744	713.61	95.91%	6,941,436
April	720	708.65	98.42%	6,743,201
May	744	744.00	100.00%	6,591,577
June	720	712.72	98.99%	6,276,833
July	744	650.40	87.42%	5,510,495
August	744	728.41	97.91%	6,391,648
September	720	718.63	99.81%	6,575,576
October	744	744.00	100.00%	6,932,254
November	720	709.81	98.59%	6,587,484
December	744	744.00	100.00%	6,942,775
2011 Availability	**8760**	**8580.30**	**97.95%**	**79,028,104**

3.2.1 Water Treated

During the reporting period, 79,028,104 gallons of groundwater were treated and discharged to the Linde infiltration gallery.

3.2.2 System Availability

The treatment system was operational for 8,580 hours, or approximately 98 percent of the reporting period, exceeding the 90 percent requirement of the CD. The availability ranged from 87 percent in July to 100 percent in May, October and December. The percent availability includes actual minutes of operation and scheduled down time. Details are provided in the Progress Reports (EA 2011e and EA 2011h).

3.2.3 Mass Removal

The following table presents cumulative chromium and TCE removed in 2011, along with monthly influent and effluent 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	7,119,637	64.9	21.0	3.9	1.2	22,234.9	2,164.9
February	6,415,188	57.9	20.0	3.1	1.1	22,238.0	2,165.9
March	6,941,436	61.7	20.0	3.6	1.2	22,241.6	2,167.1
April	6,743,201	57.3	20.0	3.2	1.1	22,244.8	2,168.2
May	6,591,577	54.8	17.0	3.0	0.9	22,247.8	2,169.1
June	6,276,833	51.0	17.0	2.7	0.9	22,250.5	2,170.0
July	5,510,495	48.1	14.0	2.2	0.6	22,252.7	2,170.7
August	6,391,648	49.3	14.0	2.6	0.7	22,255.4	2,171.4
September	6,575,576	47.2	14.0	2.6	0.8	22,258.0	2,172.2
October	6,932,254	53.2	20.0	3.1	1.2	22,261.0	2,173.4
November	6,587,484	49.9	17.0	2.7	0.9	22,263.8	2,174.3
December	6,942,775	52.1	16.0	3.0	0.9	22,264.1	2,175.2

On the basis of measured influent and effluent concentrations and the total monthly treatment system flow, approximately 36 pounds of chromium and 12 pounds of TCE were removed by the groundwater extraction and treatment system during 2011. This brings the cumulative total mass of chromium and TCE removed to approximately 22,264 and 2,175 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. 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 2011, following the EPA approval of the associated QASP addenda (EA 2011a and EA 2011f). The semiannual sampling events were conducted as planned and no significant issues or problems were encountered.

Groundwater samples were submitted to CAS 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 is collected to determine the groundwater flow direction and gradient. During both semiannual events in 2011, 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 2011 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 2011 were generally about three feet lower than those measured in Spring 2011, reflecting the seasonal variation in rainfall. In the deeper, semiconfined Troutdale aquifer, the groundwater elevations measured in Fall 2011 were generally a foot or less higher than those measured in Spring 2011.

The horizontal gradients for the alluvial and Troutdale aquifers were determined using data from the Fall 2011 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 0.005 ft/ft. The flow direction within the alluvial aquifer is generally to the west-northwest.

For 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 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 2011. 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 (LTMP; EA 2007) and subsequent updates. The sampling schedule is reviewed and updated annually. The sampling schedule for 2011 was presented in the 2010 Annual Status Report (EA 2011c). More detailed presentations of the groundwater monitoring data are provided in the Spring and Fall Semiannual Groundwater Monitoring reports (EA 2011g and EA 2012b).

The MAROS software was used to perform an annual screening of groundwater monitoring data for the Site, as described in Section 6. Data used for the review were those collected from 1995 through the end of 2011. Results from this screening were used in conjunction with professional judgment to evaluate the need for changes to the well sampling frequencies for 2012.

Table 3 presents the 2011 well sampling frequencies along with the recommended changes for 2012. Also included in Table 3 are well construction details, historic maximum concentrations of TCE and chromium in each well (using data from 1995 through 2011), 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 well sampling results obtained in 1995 and Fall 2011, 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 2011 are presented in Appendices A-1 and B-1 respectively. The highest concentration of chromium during the 2011 reporting period was detected in the sample collected from well MW-4A (741 µg/L), located within the chromium source area, during the Fall 2011 sampling event. The highest concentration of TCE was detected in the sample collected from well MW-18E (170 µg/L) during the Fall 2011 event. Wells with 2011 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 2011 are provided along with results from the prior reporting period for comparison purposes. In the following tables, analytical results shown in bold are above the cleanup level of 5 µg/L. For duplicate samples, the highest of the two results is reported.

4.2.2 Alluvial Aquifer

4.2.2.1 Upgradient Wells

The Upgradient wells are located on the eastern half of the Linde property, east (upgradient) of the TCE source area (Figure 9). Four wells monitoring the infiltration gallery are also included in this area. Only one well in this grouping was sampled during the reporting period. Well AMW-8A was sampled for TCE in Fall 2011 and the concentration was below the cleanup level.

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. The OU-2 analytical results for the 2011 reporting period are presented on the following table.

TCE Source Well TCE Concentrations, in µg/L				
Well ID	**Spring 2010**	**Fall 2010**	**Spring 2011**	**Fall 2011**
AMW-1A	0.95	2.8	1.7	**44**
AMW-2A	**91**	**29**	**18**	**55**
AMW-12A	**31**	**29**	**30**	**38**
AMW-19A	1.2	1.7	NS	1.5
AMW-53A	**10**	**11**	0.86	**6**
MW-1A	**11**	**7.9**	4.8	**5.2**

Five wells had TCE concentrations above the cleanup level of 5 µg/L during the 2011 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.

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 and were sampled during both the Spring and Fall 2011 sampling events.

Chromium

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

Proximal Well Chromium Concentrations, in µg/L				
Well	**Spring 2010**	**Fall 2010**	**Spring 2011**	**Fall 2011**
MW-2A	NS	**192**	NS	**81.3**
MW-3A	NS	**135**	NS	**342**
MW-4A	NS	**625**	NS	**741**
MW-4B	NS	**616**	NS	**617**
MW-6B	31.7	28.2	50.9	18.0
MW-10B	49.3	45.2	46.4	34.7
MW-10C	**89.3**	67.2	**99.9**	70.0
PW-1B	74.6	52.9	46.8	61.9

The chromium concentration decreased significantly in groundwater from well MW-2A and increased in the groundwater samples from wells MW-3A and MW-4A since Fall 2010. However, fluctuations of this magnitude are typical for these wells. 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. Chromium concentrations in well MW-10C tend to fluctuate above and below the cleanup level of 80 µg/L. Historically, chromium concentrations in groundwater from wells in this area have fluctuated, with an overall decreasing trend.

TCE

During the reporting period, TCE concentrations were above the 5 µg/L cleanup level in groundwater samples collected from two wells, as presented on the following table.

Proximal Well TCE Concentrations, in µg/L				
Well	**Spring 2010**	**Fall 2010**	**Spring 2011**	**Fall 2011**
MW-2A	NS	2.1	NS	1.7
MW-4B	NS	**5.9**	NS	4.6
MW-6B	**6.1**	4.7	4.5	4.2
MW-10B	**19.0**	**18.0**	**21.0**	**18.0**
MW-10C	3.5	3.6	3.6	3.3
PW-1B	3.3	2.8	3.1	2.9

TCE concentrations were below the cleanup level in the groundwater sample from well MW-4B for the first time since Spring 1996. TCE concentrations in extraction well MW-10B remained above the cleanup level during the reporting period. Historically, TCE concentrations in groundwater samples from this area have been on an overall decreasing trend.

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 2011 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 three wells, as presented on the following table.

Chromium concentrations remained above the cleanup level in groundwater samples from wells MW-18D and MW-19D. Notably, the Fall event was the first time the chromium concentration in extraction well MW-14C fell below the cleanup level. Chromium concentrations in groundwater samples from wells in this area remained relatively constant or decreased in comparison to previous sampling results. Historically, chromium concentrations in groundwater from wells in this area have been on a decreasing trend.

Intermediate Well Chromium Concentrations, in µg/L				
Well	**Spring 2010**	**Fall 2010**	**Spring 2011**	**Fall 2011**
CPU-14	NS	52.9	NS	41.4
MW-14C	**101**	**94.7**	**91.9**	77.0
MW-14E	49.6	54.7	57.1	48.3
MW-18D	**166**	**161**	**133**	**128**
MW-18E	NS	2.8 UJ	NS	4.6 J
MW-19D	**150**	**143**	**140**	**126**
MW-20D	**83.4**	76.7	75.3	78.1

TCE

During the reporting period, TCE concentrations were above the 5 µg/L cleanup level in groundwater samples collected from twelve wells, as presented on the following table.

Intermediate Well TCE Concentrations, in µg/L				
Well	**Spring 2010**	**Fall 2010**	**Spring 2011**	**Fall 2011**
AMW-16	NS	1.7	NS	1.6
CPU-14	NS	**7.7**	NS	**5.4**
MW-14C	**20.0**	**22.0**	**24.0**	**15.0**
MW-14E	**73.0**	**76.0**	**83.0**	**78.0**
MW-15E	**7.9**	**6.0**	**5.5**	**5.1**
MW-18D	**62.0**	**66.0**	**63.0**	**52.0**
MW-18E	NS	**130**	NS	**170**
MW-19D	**30.0**	**34.0**	**34.0**	**32.0**
MW-20D	**41.0**	**43.0**	**50.0**	**58.0**
MW-38	NS	**12.0**	**11.0**	**9.8**
PZ-39	NS	**97.0**	**56.0**	**56.0**
AMW-17	1.1	**28.0**	**29.0**	**140**
AMW-18	**200**	**130**	**75.0**	**68.0**

With the exception of wells MW-18E and MW-20, TCE concentrations in groundwater samples from wells in this area remained relatively constant or decreased in comparison to previous sampling results. TCE concentrations in well MW-18E tend to fluctuate somewhat. The TCE concentration in groundwater from extraction well MW-20D has been slowly increasing since Spring 2010; the reason for this is unknown. In general, TCE concentrations have been on a decreasing trend in groundwater samples collected from these wells.

Sampling in this area also included two monitoring wells (AMW-17 and AMW-18) which monitor the Northern Plume. The TCE concentration in groundwater from well AMW-17 increased significantly, indicating the apparent continued migration of the Northern Plume to this

well. Additional discussion of the Northern Plume is provided in the Fall 2011 Semiannual Report (EA 2012b).

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 2011 sampling events (AMW-27, CPU-13, MW-21D, MW-22D, MW-25D, MW-26D, and MW-49).

Chromium

Chromium was not detected above the 80 µg/L cleanup level in any of the groundwater samples collected during 2011 from Church of God wells, as presented on the following table.

Church of God Well Chromium Concentrations, in µg/L				
Well	**Spring 2010**	**Fall 2010**	**Spring 2011**	**Fall 2011**
AMW-14	55.8	55.0	NS	39.6
AMW-27	55.9	49.3	46.7 J	38.6
CPU-13	19.7	20.1	18.8	18.4
MW-21D	16.3	16.1	13.5	12.8
MW-22D	49.9	50.6	44.0	35.9
MW-25D	3.4 J	3.7 J	2.1 J	5.0 U
MW-26D	12.0	12.1	7.6	10.7
MW-27D	6.9	8.6	NS	5.7
MW-49	18.3	17.4	11.9	11.9

TCE

During the reporting period, TCE concentrations were above the 5 µg/L cleanup level in groundwater samples collected from three wells, as presented on the following table.

Church of God Well TCE Concentrations, in µg/L				
Well	**Spring 2010**	**Fall 2010**	**Spring 2011**	**Fall 2011**
AMW-14	0.9 UJ	0.85 UJ	NS	0.64
AMW-27	**16.0**	**16.0**	**15.0**	**14.0**
CPU-12	NS	2.8	NS	3.5
CPU-13	1.6	1.6	1.8	1.5
MW-21D	**7.3**	**7.0**	**7.3**	**6.2**
MW-22D	**7.9**	**8.0**	**8.4**	**6.5**
MW-23D	NS	1.9	NS	1.6
MW-25D	1.2	1.3	1.3	1.5

Well	Spring 2010	Fall 2010	Spring 2011	Fall 2011
MW-26D	0.85	0.78	0.79	0.72
MW-27D	0.58	0.63	NS	0.63
MW-49	2.4	1.8	1.7	1.4

TCE concentrations remain above the cleanup level in groundwater samples from wells AMW-27, MW-21D and MW-22D. Historically, chromium and TCE concentrations in groundwater samples collected from wells in this area have been on a decreasing trend.

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. Two Other Toe wells were sampled during the reporting period, as presented on the following table.

Toe of Plume Well Chromium and TCE Concentrations, in µg/L				
Well	**Spring 2010**	**Fall 2010**	**Spring 2011**	**Fall 2011**
Chromium				
MW-35	30.6	28.8	NS	16.5
MW-41	NS	5.0 U	NS	5.0 U
TCE				
MW-35	**5.3**	**6.3**	NS	**5.4**
MW-41	NS	0.50 U	NS	0.50 U

With one exception, chromium and TCE concentrations in groundwater samples collected from the Other Toe wells were below the cleanup levels in 2011. The TCE concentration in well MW-35 was slightly above the 5 µg/L cleanup level in Fall. 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 three Troutdale aquifer wells, including the Bennett private well, during the Fall 2011 event. TCE and chromium concentrations are presented on the following table.

Troutdale Aquifer Well Concentrations, in µg/L				
Well	**Spring 2010**	**Fall 2010**	**Spring 2011**	**Fall 2011**
Chromium				
AMW-24	NS	2.7 J	NS	3.5 J
BENNETT	5.0 U	5.0 U	5.0 U	5.0 U
MW-33	NS	3.3 J	NS	2.8 J
TCE				
AMW-24	NS	**13.0**	NS	**12.0**
BENNETT	**10.0**	**8.6**	4.0	**6.2**
MW-33	NS	**14.0**	NS	**13.0**

Chromium concentrations were below the reporting limit in all three wells sampled. TCE concentrations in groundwater exceeded the 5 µg/L cleanup level in all three wells. The TCE concentration in the Bennett private well was below the 5 µg/L cleanup level for the first time in Spring 2011, but was above the cleanup level during Fall 2011(6.2 µg/L). Historically, TCE concentrations in groundwater from these three wells have fluctuated somewhat but generally have remained above the cleanup level. Concentrations detected in 2011 are similar to those reported for the past several years.

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. Other VOCs with concentrations 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 sampling event for TCE and other VOCs that 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	MW-14E	78	3.5
	MW-18E	170	14
	MW-19D	32	1.5
	MW-20D	58	3.8
	PZ-39	56	4.2
Northern Plume	AMW-17	140	1.0
Church of God	MW-21D	6.2	1.1
Troutdale	AMW-24	12	1.7
	MW-33	13	1.6
Cleanup or Guidance Level		5	1

5. OTHER ACTIVITIES

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

5.1 Access Agreements and Easements

Per the CD, EA continued pursuing access agreements and easements for non-Linde owned properties with the purpose of gaining access to conduct activities related to the CD. These agreements will comply with the requirements of Sections 25 and 26 of the CD (EPA 2007a). No additional agreements were recorded in 2011; however, negotiations are underway with several property owners. EA has requested help from, and continues to work with, EPA to gain access agreements from non-responsive property owners.

5.2 HydraSleeve™ Evaluation

Six monitoring wells (AMW-14, CPU-14, MW-2A, MW-4B, MW-18E, and MW-35) were sampled using both HydraSleeve™ passive groundwater samplers and low-flow sampling techniques to evaluate the possible future use of HydraSleeve™ samplers for groundwater monitoring at the Site. Results for the HydraSleeve™ samples will be reported separately.

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 operations and maintenance 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.

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6. ANNUAL SCREENING OF GROUNDWATER MONITORING DATA

This section summarizes the fourth 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. 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 2011 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 2010 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 it also includes 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. If MAROS 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 ranged 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 0.093 at well MW-19D, the MAROS evaluation determined that MW-19D was redundant for TCE. 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 2011 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 will not have

sufficient data for the Mann-Kendall evaluation to output a trend and MAROS will indicate that the well concentration has no trend.

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.

The Mann-Kendall trends for TCE and chromium are presented in Table C-1. For wells with Mann-Kendall trends that were increasing or possibly increasing, graphs of the data were reviewed. 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.

Although an overall increasing trend is indicated for well AMW-18 (Table C-1), TCE concentrations in this well have been on a decreasing trend since they peaked in early 2008 (460 µg/L in January and May). TCE contamination in well AMW-18 is related to the Northern Plume and is separate from the OU-3 plume (EA 2011i). No system modifications are recommended based on the presence of this offsite plume.

6.3 Termination

"Termination", in this annual screening process, refers to the termination (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. With the exception of TCE Source wells, only wells that were classified as attained for both chromium and TCE were considered statistically below cleanup levels based on the MAROS definition. TCE Source wells only need to be statistically below cleanup levels for TCE, since the area is upgradient of the chromium plume and not monitored for chromium.

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, these wells will continue to be sampled to monitor potential impacts of the use of the infiltration gallery.

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 a well cluster. Well clusters may include wells with designations of A, B, C, D, and E. These alphabetical designations represent different well screen depths. 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 a few cases, one 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 (2011) sampling frequency for each well, along with the MAROS recommended sampling frequency. These were evaluated for each well and sampling frequency recommendations for 2012 were determined using professional judgment. Recommended changes to the sampling frequencies (2012 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 C-3.

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 (2010) Annual 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. This data is 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.

The recommended monitoring frequency for several wells near the north boundary of the OU-3 plume was changed based on the use of the wells for monitoring of the offsite Northern Plume.

Two monitoring wells are currently impacted by TCE in the Northern Plume; AMW-17 and AMW-18. EPA has requested quarterly monitoring of these two wells, along with semiannual monitoring of downgradient well AMW-16 (EA 2012a).

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 2011 annual screening of the groundwater monitoring data, the following conclusions are made:

- No modifications to system operations are necessary at this time.

- TCE and chromium concentrations in groundwater from well MW-41 have been found to be statistically below the cleanup level.

- Several changes to sampling frequencies are recommended based on the results of the MAROS evaluation and on the qualitative review. The majority of these sampling frequency changes are for wells that monitor the offsite Northern Plume area. 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 C-3.

7. RECOMMENDATIONS AND PLANNED ACTIVITIES

The following sections summarize activities conducted in the 2011 reporting period, as well as recommendations and planned activities for 2012.

7.1 Status of 2011 Recommendations

In order to meet the operating objectives for OU-2 and OU-3, planned activities for 2011 were recommended in the 2010 Annual Status report. The status of these planned activities is summarized below:

- **System modifications on Church of God property** – Wells on the Church of God property were sampled at the frequencies recommended in the 2010 Annual Status Report. Chromium and TCE concentrations in groundwater from most of the extraction wells in the current toe-of-plume area (on Church of God property) are below the Site cleanup levels. An evaluation to determine if changes to pumping rates or discontinuation of pumping at additional wells in this area was appropriate was planned for 2011; however, this evaluation was delayed due to temporary pumping rate adjustments made in Intermediate grouping wells in the vicinity of the Northern Plume.
- **Discontinue TOPPS Sampling** – Sampling of the TOPPS wells was discontinued, as recommended in the 2010 Annual Status Report. However, wells AMW-63 and MW-41, in the TOPPS area, will continue to be sampled every 5 years.
- **Toe of Plume hotspots** – The use of an *in situ* treatment for reducing contamination in the MW-35 and AMW-27 areas, similar to that used in the successful TOPPS program, was planned to be evaluated in 2011. This evaluation has been delayed until 2012.
- **Continue to work on obtaining easements and access agreements.** Although no additional agreements were recorded in 2011, negotiations are underway with several property owners.
- **Well modifications on the Clark County property** – Decommissioning of two unused wells (AMW-22 and SW-1) on the Clark County sports field property was conducted on 8 March 2011 prior to the start of construction. Monitoring wells remaining on the sports field property were modified as needed, to accommodate changes in the land elevation. Additional unused Site monitoring wells (MW-28, MW-29, MW-36 and CPU-16) on the Chapman/Holtgrieve (parcel no. 144718.000) and Bonneville Power Administration properties were also decommissioned at the same time, with EPA approval (EA 2011b and 2011d).
- **Continue to cooperate with EPA on investigation of the Northern Plume –** In May 2011, EA performed a field investigation in the Northern Plume area using direct push techniques (DPT) to collect groundwater samples from 17 locations (EA 2011i). Based on the results of the investigation, the EPA requested installation and sampling of a new monitoring well in the DPT17 location to monitor VOC concentrations in groundwater in

the area. EA submitted a draft work plan for installing a new Northern Plume well in late 2011 (finalized in January 2012; EA 2012a).

- **Wells were sampled in accordance with the updated sampling schedule.**

7.2 Recommendations and Planned Activities for 2012

The following activities are planned for the 2012 reporting period:

- **New Northern Plume Well** – As requested by EPA, a new monitoring well will be installed in the Northern Plume area in order to gain more information on the status of the plume. The new well will be sampled quarterly along with Northern Plume wells AMW-17 and AMW-18 (EA 2012a).
- **System modifications on Church of God property** – Chromium and TCE concentrations in groundwater from most of the extraction wells in the current toe-of-plume area (on Church of God property) are below the Site cleanup levels. An evaluation will be performed to determine if changes to pumping rates or discontinuation of pumping wells in this area is appropriate. The Site groundwater model will be used to evaluate the impact of proposed extraction system pumping rate changes on groundwater flow and contaminant capture.
- **Toe of Plume hotspots** – The use of an *in situ* treatment, similar to that used in the successful TOPPS program, will be evaluated for reducing contamination in the MW-35 and AMW-27 areas.
- **Continue to work on obtaining easements and access agreements.**
- **Sample wells in accordance with the updated sampling schedule.**
- **Survey well elevations on the Clark County property** – Construction of the sports fields is nearing completion. Monitoring wells remaining on the sports field property were modified to accommodate changes in the land elevation. Well elevations will be re-surveyed in early 2012.
- **IWS System Rebound Testing** – The system has removed more than 95% of the mass of TCE since system start-up, as measured in October 2010, the last time a comparable set of wells was measured. The system has reached asymptotic removal rates, and TCE concentrations have not been significantly reduced in the last 3 years. Since 2009, TCE concentrations have remained relatively similar, with fluctuations slightly above and below cleanup levels for all wells except MW-12A and MW-2A, which have remained above cleanup levels during that time frame. However, since system start up, TCE concentrations have decreased 97% in AMW-12A and 95% in AMW-2A. Since contaminant concentrations have barely changed in the last 3 years, it is recommended that the system be shut down, but not decommissioned. Contaminant concentrations will continue to be monitored for potential rebound.

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FIGURES

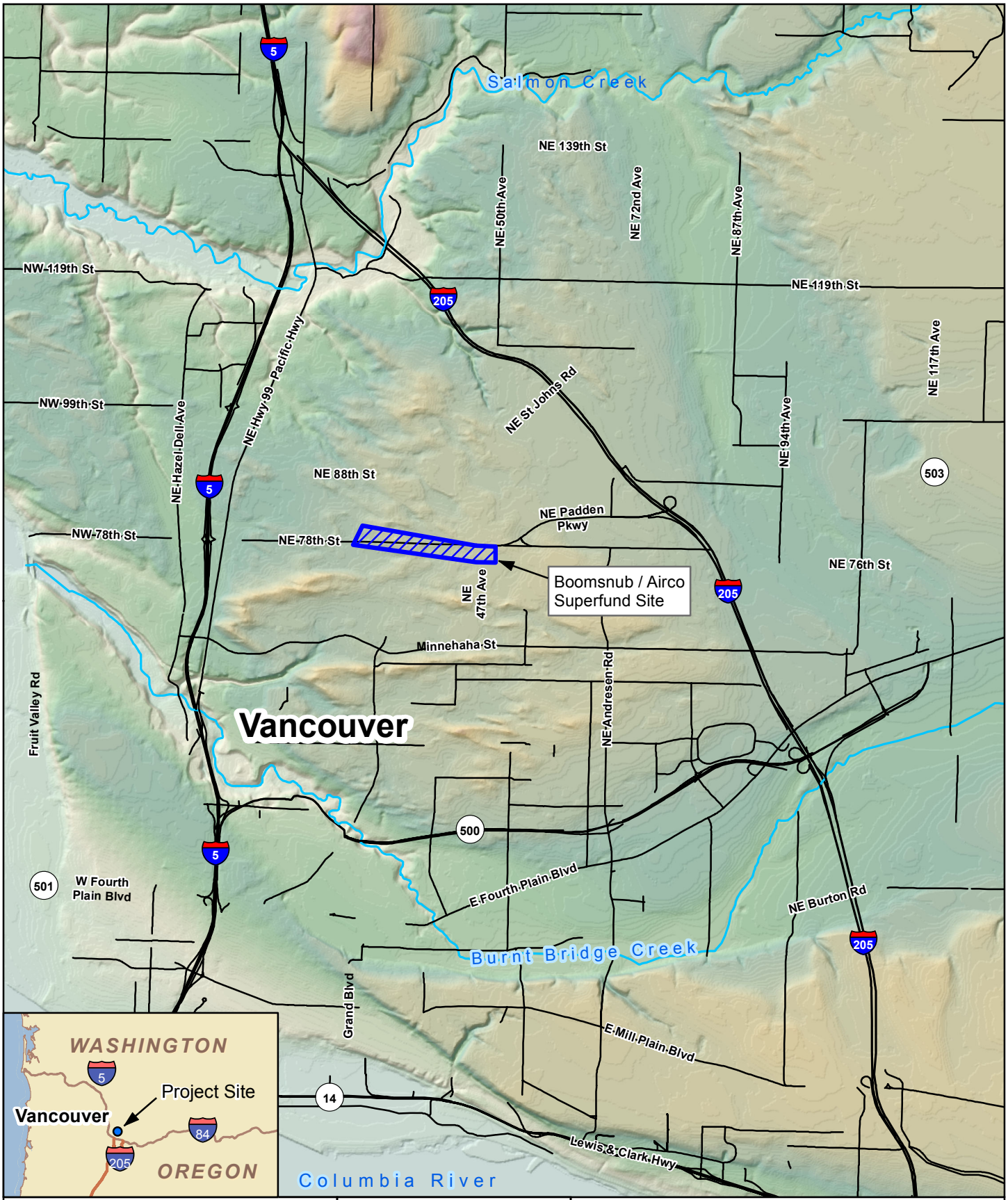

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FIGURE 1
SITE LOCATION MAP

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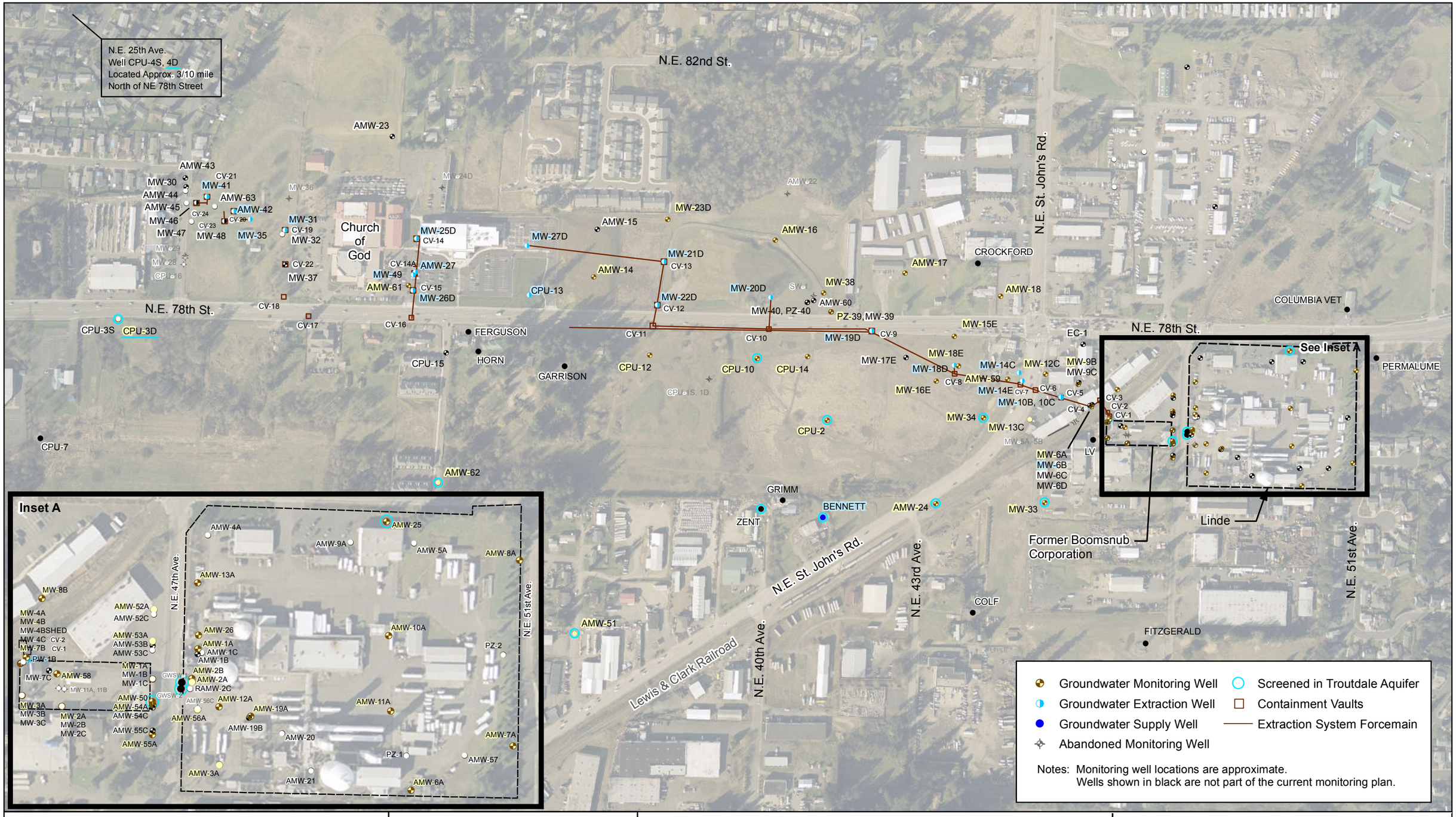

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FIGURE 2
MONITORING AND EXTRACTION WELL NETWORK

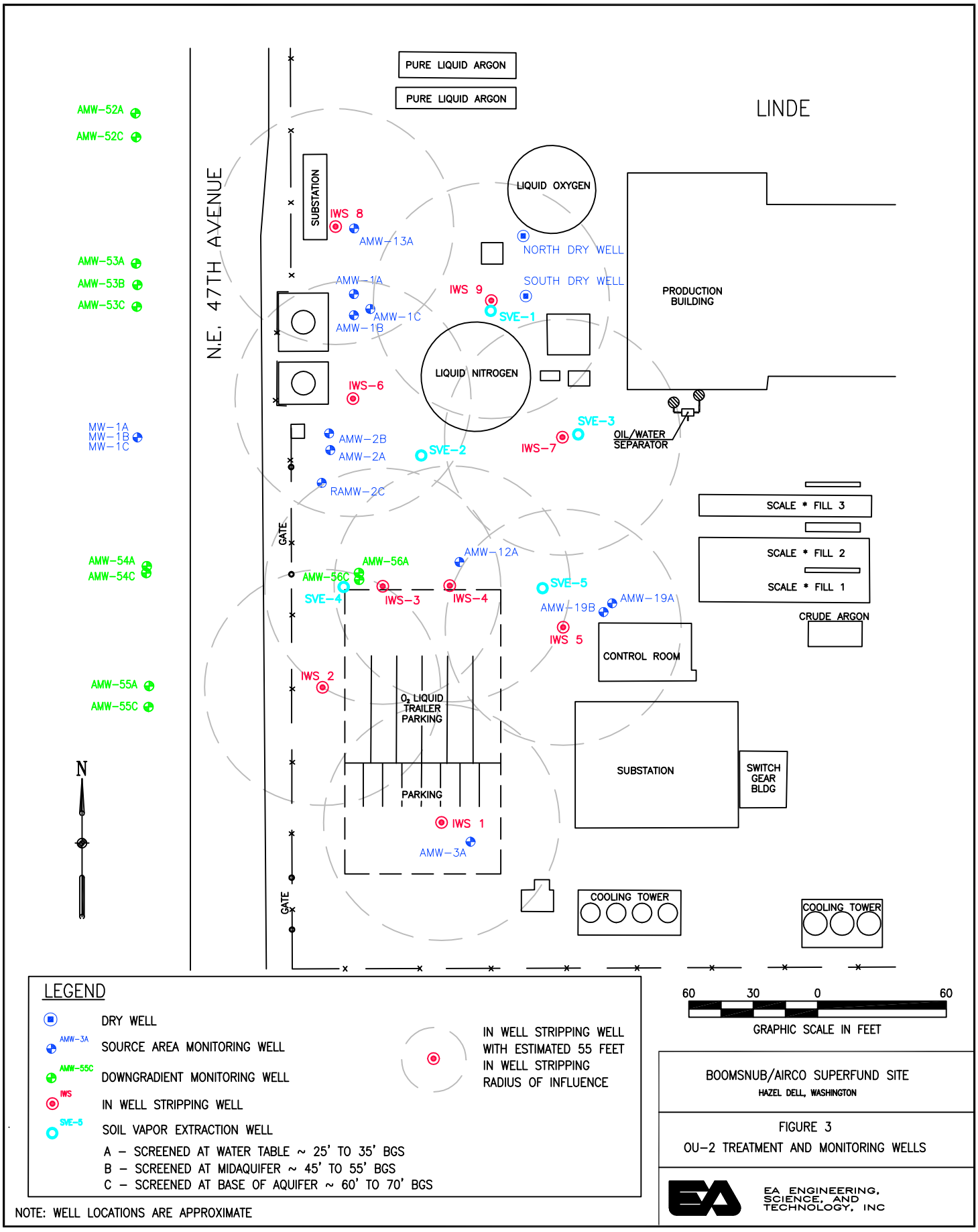

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FIGURE 3
OU-2 TREATMENT AND MONITORING WELLS

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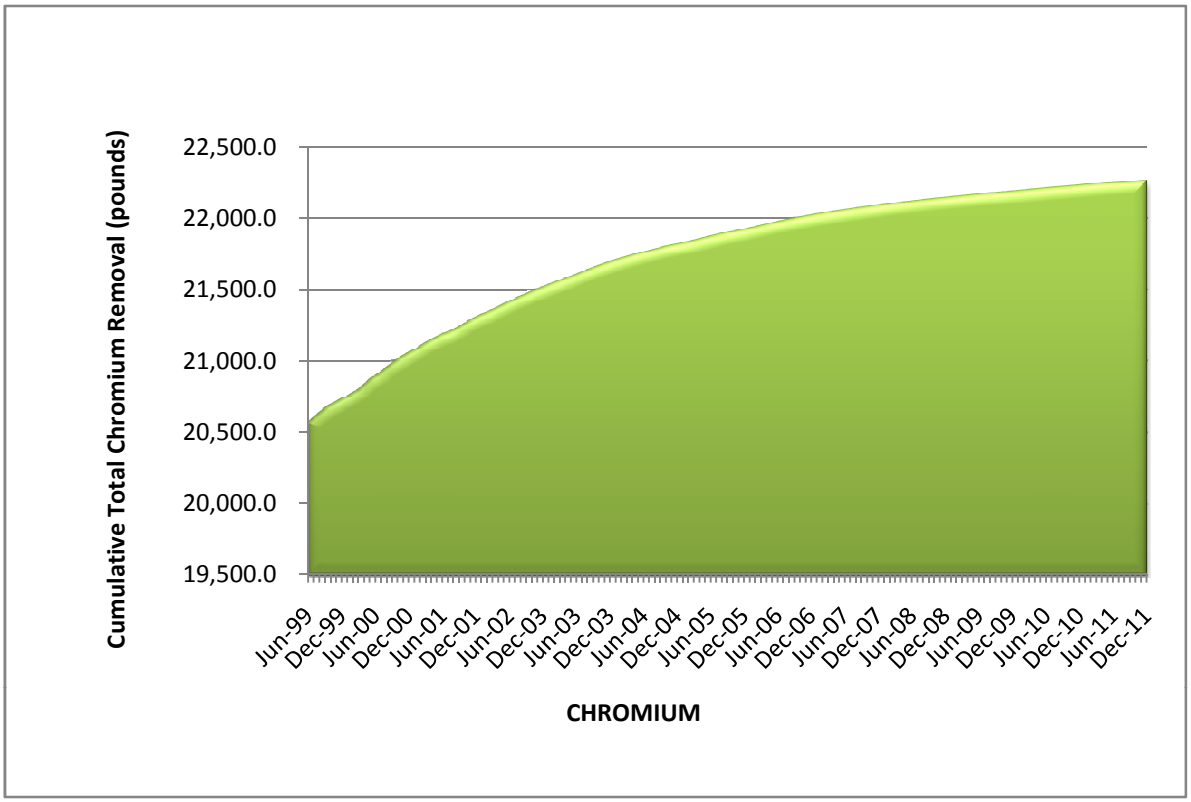
FIGURE 4. CUMULATIVE REMOVAL OVER TIME



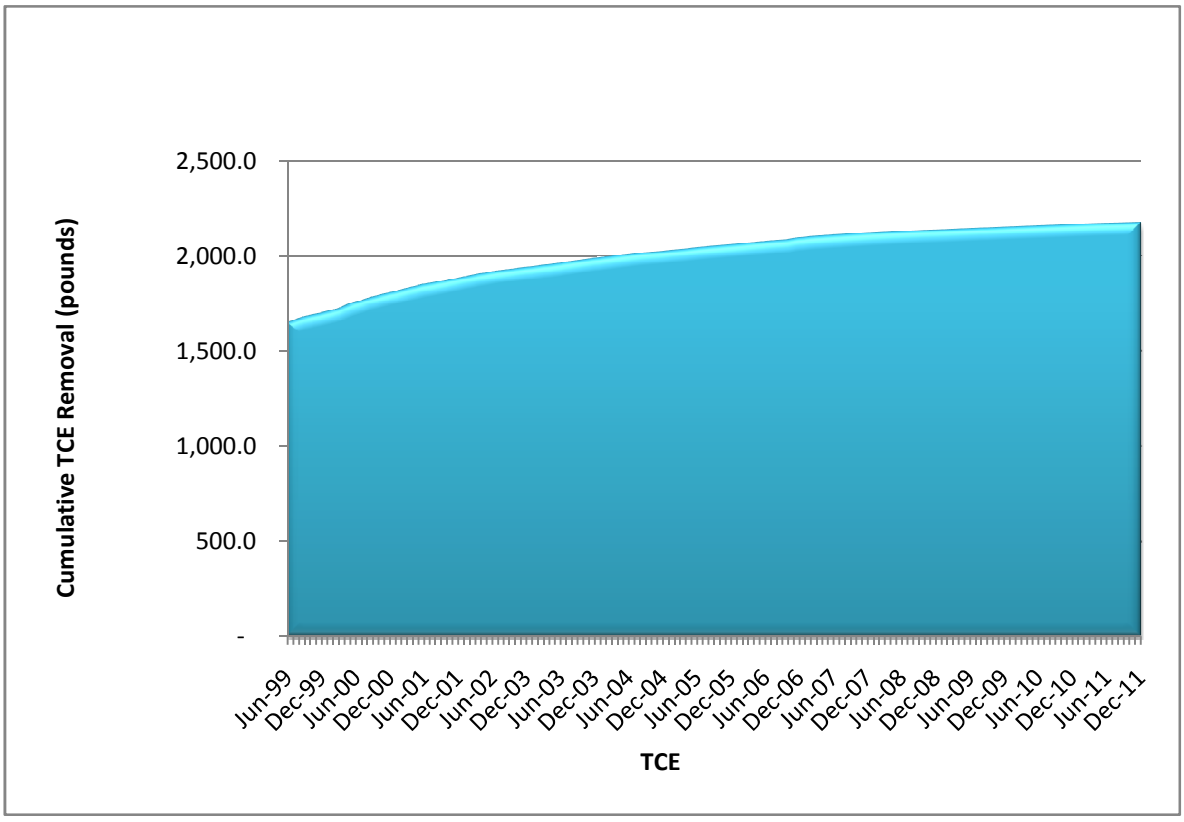
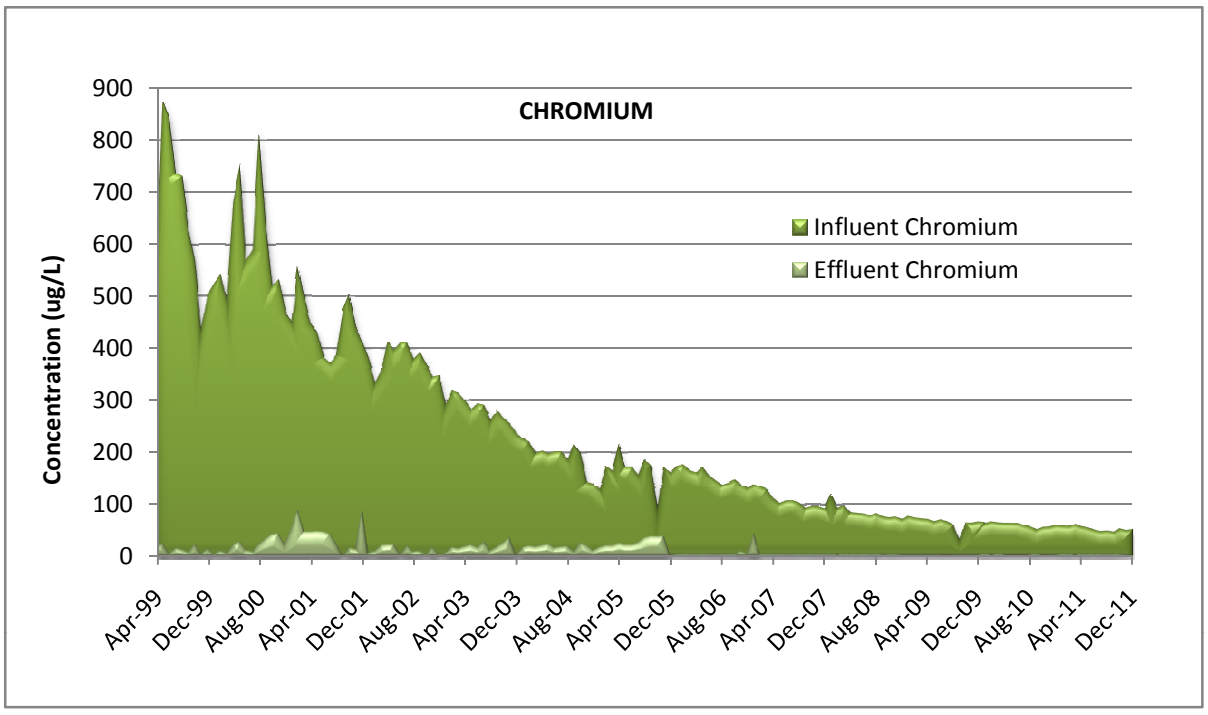


FIGURE 5. INFLUENT AND EFFLUENT CONCENTRATIONS OVER TIME



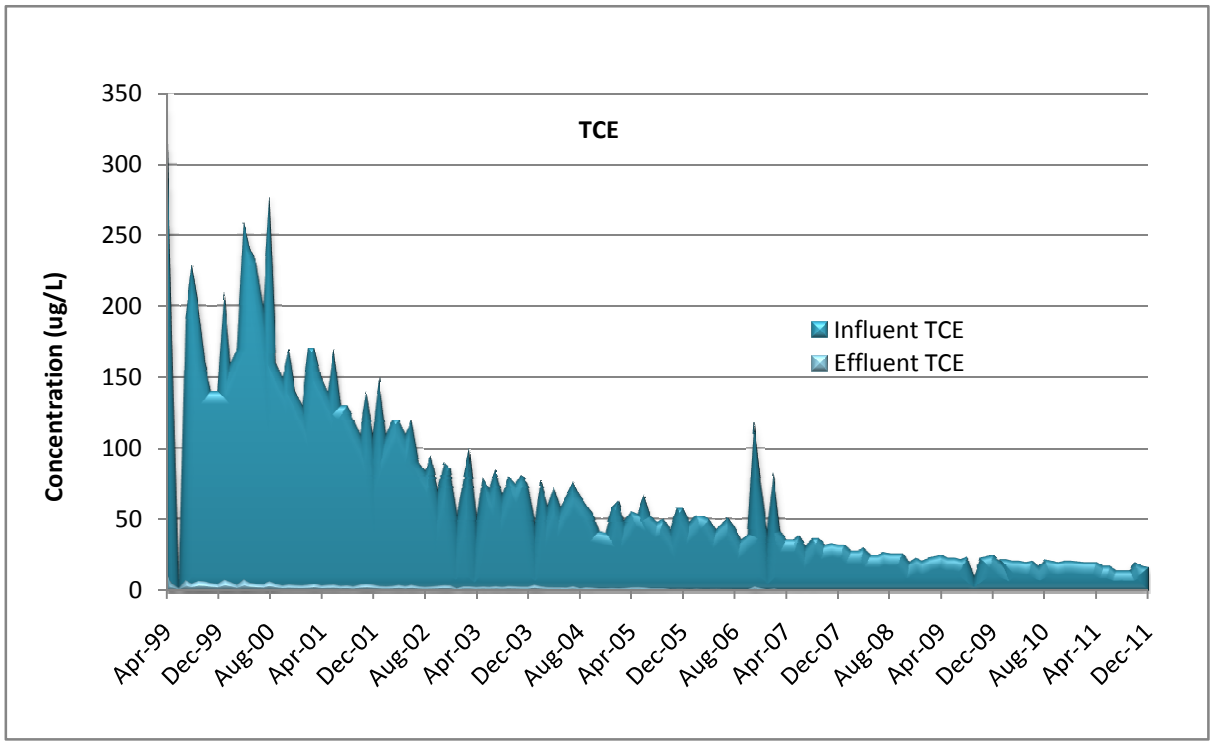
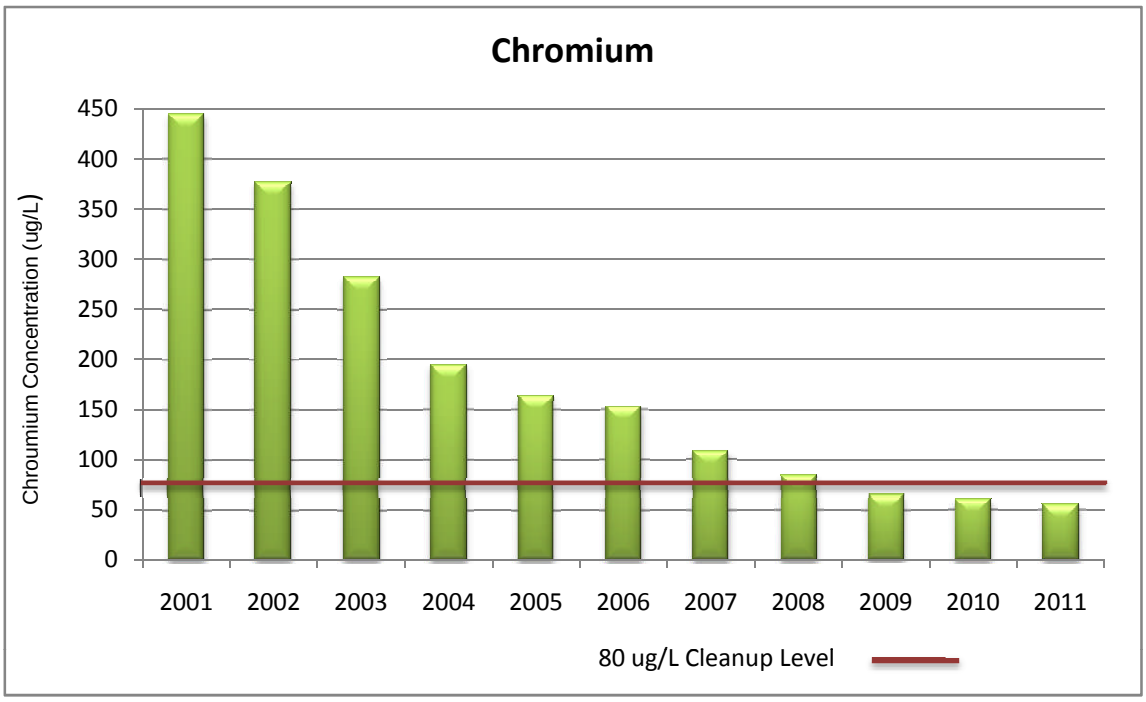
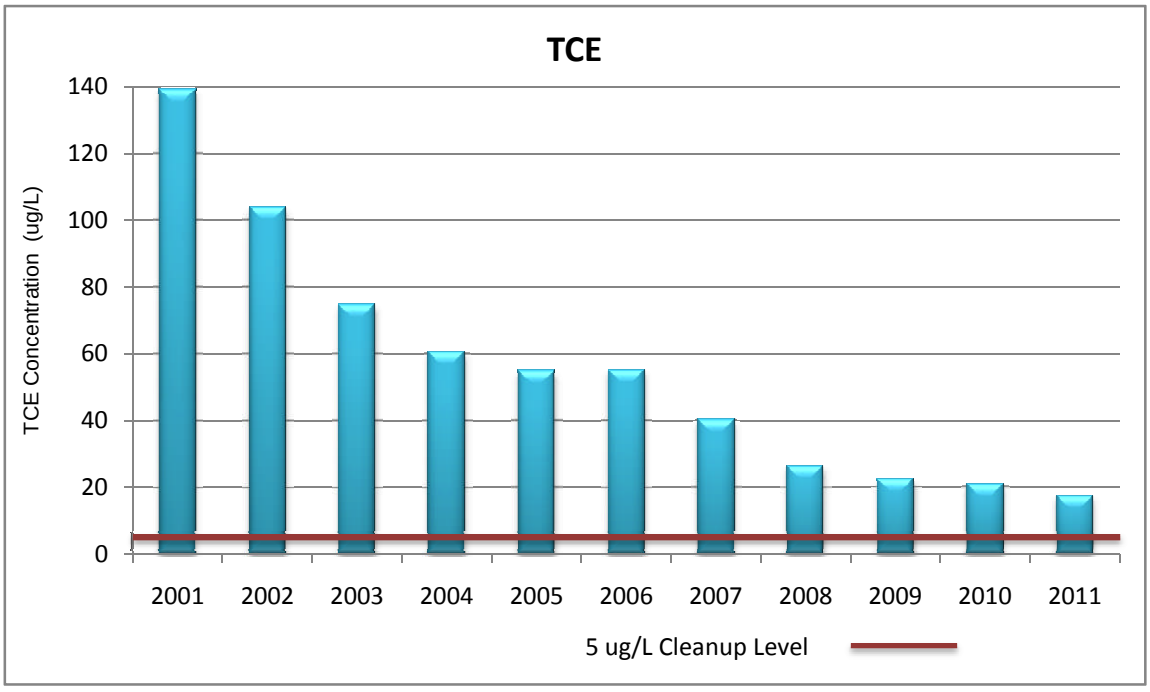


FIGURE 6. INFLUENT CONCENTRATIONS OVER TIME





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

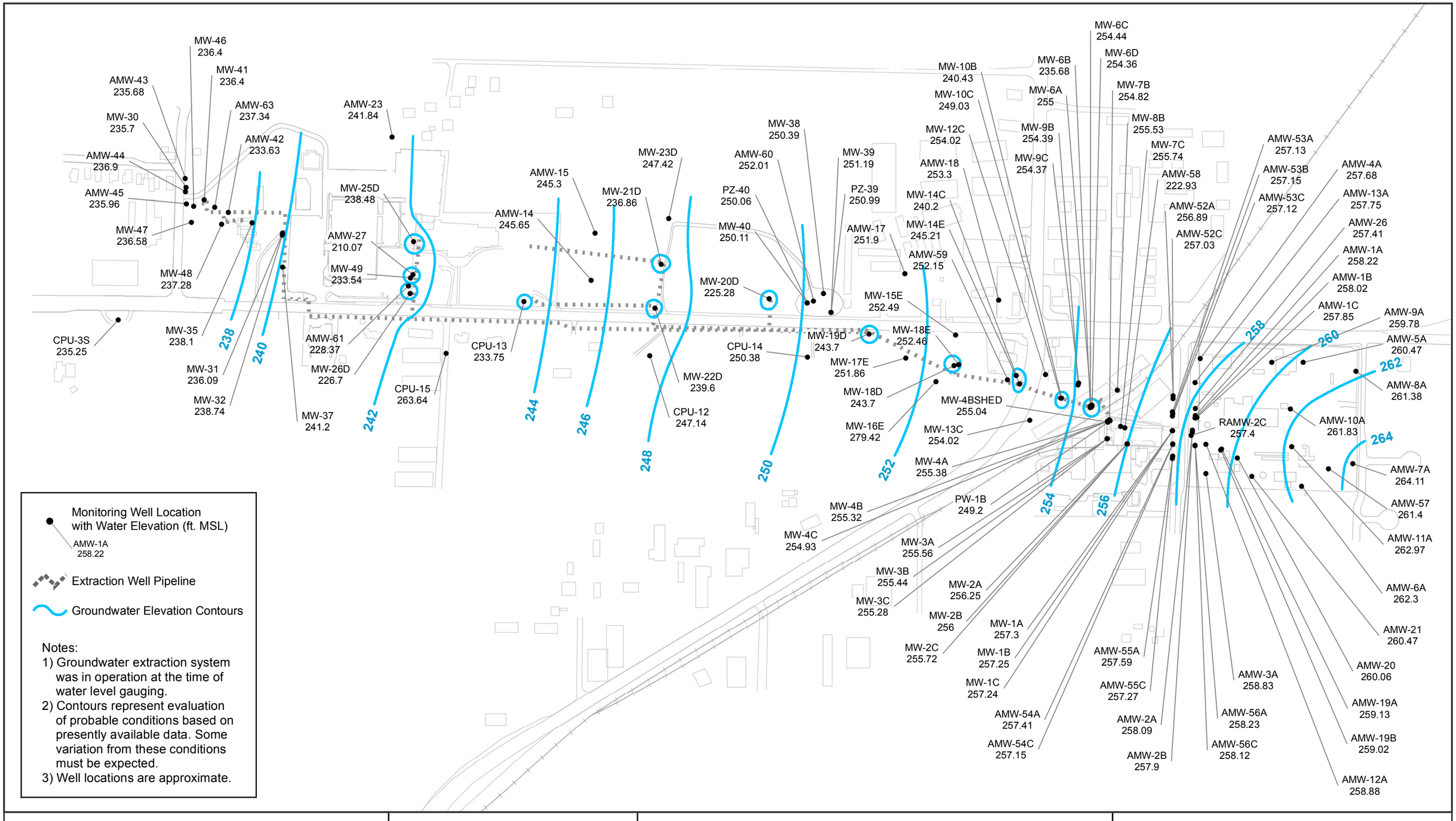


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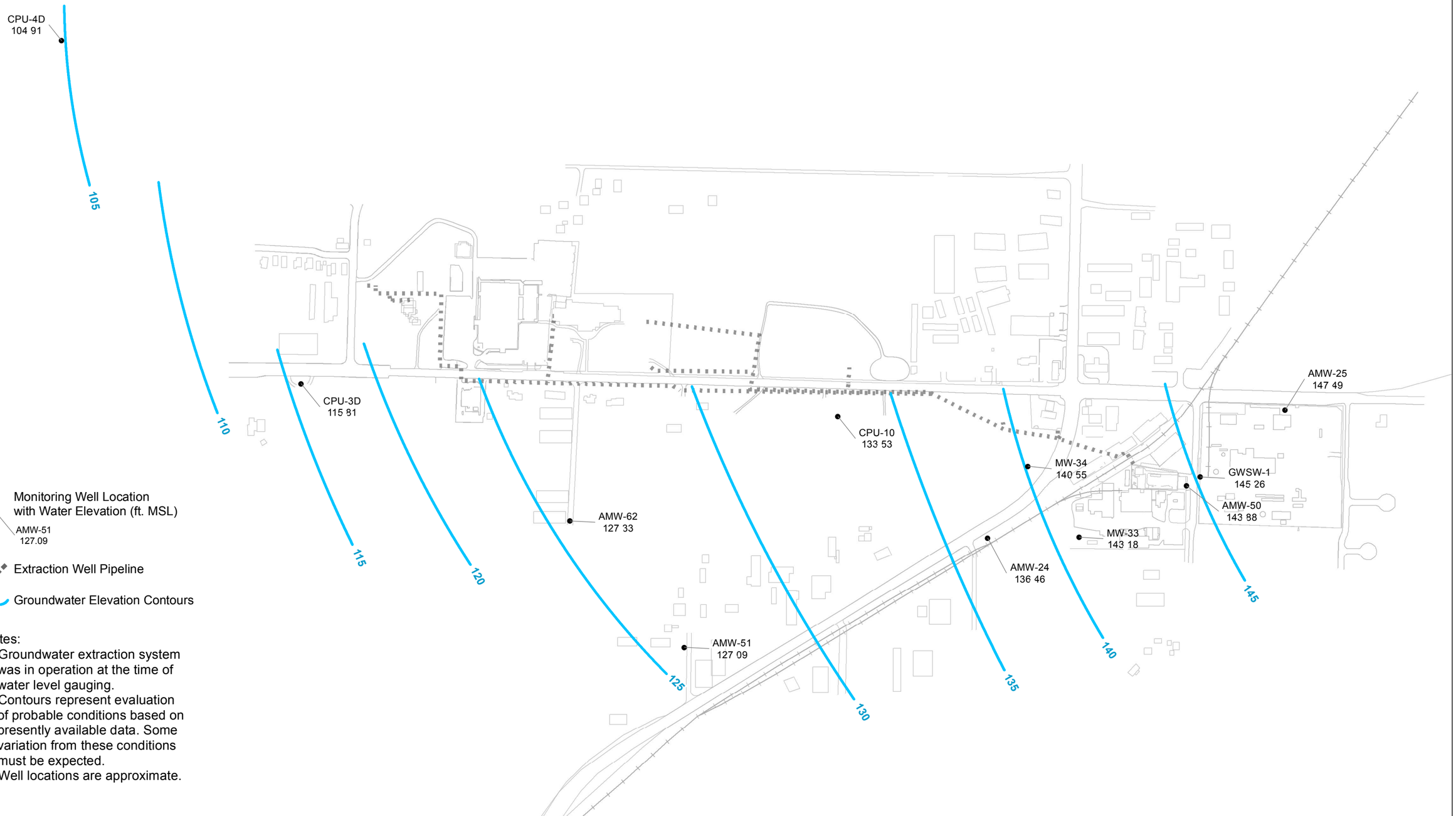
FIGURE 7
ALLUVIAL AQUIFER GROUNDWATER CONTOURS
FALL 2011



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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FIGURE 8
TROUTDALE AQUIFER GROUNDWATER CONTOURS
FALL 2011

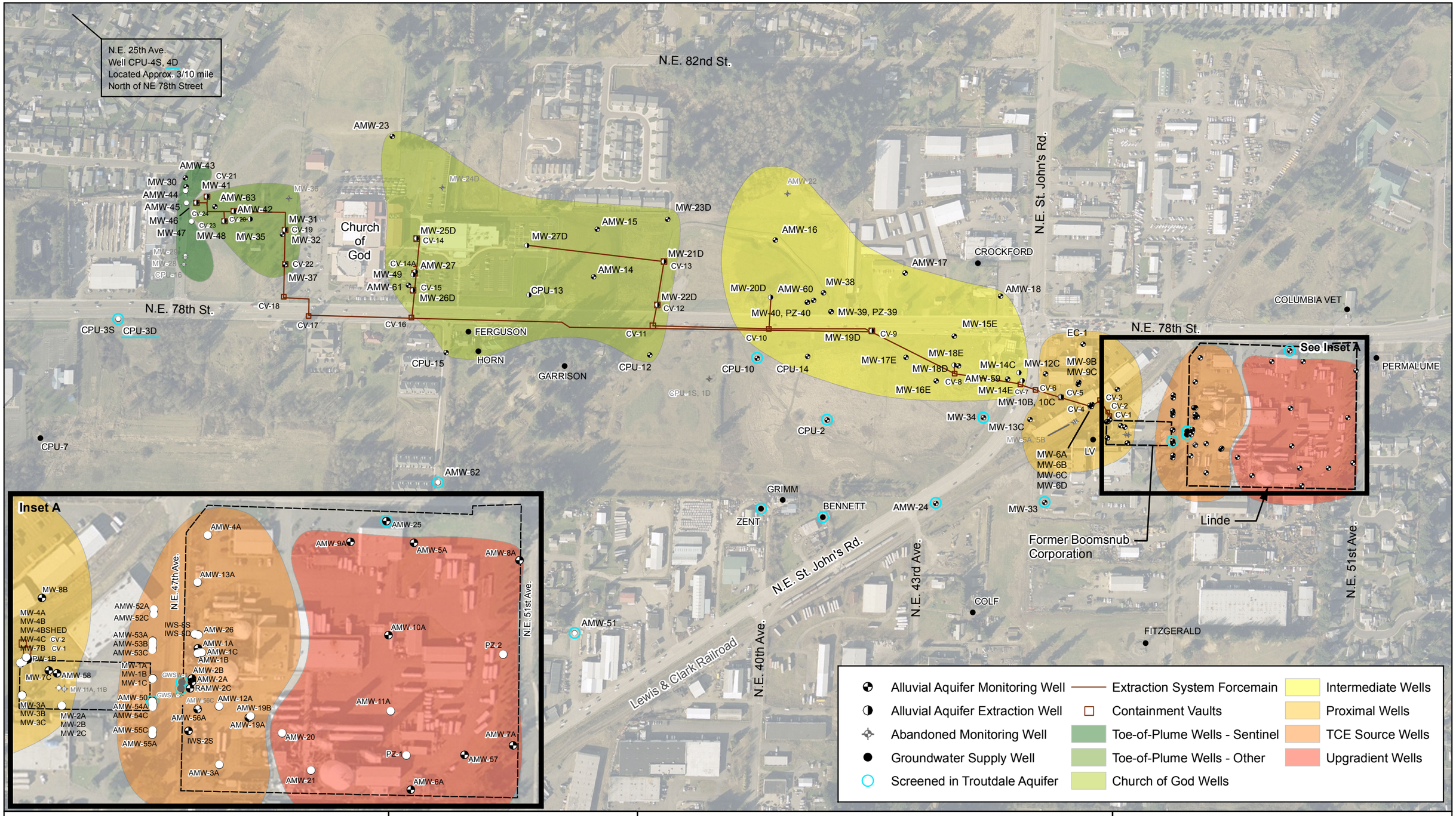

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FIGURE 9
EXTRACTION AND MONITORING WELL GROUPINGS

1995

2011

Extraction Well Pipeline

Chromium Concentration Contours

80 - 250 µg/L

250 - 500 µg/L

500 - 1,500 µg/L

1,500 - 5,000 µg/L

5,000 - 10,000 µg/L

10,000 - 20,000 µg/L

>20,000 µg/L

Note:
Contours represent evaluation of probable conditions based on presently available data. Some variations from these conditions must be expected.

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FIGURE 10
CHROMIUM PLUME MAP
1995 vs. 2011

?
?
?
?

1995

2011

Extraction Well Pipeline

TCE Concentration Contours

5 - 25 µg/L

25 - 100 µg/L

100 - 500 µg/L

500 - 1,000 µg/L

1,000 - 2,000 µg/L

> 2,000 µg/L

Note:
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FIGURE 11
TRICHLOROETHENE PLUME MAP
1995 vs. 2011

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

N.E. 82nd St.

N.E. St. John's Rd.

N.E. 78th St.

Church of God

AMW-23
AMW-43
MW-30
MW-41
AMW-44
AMW-63
AMW-45
AMW-42
MW-46
MW-31
MW-47
MW-48
MW-35
MW-32
MW-37
MW-36
MW-24D
MW-25D
MW-27D
MW-23D
AMW-15
AMW-16
AMW-22
MW-21D
AMW-14
AMW-27
MW-49
AMW-61
MW-26D
CPU-13
MW-22D
MW-20D
AMW-60
MW-38
PZ-39, MW-39
MW-40, PZ-40
AMW-17
CROCKFORD
AMW-18
COLUMBIA VET
MW-15E
MW-19D
EC-1
MW-18E
MW-17E
MW-18D
MW-14C
MW-12C
MW-9B
MW-9C
AMW-59
MW-14E
MW-16E
MW-10B, 10C
MW-34
MW-13C
CPU-2
CPU-1S, 1D
CPU-10
CPU-14
CPU-12
CPU-15
HORN
GARRISON
FERGUSON
CPU-3S
CPU-3D
CPU-7
AMW-62
MW-6A
MW-6B
MW-6C
MW-6D
LV
MW-33
GRIMM
ZENT
BENNETT
AMW-24
Former Boomsnub Corporation
Linde
PERMALUME
AMW-51
COLF
FITZGERALD
N.E. 43rd Ave.
N.E. 40th Ave.
N.E. 51st Ave.
Lewis & Clark Railroad

See Inset A

Inset A

N.E. 47th Ave.
N.E. 51st Ave.
AMW-4A
AMW-25
AMW-9A
AMW-5A
AMW-8A
AMW-13A
MW-8B
MW-4A
MW-4B
MW-4BSHED
MW-4C
MW-7B
PW-1B
MW-7C
AMW-58
MW-11A, 11B
MW-3A
MW-3B
MW-3C
MW-2A
MW-2B
MW-2C
AMW-52A
AMW-52C
AMW-53A
AMW-53B
AMW-53C
MW-1A
MW-1B
MW-1C
GWSW-1
GWSW-2
AMW-50
AMW-54A
AMW-54C
AMW-55C
AMW-55A
AMW-26
AMW-1A
AMW-1C
AMW-1B
AMW-2B
AMW-2A
RAMW-2C
AMW-56C
AMW-56A
AMW-12A
AMW-19A
AMW-19B
AMW-20
AMW-10A
PZ-2
AMW-11A
PZ-1
AMW-3A
AMW-21
AMW-6A
AMW-57
AMW-7A

Groundwater Monitoring Well
Groundwater Extraction Well
Abandoned Well
Groundwater Supply Well
Screened in Troutdale Aquifer

MW-14C — Groundwater Monitoring/Extraction Wells with Chromium Concentrations for Spring and/or Fall 2011 above the Cleanup Level of 80 µg/L

MW-10B — Groundwater Monitoring/Extraction Wells with Chromium Concentrations for Spring and Fall 2011 less than the Cleanup Level of 80 µg/L

Extraction System Forcemain
Containment Vault

Note: Well locations are approximate, and not all wells were sampled during the reporting period.

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FIGURE 12
WELLS WITH CHROMIUM CONCENTRATIONS ABOVE THE CLEANUP LEVEL IN 2011

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

N.E. 82nd St.

N.E. St. John's Rd.

N.E. 78th St.

AMW-23
AMW-43
MW-30
AMW-44
AMW-45
MW-46
MW-47
MW-48
MW-41
AMW-63
AMW-42
MW-35
MW-31
MW-32
MW-37
MW-36
MW-24D
MW-29
MW-28
CP-16
Church of God
MW-25D
AMW-27
MW-49
AMW-61
MW-26D
MW-27D
MW-23D
AMW-15
AMW-14
CPU-13
MW-21D
MW-22D
AMW-22
AMW-16
MW-20D
AMW-60
MW-38
MW-40, PZ-40
PZ-39, MW-39
MW-19D
AMW-17
CROCKFORD
AMW-18
COLUMBIA VET
MW-15E
MW-18E
MW-17E
MW-18D
MW-16E
AMW-59
MW-14C
MW-12C
MW-9B
MW-9C
MW-14E
MW-10B, 10C
MW-34
MW-13C
MW-5A, 5B
EC-1
PERMALUME
See Inset A
MW-6A
MW-6B
MW-6C
MW-6D
LV
MW-33
CPU-3S
CPU-3D
FERGUSON
HORN
GARRISON
CPU-15
CPU-12
CPU-10
CPU-14
CPU-2
CPU-1S, 1D
CPU-7
AMW-62
GRIMM
ZENT
BENNETT
AMW-24
Linde
Former Boomsnub Corporation
N.E. 51st Ave.
N.E. 43rd Ave.
COLF
FITZGERALD
AMW-51
N.E. 40th Ave.
Lewis & Clark Railroad

Inset A

AMW-4A
AMW-25
AMW-9A
AMW-5A
AMW-8A
AMW-13A
N.E. 47th Ave.
N.E. 51st Ave.
MW-8B
MW-4A
MW-4B
MW-4BSHED
MW-4C
MW-7B
PW-1B
MW-7C
AMW-58
MW-11A, 11B
MW-3A
MW-3B
MW-3C
MW-2A
MW-2B
MW-2C
AMW-52A
AMW-52C
AMW-53A
AMW-53B
AMW-53C
MW-1A
MW-1B
MW-1C
GWSW-1
GWSW-2
AMW-50
AMW-54A
AMW-54C
AMW-55C
AMW-55A
AMW-26
AMW-1A
AMW-1C
AMW-1B
AMW-2B
AMW-2A
RAMW-2C
AMW-56C
AMW-12A
AMW-56A
AMW-19A
AMW-19B
AMW-20
AMW-10A
AMW-11A
PZ-2
PZ-1
AMW-7A
AMW-57
AMW-3A
AMW-21
AMW-6A

Groundwater Monitoring Well
Groundwater Extraction Well
Abandoned Well
Groundwater Supply Well
Screened in Troutdale Aquifer

MW-14C
Groundwater Monitoring/Extraction Wells with TCE Concentrations for Spring and/or Fall 2011 above the Cleanup Level of 5 µg/L

MW-10B
Groundwater Monitoring/Extraction Wells with TCE Concentrations for Spring and Fall 2011 less than the Cleanup Level of 5 µg/L

Extraction System Forcemain
Containment Vault

Note: Well locations are approximate, and not all wells were sampled during the reporting period.

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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\FALL2011\MXD\Annual_Report\Fig_13_TCE_Conc

FIGURE 13
WELLS WITH TCE CONCENTRATIONS ABOVE THE CLEANUP LEVEL IN 2011

TABLES

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

Well ID	Baseline*	Spring 2010	Fall 2010	Spring 2011	Fall 2011
AMW-1A	220	0.95	2.8	1.7	**44**
AMW-2A	1,000	**91**	**29**	**18**	**55**
AMW-12A	1,200	**31**	**29**	**30**	**38**
AMW-19A	290	1.2	1.7	NS	1.5
AMW-53A	240	**10**	**11**	0.86	**6.0**
MW-1A	880	**11**	**7.9**	4.8	**5.2**

NOTES:
NS = Not Sampled.
* = Baseline samples for wells installed as part of the removal action were collected in December 2003. Baseline data from existing wells was collected during the October 2003 semiannual sampling event.

All results are reported in micrograms per liter (µg/L).
When duplicate samples are collected, the maximum of the two results is reported.
Results in **red** indicate the concentration exceeds the cleanup level of 5.0 µg/L.

TABLE 2. 2011 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	1.0	1.0	1.0
AMW-42	off	off	off	off	off	off	off	off	off	off	off	off
MW-6B	7.2	7.2	7.6	7.8	7.8	7.8	7.6	8.0	7.5	7.5	7.7	7.7
MW-10B	8.5	8.5	9.0	9.1	9.0	9.4	9.4	9.4	9.0	9.0	9.0	10.0
MW-10C	9.2	9.2	9.7	10.0	10.0	10.0	10.0	10.0	10.0	9.8	9.8	8.7
MW-14C	12.2	12.2	12.0	13.0	12.7	12.7	12.7	12.7	12.4	12.1	12.1	12.0
MW-14E	5.2	5.2	5.0	4.8	4.0	4.6	4.6	4.8	5.0	5.0	5.0	5.0
MW-18D	12.5	12.5	12.4	10.2	10.2	11.4	10.4	10.4	11.0	11.2	11.3	11.0
MW-19D	11.3	11.3	11.1	8.3	8.3	8.0	8.0	8.0	10.5	10.6	10.4	10.4
MW-20D	15.1	15.1	15.1	2.7	2.8	2.9	2.9	2.7	15.0	15.0	15.0	15.0
MW-21D	9.5	9.5	9.7	6.0	6.0	6.2	6.3	6.2	9.4	9.5	11.2	11.5
MW-22D	11.6	11.6	11.9	15.0	14.6	14.9	14.9	14.9	13.2	13.3	12.9	13.0
MW-25D	11.0	11.0	11.0	8.0	8.0	8.0	8.1	8.0	6.0	6.4	6.4	6.3
MW-26D	11.0	11.0	11.6	11.5	11.0	11.0	11.6	11.6	8.5	8.6	8.7	8.6
MW-27D	off	off	off	off	off	off	off	off	off	off	off	off
MW-31	off	off	off	off	off	off	off	off	off	off	off	off
MW-37	off	off	off	off	off	off	off	off	off	off	off	off
MW-48	off	off	off	off	off	off	off	off	off	off	off	off
MW-49	13.3	13.3	13.6	15.0	15.0	15.0	15.0	15.0	13.0	13.0	13.0	13.0
PW-1B	6.5	6.5	6.5	10.0	10.0	10.0	10.0	9.8	9.8	9.4	9.5	9.5
CPU-13	13.1	13.1	13.1	12.7	12.8	12.7	12.7	12.4	11.9	12.1	12.0	12.0
Total	158.2	158.2	160.3	145.1	143.2	141.0	140.6	144.9	153.2	153.5	155.0	154.7

Note: 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		2011 Sampling Frequency [1]		2012 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	
Troutdale Wells																											
AMW-24	M/D	6	190	74.72	200	64.72	9.00	25.0	12.0		10/11/2011	No	NA	U	6.20	3.5	J	10/11/2011	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	10/12/2010	Yes	NA	U	4.10	1.9	J	10/12/2010	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	10/12/2010	Yes	NA	U	37.7	1.80	J	10/12/2010	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	0.17	J	10/12/2010	Yes	NA	U	10.1	4.30	J	10/12/2010	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	10/13/2010	Yes	NA	U	U	U	U	10/13/2010	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	10/13/2010	Yes	NA	U	14.0	2.4	J	10/13/2010	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	10/13/2010	Yes	NA	U	11.0	3.10	J	10/13/2010	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	10/14/2010	Yes	NA	U	13.2	2.50	J	10/14/2010	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	13.0		10/11/2011	No	NA	U	40.5	2.8	J	10/11/2011	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	10/13/2010	Yes	NA	U	25.4	U	U	10/13/2010	Yes	NA	NA	NA	Biennial	Biennial	NC	NC	Troutdale well - unimpacted
BENNETT	Other	N/A	N/A	N/A	180	N/A	4.00	10.0	6.2			No	NA	U	U	U	U	10/12/2011	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	0.46	J	10/12/2010	Yes	Yes	U	17.7	5.00		10/12/2010	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	0.43	J	10/12/2010	Yes	Yes	U	5.20	3.10	J	10/12/2010	Yes	Yes	NFS	NFS	Biennial	Biennial	NC	NC	Infiltration gallery well
AMW-8A	M	1	24.5	260.99	34.5	250.99	0.5	692	0.50		10/18/2011	Yes	No								Annual		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	0.18	J	10/12/2010	Yes	Yes	U	12.5	10.10		10/12/2010	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	0.45	J	10/12/2010	Yes	Yes	U	9.40	4.00	J	10/12/2010	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		Semiannual		NC		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	55.0		10/18/2011	No	No								Annual		Semiannual		NC		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	0.49	J	10/18/2010	Yes	No								Annual		Biennial		NC		OU2 monitoring well; well cluster - less frequent sampling
AMW-3A	M	1	24.5	259.42	34.5	249.42	0.16	34.0	0.85		10/20/2010	Yes	No								Annual		Biennial		NC		OU2 monitoring well (TCE below cleanup level)
AMW-12A	M	1	24.05	259.69	34.05	249.69	19.0	19300	38		10/18/2011	No	No								Annual		Semiannual		NC		OU2 monitoring well (TCE above cleanup level)
AMW-13A	M	1	23.8	260.08	33.8	250.08	U	74.8	U	U	10/18/2010	Yes	No								Annual		Biennial		NC		OU2 monitoring well (TCE below cleanup level)
AMW-19A	M	1	25	258.94	35	248.94	1.20	490	1.50		10/18/2011	Yes	No								Annual		Annual		Biennial		OU2 monitoring well (TCE below cleanup level)
AMW-26	M	1	24.2	258.82	34.2	248.82	U	100	0.24	J	10/18/2010	Yes	No								Annual		Biennial		NC		OU-2 monitoring well (TCE below cleanup level)
AMW-52A	M	1	24.55	255.85	34.55	245.85	U	29.0	0.16	J	10/18/2010	Yes	No								Annual		Biennial		NC		OU2 monitoring well (TCE below cleanup level)
AMW-53A	M	1	22.2	258.85	32.2	248.85	0.86	240	6.0		10/5/2011	No	No								Annual		Semiannual		NC		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	2.30		10/18/2010	Yes	No								Annual		Biennial		NC		OU2 monitoring well (TCE below cleanup level)
AMW-55A	M	1	20.83	261.28	30.83	251.28	0.40	39.0	0.95		10/18/2010	Yes	No								Annual		Biennial		NC		OU2 monitoring well (TCE below cleanup level)
AMW-56A	M	1	25.24	258.43	35.24	248.43	0.38	610	2.30		10/18/2010	Yes	No								Annual		Biennial		NC		OU2 monitoring well (TCE below cleanup level)
MW-1A	M	1	28.36	257.13	38.26	247.23	4.80	3900	5.2			No	No	U	162.0	U	UJ	10/18/2010	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	U	UJ	10/14/2010	Yes	No								Annual	NA	Biennial	NFS (2010)	NC		Plume area - silt well; Cr statistically below the cleanup level
MW-2A	M	1	32.09	250.48	37.09	245.48	1.10	24.7	1.70		10/17/2011	Yes	No	29.2	2660	81		10/17/2011	No	No	Annual	Annual	Biennial	Annual	NC	NC [4]	Well cluster - most impacted and Cr hotspot
MW-3A	M	1	22.34	257.87	32.34	247.87								132	1820	342		10/17/2011	No	No	NA	Annual	NFS (2009)	Annual		NC [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		10/18/2010	Yes	No								Annual	NA	Biennial	NFS (2009)	NC		Well cluster - most TCE impacted; Cr statistically below cleanup level
MW-4A	M	1	26.81	253.49	36.81	243.49								363	5320	741		10/17/2011	No	No	NA	Annual	NFS (2010)	Annual		NC [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		2011 Sampling Frequency [1]		2012 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	4.60		10/17/2011	Yes	No	353	15500	617		10/17/2011	No	No	Annual	Annual	Biennial	Annual	NC	NC [4]	Well cluster - most impacted and Cr hotspot (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	NA	85.9	8580	85.9		10/20/2009	No	No	NA	Annual	NFS (2010)	NFS (2010)		NC [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		NC [4]	Well cluster - TCE below cleanup level since 1995.
MW-6B	E	1	45.75	227.57	55.75	217.57	4.20	1230	4.20		10/10/2011	Yes	No	10.9	13000	18.0		10/10/2011	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								Annual	NA	Every 5 years	NFS (2009)	NC		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	3.30	3070	3.30		10/20/2010	Yes	No								Annual	NA	Biennial	NFS (2009)	NC		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	5.70	2100	5.70		10/20/2010	No	No								Annual	NA	Biennial	NFS (2009)	NC		Well cluster - most TCE impacted; Cr below cleanup level since 1997
MW-10B	E	1	48	225.24	58	215.24	7.50	1300	18.0		10/10/2011	No	No	31.0	3600	34.7		10/10/2011	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active (also well cluster)
MW-10C	E	1	70	203.25	80	193.25	3.30	1500	3.30		10/10/2011	Yes	No	67.2	6400	70.0		10/10/2011	Yes	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	7.40	9430	24.0		10/15/2010	No	No								Annual	NA	Biennial	NFS (2010)	NC		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	5.70		10/15/2010	No	No								Annual	NA	Biennial	NFS (2010)	NC		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	2.80	900	2.90		10/10/2011	Yes	No	40.8	13000	61.9		10/10/2011	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	1.60	87.0	1.60			Yes	No								Annual	NA	Annual	NFS (2010)	Semiannual		Northern Plume area; Cr statistically below the cleanup level
AMW-17	M/D	1	81	180.87	91	170.87	1.10	140.0	140.00	D	10/11/2011	No	No								Annual	NA	Semiannual	NFS (2008)	Quarterly		Northern Plume monitoring well; Cr statistically below the cleanup level
AMW-18	M	1	92.69	186.15	102.69	176.15	U	460	68	D	10/18/2011	No	No								Quarterly	NA	Semiannual	NFS (2008)	Quarterly		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	76	D	10/13/2010	No	No								Annual	NA	Biennial	NFS (2009)	NC		Plume area - silt well; Cr statistically below the cleanup level
CPU-14	M	2	60.43	197.13	70.43	187.13	4.90	63.0	5.4		10/12/2011	No	No	31.9	957	41.4		10/12/2011	Yes	No	Annual	Annual	Annual	Annual	NC	NC	Plume boundary
MW-14C	E	1	70	201.22	80	191.22	15.0	2500	15.0		10/10/2011	No	No	77	20000	77.0		10/10/2011	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active (also well cluster)
MW-14E	E	2	115	153.95	125	143.95	73.0	6540	78.0	D	10/10/2011	No	No	0.351	21200	48.3		10/10/2011	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	5.10	1100	5.10		10/5/2011	No	No								Annual	NA	Semiannual	NFS (2008)	NC		Northern Plume investigation area; Cr statistically below the cleanup level
MW-16E	M	2	111.1	147.25	121.1	137.35	U	5.10	U	UJ	10/13/2010	Yes	Yes								NFS	NA	Biennial	NFS (2010)	NC		TCE Plume boundary; Cr statistically below cleanup level
MW-18D	E	1	73.4	189.34	93.4	169.34	52.0	7800	52.0		10/5/2011	No	No	128	23100	128		10/5/2011	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	D	10/12/2011	No	No								Annual	NA	Annual	NFS (2010)	NC		Plume area - TCE hotspot
MW-19D	E	1	76.2	181.78	91.2	166.78	12.0	6300	32.0		10/5/2011	No	No	126	23000	126		10/5/2011	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	58.0		10/10/2011	No	No	75.3	51000	78.1		10/10/2011	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active
MW-38 [5]	M	1	77	187.2	82	182.2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NA								NA	NA	NA	NA	Annual	NA	Monitoring for potential Northern Plume impacts
PZ-39	M	2	88	176.37	90	174.37	56.0	2,100 J	56.0		10/18/2011	No	NA								NA	NA	Biennial	NFS (2010)	Semiannual		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		2011 Sampling Frequency [1]		2012 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	0.64			Yes	No	45.3	8300	45.3		10/14/2011	Yes	No	Annual	Annual	Annual	Annual	NC	NC	Plume boundary
AMW-27	E	3	78	194.60	88	184.6	14.0	81.0	14.0		10/5/2011	No	No	38.6	7160	38.6		10/5/2011	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active
AMW-61	M	3	91.86	181.92	96.86	176.92	6.00	43.0	6.00		10/20/2010	No	No								Annual	NA	Biennial	NFS (2010)	NC		Plume area - silt well (Cr below cleanup level)
CPU-12	M	2	61.12	214.11	71.12	204.11	1	13.0	3.50		10/18/2011	Yes	No								Annual	NA	Annual	NFS (2010)	NC		TCE Plume boundary (Cr below cleanup level)
CPU-13	E	3	80	198.99	90	188.99	1.50	110	1.50		10/5/2011	Yes	No	18.4	5000	18.4		10/5/2011	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active
MW-21D	E	2	56	201.56	66	191.56	6.2	3000	6.2		10/5/2011	No	No	12.8	35000	12.8		10/5/2011	Yes	No	Annual	Annual	Semi-annual	Semi-annual	NC	NC	Extraction well - active
MW-22D	E	3	54	215.02	64	205.02	6.5	390	6.5		10/5/2011	No	No	35.9	11000	35.9		10/5/2011	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	1.60		10/18/2011	Yes	No								Annual	NA	Annual	NFS (2010)	NC		TCE Plume boundary; Cr statistically below cleanup level
MW-25D	E	2	70	202.13	80	192.13	1.20	200	1.50		10/5/2011	Yes	No	U	16000	U	U	10/5/2011	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active
MW-26D	E	3	83	189.86	93	179.86	0.72	52	0.72		10/5/2011	Yes	No	7.6	4800	10.7		10/5/2011	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active
MW-27D	E	2	61.1	208.15	71.1	198.15	U	280	0.63		10/10/2011	Yes	No	0.09	6940	5.70		10/10/2011	Yes	No	Annual	Annual	Annual	Annual	NC	NC	Extraction well - inactive
MW-49	E	2	71.2	200.48	81.2	190.48	U	28	**1.4**		10/5/2011	Yes	No	11.9	1160	11.9		10/5/2011	Yes	No	Annual	Annual	Semiannual	Semiannual	NC	NC	Extraction well - active
Toe Wells																											
AMW-42	E	3	87	168.88	102	153.88	U	73.0	0.88			Yes	No	U	2280	18.2		10/11/2010	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	10/14/2010	Yes	Yes	U	12.4	6.8		10/14/2010	Yes	Yes	NFS	NFS	NFS (2010)	NFS (2010)	Every 5 years	Every 5 years	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	0.20	J	10/11/2010	Yes	No	U	535	8.10		10/11/2010	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	U	80	5.40		10/12/2011	No	No	U	4690	16.5		10/12/2011	Yes	No	Annual	Annual	Annual	Annual	NC	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	Annual	Annual	Every 5 years	Every 5 years	TCE and Cr are statistically below cleanup level. EPA request for sampling every 5 years.

NOTES:

[1] The 2011 sampling frequencies shown are those approved by EPA as of 12/31/11.

[2] For wells with 2012 recommendations for a change in sampling frequency, additional explanation is provided in Table C-3.

[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] Sampling at well MW-38 began in Fall 2010. The MAROS evaluation will be conducted on this well in the future.

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 mad
NC = no change to the current sampling frequency
TCE = trichloroethene
TOPPS = toe of plume pilot study
U = undetected
µg/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 2012.
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 constitutents (TCE or Cr), that constituent is not being sampled in that well (see Table C-2).

TABLE 4. SUMMARY OF 2012 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							
AMW-58	M				TCE		Plume area - silt well; Cr statistically below the cleanup level
MW-2A	M			Cr*	TCE		Well cluster - most impacted and Cr hotspot
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 hotspot (EPA request for annual Cr sampling)
MW-6A	M					Cr*	Well cluster - TCE below cleanup level since 1995.
MW-6B	E		X				Extraction well - active (also well cluster)

TABLE 4. SUMMARY OF 2012 WELL SAMPLING FREQUENCIES

Well Name	Recommendation						Rationale for Recommendation
	Well Type	Quarterly	Semi-annual	Annual	Biennial	Every 5 Years	
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
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				Northern Plume investigation area; Cr statistically below the cleanup level
MW-16E	M				TCE		TCE Plume boundary; Cr statistically below cleanup level
MW-18D	E		X				Extraction well - active (also well cluster)
MW-18E	M			TCE			Plume area - TCE hotspot
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-14	M			X			Plume boundary
AMW-27	E		X				Extraction well - active
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 - active
MW-26D	E		X				Extraction well - active
MW-27D	E			X			Extraction well - inactive
MW-49	E		X				Extraction well - active

TABLE 4. SUMMARY OF 2012 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			X			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:		2	25	15	35	4	**Total** 81

Actual total wells listed = 76

(3 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 in previous Annual Reports have been deleted from this table and are included in Table C-2.

Cr = Chromium

TCE = Trichloroethene

X = TCE and Chromium

APPENDIX A

CHROMIUM CONCENTRATIONS IN GROUNDWATER

APPENDIX A-1

CHROMIUM CONCENTRATIONS – SUMMARY TABLES

A1. Chromium Concentration Summary

Well Group	Well	Historical Maximum		Spring 2010	Fall 2010	Spring 2011	Fall 2011
		Date	Result				
Proximal	MW-2A	10/12/2004	2,660	NS	**192**	NS	**81.3**
	MW-3A	10/12/1999	1,820	NS	**135**	NS	**342**
	MW-4A	5/1/1995	5,320	NS	**625**	NS	**741**
	MW-4B	10/23/1996	15,500	NS	**616**	NS	**617**
	MW-6B	11/7/1995	13,000	31.7	28.2	50.9	18.0
	MW-10B	5/23/1995	3,600	49.3	45.2	46.4	34.7
	MW-10C	7/25/1995	6,400	**89.3**	67.2	**99.9**	70.0
	PW-1B	5/23/1995	13,000	74.6	52.9	46.8	61.9
Intermediate	CPU-14	10/12/1995	957	NS	52.9	NS	41.4
	MW-14C	5/23/1995	20,000	**101**	**94.7**	**91.9**	77.0
	MW-14E	5/10/1997	21,200	49.6	54.7	57.1	48.3
	MW-18D	2/3/1995	23,100	**166**	**161**	**133**	**128**
	MW-18E	2/14/2001	729	NS	2.8 UJ	NS	4.6 J
	MW-19D	5/23/1995	23,000	**150**	**143**	**140**	**126**
	MW-20D	5/23/1995	51,000	**83.4**	76.7	75.3	78.1
Church of God	AMW-14	4/20/1995	8,300	55.8	55.0	NS	39.6*
	AMW-27	6/2/1999	7,630	55.9	49.3	46.7 J**	38.6
	CPU-13	7/25/1995	5,000	19.7	20.1	18.8	18.4
	MW-21D	5/23/1995	35,000	16.3	16.1	13.5	12.8
	MW-22D	5/23/1995	11,000	49.9	50.6	44.0	35.9
	MW-25D	5/23/1995	16,000	3.4 J	3.7 J	2.1 J	5.0 U
	MW-26D	1/17/1996	4,800	12.0	12.1	7.6	10.7
	MW-27D	5/16/1996	6,940	6.9	8.6	NS	5.7
	MW-49	12/21/2000	36,800	18.3	17.4	11.9	11.9
Toe of Plume: Other Toe	MW-35	9/14/1999	8,050	30.6	28.8	NS	16.5
	MW-41	10/19/2004	216	NS	5.0 U	NS	5.0 U
Troutdale Aquifer	AMW-24	10/2/2006	6.2	NS	2.7 J	NS	3.5 J
	BENNETT	10/15/2009	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
	MW-33	10/22/2009	40.5	NS	3.3 J	NS	2.8 J

NOTES:

Only wells sampled during Fall 2011 are included in this table.
Results are in micrograms per liter (µg/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.
NS = Well not sampled during that 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-14 had an elevated turbidity; therefore, results for dissolved chromium were used. The total chromium concentration was 45.3 µg/L.

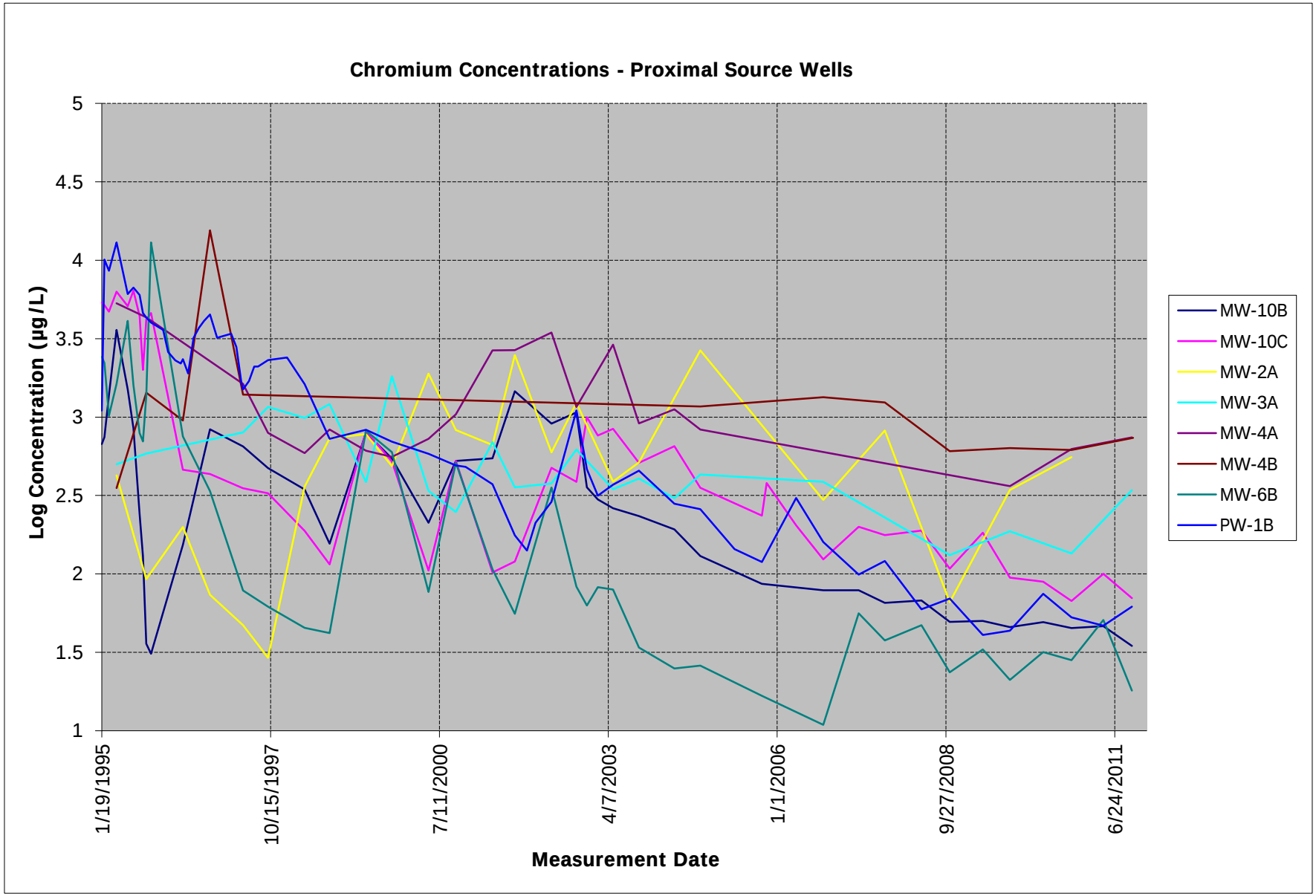
** = The sample results were qualified as estimated (J) due to discrepancies in quality control data.

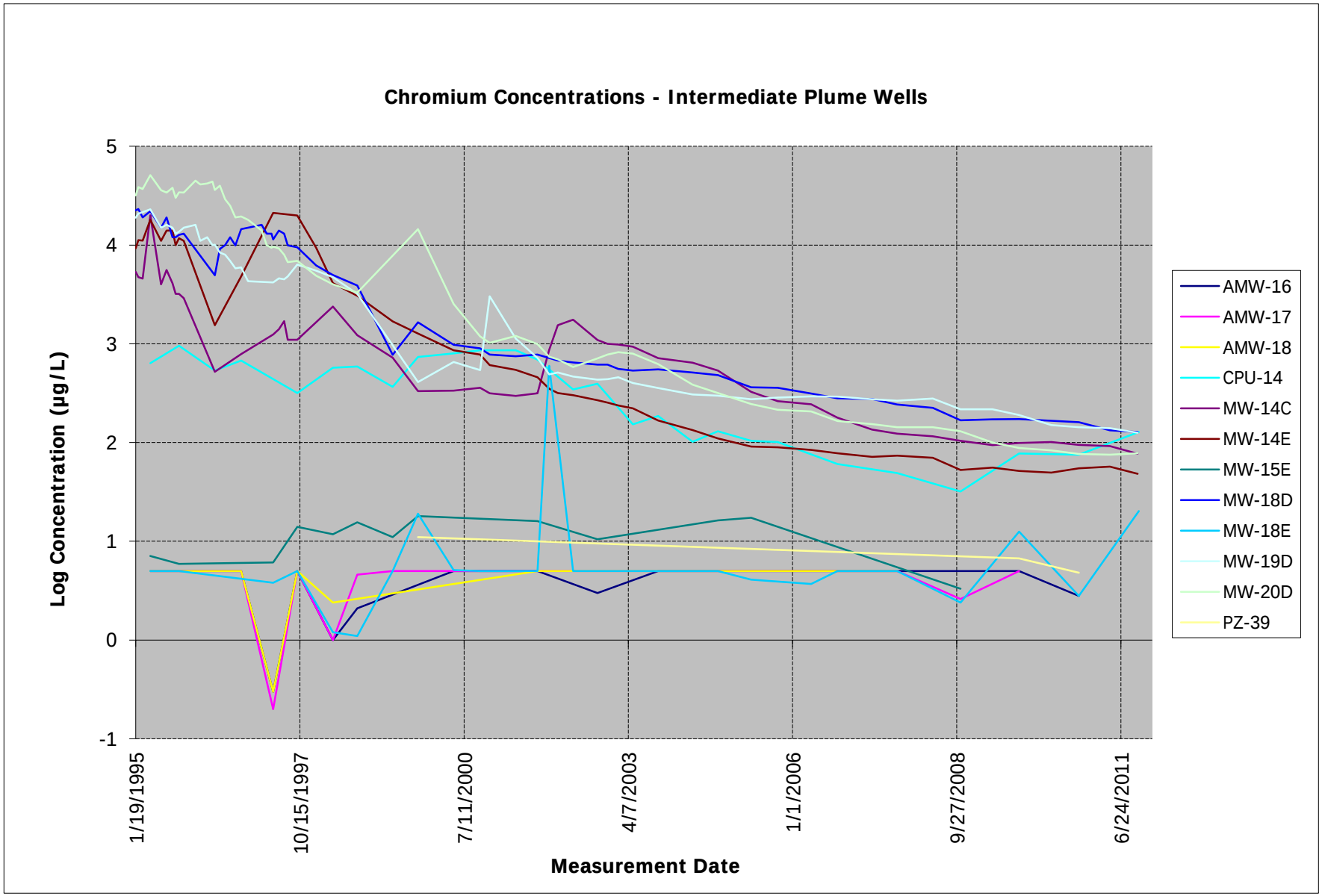
Results shown in **red** are above the cleanup level of 80 µg/L.

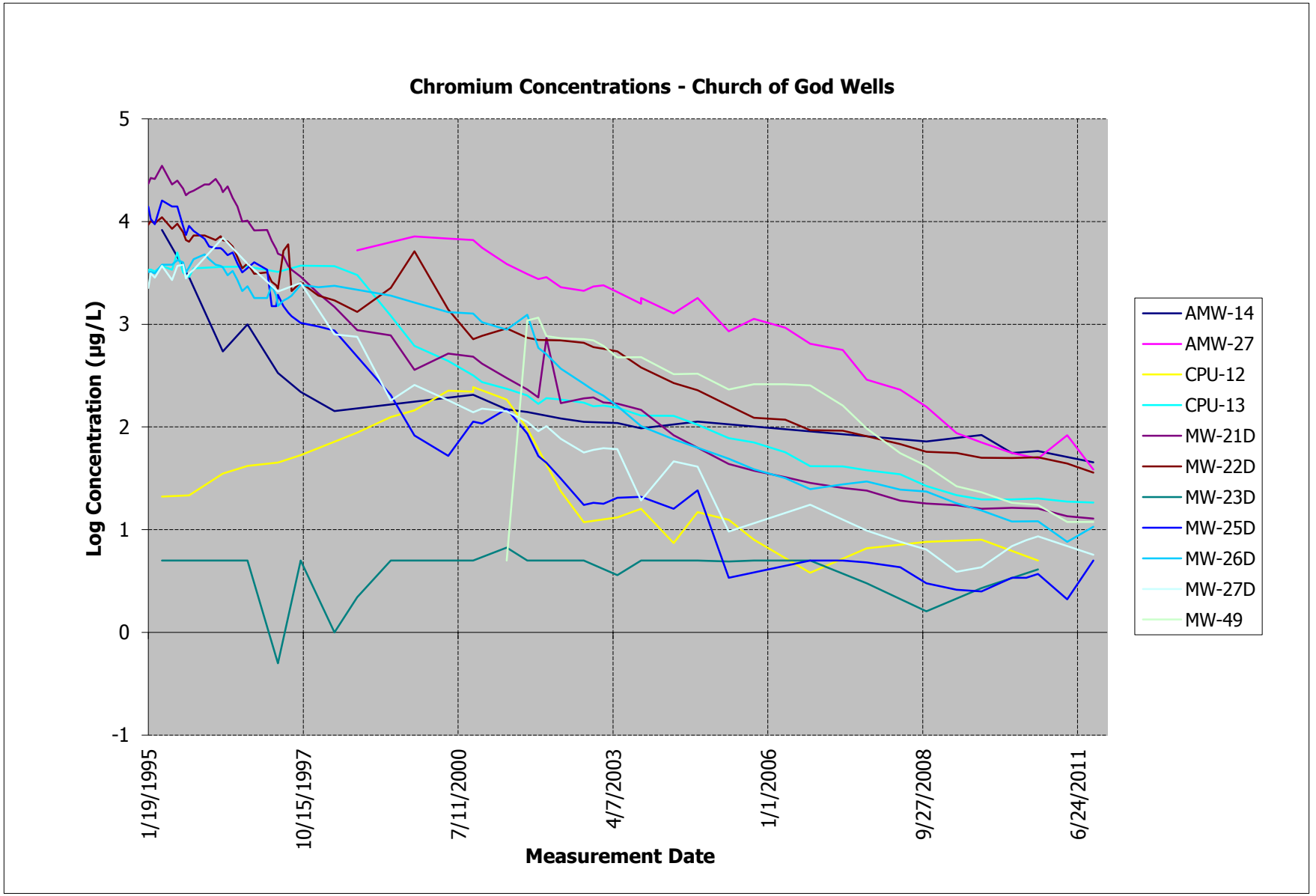
Historical maximum is based on data from 1995 to the present.

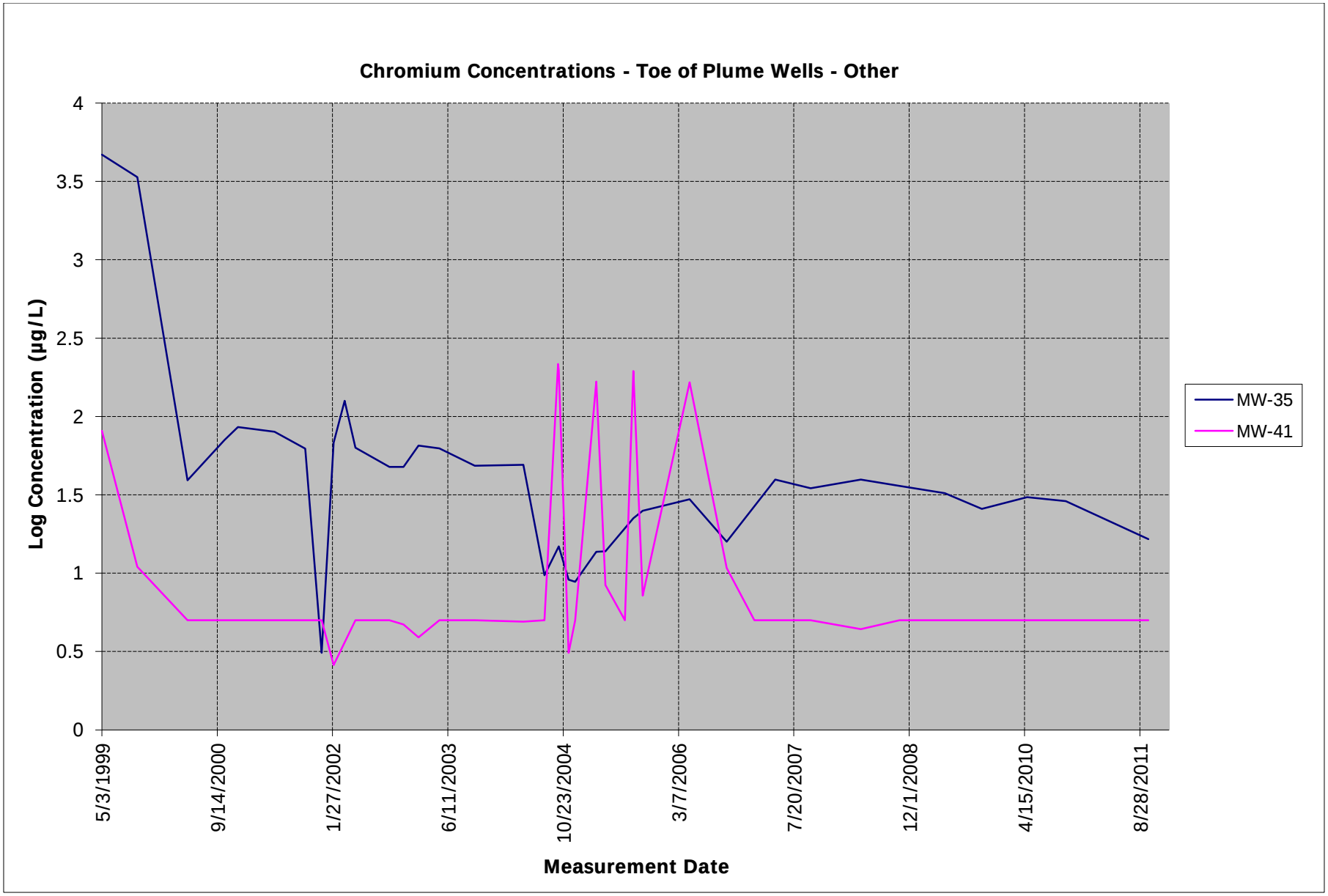
APPENDIX A-2

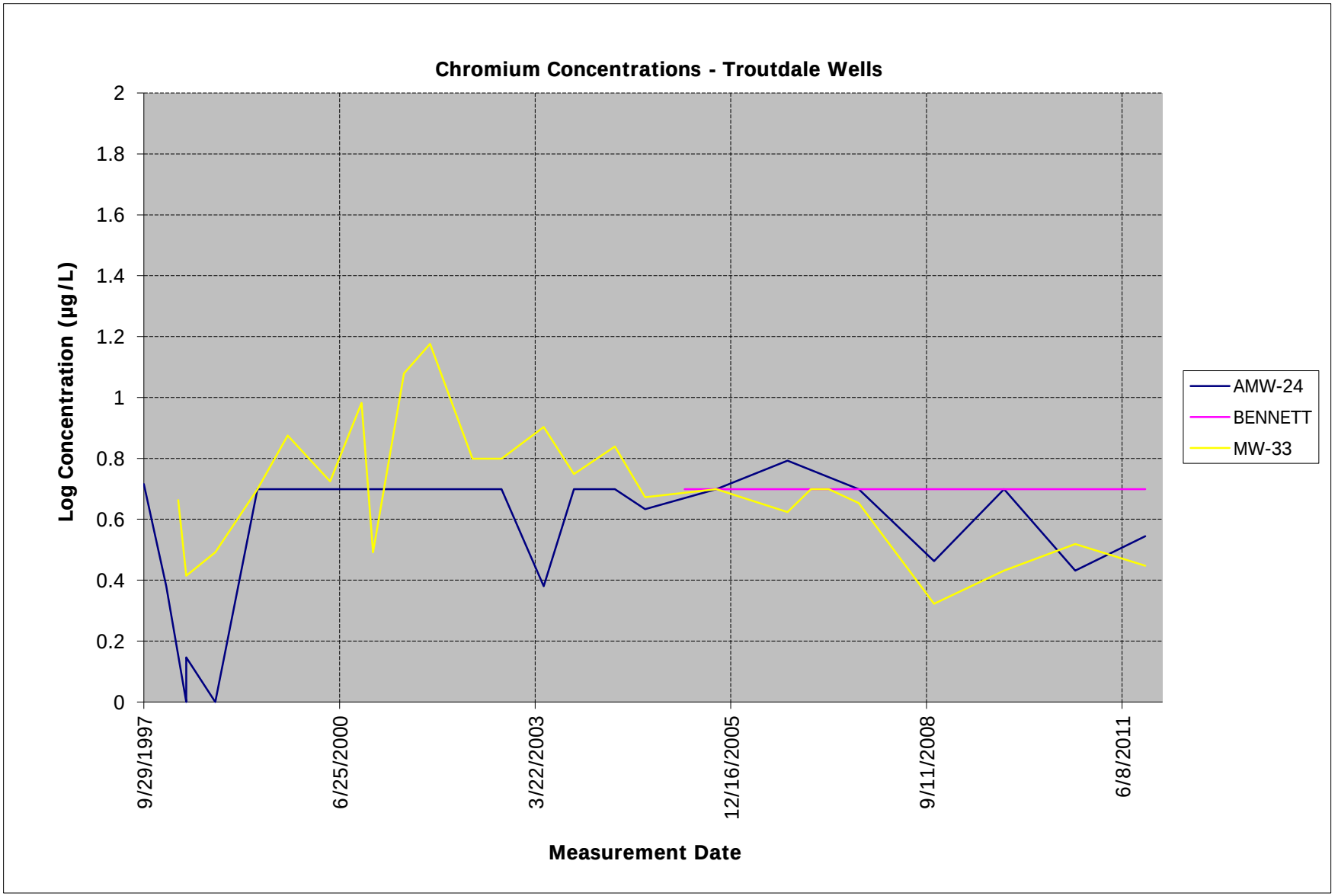
CHROMIUM CONCENTRATIONS – BY WELL GROUPING


Chromium Concentrations - Proximal Source Wells
Log Concentration (µg/L)
5
4.5
4
3.5
3
2.5
2
1.5
1
1/19/1995
10/15/1997
7/11/2000
4/7/2003
1/1/2006
9/27/2008
6/24/2011
Measurement Date
MW-10B
MW-10C
MW-2A
MW-3A
MW-4A
MW-4B
MW-6B
PW-1B


Chromium Concentrations - Intermediate Plume Wells
Log Concentration (µg/L)
5
4
3
2
1
0
-1
1/19/1995
10/15/1997
7/11/2000
4/7/2003
1/1/2006
9/27/2008
6/24/2011
Measurement Date
AMW-16
AMW-17
AMW-18
CPU-14
MW-14C
MW-14E
MW-15E
MW-18D
MW-18E
MW-19D
MW-20D
PZ-39


Chromium Concentrations - Church of God Wells
Log Concentration (µg/L)
5
4
3
2
1
0
-1
1/19/1995
10/15/1997
7/11/2000
4/7/2003
1/1/2006
9/27/2008
6/24/2011
Measurement Date
AMW-14
AMW-27
CPU-12
CPU-13
MW-21D
MW-22D
MW-23D
MW-25D
MW-26D
MW-27D
MW-49


Chromium Concentrations - Toe of Plume Wells - Other
Log Concentration (µg/L)
4
3.5
3
2.5
2
1.5
1
0.5
0
5/3/1999
9/14/2000
1/27/2002
6/11/2003
10/23/2004
3/7/2006
7/20/2007
12/1/2008
4/15/2010
8/28/2011
Measurement Date
MW-35
MW-41


Chromium Concentrations - Troutdale Wells
Log Concentration (µg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
9/29/1997
6/25/2000
3/22/2003
12/16/2005
9/11/2008
6/8/2011
Measurement Date
AMW-24
BENNETT
MW-33

APPENDIX A-3

CHROMIUM CONCENTRATIONS – INDIVIDUAL WELLS

APPENDIX A-3
TABLE OF CONTENTS

Toe of Plume – Other Toe Wells

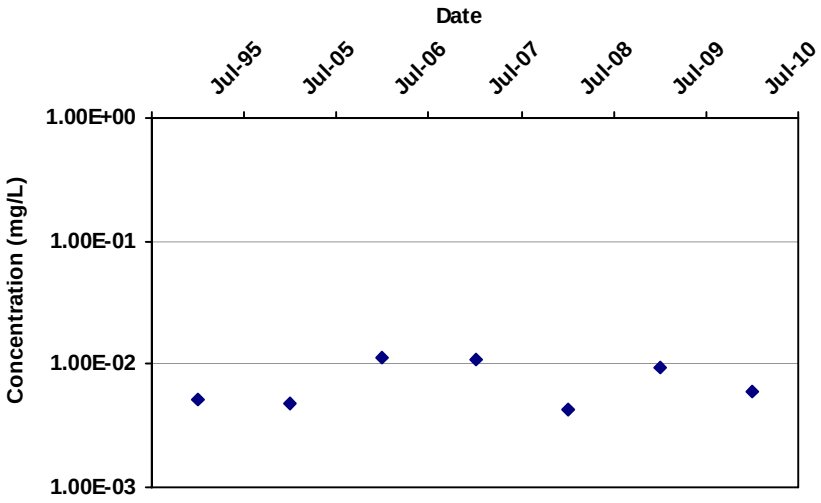
Troutdale Wells

UPGRADIENT WELLS

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -1

Confidence in Trend: 50.0%

Coefficient of Variation: 0.41

Mann Kendall Concentration Trend: (See Note) S

Data Table:

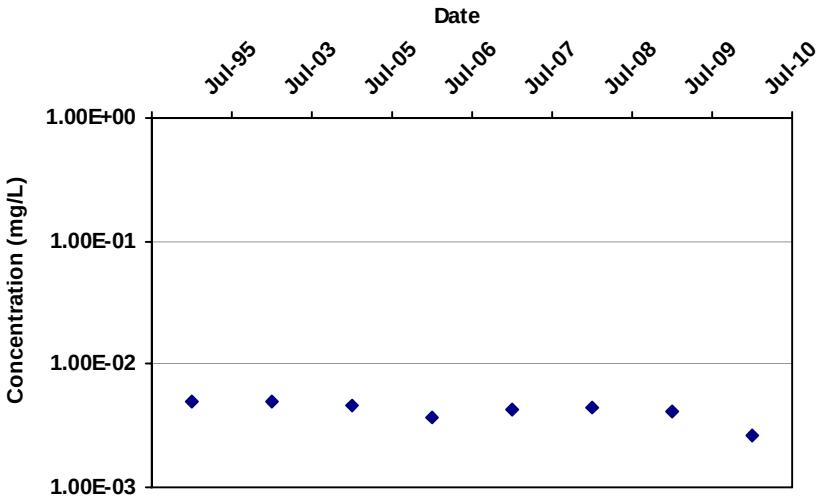
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-6A	T	7/1/1995	CHROMIUM, HEXAVALENT	5.2E-03		2	1
AMW-6A	T	7/1/2005	CHROMIUM, HEXAVALENT	4.8E-03		1	1
AMW-6A	T	7/1/2006	CHROMIUM, HEXAVALENT	1.1E-02		4	4
AMW-6A	T	7/1/2007	CHROMIUM, HEXAVALENT	1.1E-02		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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -20

Confidence in Trend: 99.3%

Coefficient of Variation: 0.18

Mann Kendall Concentration Trend: (See Note) D

Data Table:

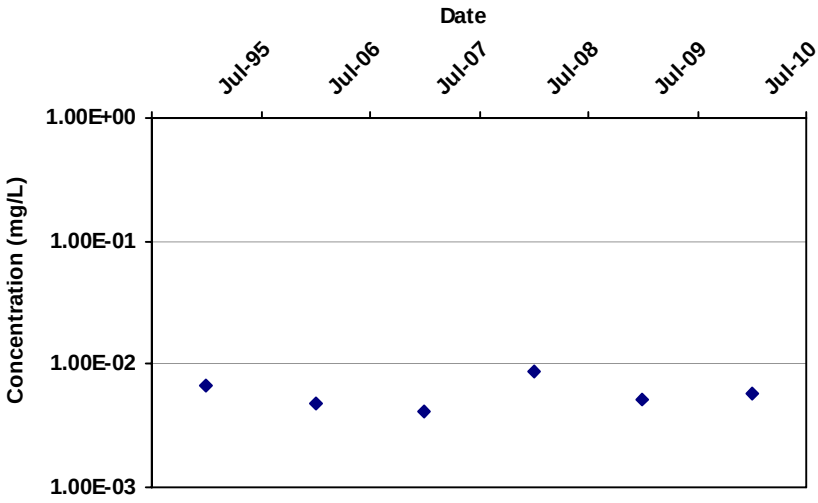
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-7A	T	7/1/1995	CHROMIUM, HEXAVALENT	5.0E-03		2	1
AMW-7A	T	7/1/2003	CHROMIUM, HEXAVALENT	5.0E-03	ND	1	0
AMW-7A	T	7/1/2005	CHROMIUM, HEXAVALENT	4.7E-03		1	1
AMW-7A	T	7/1/2006	CHROMIUM, HEXAVALENT	3.6E-03		4	4
AMW-7A	T	7/1/2007	CHROMIUM, HEXAVALENT	4.3E-03		3	2
AMW-7A	T	7/1/2008	CHROMIUM, HEXAVALENT	4.5E-03		2	1
AMW-7A	T	7/1/2009	CHROMIUM, HEXAVALENT	4.1E-03		2	1
AMW-7A	T	7/1/2010	CHROMIUM, HEXAVALENT	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: AMW-10A
Well Type: T
COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 **to** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: 1

Confidence in Trend: 50.0%

Coefficient of Variation: 0.27

Mann Kendall Concentration Trend: (See Note) NT

Data Table:

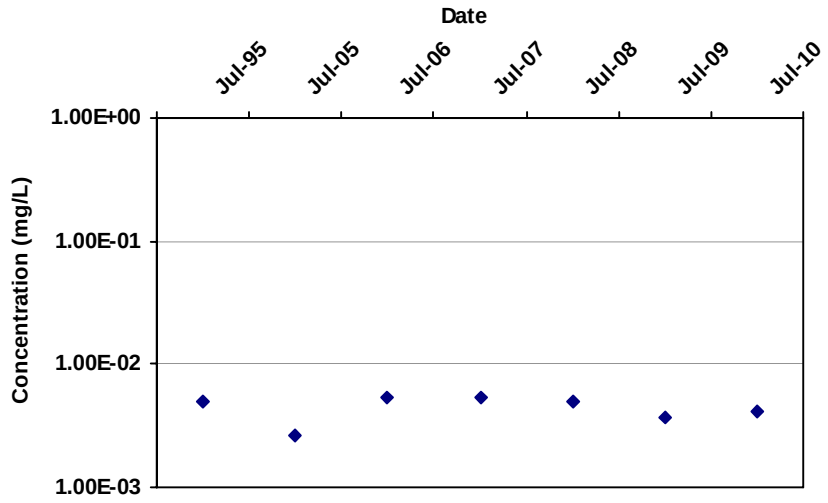
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-10A	T	7/1/1995	CHROMIUM, HEXAVALENT	6.6E-03		2	2
AMW-10A	T	7/1/2006	CHROMIUM, HEXAVALENT	4.7E-03		4	3
AMW-10A	T	7/1/2007	CHROMIUM, HEXAVALENT	4.1E-03		3	2
AMW-10A	T	7/1/2008	CHROMIUM, HEXAVALENT	8.6E-03		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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -5

Confidence in Trend: 71.9%

Coefficient of Variation: 0.23

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-11A	T	7/1/1995	CHROMIUM, HEXAVALENT	5.0E-03	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	5.3E-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

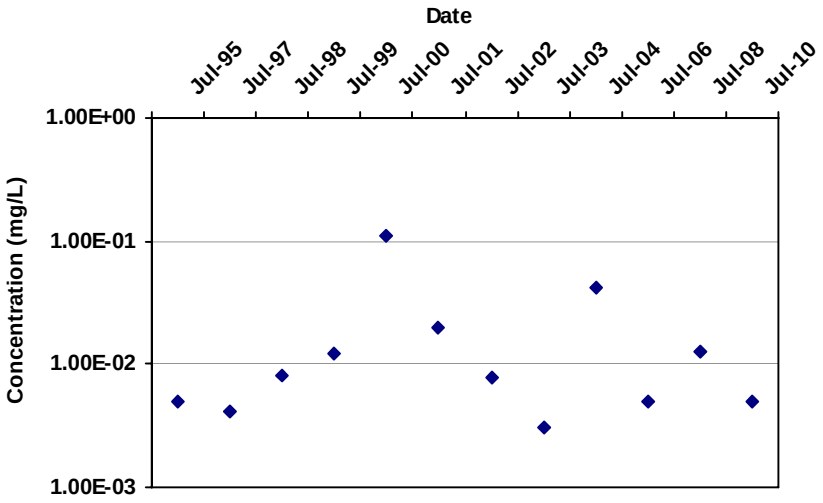
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

TCE SOURCE WELLS

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/17/2011
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: 55.4%

Coefficient of Variation: 1.57

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-1A	T	7/1/1995	CHROMIUM, HEXAVALENT	5.0E-03	ND	2	0
MW-1A	T	7/1/1997	CHROMIUM, HEXAVALENT	4.1E-03	ND	2	0
MW-1A	T	7/1/1998	CHROMIUM, HEXAVALENT	8.2E-03		2	2
MW-1A	T	7/1/1999	CHROMIUM, HEXAVALENT	1.2E-02		2	1
MW-1A	T	7/1/2000	CHROMIUM, HEXAVALENT	1.1E-01		2	2
MW-1A	T	7/1/2001	CHROMIUM, HEXAVALENT	2.0E-02		2	1
MW-1A	T	7/1/2002	CHROMIUM, HEXAVALENT	7.9E-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	5.0E-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	5.0E-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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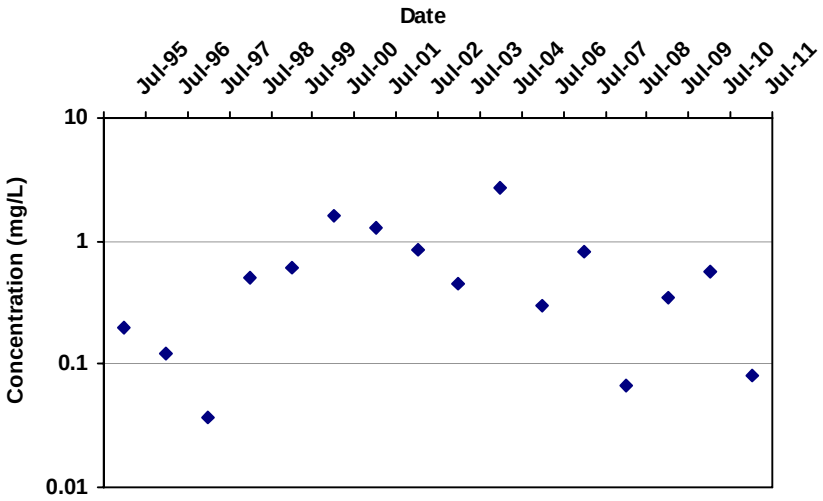
PROXIMAL WELLS

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/17/2011
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: 48.2%

Coefficient of Variation: 1.06

Mann Kendall Concentration Trend: (See Note) NT

Data Table:

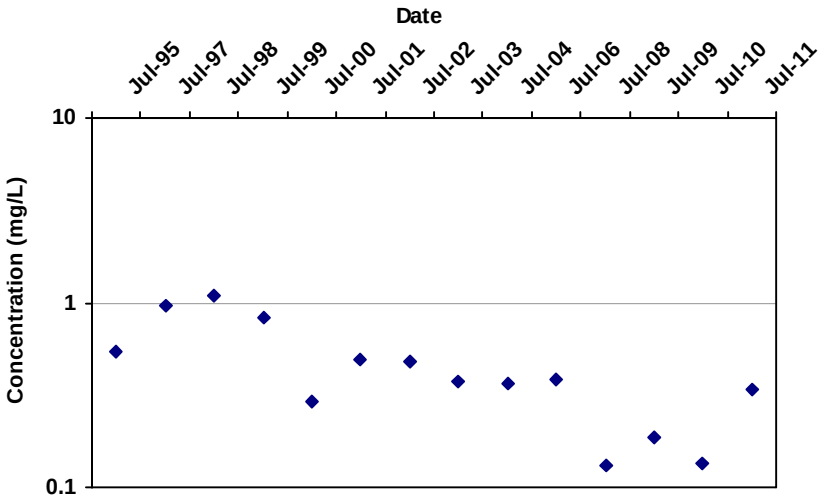
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-2A	S	7/1/1995	CHROMIUM, HEXAVALENT	2.0E-01		2	2
MW-2A	S	7/1/1996	CHROMIUM, HEXAVALENT	1.2E-01		2	2
MW-2A	S	7/1/1997	CHROMIUM, HEXAVALENT	3.7E-02		2	2
MW-2A	S	7/1/1998	CHROMIUM, HEXAVALENT	5.1E-01		2	2
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	5.6E-01		1	1
MW-2A	S	7/1/2011	CHROMIUM, HEXAVALENT	8.1E-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-3A
Well Type: S
COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 **to** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -57

Confidence in Trend: 99.9%

Coefficient of Variation: 0.63

Mann Kendall Concentration Trend: (See Note) D

Data Table:

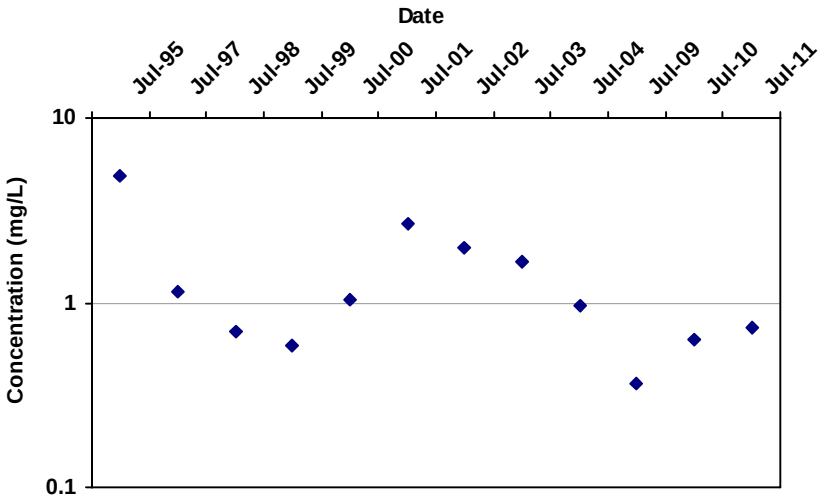
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-3A	S	7/1/1995	CHROMIUM, HEXAVALENT	5.4E-01		2	2
MW-3A	S	7/1/1997	CHROMIUM, HEXAVALENT	9.6E-01		2	2
MW-3A	S	7/1/1998	CHROMIUM, HEXAVALENT	1.1E+00		2	2
MW-3A	S	7/1/1999	CHROMIUM, HEXAVALENT	8.4E-01		2	2
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

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** 10/17/2011
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: 92.4%

Coefficient of Variation: 0.87

Mann Kendall Concentration Trend: (See Note) PD

Data Table:

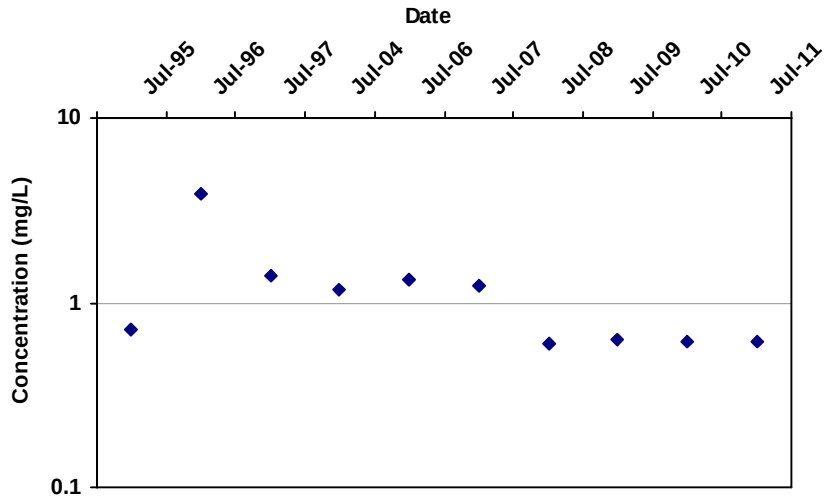
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-4A	S	7/1/1995	CHROMIUM, HEXAVALENT	4.8E+00		2	2
MW-4A	S	7/1/1997	CHROMIUM, HEXAVALENT	1.1E+00		2	2
MW-4A	S	7/1/1998	CHROMIUM, HEXAVALENT	7.0E-01		2	2
MW-4A	S	7/1/1999	CHROMIUM, HEXAVALENT	5.8E-01		2	2
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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -23

Confidence in Trend: 97.7%

Coefficient of Variation: 0.80

Mann Kendall Concentration Trend: (See Note) D

Data Table:

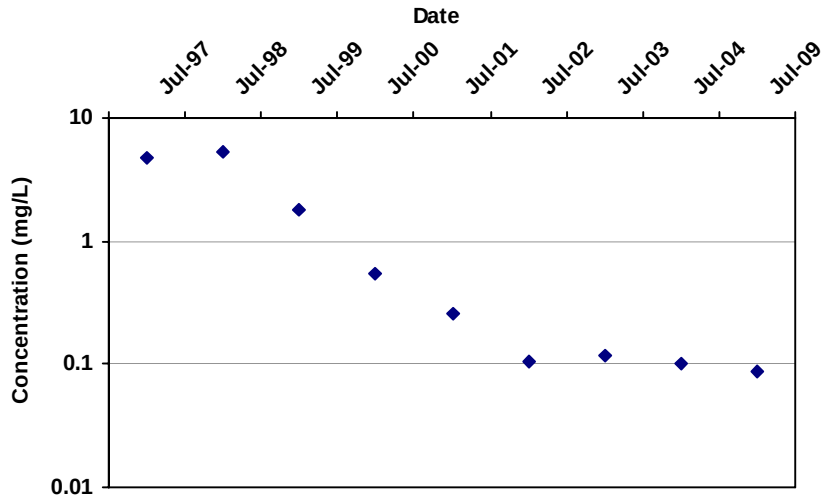
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-4B	S	7/1/1995	CHROMIUM, HEXAVALENT	7.1E-01		2	2
MW-4B	S	7/1/1996	CHROMIUM, HEXAVALENT	3.8E+00		2	2
MW-4B	S	7/1/1997	CHROMIUM, HEXAVALENT	1.4E+00		1	1
MW-4B	S	7/1/2004	CHROMIUM, HEXAVALENT	1.2E+00		1	1
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

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** 10/17/2011
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:

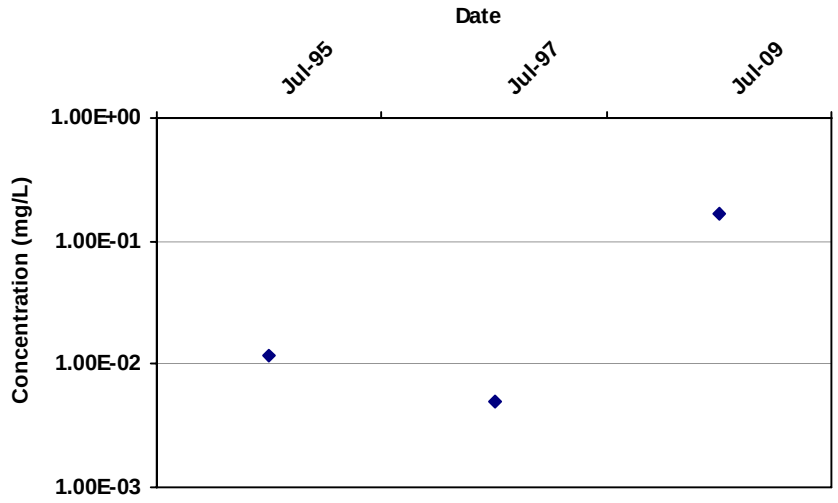
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-4BSHED	S	7/1/1997	CHROMIUM, HEXAVALENT	4.8E+00		2	2
MW-4BSHED	S	7/1/1998	CHROMIUM, HEXAVALENT	5.4E+00		2	2
MW-4BSHED	S	7/1/1999	CHROMIUM, HEXAVALENT	1.8E+00		2	2
MW-4BSHED	S	7/1/2000	CHROMIUM, HEXAVALENT	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: to
Consolidation Period: Other
Consolidation Type: Maximum
Duplicate Consolidation: First
ND Values: Specified Detection Limit
J Flag Values : Fraction of 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:

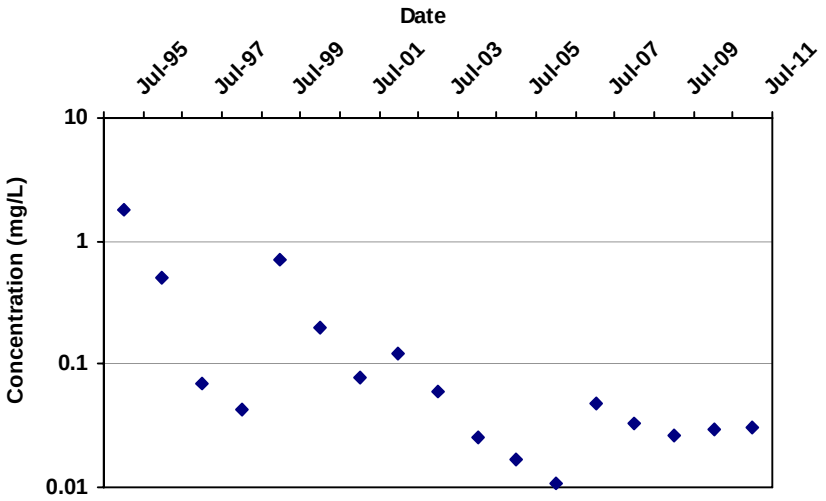
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-6A	S	7/1/1995	CHROMIUM, HEXAVALENT	1.2E-02		2	1
MW-6A	S	7/1/1997	CHROMIUM, HEXAVALENT	5.0E-03	ND	1	0
MW-6A	S	7/1/2009	CHROMIUM, HEXAVALENT	1.7E-01		1	1

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: to
Consolidation Period: Other
Consolidation Type: Maximum
Duplicate Consolidation: First
ND Values: Specified Detection Limit
J Flag Values : Fraction of Actual Value



Mann Kendall S Statistic: -76

Confidence in Trend: 99.9%

Coefficient of Variation: 2.00

Mann Kendall Concentration Trend: (See Note) D

Data Table:

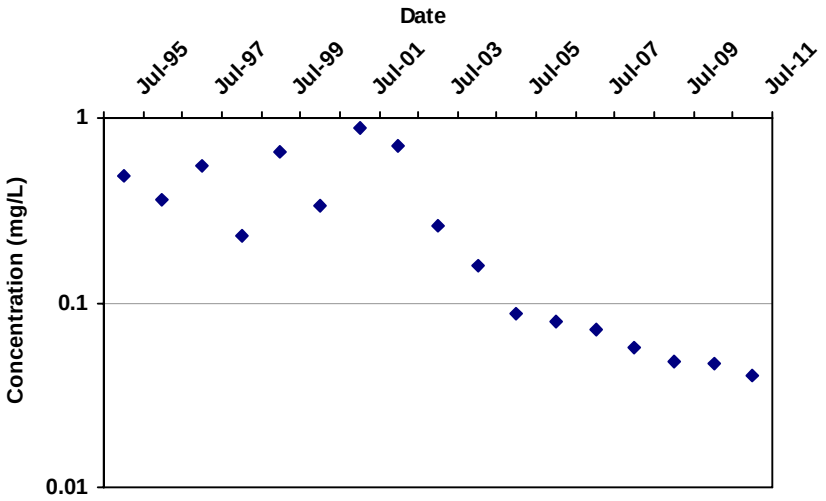
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-6B	S	7/1/1995	CHROMIUM, HEXAVALENT	1.8E+00		11	11
MW-6B	S	7/1/1996	CHROMIUM, HEXAVALENT	5.0E-01		2	2
MW-6B	S	7/1/1997	CHROMIUM, HEXAVALENT	7.0E-02		2	2
MW-6B	S	7/1/1998	CHROMIUM, HEXAVALENT	4.4E-02		2	2
MW-6B	S	7/1/1999	CHROMIUM, HEXAVALENT	7.0E-01		2	2
MW-6B	S	7/1/2000	CHROMIUM, HEXAVALENT	2.0E-01		2	2
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

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** 10/17/2011
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: 0.91

Mann Kendall Concentration Trend: (See Note) D

Data Table:

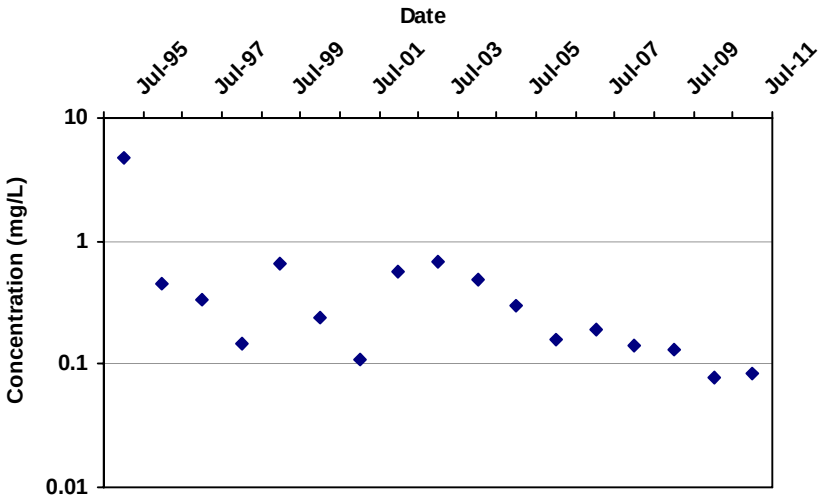
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-10B	T	7/1/1995	CHROMIUM, HEXAVALENT	4.9E-01		11	11
MW-10B	T	7/1/1996	CHROMIUM, HEXAVALENT	3.6E-01		2	2
MW-10B	T	7/1/1997	CHROMIUM, HEXAVALENT	5.5E-01		2	2
MW-10B	T	7/1/1998	CHROMIUM, HEXAVALENT	2.3E-01		2	2
MW-10B	T	7/1/1999	CHROMIUM, HEXAVALENT	6.6E-01		2	2
MW-10B	T	7/1/2000	CHROMIUM, HEXAVALENT	3.3E-01		2	2
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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -72

Confidence in Trend: 99.9%

Coefficient of Variation: 1.95

Mann Kendall Concentration Trend: (See Note) D

Data Table:

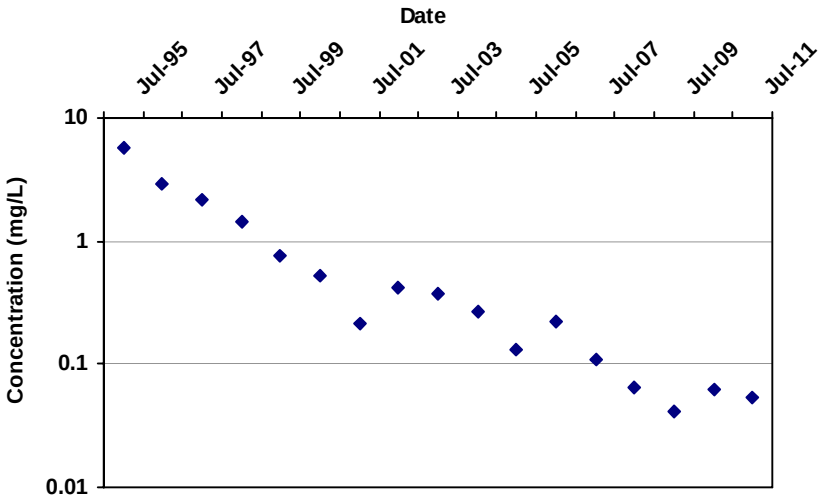
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-10C	T	7/1/1995	CHROMIUM, HEXAVALENT	4.7E+00		11	11
MW-10C	T	7/1/1996	CHROMIUM, HEXAVALENT	4.5E-01		2	2
MW-10C	T	7/1/1997	CHROMIUM, HEXAVALENT	3.4E-01		2	2
MW-10C	T	7/1/1998	CHROMIUM, HEXAVALENT	1.5E-01		2	2
MW-10C	T	7/1/1999	CHROMIUM, HEXAVALENT	6.5E-01		2	2
MW-10C	T	7/1/2000	CHROMIUM, HEXAVALENT	2.4E-01		2	2
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

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: to
Consolidation Period: Other
Consolidation Type: Maximum
Duplicate Consolidation: First
ND Values: Specified Detection Limit
J Flag Values : Fraction of Actual Value



Mann Kendall S Statistic: -122

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
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	7.6E-01		2	2
PW-1B	S	7/1/2000	CHROMIUM, HEXAVALENT	5.2E-01		3	3
PW-1B	S	7/1/2001	CHROMIUM, HEXAVALENT	2.1E-01		3	3
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

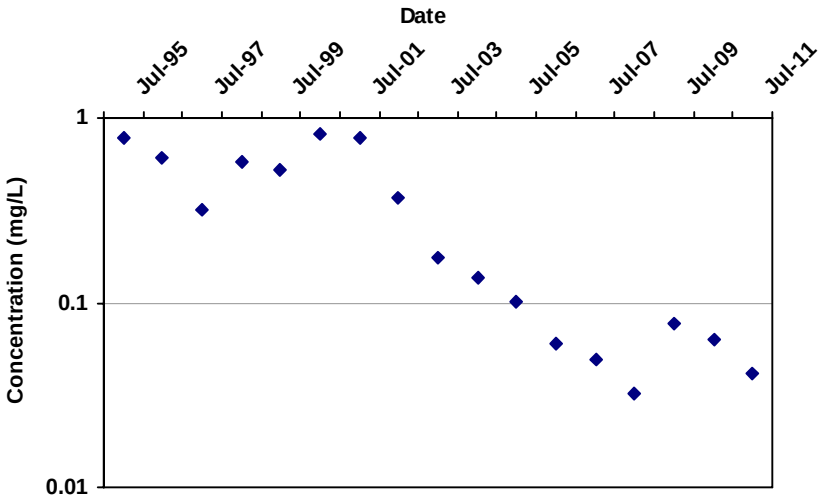
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

INTERMEDIATE WELLS

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -98

Confidence in Trend: 100.0%

Coefficient of Variation: 0.91

Mann Kendall Concentration Trend: (See Note) D

Data Table:

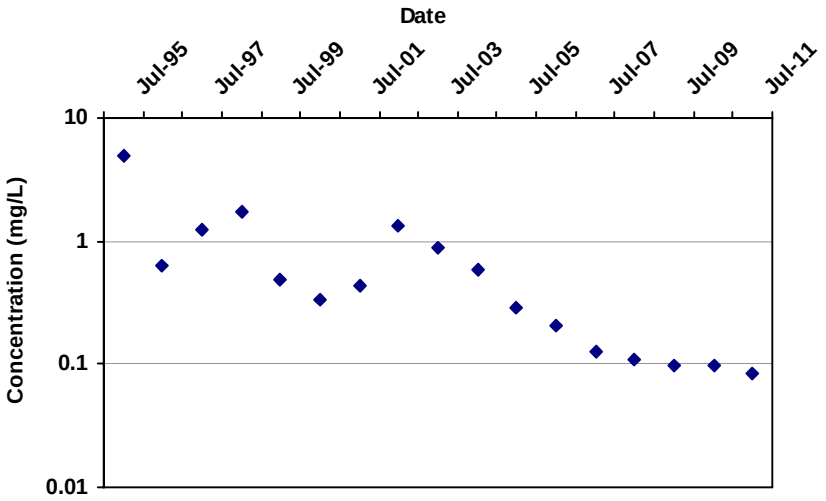
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
CPU-14	T	7/1/1995	CHROMIUM, HEXAVALENT	7.8E-01		2	2
CPU-14	T	7/1/1996	CHROMIUM, HEXAVALENT	6.0E-01		2	2
CPU-14	T	7/1/1997	CHROMIUM, HEXAVALENT	3.2E-01		1	1
CPU-14	T	7/1/1998	CHROMIUM, HEXAVALENT	5.8E-01		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	6.3E-02		2	2
CPU-14	T	7/1/2011	CHROMIUM, HEXAVALENT	4.1E-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-14C
Well Type: T
COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 **to** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -102

Confidence in Trend: 100.0%

Coefficient of Variation: 1.45

Mann Kendall Concentration Trend: (See Note) D

Data Table:

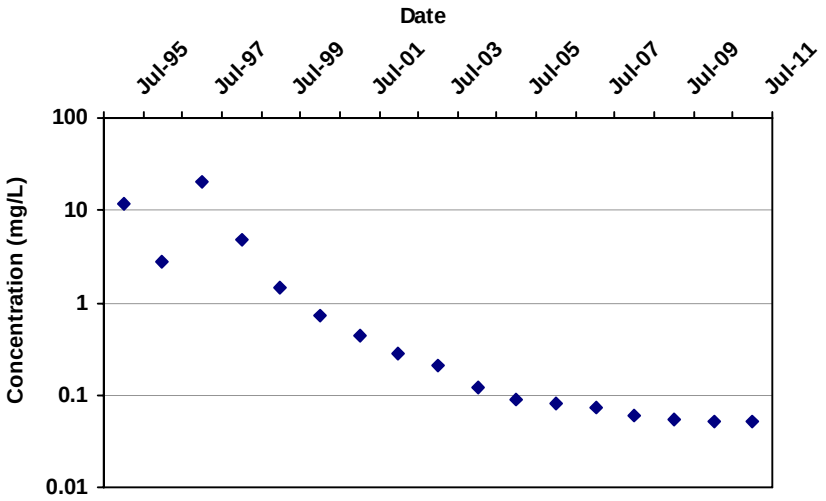
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-14C	T	7/1/1995	CHROMIUM, HEXAVALENT	4.8E+00		11	11
MW-14C	T	7/1/1996	CHROMIUM, HEXAVALENT	6.4E-01		2	2
MW-14C	T	7/1/1997	CHROMIUM, HEXAVALENT	1.3E+00		6	6
MW-14C	T	7/1/1998	CHROMIUM, HEXAVALENT	1.7E+00		2	2
MW-14C	T	7/1/1999	CHROMIUM, HEXAVALENT	4.9E-01		2	2
MW-14C	T	7/1/2000	CHROMIUM, HEXAVALENT	3.4E-01		3	3
MW-14C	T	7/1/2001	CHROMIUM, HEXAVALENT	4.3E-01		3	3
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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -128

Confidence in Trend: 100.0%

Coefficient of Variation: 2.14

Mann Kendall Concentration Trend: (See Note) D

Data Table:

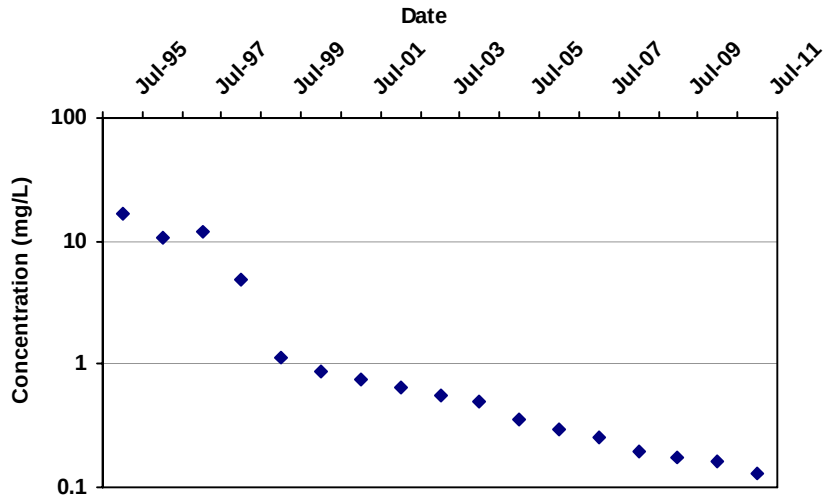
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-14E	T	7/1/1995	CHROMIUM, HEXAVALENT	1.2E+01		11	11
MW-14E	T	7/1/1996	CHROMIUM, HEXAVALENT	2.7E+00		2	2
MW-14E	T	7/1/1997	CHROMIUM, HEXAVALENT	2.1E+01		2	2
MW-14E	T	7/1/1998	CHROMIUM, HEXAVALENT	4.9E+00		3	3
MW-14E	T	7/1/1999	CHROMIUM, HEXAVALENT	1.5E+00		2	2
MW-14E	T	7/1/2000	CHROMIUM, HEXAVALENT	7.4E-01		3	3
MW-14E	T	7/1/2001	CHROMIUM, HEXAVALENT	4.4E-01		3	3
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

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** 10/17/2011
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: 1.72

Mann Kendall Concentration Trend: (See Note) D

Data Table:

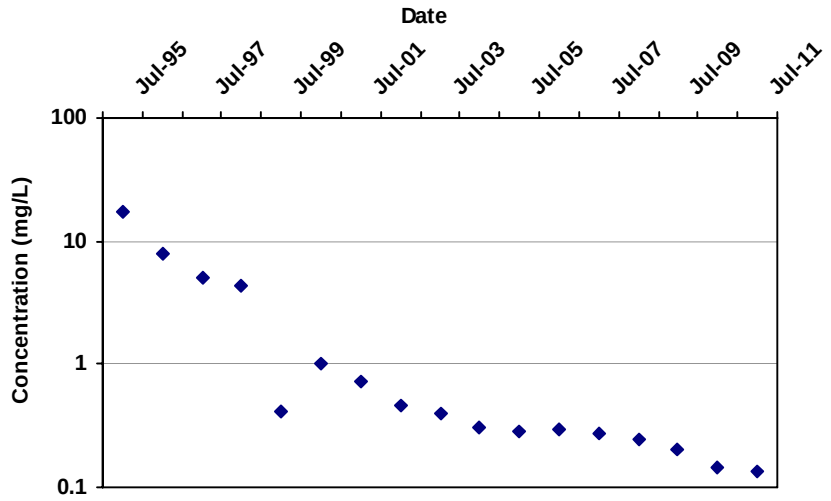
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-18D	T	7/1/1995	CHROMIUM, HEXAVALENT	1.7E+01		11	11
MW-18D	T	7/1/1996	CHROMIUM, HEXAVALENT	1.1E+01		8	8
MW-18D	T	7/1/1997	CHROMIUM, HEXAVALENT	1.2E+01		9	9
MW-18D	T	7/1/1998	CHROMIUM, HEXAVALENT	4.9E+00		3	3
MW-18D	T	7/1/1999	CHROMIUM, HEXAVALENT	1.1E+00		2	2
MW-18D	T	7/1/2000	CHROMIUM, HEXAVALENT	8.8E-01		3	3
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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -128

Confidence in Trend: 100.0%

Coefficient of Variation: 1.90

Mann Kendall Concentration Trend: (See Note) D

Data Table:

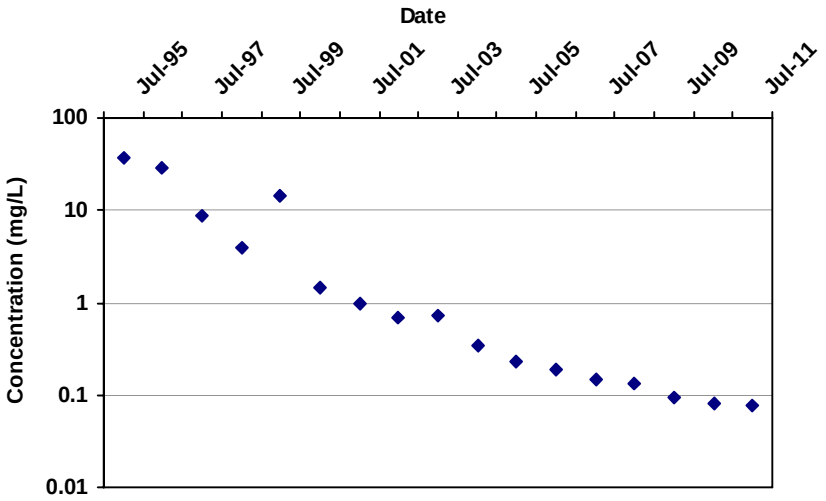
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-19D	T	7/1/1995	CHROMIUM, HEXAVALENT	1.7E+01		11	11
MW-19D	T	7/1/1996	CHROMIUM, HEXAVALENT	7.9E+00		12	12
MW-19D	T	7/1/1997	CHROMIUM, HEXAVALENT	5.0E+00		6	6
MW-19D	T	7/1/1998	CHROMIUM, HEXAVALENT	4.4E+00		3	3
MW-19D	T	7/1/1999	CHROMIUM, HEXAVALENT	4.1E-01		1	1
MW-19D	T	7/1/2000	CHROMIUM, HEXAVALENT	1.0E+00		3	3
MW-19D	T	7/1/2001	CHROMIUM, HEXAVALENT	7.3E-01		3	3
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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -130

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-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	1.5E+00		3	3
MW-20D	T	7/1/2001	CHROMIUM, HEXAVALENT	9.6E-01		3	3
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

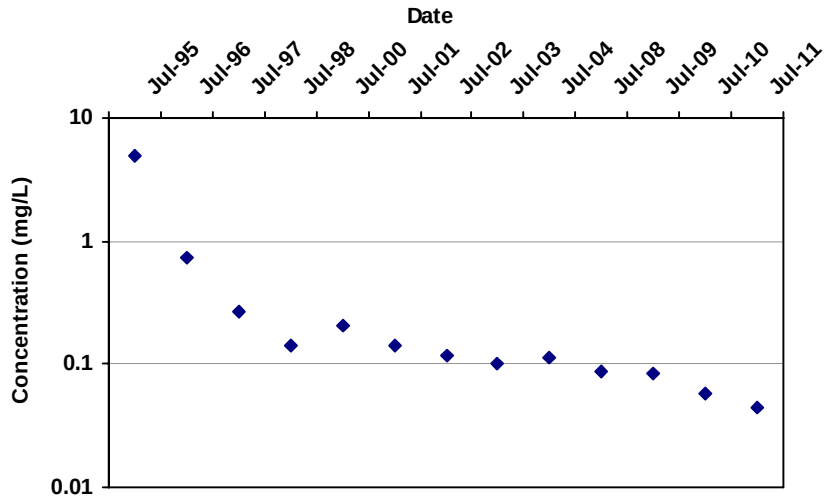
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

CHURCH OF GOD WELLS

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -72

Confidence in Trend: 100.0%

Coefficient of Variation: 2.45

Mann Kendall Concentration Trend: (See Note) D

Data Table:

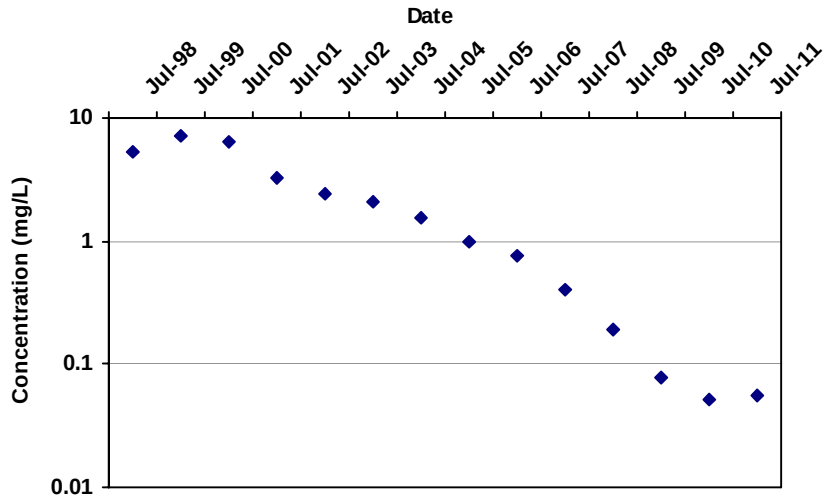
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-14	T	7/1/1995	CHROMIUM, HEXAVALENT	4.9E+00		2	2
AMW-14	T	7/1/1996	CHROMIUM, HEXAVALENT	7.4E-01		2	2
AMW-14	T	7/1/1997	CHROMIUM, HEXAVALENT	2.7E-01		2	2
AMW-14	T	7/1/1998	CHROMIUM, HEXAVALENT	1.4E-01		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	5.7E-02		2	2
AMW-14	T	7/1/2011	CHROMIUM, HEXAVALENT	4.5E-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: AMW-27
Well Type: T
COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 **to** 10/17/2011
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: 1.12

Mann Kendall Concentration Trend: (See Note) D

Data Table:

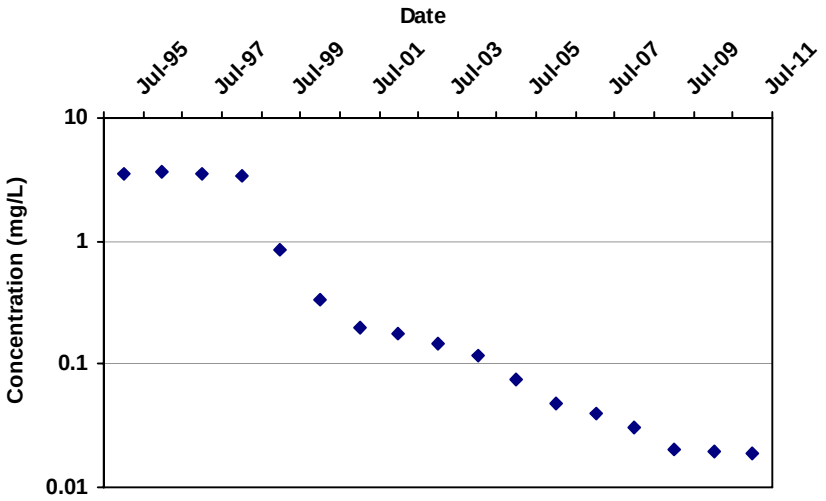
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-27	T	7/1/1998	CHROMIUM, HEXAVALENT	5.3E+00		1	1
AMW-27	T	7/1/1999	CHROMIUM, HEXAVALENT	7.2E+00		1	1
AMW-27	T	7/1/2000	CHROMIUM, HEXAVALENT	6.3E+00		3	3
AMW-27	T	7/1/2001	CHROMIUM, HEXAVALENT	3.2E+00		3	3
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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -132

Confidence in Trend: 100.0%

Coefficient of Variation: 1.56

Mann Kendall Concentration Trend: (See Note) D

Data Table:

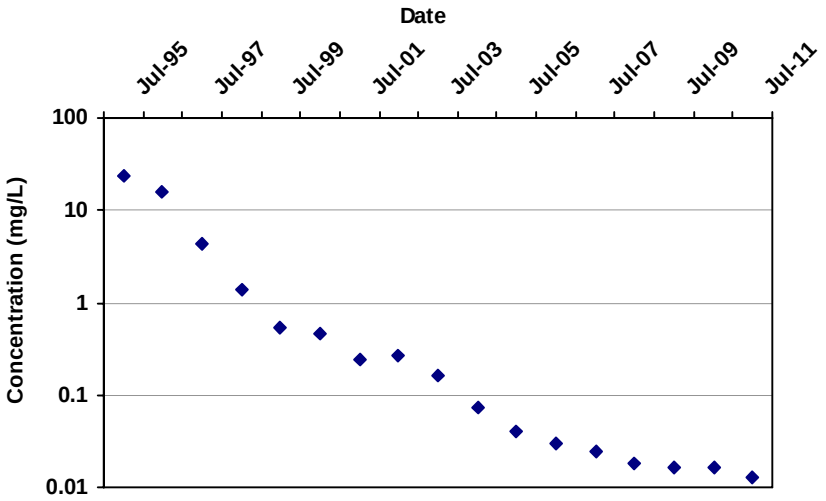
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
CPU-13	T	7/1/1995	CHROMIUM, HEXAVALENT	3.5E+00		11	11
CPU-13	T	7/1/1996	CHROMIUM, HEXAVALENT	3.6E+00		2	2
CPU-13	T	7/1/1997	CHROMIUM, HEXAVALENT	3.5E+00		2	2
CPU-13	T	7/1/1998	CHROMIUM, HEXAVALENT	3.3E+00		2	2
CPU-13	T	7/1/1999	CHROMIUM, HEXAVALENT	8.6E-01		2	2
CPU-13	T	7/1/2000	CHROMIUM, HEXAVALENT	3.4E-01		3	3
CPU-13	T	7/1/2001	CHROMIUM, HEXAVALENT	2.0E-01		3	3
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

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** 10/17/2011
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: 2.39

Mann Kendall Concentration Trend: (See Note) D

Data Table:

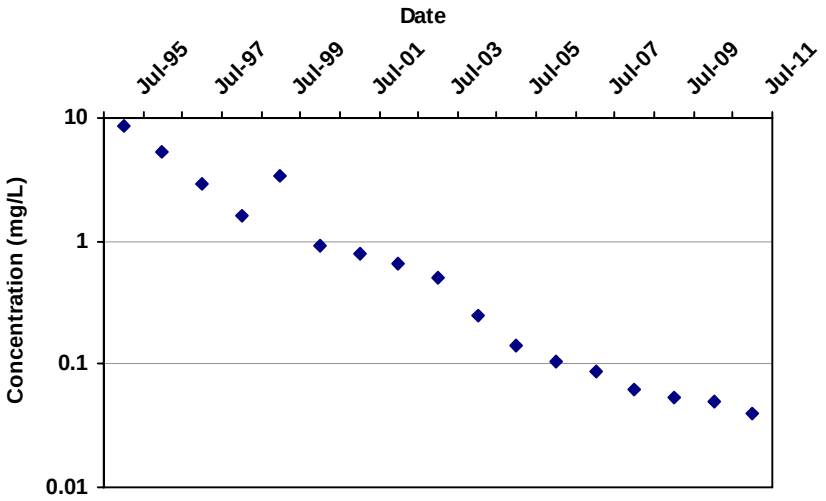
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-21D	T	7/1/1995	CHROMIUM, HEXAVALENT	2.4E+01		11	11
MW-21D	T	7/1/1996	CHROMIUM, HEXAVALENT	1.6E+01		12	12
MW-21D	T	7/1/1997	CHROMIUM, HEXAVALENT	4.4E+00		9	9
MW-21D	T	7/1/1998	CHROMIUM, HEXAVALENT	1.4E+00		3	3
MW-21D	T	7/1/1999	CHROMIUM, HEXAVALENT	5.3E-01		2	2
MW-21D	T	7/1/2000	CHROMIUM, HEXAVALENT	4.7E-01		3	3
MW-21D	T	7/1/2001	CHROMIUM, HEXAVALENT	2.4E-01		3	3
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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -132

Confidence in Trend: 100.0%

Coefficient of Variation: 1.57

Mann Kendall Concentration Trend: (See Note) D

Data Table:

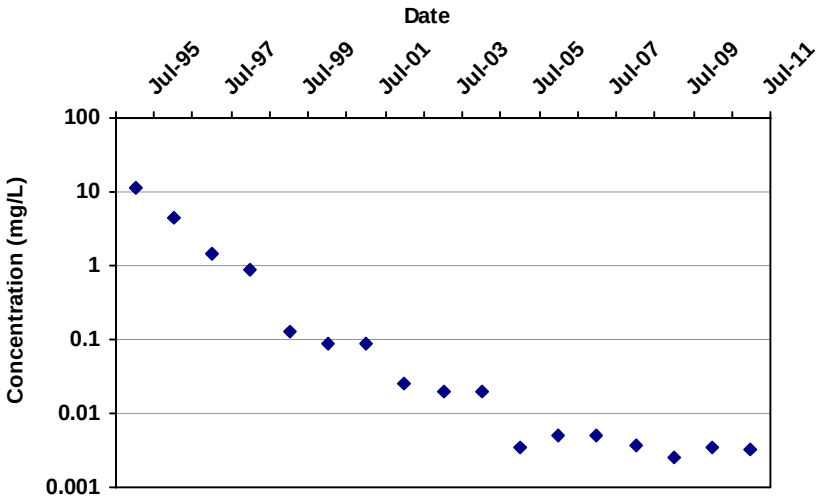
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-22D	T	7/1/1995	CHROMIUM, HEXAVALENT	8.6E+00		11	11
MW-22D	T	7/1/1996	CHROMIUM, HEXAVALENT	5.4E+00		11	11
MW-22D	T	7/1/1997	CHROMIUM, HEXAVALENT	2.9E+00		9	9
MW-22D	T	7/1/1998	CHROMIUM, HEXAVALENT	1.6E+00		3	3
MW-22D	T	7/1/1999	CHROMIUM, HEXAVALENT	3.4E+00		2	2
MW-22D	T	7/1/2000	CHROMIUM, HEXAVALENT	9.1E-01		3	3
MW-22D	T	7/1/2001	CHROMIUM, HEXAVALENT	7.8E-01		3	3
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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -122

Confidence in Trend: 100.0%

Coefficient of Variation: 2.61

Mann Kendall Concentration Trend: (See Note) D

Data Table:

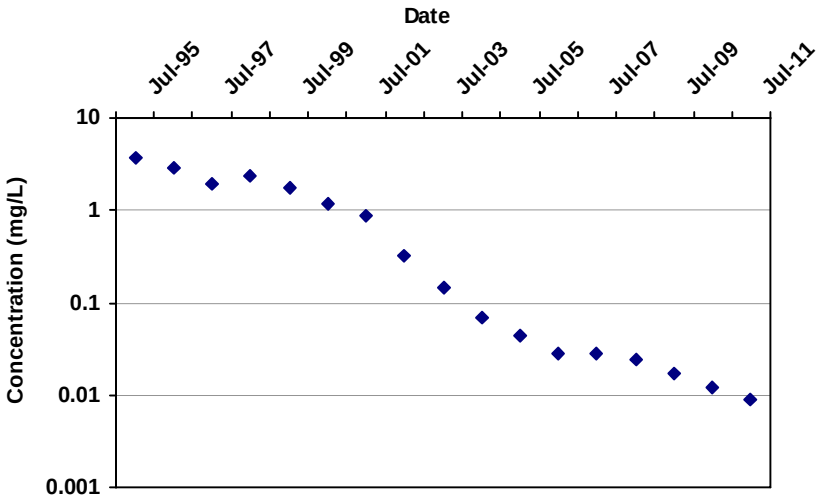
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-25D	T	7/1/1995	CHROMIUM, HEXAVALENT	1.1E+01		12	12
MW-25D	T	7/1/1996	CHROMIUM, HEXAVALENT	4.6E+00		12	12
MW-25D	T	7/1/1997	CHROMIUM, HEXAVALENT	1.5E+00		9	9
MW-25D	T	7/1/1998	CHROMIUM, HEXAVALENT	9.1E-01		2	2
MW-25D	T	7/1/1999	CHROMIUM, HEXAVALENT	1.3E-01		2	2
MW-25D	T	7/1/2000	CHROMIUM, HEXAVALENT	8.6E-02		3	3
MW-25D	T	7/1/2001	CHROMIUM, HEXAVALENT	8.8E-02		3	3
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	5.0E-03	ND	1	0
MW-25D	T	7/1/2007	CHROMIUM, HEXAVALENT	4.9E-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	3.2E-03		2	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-26D
Well Type: T
COC: CHROMIUM, HEXAVALENT

Time Period: 1/19/1995 **to** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -132

Confidence in Trend: 100.0%

Coefficient of Variation: 1.31

Mann Kendall Concentration Trend: (See Note) D

Data Table:

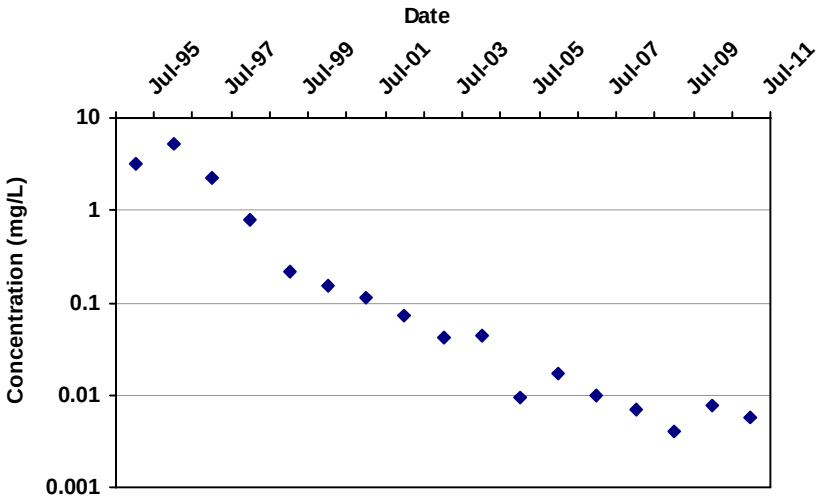
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-26D	T	7/1/1995	CHROMIUM, HEXAVALENT	3.6E+00		11	11
MW-26D	T	7/1/1996	CHROMIUM, HEXAVALENT	2.9E+00		12	12
MW-26D	T	7/1/1997	CHROMIUM, HEXAVALENT	1.9E+00		9	9
MW-26D	T	7/1/1998	CHROMIUM, HEXAVALENT	2.3E+00		2	2
MW-26D	T	7/1/1999	CHROMIUM, HEXAVALENT	1.8E+00		2	2
MW-26D	T	7/1/2000	CHROMIUM, HEXAVALENT	1.2E+00		3	3
MW-26D	T	7/1/2001	CHROMIUM, HEXAVALENT	8.6E-01		3	3
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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -122

Confidence in Trend: 100.0%

Coefficient of Variation: 2.05

Mann Kendall Concentration Trend: (See Note) D

Data Table:

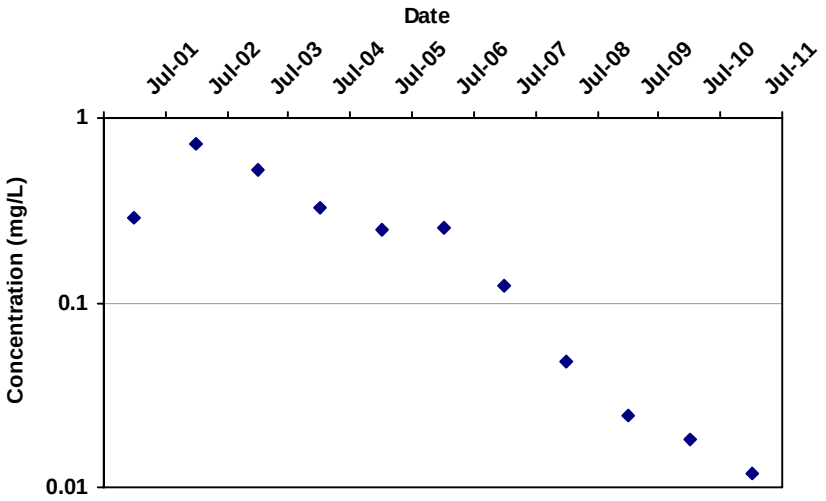
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-27D	T	7/1/1995	CHROMIUM, HEXAVALENT	3.1E+00		11	11
MW-27D	T	7/1/1996	CHROMIUM, HEXAVALENT	5.2E+00		2	2
MW-27D	T	7/1/1997	CHROMIUM, HEXAVALENT	2.3E+00		2	2
MW-27D	T	7/1/1998	CHROMIUM, HEXAVALENT	7.8E-01		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	1.1E-01		3	3
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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -47

Confidence in Trend: 100.0%

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-49	T	7/1/2001	CHROMIUM, HEXAVALENT	2.9E-01		3	3
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

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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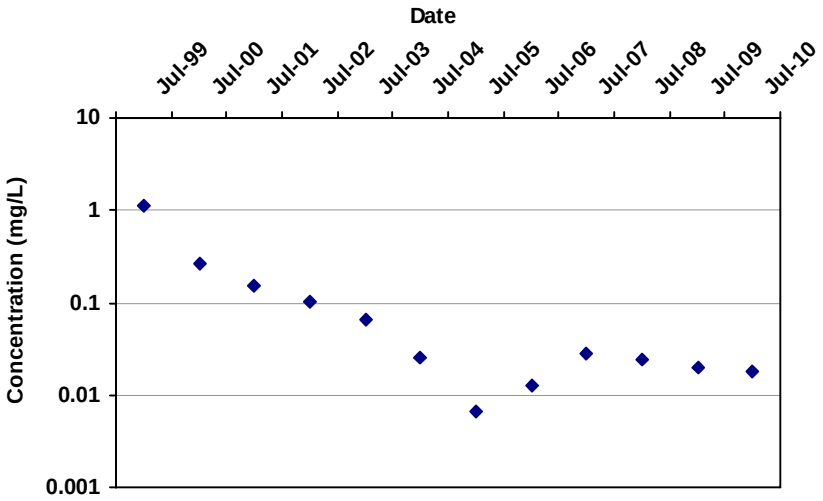
TOE OF PLUME

Other Toe Wells

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -46

Confidence in Trend: 100.0%

Coefficient of Variation: 2.03

Mann Kendall Concentration Trend: (See Note) D

Data Table:

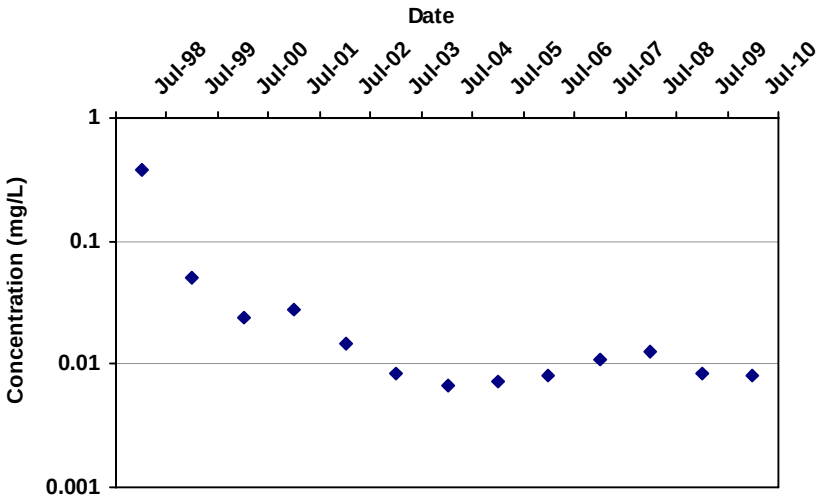
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-42	T	7/1/1999	CHROMIUM, HEXAVALENT	1.1E+00		3	3
AMW-42	T	7/1/2000	CHROMIUM, HEXAVALENT	2.6E-01		3	3
AMW-42	T	7/1/2001	CHROMIUM, HEXAVALENT	1.5E-01		3	3
AMW-42	T	7/1/2002	CHROMIUM, HEXAVALENT	1.0E-01		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	1.3E-02		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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -39

Confidence in Trend: 99.1%

Coefficient of Variation: 2.32

Mann Kendall Concentration Trend: (See Note) D

Data Table:

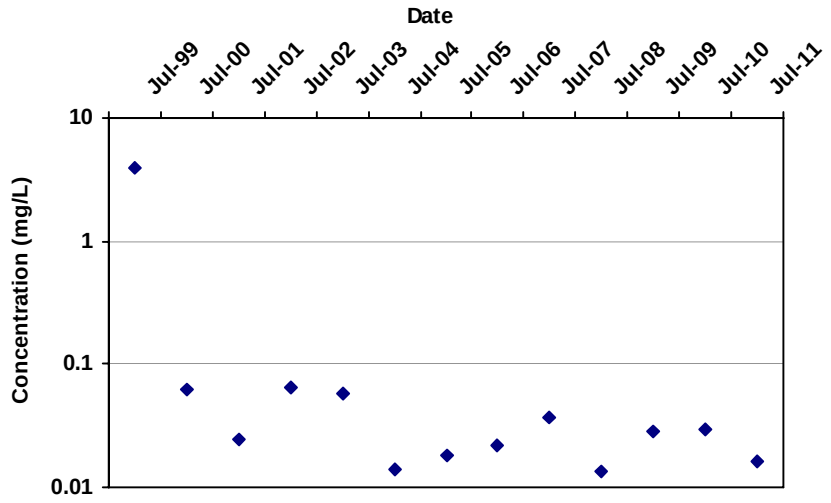
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-31	T	7/1/1998	CHROMIUM, HEXAVALENT	3.7E-01		6	6
MW-31	T	7/1/1999	CHROMIUM, HEXAVALENT	5.0E-02		2	2
MW-31	T	7/1/2000	CHROMIUM, HEXAVALENT	2.4E-02		3	3
MW-31	T	7/1/2001	CHROMIUM, HEXAVALENT	2.7E-02		2	2
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	6.6E-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

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** 10/17/2011
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: 97.1%

Coefficient of Variation: 3.26

Mann Kendall Concentration Trend: (See Note) D

Data Table:

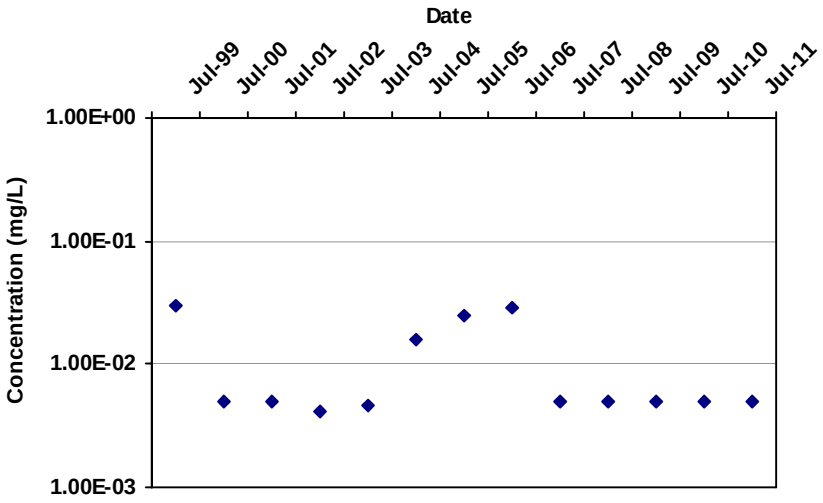
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-35	T	7/1/1999	CHROMIUM, HEXAVALENT	4.0E+00		2	2
MW-35	T	7/1/2000	CHROMIUM, HEXAVALENT	6.2E-02		3	3
MW-35	T	7/1/2001	CHROMIUM, HEXAVALENT	2.5E-02		3	3
MW-35	T	7/1/2002	CHROMIUM, HEXAVALENT	6.6E-02		6	6
MW-35	T	7/1/2003	CHROMIUM, HEXAVALENT	5.8E-02		3	3
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	1.3E-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

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Maximum
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -15

Confidence in Trend: 79.9%

Coefficient of Variation: 0.92

Mann Kendall Concentration Trend: (See Note) S

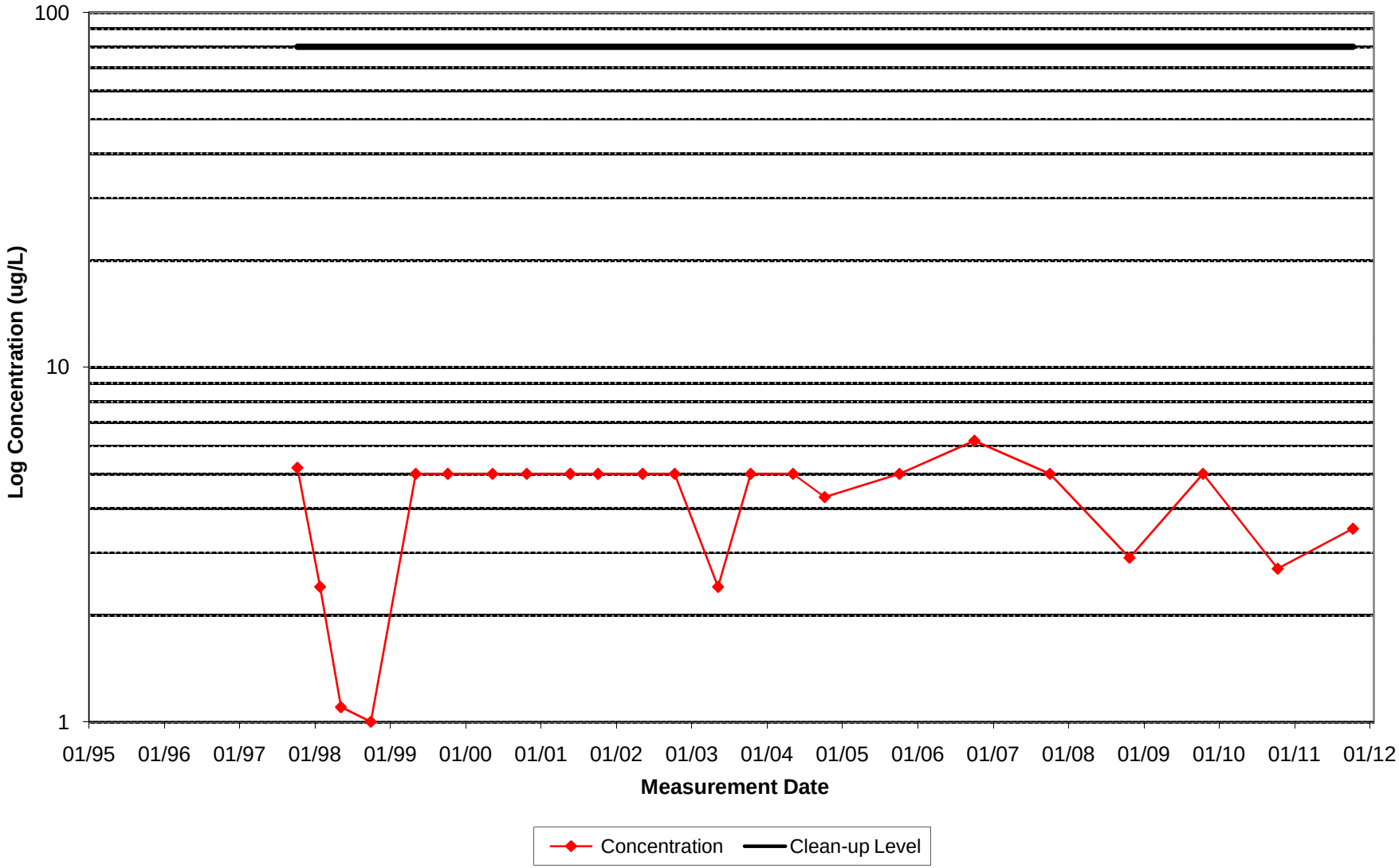
Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-41	T	7/1/1999	CHROMIUM, HEXAVALENT	3.0E-02		2	2
MW-41	T	7/1/2000	CHROMIUM, HEXAVALENT	5.0E-03	ND	3	0
MW-41	T	7/1/2001	CHROMIUM, HEXAVALENT	5.0E-03	ND	3	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	1.6E-02		6	3
MW-41	T	7/1/2005	CHROMIUM, HEXAVALENT	2.5E-02		5	4
MW-41	T	7/1/2006	CHROMIUM, HEXAVALENT	2.9E-02		2	1
MW-41	T	7/1/2007	CHROMIUM, HEXAVALENT	5.0E-03	ND	4	0
MW-41	T	7/1/2008	CHROMIUM, HEXAVALENT	5.0E-03	ND	2	0
MW-41	T	7/1/2009	CHROMIUM, HEXAVALENT	5.0E-03	ND	2	0
MW-41	T	7/1/2010	CHROMIUM, HEXAVALENT	5.0E-03	ND	1	0
MW-41	T	7/1/2011	CHROMIUM, HEXAVALENT	5.0E-03	ND	1	0

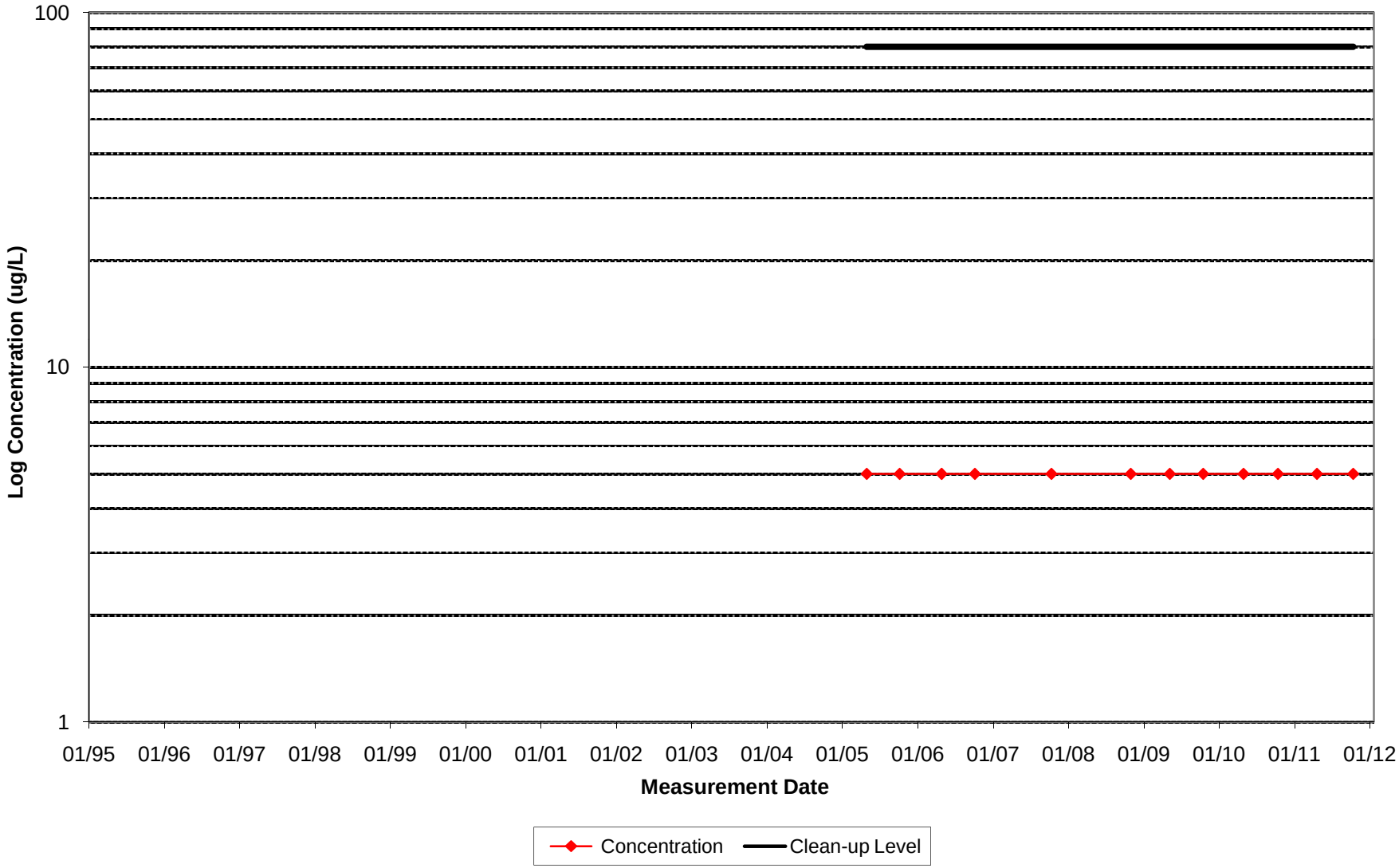
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

TROUTDALE WELLS

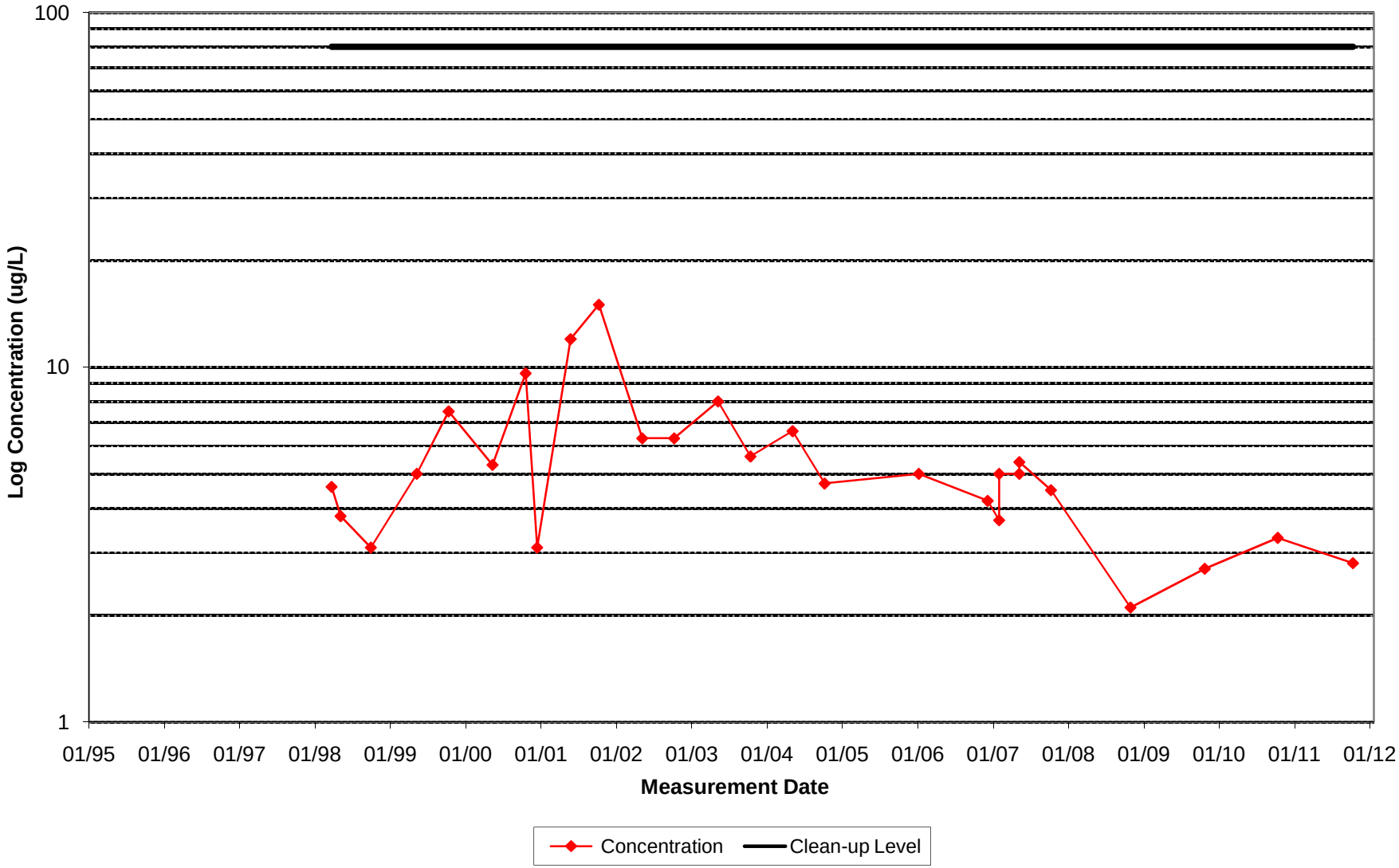
AMW-24 - Cr (ug/L)


100
10
1
Log Concentration (ug/L)
01/95
01/96
01/97
01/98
01/99
01/00
01/01
01/02
01/03
01/04
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
Measurement Date
Concentration
Clean-up Level

BENNETT - Cr (ug/L)



MW-33 - Cr (ug/L)


100
10
1
Log Concentration (ug/L)
01/95
01/96
01/97
01/98
01/99
01/00
01/01
01/02
01/03
01/04
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
Measurement Date
Concentration
Clean-up Level

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APPENDIX B

TCE CONCENTRATIONS IN GROUNDWATER

APPENDIX B-1

TCE CONCENTRATIONS – SUMMARY TABLES

B1. Trichloroethene Concentration Summary

Well Group	Well	Historical Maximum		Spring 2010	Fall 2010	Spring 2011	Fall 2011
		Date	Result				
Upgradient of TCE	AMW-8A	4/25/1995	692	1.3	0.79	NS	0.50
TCE Source (OU-2)	AMW-1A	10/12/1995	1,290	0.95	2.8	1.7	**44.0**
	AMW-2A	10/13/1995	5,350	**91.0**	**29.0**	**18.0**	**55.0**
	AMW-12A	5/9/1997	19,300 J	**31.0**	**29.0**	**30.0**	**38.0**
	AMW-19A	5/14/2002	490	1.2	1.7	NS	1.5
	AMW-53A	12/9/2003	240	**10.0**	**11.0**	0.86	**6.0**
	MW-1A	5/10/1999	3,900	**11.0**	**7.9**	4.8	**5.2**
Proximal	MW-2A	5/2/1995	24.7	NS	2.1	NS	1.7
	MW-4B	5/10/1995	600	NS	**5.9**	NS	4.6
	MW-6B	5/10/1997	1,230	**6.1**	4.7	4.5	4.2
	MW-10B	10/8/1997	1,300	**19.0**	**18.0**	**21.0**	**18.0**
	MW-10C	10/6/1998	1,500	3.5	3.6	3.6	3.3
	PW-1B	5/5/1999	900	3.3	2.8	3.1	2.9
Intermediate	AMW-16	4/25/1995	87.0	NS	1.7	NS	1.6
	CPU-14	10/23/2000	63.0	NS	**7.7**	NS	**5.4**
	MW-14C	5/4/1998	2,500	**20.0**	**22.0**	**24.0**	**15.0**
	MW-14E	5/10/1997	6,540	**73.0**	**76.0**	**83.0**	**78.0**
	MW-15E	5/8/1997	1,100	**7.9**	**6.0**	**5.5**	**5.1**
	MW-18D	1/19/1995	7,800 J	**62.0**	**66.0**	**63.0**	**52.0**
	MW-18E	5/12/1998	2,700	NS	**130**	NS	**170.0**
	MW-19D	2/3/1995	6,300 J	**30.0**	**34.0**	**34.0**	**32.0**
	MW-20D	10/11/1999	4,100 J	**41.0**	**43.0**	**50.0**	**58.0**
	MW-38	10/15/2010	12.0	NS	**12.0**	**11.0**	**9.8**
	PZ-39	12/20/2009	2,100 J	NS	**97.0**	**56.0**	**56.0**
Northern Plume	AMW-17	10/11/11	140	1.1	**28.0**	**29.0**	**140.0**
	AMW-18	5/7/2008	460	**200**	**130**	**75.0**	**68.0**
Church of God	AMW-14	4/20/1995	506	0.9 UJ	0.85 UJ	NS	0.64
	AMW-27	6/2/1999	83.0	**16.0**	**16.0**	**15.0**	**14.0**
	CPU-12	5/7/2002	13.0	NS	2.8	NS	3.5
	CPU-13	10/8/1997	110	1.6	1.6	1.8	1.5
	MW-21D	2/3/1995	3,000 J	**7.3**	**7.0**	**7.3**	**6.2**
	MW-22D	6/9/1997	390	**7.9**	**8.0**	**8.4**	**6.5**
	MW-23D	10/1/1998	67.0	NS	1.9	NS	1.6

B1. Summary of Recent Trichloroethene Concentrations

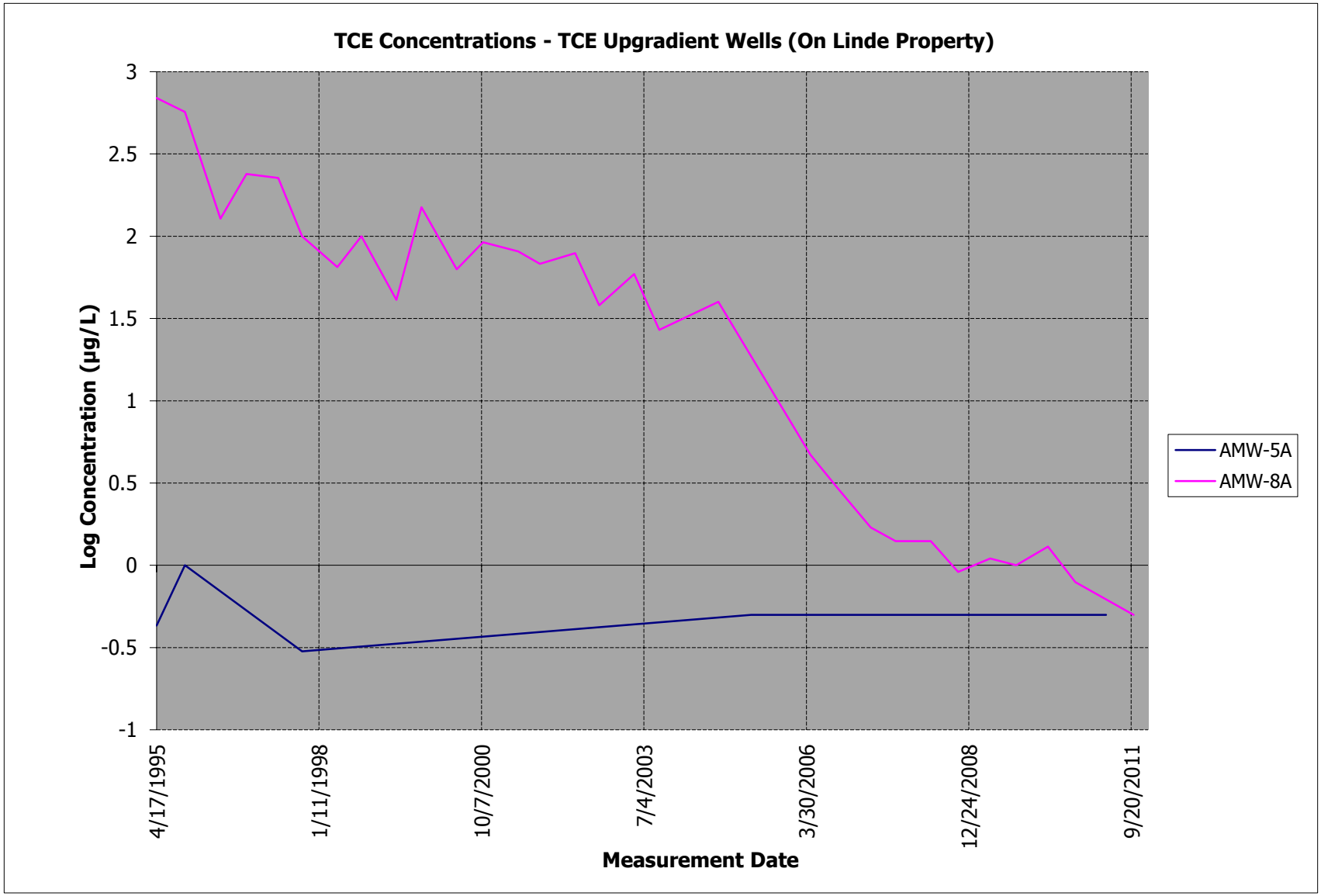
Well Group	Well	Historical Maximum		Spring 2010	Fall 2010	Spring 2011	Fall 2011
		Date	Result				
Church of God Cont.	MW-25D	1/19/1995	200 J	1.2	1.3	1.3	1.5
	MW-26D	10/10/2001	52.0	0.85	0.78	0.79	0.72
	MW-27D	10/8/1997	280	0.58	0.63	NS	0.63
	MW-49	12/21/2000	340	2.4	1.8	1.7	1.4
Toe of Plume: Other Toe	MW-35	9/14/1999	110	**5.3**	**6.3**	NS	**5.4**
	MW-41	10/19/2004	8.3	NS	0.50 U	NS	0.50 U
Troutdale Aquifer	AMW-24	10/7/1999	25.0	NS	**13.0**	NS	**12.0**
	BENNETT	4/28/2010	10.0	**10.0**	**8.6**	4.0	**6.2**
	MW-33	10/8/2001	19.0	NS	**14.0**	NS	**13.0**

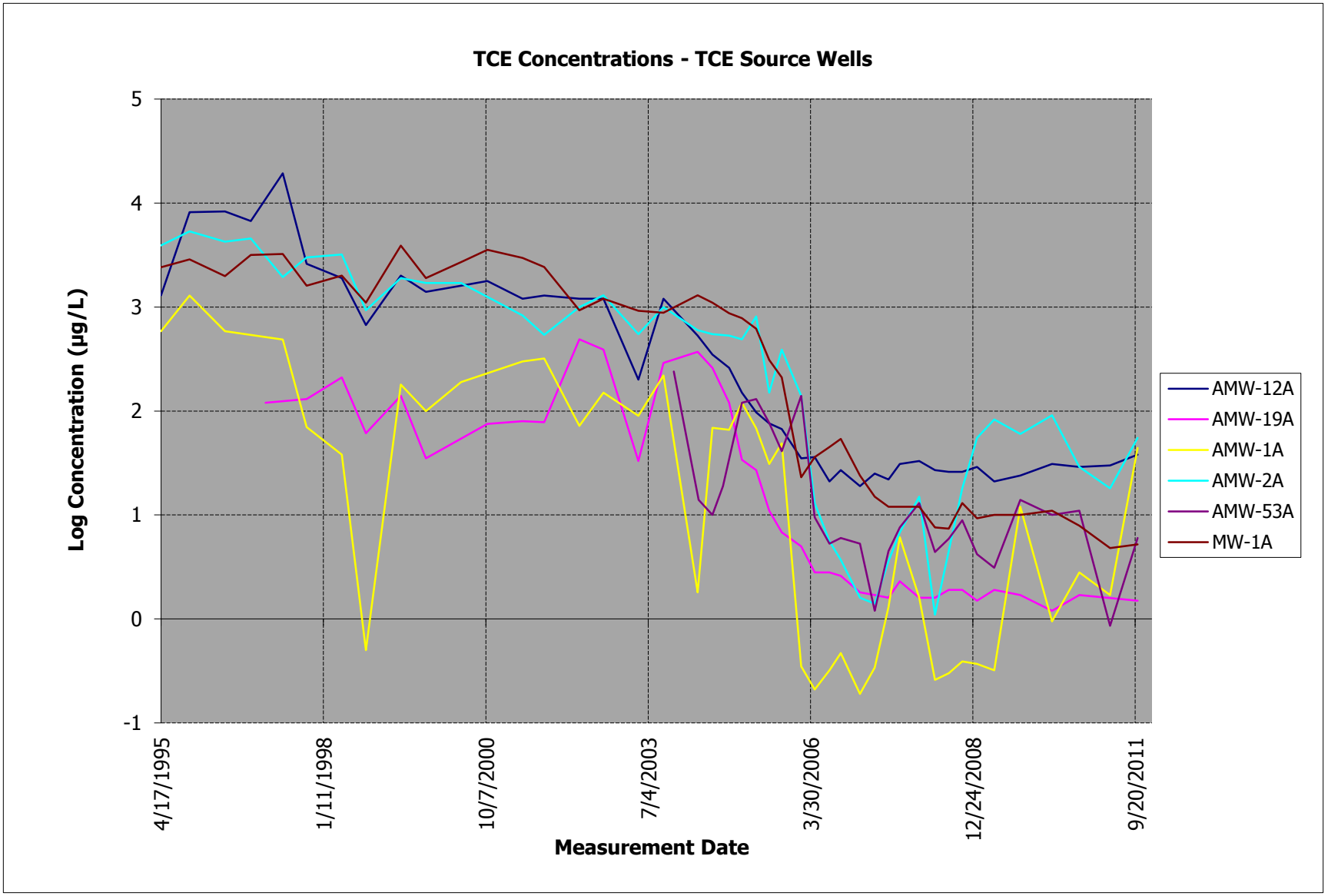
NOTES:

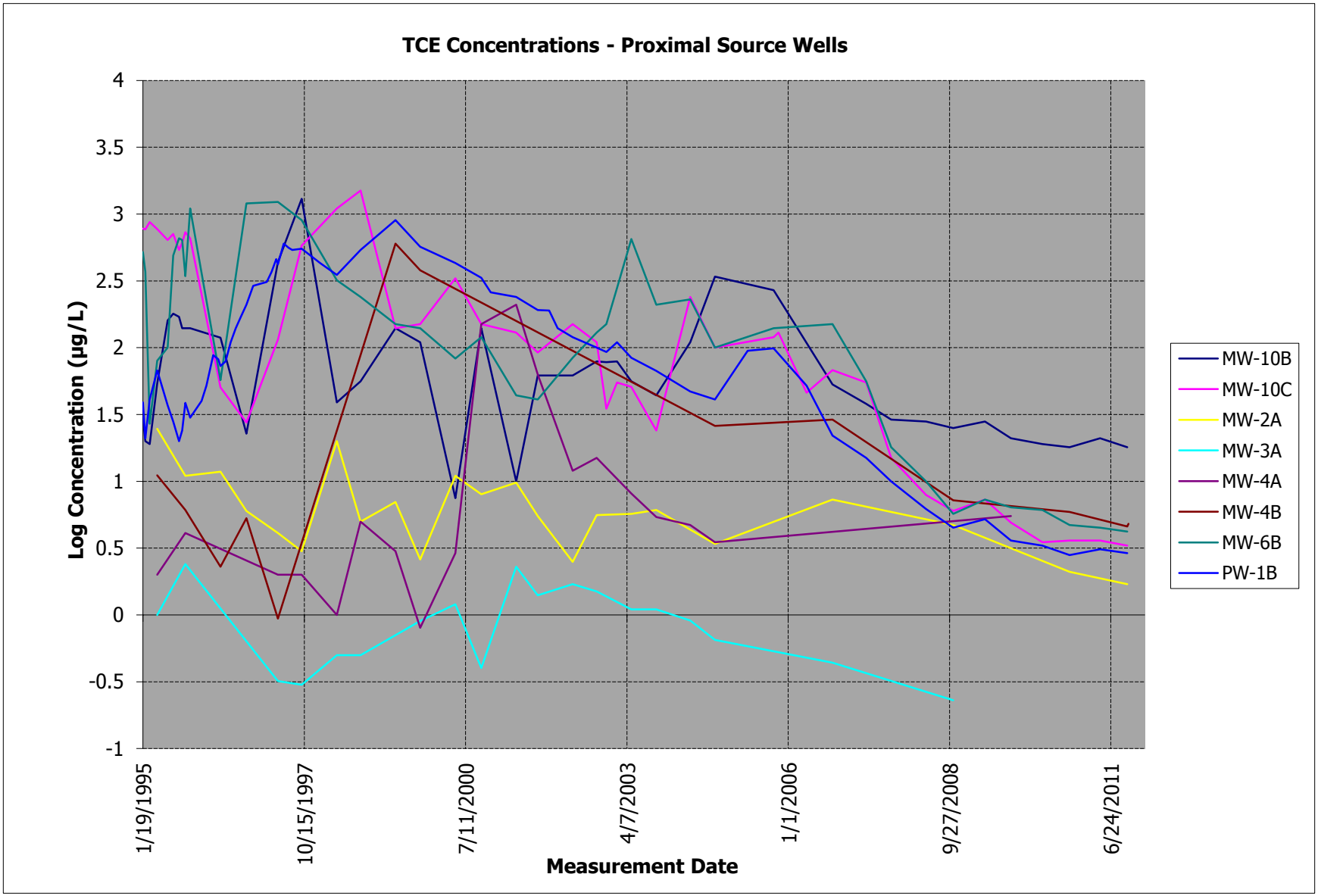
Only wells sampled during 2011 are included in this table.
Results are in micrograms per liter (µg/L).
J = The result is an estimated concentration that is less than the Method Reporting Limit but greater than or equal to the Method Detection Limit.
NS = Well not sampled during that monitoring event.
U = Analyte not detected above the specified reporting limit.
Results shown in **red** are above the cleanup level of 5 µg/L.
Historical maximum is based on data from 1995 to the present.

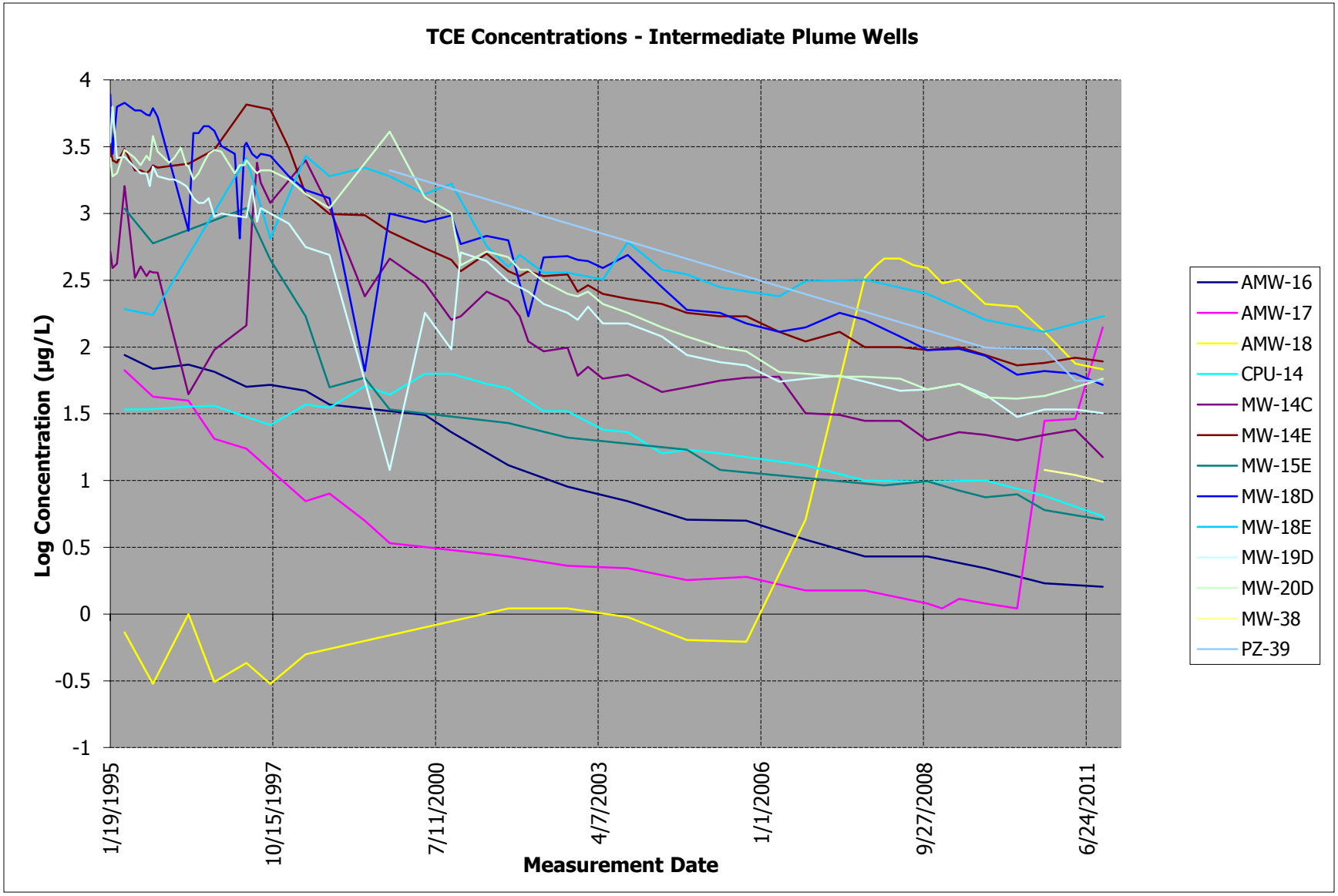
APPENDIX B-2

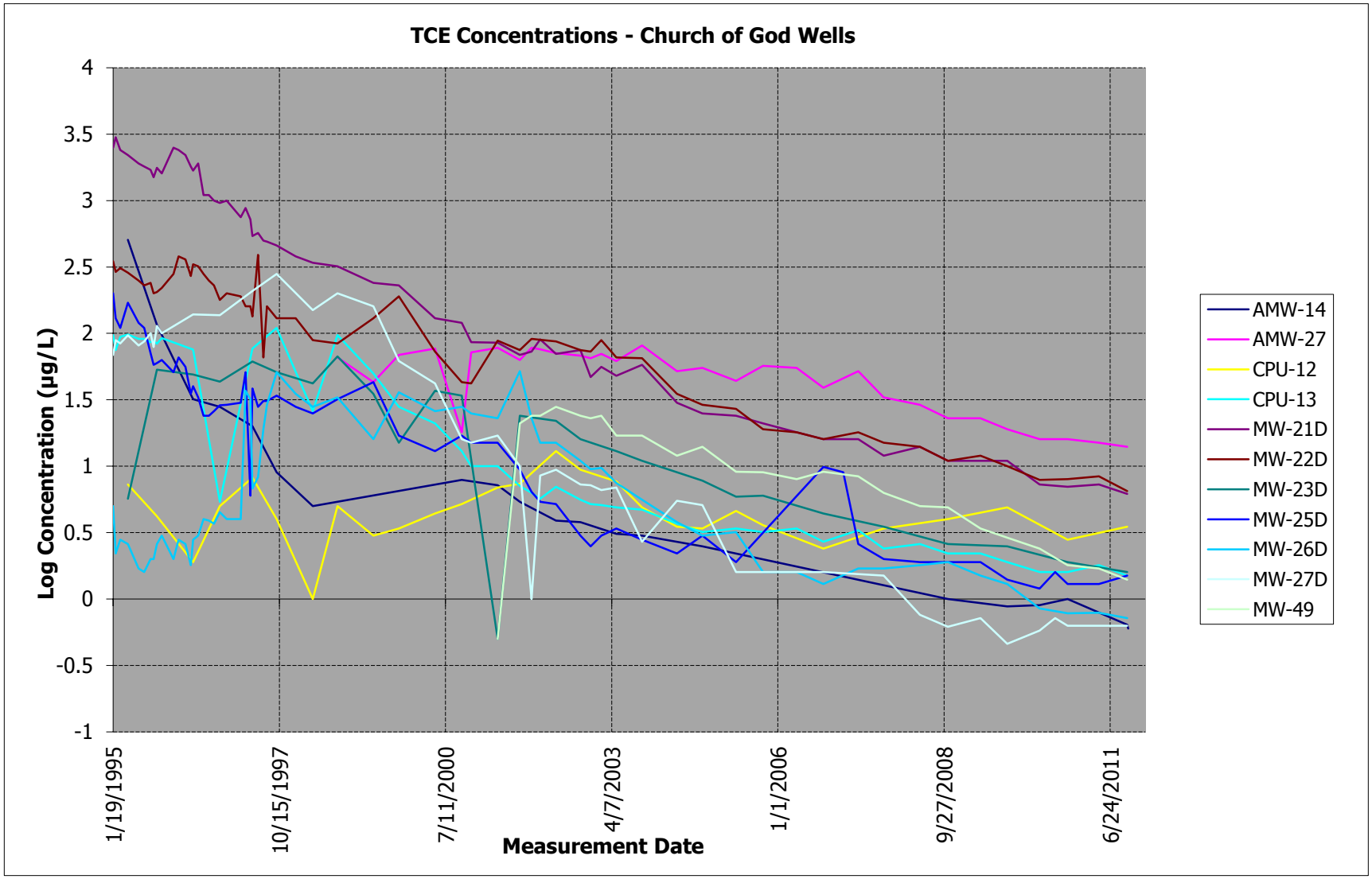
TCE CONCENTRATIONS –
BY WELL GROUPING

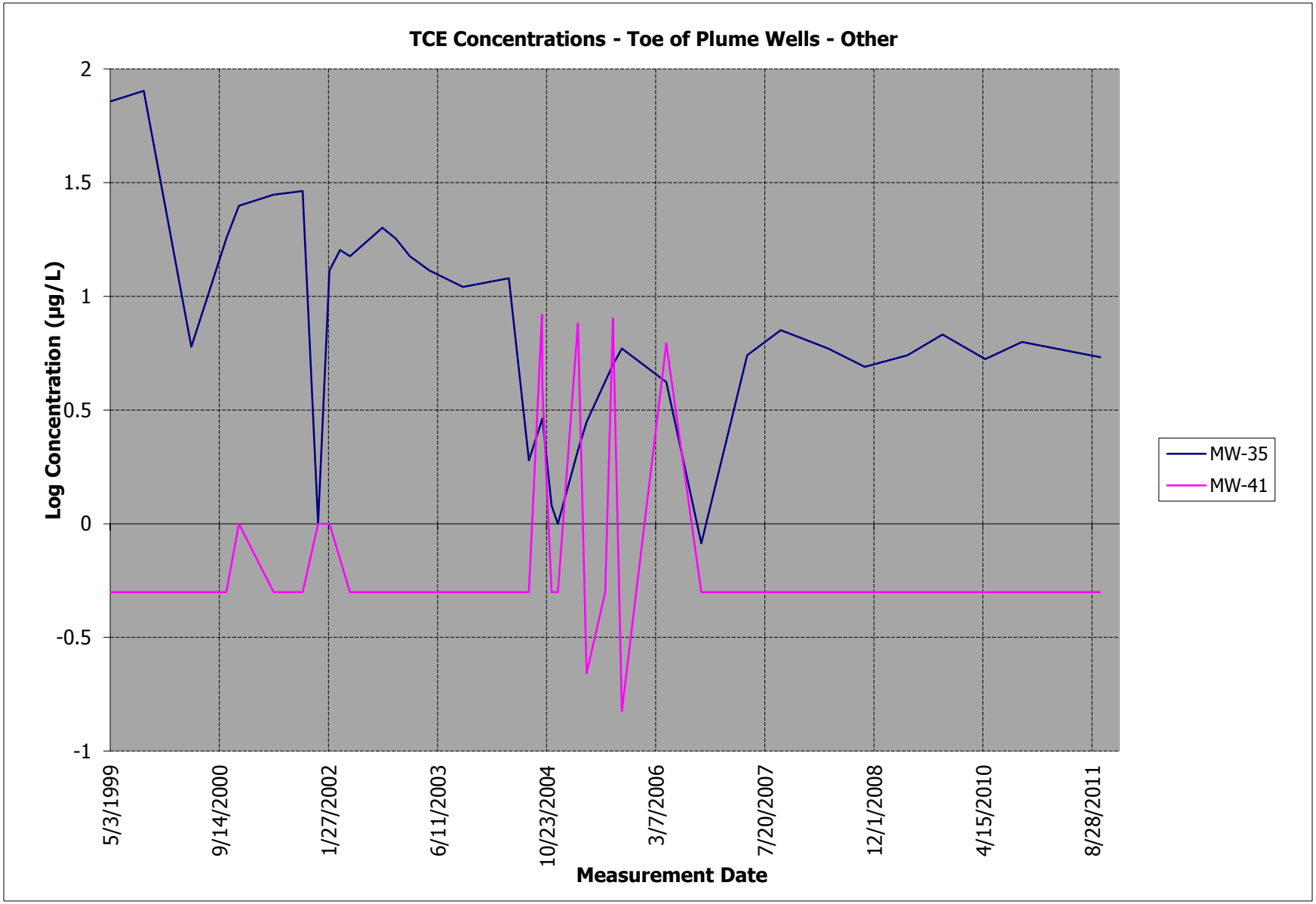

TCE Concentrations - TCE Upgradient Wells (On Linde Property)
Log Concentration (µg/L)
3
2.5
2
1.5
1
0.5
0
-0.5
-1
4/17/1995
1/11/1998
10/7/2000
7/4/2003
3/30/2006
12/24/2008
9/20/2011
Measurement Date
AMW-5A
AMW-8A

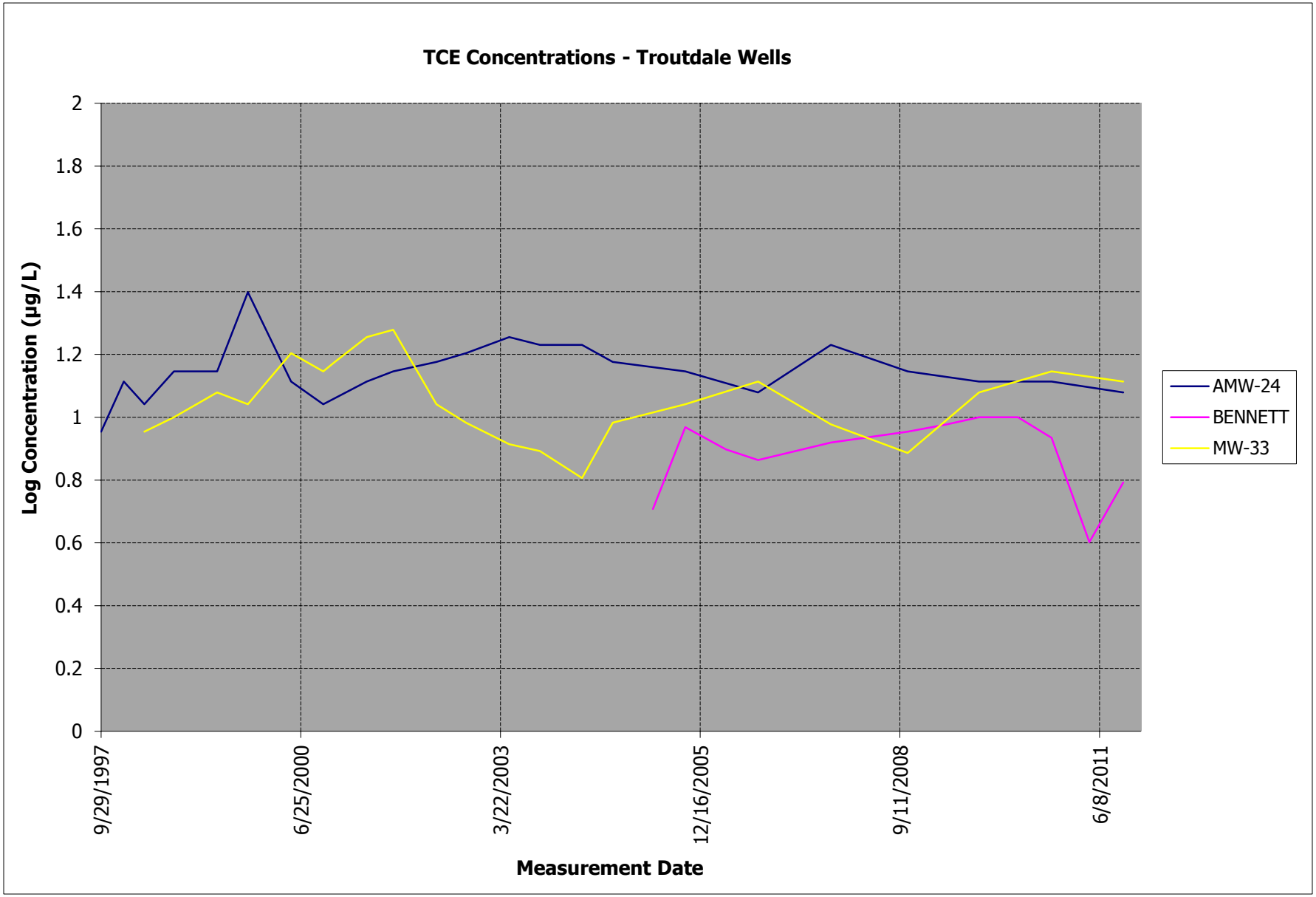

TCE Concentrations - TCE Source Wells
Log Concentration (µg/L)
5
4
3
2
1
0
-1
4/17/1995
1/11/1998
10/7/2000
7/4/2003
3/30/2006
12/24/2008
9/20/2011
Measurement Date
AMW-12A
AMW-19A
AMW-1A
AMW-2A
AMW-53A
MW-1A


TCE Concentrations - Proximal Source Wells
Log Concentration (µg/L)
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
-1
1/19/1995
10/15/1997
7/11/2000
4/7/2003
1/1/2006
9/27/2008
6/24/2011
Measurement Date
MW-10B
MW-10C
MW-2A
MW-3A
MW-4A
MW-4B
MW-6B
PW-1B


TCE Concentrations - Intermediate Plume Wells
Log Concentration (µg/L)
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
-1
1/19/1995
10/15/1997
7/11/2000
4/7/2003
1/1/2006
9/27/2008
6/24/2011
Measurement Date
AMW-16
AMW-17
AMW-18
CPU-14
MW-14C
MW-14E
MW-15E
MW-18D
MW-18E
MW-19D
MW-20D
MW-38
PZ-39


TCE Concentrations - Church of God Wells
Log Concentration (µg/L)
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
-1
1/19/1995
10/15/1997
7/11/2000
4/7/2003
1/1/2006
9/27/2008
6/24/2011
Measurement Date
AMW-14
AMW-27
CPU-12
CPU-13
MW-21D
MW-22D
MW-23D
MW-25D
MW-26D
MW-27D
MW-49


TCE Concentrations - Toe of Plume Wells - Other
Log Concentration (µg/L)
2
1.5
1
0.5
0
-0.5
-1
5/3/1999
9/14/2000
1/27/2002
6/11/2003
10/23/2004
3/7/2006
7/20/2007
12/1/2008
4/15/2010
8/28/2011
Measurement Date
MW-35
MW-41


TCE Concentrations - Troutdale Wells
Log Concentration (µg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
9/29/1997
6/25/2000
3/22/2003
12/16/2005
9/11/2008
6/8/2011
Measurement Date
AMW-24
BENNETT
MW-33

APPENDIX B-3

TCE CONCENTRATIONS – INDIVIDUAL WELLS

APPENDIX B-3
TABLE OF CONTENTS

Intermediate Wells

Church of God Wells

Toe of Plume – Other Toe Wells

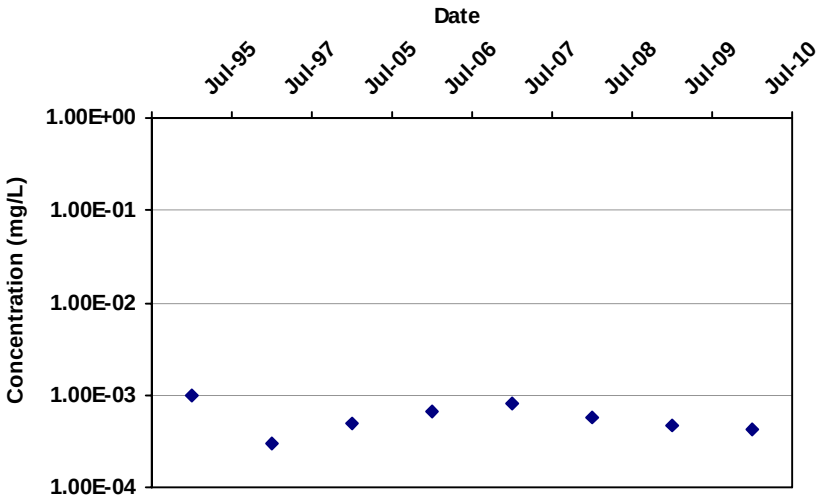
Troutdale Wells

UPGRADIENT WELLS

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -8

Confidence in Trend: 80.1%

Coefficient of Variation: 0.38

Mann Kendall Concentration Trend: (See Note) S

Data Table:

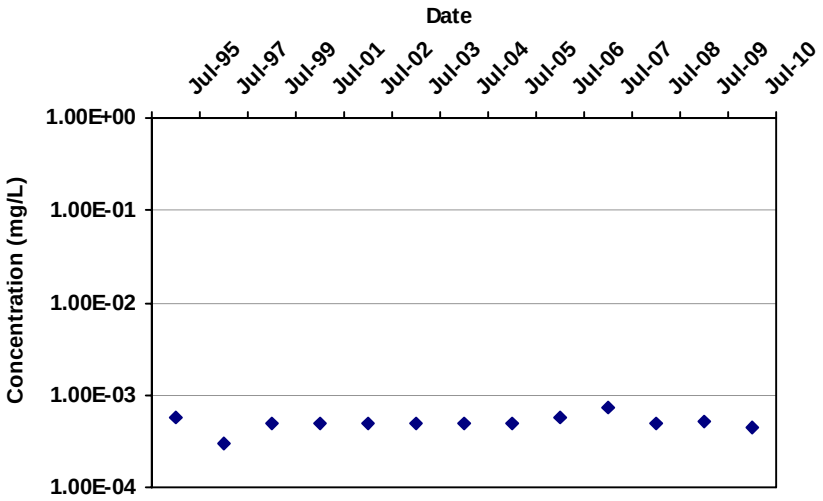
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-6A	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.0E-03	ND	2	0
AMW-6A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	3.0E-04	ND	1	0
AMW-6A	T	7/1/2005	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	1	0
AMW-6A	T	7/1/2006	TRICHLOROETHYLENE (TCE)	6.5E-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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: 1

Confidence in Trend: 50.0%

Coefficient of Variation: 0.19

Mann Kendall Concentration Trend: (See Note) NT

Data Table:

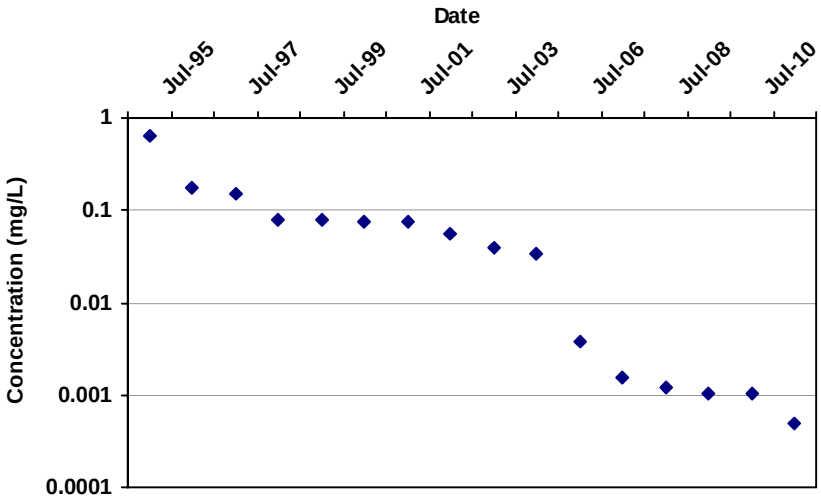
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-7A	T	7/1/1995	TRICHLOROETHYLENE (TCE)	5.7E-04		2	1
AMW-7A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	3.0E-04	ND	1	0
AMW-7A	T	7/1/1999	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	1	0
AMW-7A	T	7/1/2001	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	2	0
AMW-7A	T	7/1/2002	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	2	0
AMW-7A	T	7/1/2003	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	2	0
AMW-7A	T	7/1/2004	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	2	0
AMW-7A	T	7/1/2005	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	1	0
AMW-7A	T	7/1/2006	TRICHLOROETHYLENE (TCE)	5.6E-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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -120

Confidence in Trend: 100.0%

Coefficient of Variation: 1.76

Mann Kendall Concentration Trend: (See Note) D

Data Table:

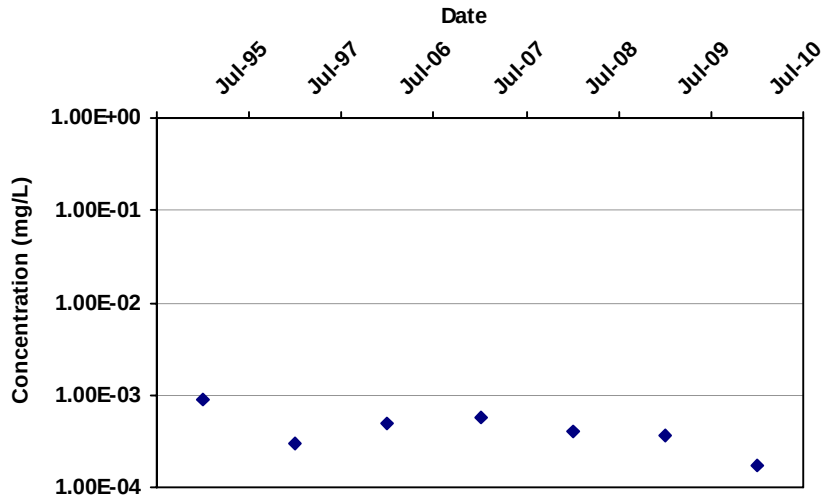
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-8A	T	7/1/1995	TRICHLOROETHYLENE (TCE)	6.3E-01		2	2
AMW-8A	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.7E-01		2	2
AMW-8A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.5E-01		2	2
AMW-8A	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -11

Confidence in Trend: 93.2%

Coefficient of Variation: 0.50

Mann Kendall Concentration Trend: (See Note) PD

Data Table:

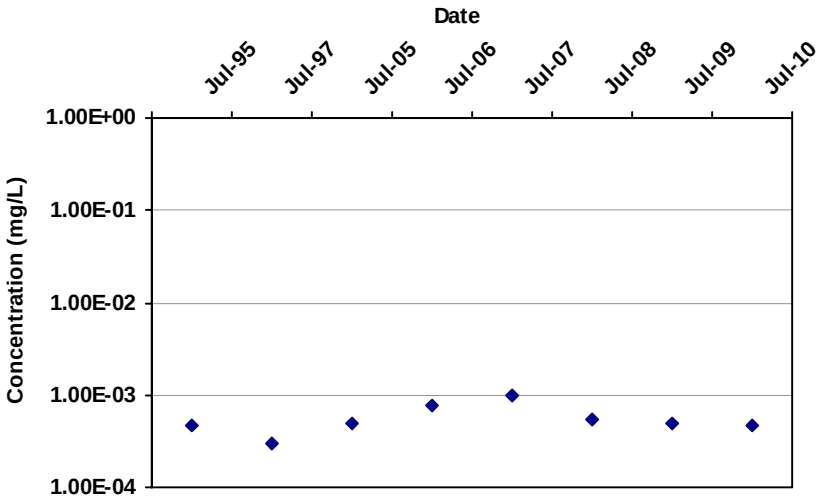
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-10A	T	7/1/1995	TRICHLOROETHYLENE (TCE)	8.9E-04		2	1
AMW-10A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	3.0E-04	ND	1	0
AMW-10A	T	7/1/2006	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	4	0
AMW-10A	T	7/1/2007	TRICHLOROETHYLENE (TCE)	5.7E-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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: 2

Confidence in Trend: 54.8%

Coefficient of Variation: 0.37

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-04		2	1
AMW-11A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	3.0E-04	ND	1	0
AMW-11A	T	7/1/2005	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	1	0
AMW-11A	T	7/1/2006	TRICHLOROETHYLENE (TCE)	7.8E-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

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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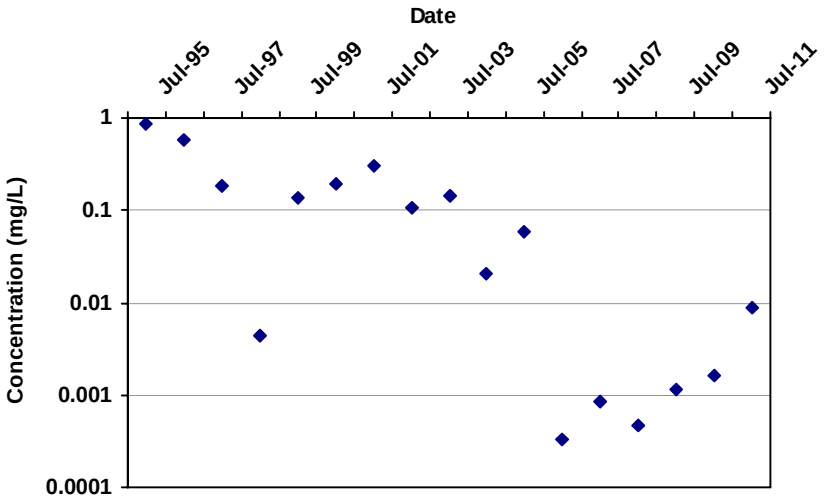
TCE SOURCE WELLS

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -76

Confidence in Trend: 99.9%

Coefficient of Variation: 1.56

Mann Kendall Concentration Trend: (See Note) D

Data Table:

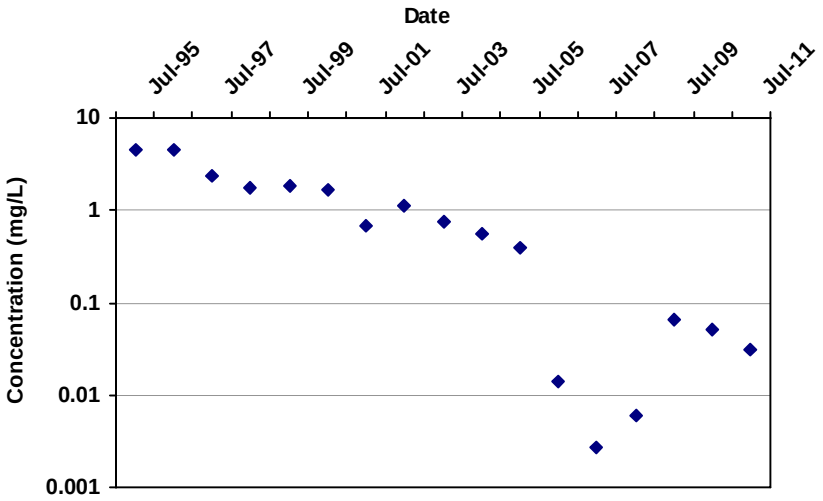
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-1A	S	7/1/1995	TRICHLOROETHYLENE (TCE)	8.7E-01		2	2
AMW-1A	S	7/1/1996	TRICHLOROETHYLENE (TCE)	5.9E-01		1	1
AMW-1A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	1.8E-01		2	2
AMW-1A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	4.4E-03		2	1
AMW-1A	S	7/1/1999	TRICHLOROETHYLENE (TCE)	1.3E-01		2	2
AMW-1A	S	7/1/2000	TRICHLOROETHYLENE (TCE)	1.9E-01		1	1
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -110

Confidence in Trend: 100.0%

Coefficient of Variation: 1.22

Mann Kendall Concentration Trend: (See Note) D

Data Table:

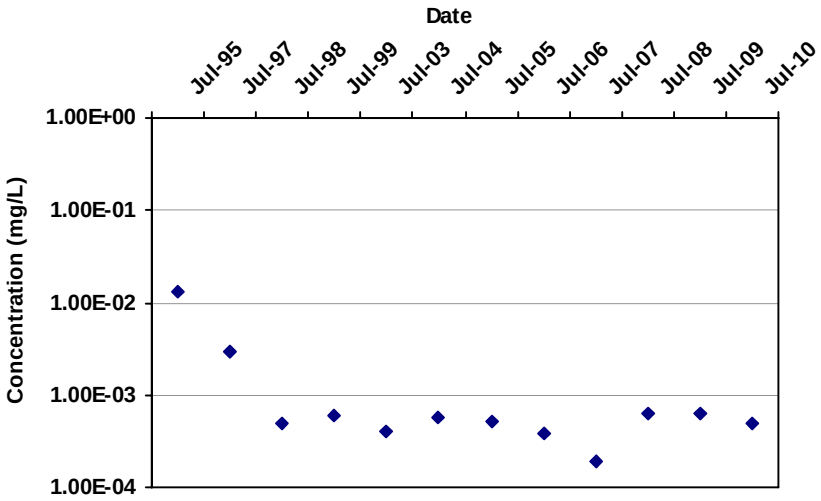
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-2A	S	7/1/1995	TRICHLOROETHYLENE (TCE)	4.6E+00		2	2
AMW-2A	S	7/1/1996	TRICHLOROETHYLENE (TCE)	4.4E+00		2	2
AMW-2A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	2.4E+00		2	2
AMW-2A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	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		1	1
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -22

Confidence in Trend: 92.4%

Coefficient of Variation: 2.09

Mann Kendall Concentration Trend: (See Note) PD

Data Table:

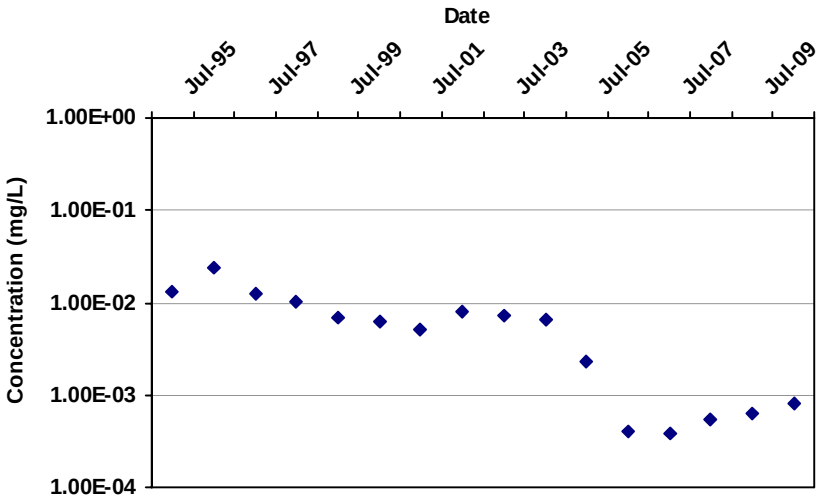
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-2B	S	7/1/1995	TRICHLOROETHYLENE (TCE)	1.3E-02		2	1
AMW-2B	S	7/1/1997	TRICHLOROETHYLENE (TCE)	3.0E-03		1	1
AMW-2B	S	7/1/1998	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	2	0
AMW-2B	S	7/1/1999	TRICHLOROETHYLENE (TCE)	5.9E-04		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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -84

Confidence in Trend: 100.0%

Coefficient of Variation: 0.96

Mann Kendall Concentration Trend: (See Note) D

Data Table:

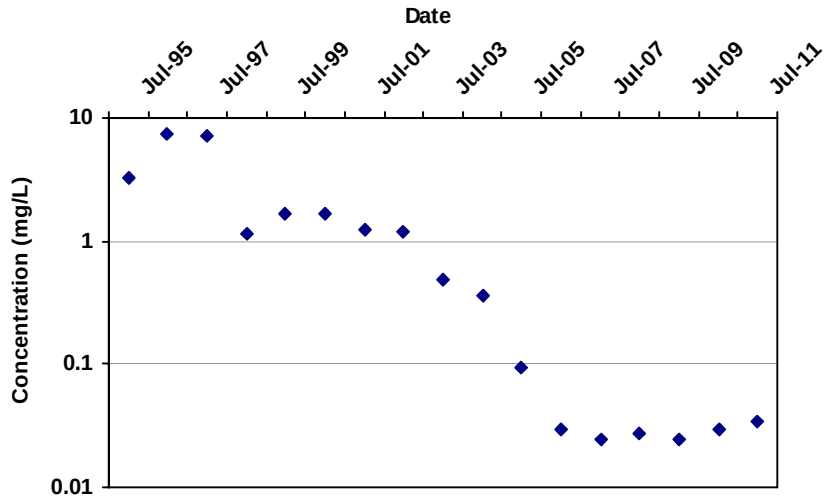
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-3A	S	7/1/1995	TRICHLOROETHYLENE (TCE)	1.3E-02		2	2
AMW-3A	S	7/1/1996	TRICHLOROETHYLENE (TCE)	2.4E-02		2	2
AMW-3A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	1.2E-02		2	2
AMW-3A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -100

Confidence in Trend: 100.0%

Coefficient of Variation: 1.54

Mann Kendall Concentration Trend: (See Note) D

Data Table:

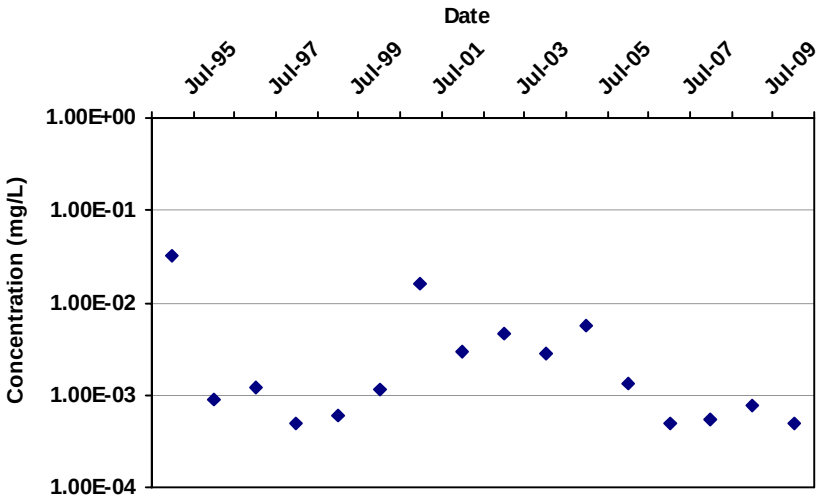
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-12A	S	7/1/1995	TRICHLOROETHYLENE (TCE)	3.3E+00		2	2
AMW-12A	S	7/1/1996	TRICHLOROETHYLENE (TCE)	7.5E+00		2	2
AMW-12A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	7.1E+00		2	2
AMW-12A	S	7/1/1998	TRICHLOROETHYLENE (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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -27

Confidence in Trend: 87.7%

Coefficient of Variation: 1.86

Mann Kendall Concentration Trend: (See Note) NT

Data Table:

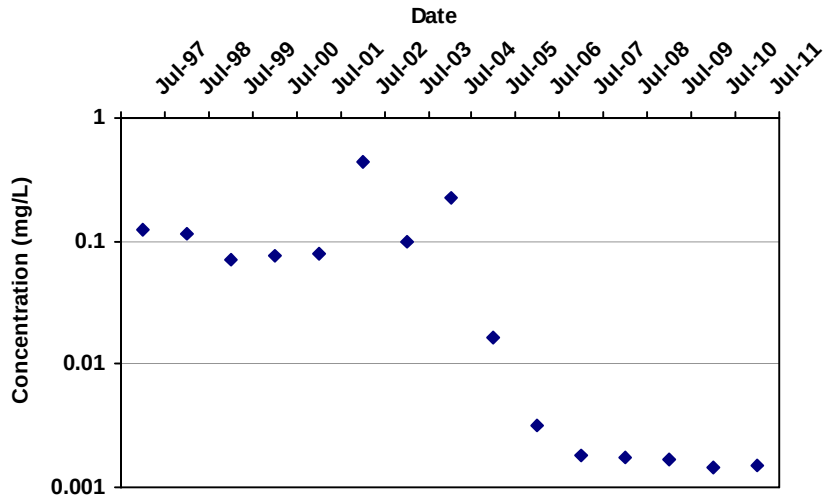
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-13A	S	7/1/1995	TRICHLOROETHYLENE (TCE)	3.3E-02		2	2
AMW-13A	S	7/1/1996	TRICHLOROETHYLENE (TCE)	9.1E-04		2	1
AMW-13A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	1.2E-03		2	1
AMW-13A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	2	0
AMW-13A	S	7/1/1999	TRICHLOROETHYLENE (TCE)	5.9E-04		2	1
AMW-13A	S	7/1/2000	TRICHLOROETHYLENE (TCE)	1.2E-03		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)	1.3E-03		4	3
AMW-13A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	4.8E-04		4	1
AMW-13A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	5.4E-04		4	2
AMW-13A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	7.6E-04		3	3
AMW-13A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	2	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-19A
Well Type: S
COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -69

Confidence in Trend: 100.0%

Coefficient of Variation: 1.41

Mann Kendall Concentration Trend: (See Note) D

Data Table:

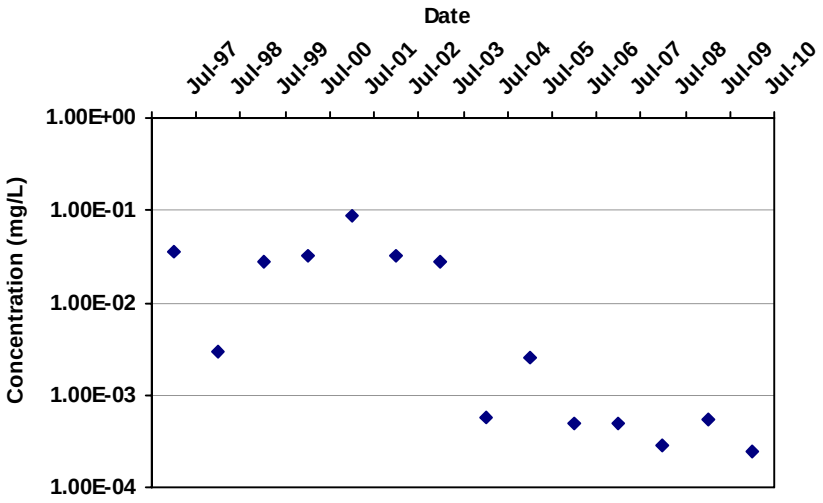
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-19A	S	7/1/1997	TRICHLOROETHYLENE (TCE)	1.2E-01		2	2
AMW-19A	S	7/1/1998	TRICHLOROETHYLENE (TCE)	1.1E-01		2	2
AMW-19A	S	7/1/1999	TRICHLOROETHYLENE (TCE)	7.0E-02		2	2
AMW-19A	S	7/1/2000	TRICHLOROETHYLENE (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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -62

Confidence in Trend: 100.0%

Coefficient of Variation: 1.39

Mann Kendall Concentration Trend: (See Note) D

Data Table:

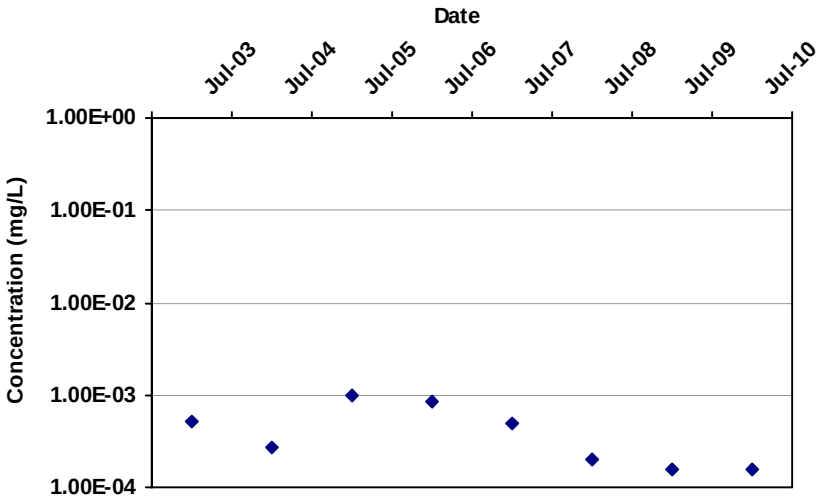
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-26	S	7/1/1997	TRICHLOROETHYLENE (TCE)	3.6E-02		1	1
AMW-26	S	7/1/1998	TRICHLOROETHYLENE (TCE)	3.0E-03		2	1
AMW-26	S	7/1/1999	TRICHLOROETHYLENE (TCE)	2.8E-02		2	2
AMW-26	S	7/1/2000	TRICHLOROETHYLENE (TCE)	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)	5.0E-04	ND	1	0
AMW-26	S	7/1/2007	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	1	0
AMW-26	S	7/1/2008	TRICHLOROETHYLENE (TCE)	2.9E-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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -16

Confidence in Trend: 96.9%

Coefficient of Variation: 0.71

Mann Kendall Concentration Trend: (See Note) D

Data Table:

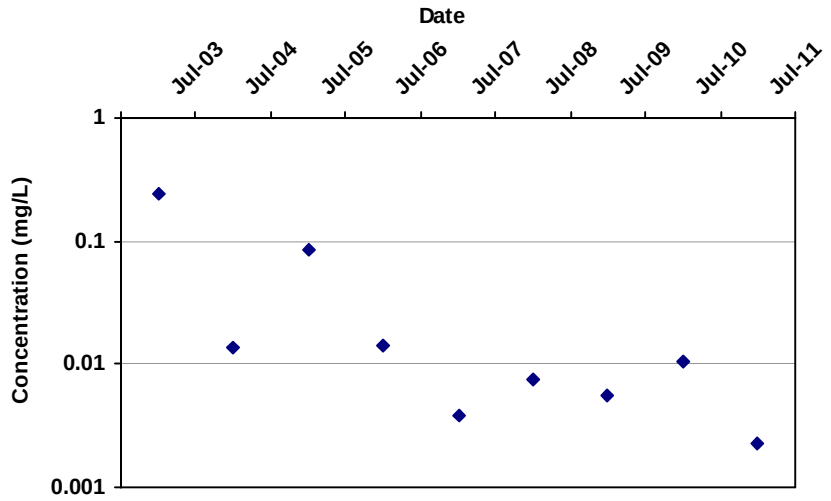
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-52A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	5.3E-04		1	1
AMW-52A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	2.6E-04		3	3
AMW-52A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	1.0E-03		4	4
AMW-52A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	8.6E-04		4	3
AMW-52A	S	7/1/2007	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	4	0
AMW-52A	S	7/1/2008	TRICHLOROETHYLENE (TCE)	2.0E-04		4	2
AMW-52A	S	7/1/2009	TRICHLOROETHYLENE (TCE)	1.6E-04		3	2
AMW-52A	S	7/1/2010	TRICHLOROETHYLENE (TCE)	1.6E-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: AMW-53A
Well Type: S
COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -22

Confidence in Trend: 98.8%

Coefficient of Variation: 1.85

Mann Kendall Concentration Trend: (See Note) D

Data Table:

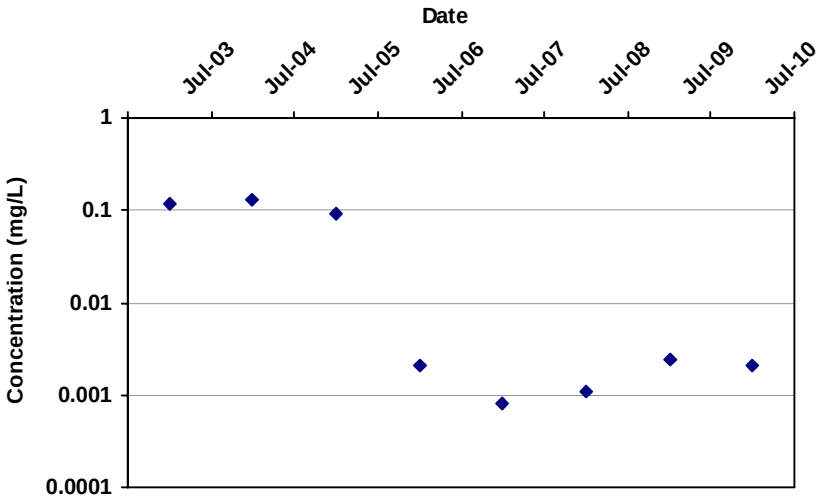
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-53A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	2.4E-01		1	1
AMW-53A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	1.4E-02		3	3
AMW-53A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	8.4E-02		4	4
AMW-53A	S	7/1/2006	TRICHLOROETHYLENE (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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -12

Confidence in Trend: 91.1%

Coefficient of Variation: 1.35

Mann Kendall Concentration Trend: (See Note) PD

Data Table:

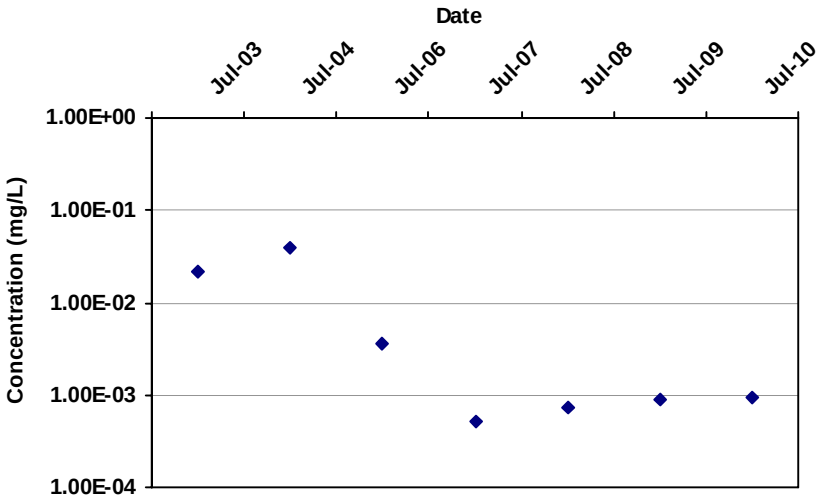
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-54A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	1.2E-01		1	1
AMW-54A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	1.3E-01		3	3
AMW-54A	S	7/1/2005	TRICHLOROETHYLENE (TCE)	9.0E-02		4	4
AMW-54A	S	7/1/2006	TRICHLOROETHYLENE (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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -7

Confidence in Trend: 80.9%

Coefficient of Variation: 1.56

Mann Kendall Concentration Trend: (See Note) NT

Data Table:

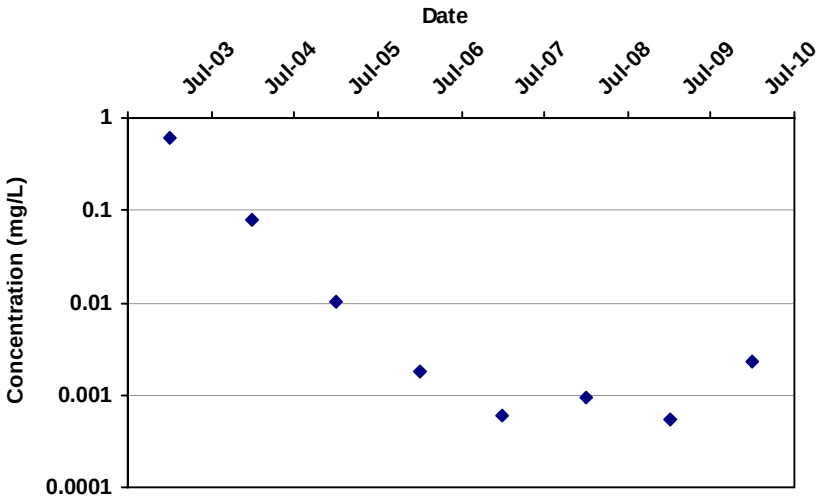
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-55A	S	7/1/2003	TRICHLOROETHYLENE (TCE)	2.2E-02		1	1
AMW-55A	S	7/1/2004	TRICHLOROETHYLENE (TCE)	3.9E-02		2	2
AMW-55A	S	7/1/2006	TRICHLOROETHYLENE (TCE)	3.5E-03		4	4
AMW-55A	S	7/1/2007	TRICHLOROETHYLENE (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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -18

Confidence in Trend: 98.4%

Coefficient of Variation: 2.42

Mann Kendall Concentration Trend: (See Note) D

Data Table:

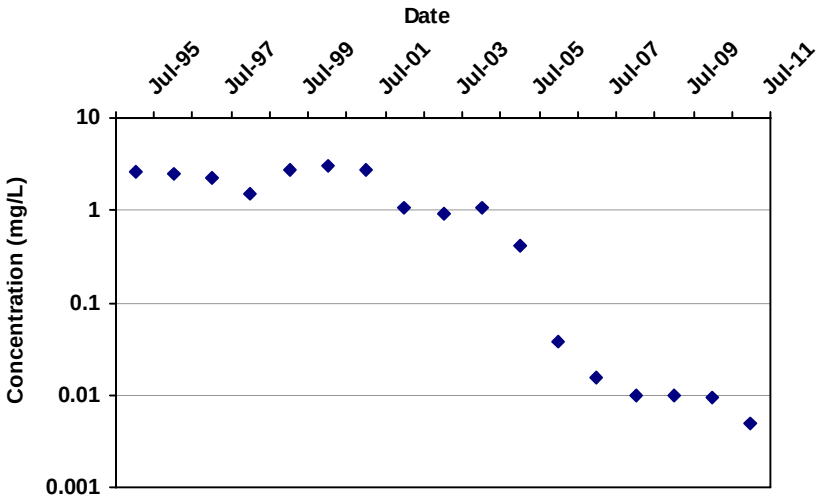
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-56A	T	7/1/2003	TRICHLOROETHYLENE (TCE)	6.1E-01		1	1
AMW-56A	T	7/1/2004	TRICHLOROETHYLENE (TCE)	7.8E-02		3	3
AMW-56A	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.0E-02		4	4
AMW-56A	T	7/1/2006	TRICHLOROETHYLENE (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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -104

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-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

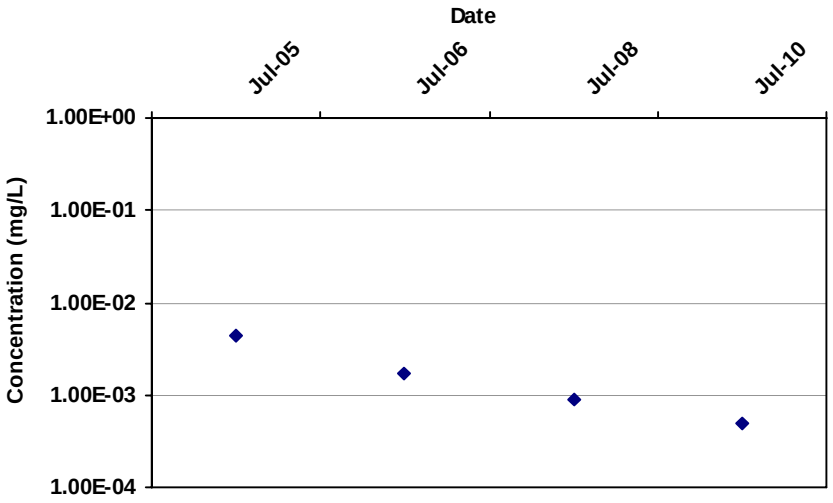
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

PROXIMAL WELLS

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -6

Confidence in Trend: 95.8%

Coefficient of Variation: 0.94

Mann Kendall Concentration Trend: (See Note) D

Data Table:

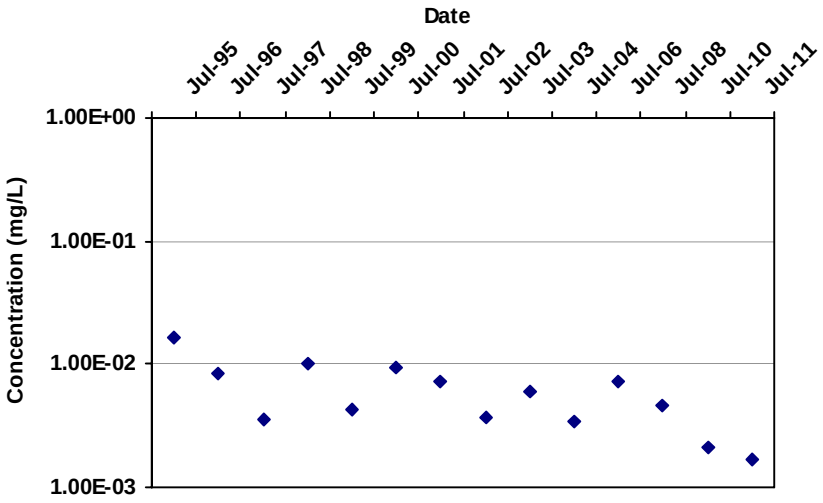
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-58	T	7/1/2005	TRICHLOROETHYLENE (TCE)	4.4E-03		3	3
AMW-58	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.7E-03		2	2
AMW-58	T	7/1/2008	TRICHLOROETHYLENE (TCE)	8.9E-04		1	1
AMW-58	T	7/1/2010	TRICHLOROETHYLENE (TCE)	5.0E-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-2A
Well Type: T
COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -49

Confidence in Trend: 99.7%

Coefficient of Variation: 0.63

Mann Kendall Concentration Trend: (See Note) D

Data Table:

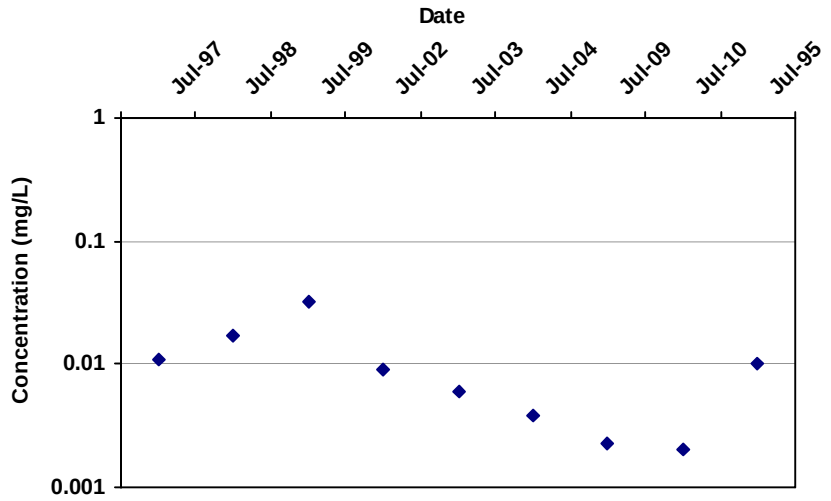
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-2A	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.6E-02		2	2
MW-2A	T	7/1/1996	TRICHLOROETHYLENE (TCE)	8.4E-03		2	2
MW-2A	T	7/1/1997	TRICHLOROETHYLENE (TCE)	3.5E-03		2	2
MW-2A	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.0E-02		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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -24

Confidence in Trend: 99.4%

Coefficient of Variation: 0.91

Mann Kendall Concentration Trend: (See Note) D

Data Table:

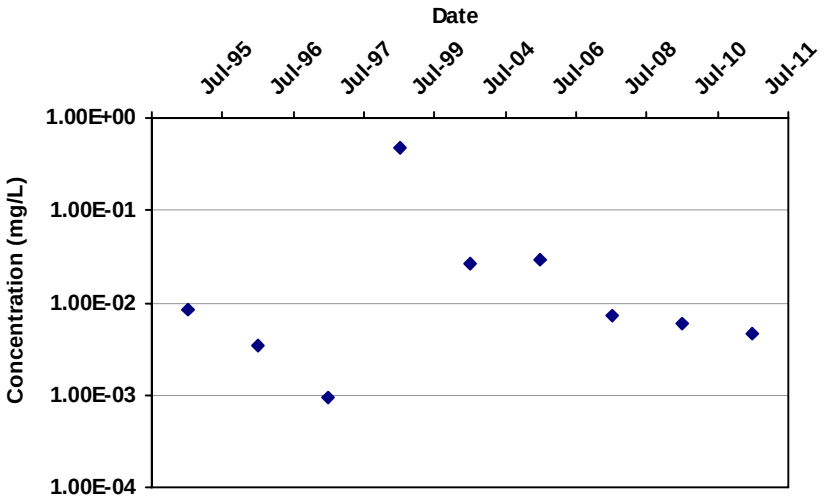
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-3B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.0E-02		2	2
MW-3B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.1E-02		1	1
MW-3B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.7E-02		2	2
MW-3B	T	7/1/1999	TRICHLOROETHYLENE (TCE)	3.2E-02		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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -4

Confidence in Trend: 61.9%

Coefficient of Variation: 2.49

Mann Kendall Concentration Trend: (See Note) NT

Data Table:

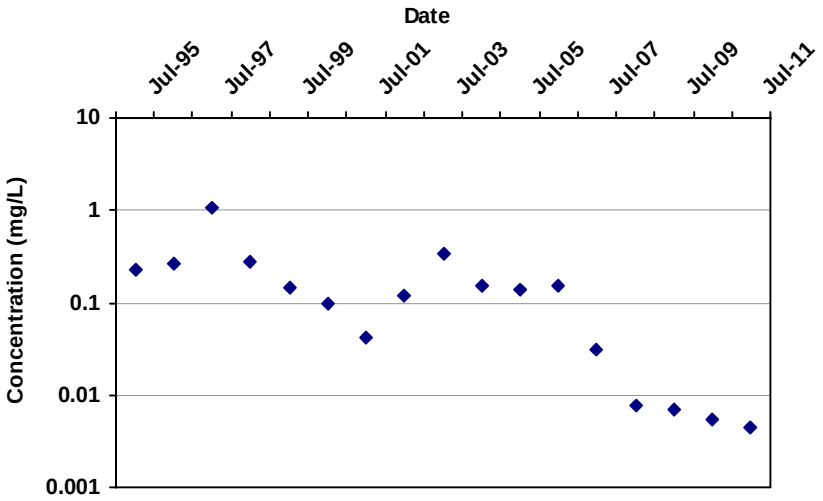
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-4B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	8.2E-03		2	2
MW-4B	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.5E-03		2	2
MW-4B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	9.4E-04		1	1
MW-4B	T	7/1/1999	TRICHLOROETHYLENE (TCE)	4.8E-01		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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -84

Confidence in Trend: 100.0%

Coefficient of Variation: 1.38

Mann Kendall Concentration Trend: (See Note) D

Data Table:

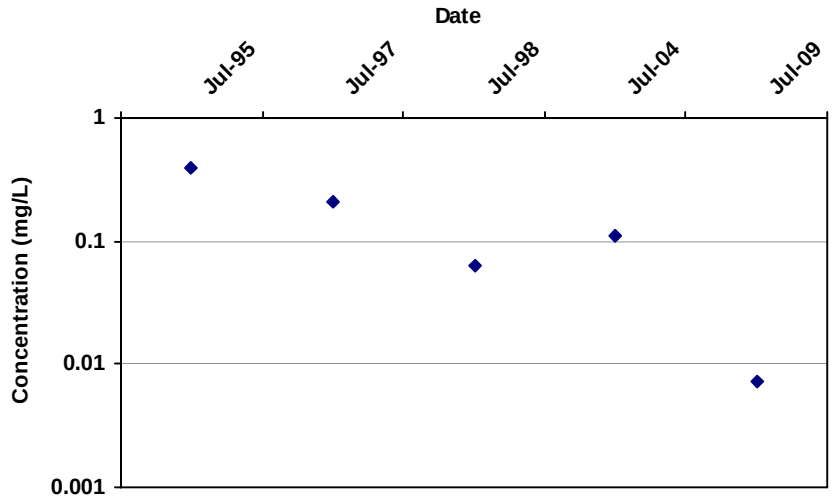
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-6B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.3E-01		11	11
MW-6B	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.6E-01		2	2
MW-6B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.1E+00		2	2
MW-6B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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)	1.0E-01		2	2
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
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:

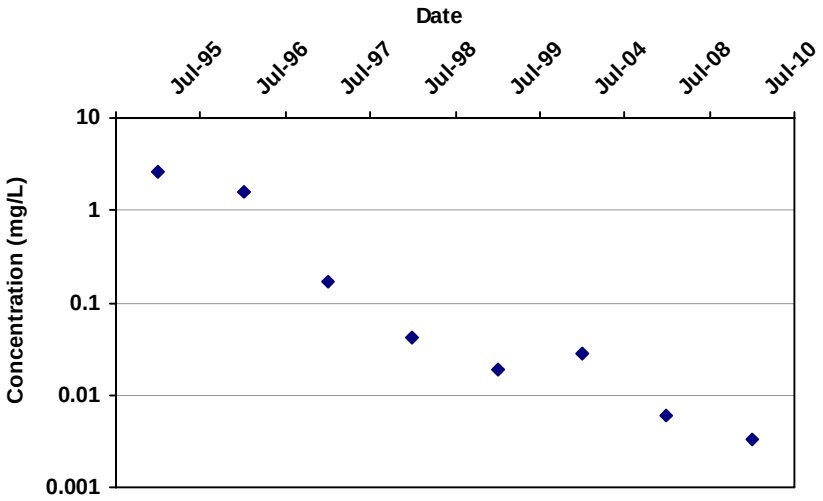
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-7B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	3.9E-01		2	2
MW-7B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.1E-01		1	1
MW-7B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	6.2E-02		1	1
MW-7B	T	7/1/2004	TRICHLOROETHYLENE (TCE)	1.1E-01		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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -26

Confidence in Trend: 100.0%

Coefficient of Variation: 1.77

Mann Kendall Concentration Trend: (See Note) D

Data Table:

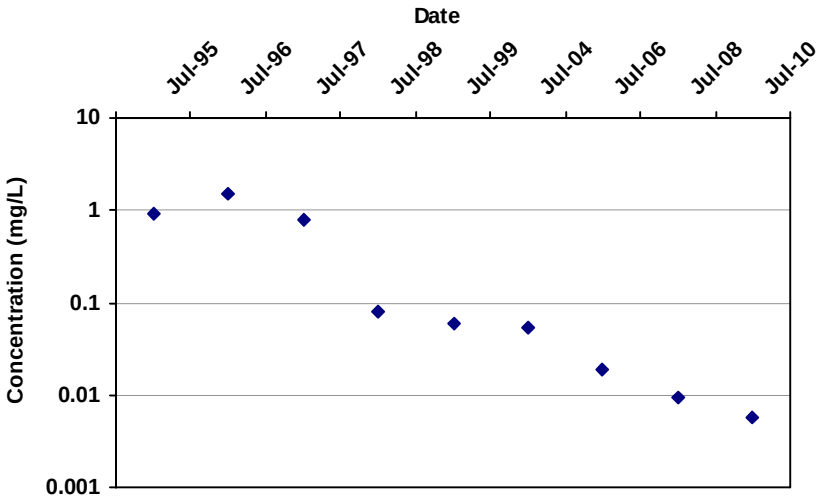
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-8B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.6E+00		2	2
MW-8B	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.6E+00		2	2
MW-8B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.7E-01		2	2
MW-8B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	4.1E-02		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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -34

Confidence in Trend: 100.0%

Coefficient of Variation: 1.44

Mann Kendall Concentration Trend: (See Note) D

Data Table:

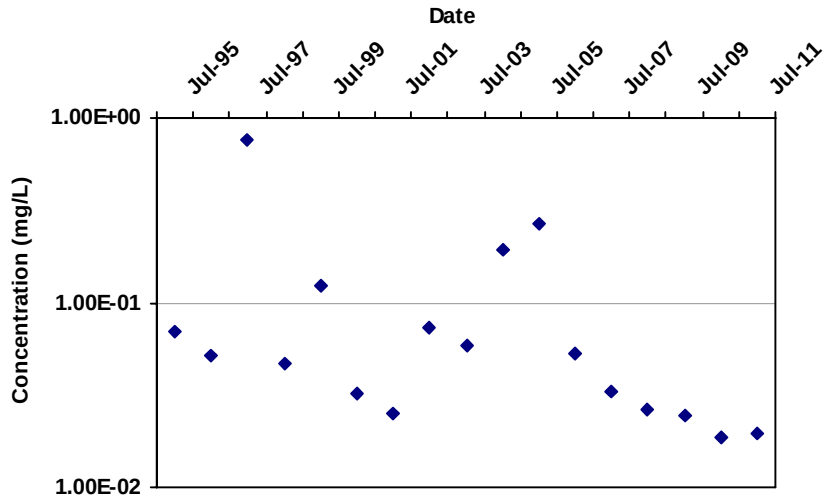
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-9B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	9.4E-01		2	2
MW-9B	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.5E+00		2	2
MW-9B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	7.8E-01		2	2
MW-9B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	8.1E-02		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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -58

Confidence in Trend: 99.1%

Coefficient of Variation: 1.63

Mann Kendall Concentration Trend: (See Note) D

Data Table:

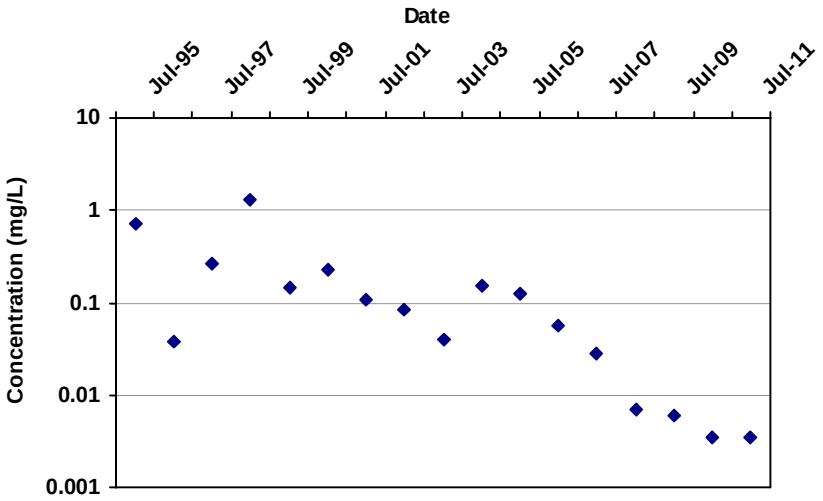
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-10B	T	7/1/1995	TRICHLOROETHYLENE (TCE)	7.0E-02		11	11
MW-10B	T	7/1/1996	TRICHLOROETHYLENE (TCE)	5.2E-02		2	2
MW-10B	T	7/1/1997	TRICHLOROETHYLENE (TCE)	7.5E-01		2	2
MW-10B	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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)	3.2E-02		2	2
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -94

Confidence in Trend: 100.0%

Coefficient of Variation: 1.70

Mann Kendall Concentration Trend: (See Note) D

Data Table:

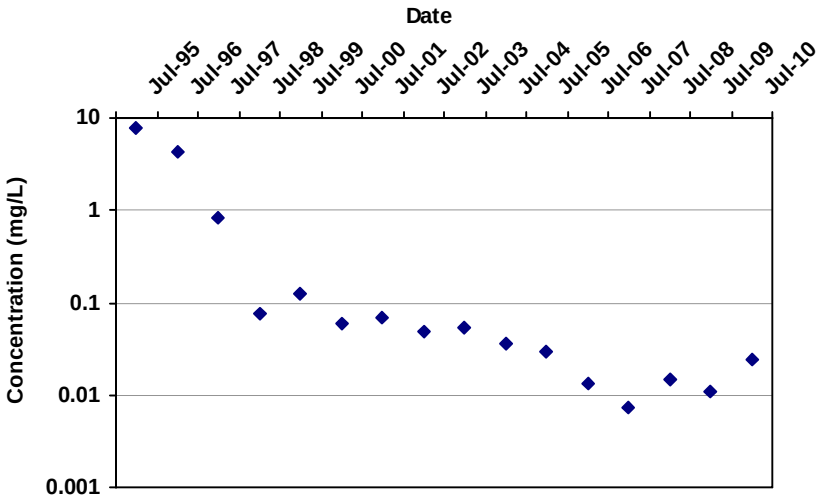
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-10C	T	7/1/1995	TRICHLOROETHYLENE (TCE)	7.0E-01		11	11
MW-10C	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.7E-02		2	2
MW-10C	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.6E-01		2	2
MW-10C	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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)	2.2E-01		2	2
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -100

Confidence in Trend: 100.0%

Coefficient of Variation: 2.53

Mann Kendall Concentration Trend: (See Note) D

Data Table:

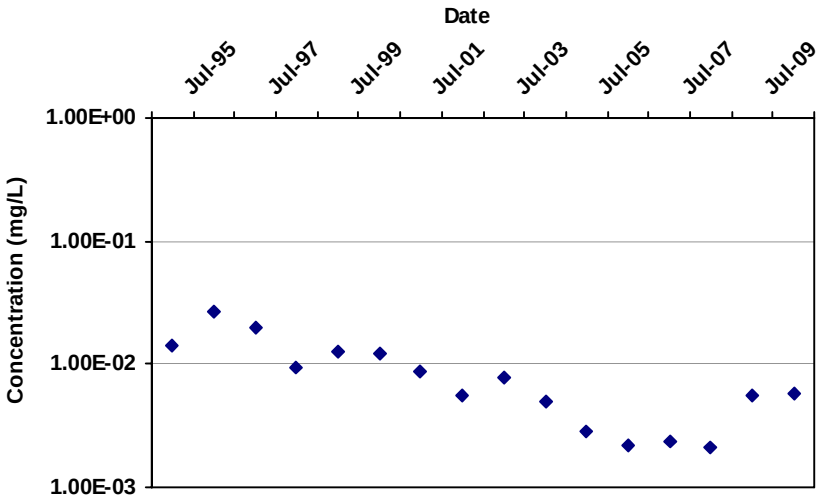
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-12C	T	7/1/1995	TRICHLOROETHYLENE (TCE)	7.7E+00		2	2
MW-12C	T	7/1/1996	TRICHLOROETHYLENE (TCE)	4.4E+00		2	2
MW-12C	T	7/1/1997	TRICHLOROETHYLENE (TCE)	8.1E-01		2	2
MW-12C	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
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:

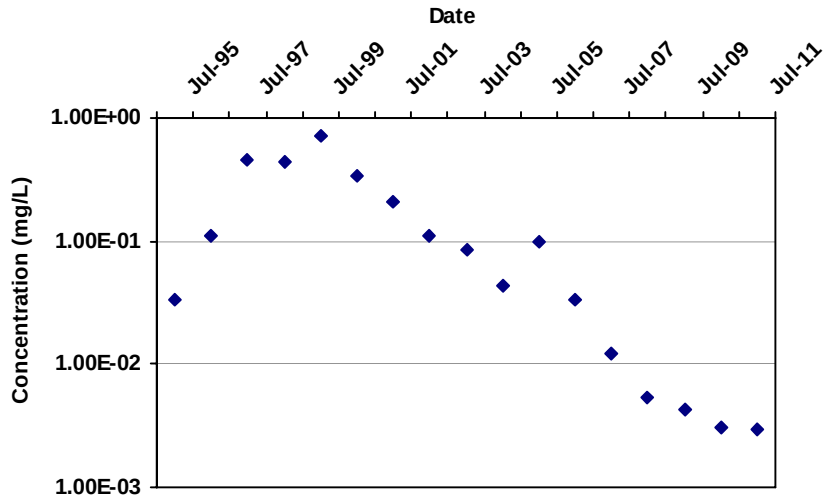
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-13C	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.4E-02		2	2
MW-13C	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.7E-02		2	2
MW-13C	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.0E-02		2	2
MW-13C	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -96

Confidence in Trend: 100.0%

Coefficient of Variation: 1.31

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)	7.2E-01		2	2
PW-1B	T	7/1/2000	TRICHLOROETHYLENE (TCE)	3.3E-01		3	3
PW-1B	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.1E-01		3	3
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

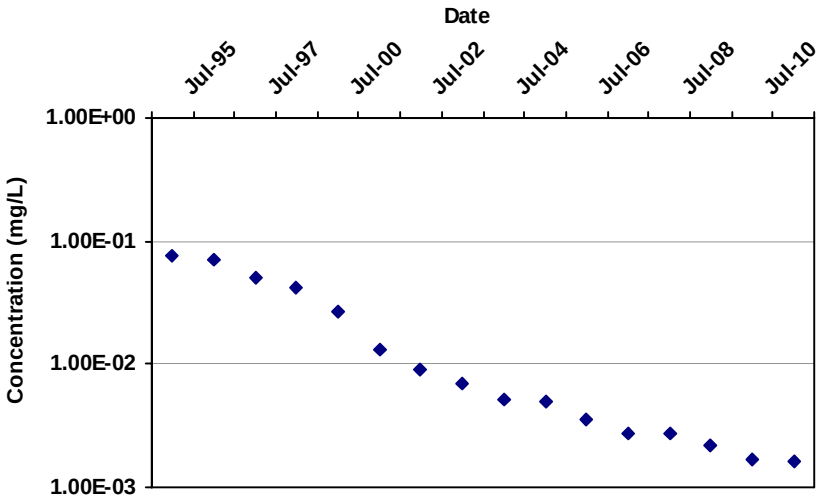
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

INTERMEDIATE WELLS

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -119

Confidence in Trend: 100.0%

Coefficient of Variation: 1.28

Mann Kendall Concentration Trend: (See Note) D

Data Table:

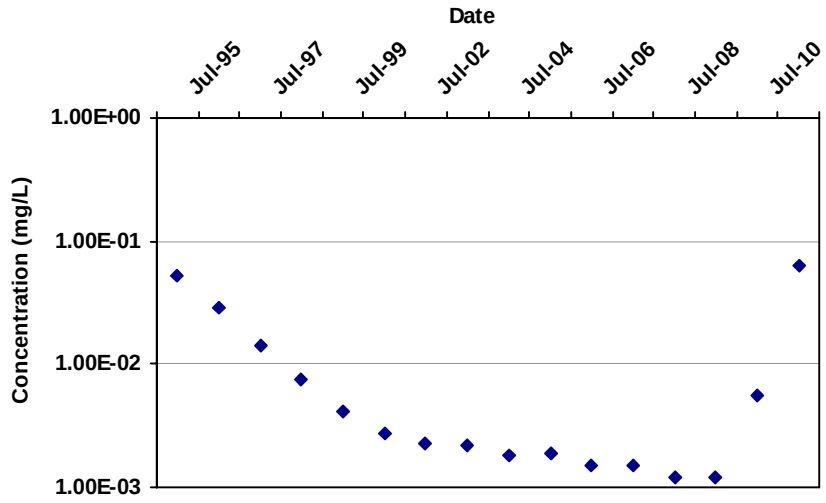
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-16	T	7/1/1995	TRICHLOROETHYLENE (TCE)	7.7E-02		2	2
AMW-16	T	7/1/1996	TRICHLOROETHYLENE (TCE)	6.9E-02		2	2
AMW-16	T	7/1/1997	TRICHLOROETHYLENE (TCE)	5.1E-02		2	2
AMW-16	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -67

Confidence in Trend: 99.9%

Coefficient of Variation: 1.62

Mann Kendall Concentration Trend: (See Note) D

Data Table:

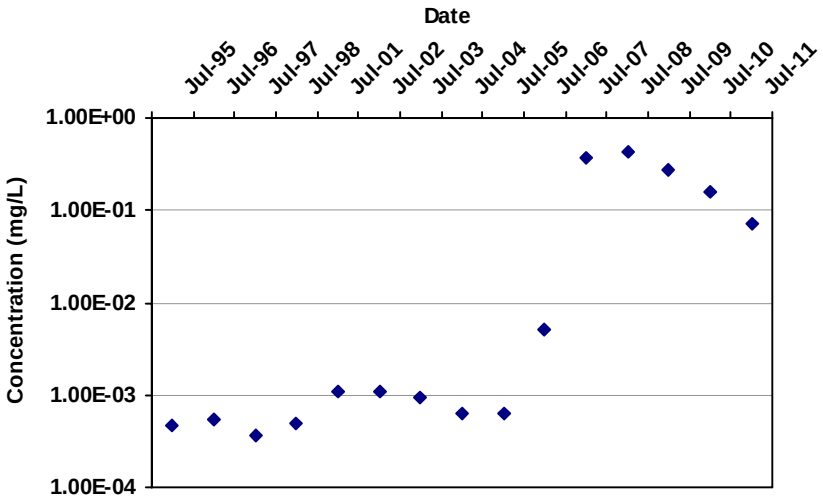
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-17	T	7/1/1995	TRICHLOROETHYLENE (TCE)	5.3E-02		2	2
AMW-17	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.8E-02		2	2
AMW-17	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.4E-02		2	2
AMW-17	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: 62

Confidence in Trend: 99.9%

Coefficient of Variation: 1.70

Mann Kendall Concentration Trend: (See Note) I

Data Table:

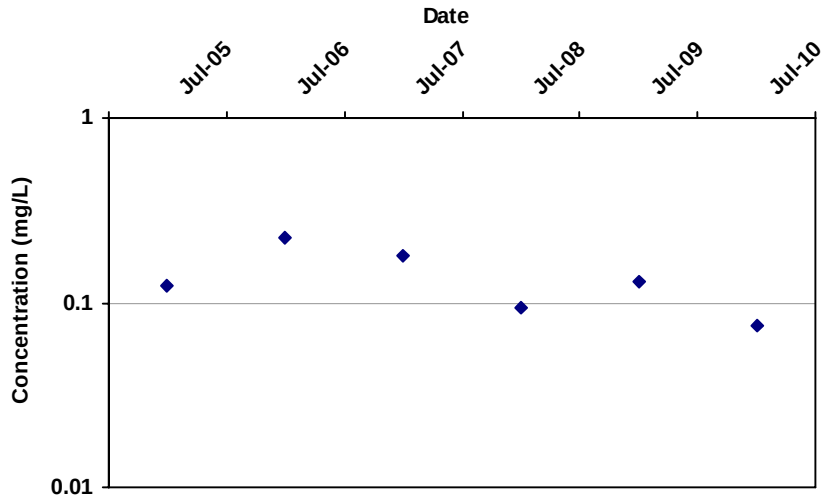
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-18	T	7/1/1995	TRICHLOROETHYLENE (TCE)	4.7E-04		2	2
AMW-18	T	7/1/1996	TRICHLOROETHYLENE (TCE)	5.6E-04		2	1
AMW-18	T	7/1/1997	TRICHLOROETHYLENE (TCE)	3.6E-04		2	1
AMW-18	T	7/1/1998	TRICHLOROETHYLENE (TCE)	5.0E-04	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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -7

Confidence in Trend: 86.4%

Coefficient of Variation: 0.40

Mann Kendall Concentration Trend: (See Note) S

Data Table:

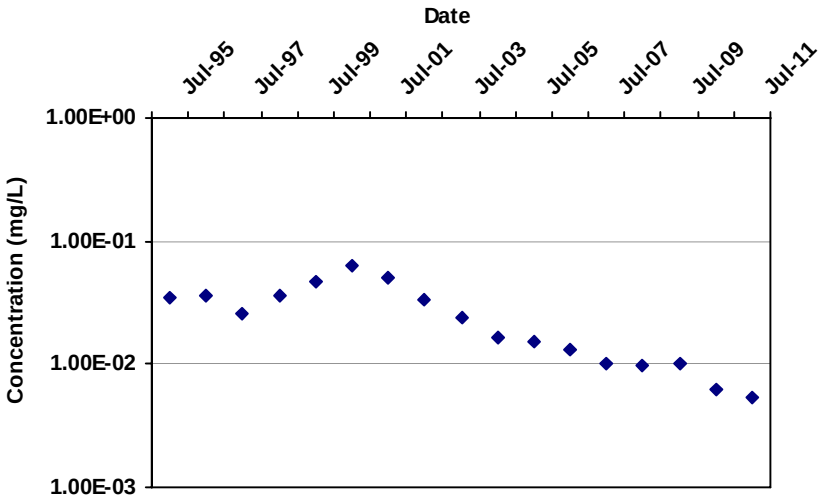
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-59	T	7/1/2005	TRICHLOROETHYLENE (TCE)	1.2E-01		3	3
AMW-59	T	7/1/2006	TRICHLOROETHYLENE (TCE)	2.2E-01		2	2
AMW-59	T	7/1/2007	TRICHLOROETHYLENE (TCE)	1.8E-01		1	1
AMW-59	T	7/1/2008	TRICHLOROETHYLENE (TCE)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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -97

Confidence in Trend: 100.0%

Coefficient of Variation: 0.67

Mann Kendall Concentration Trend: (See Note) D

Data Table:

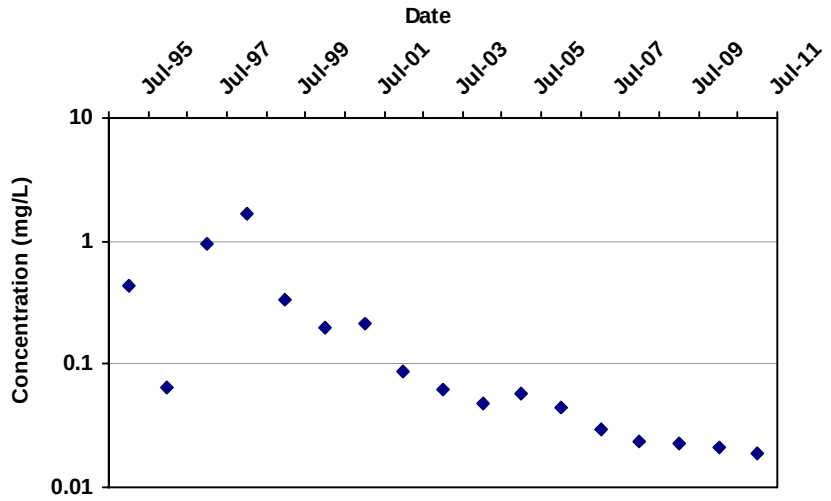
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
CPU-14	T	7/1/1995	TRICHLOROETHYLENE (TCE)	3.4E-02		2	2
CPU-14	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.6E-02		2	2
CPU-14	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.6E-02		1	1
CPU-14	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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)	6.1E-03		2	2
CPU-14	T	7/1/2011	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-14C
Well Type: T
COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -114

Confidence in Trend: 100.0%

Coefficient of Variation: 1.72

Mann Kendall Concentration Trend: (See Note) D

Data Table:

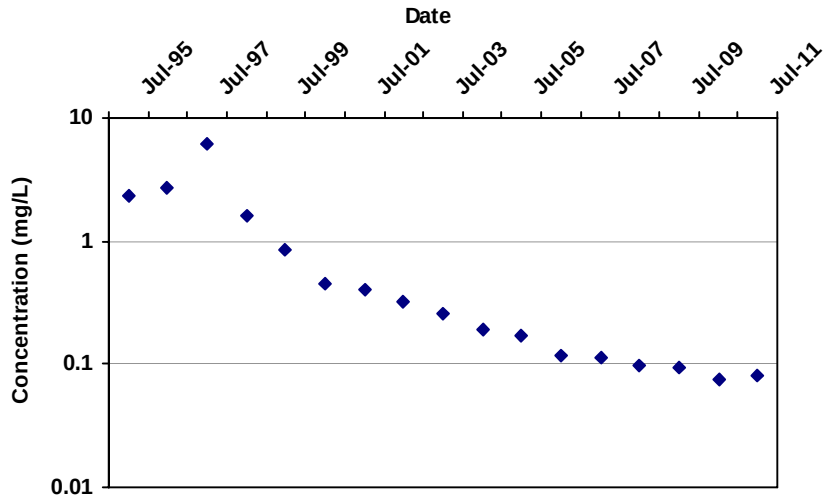
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-14C	T	7/1/1995	TRICHLOROETHYLENE (TCE)	4.4E-01		11	11
MW-14C	T	7/1/1996	TRICHLOROETHYLENE (TCE)	6.5E-02		2	2
MW-14C	T	7/1/1997	TRICHLOROETHYLENE (TCE)	9.4E-01		6	6
MW-14C	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.7E+00		2	2
MW-14C	T	7/1/1999	TRICHLOROETHYLENE (TCE)	3.3E-01		2	2
MW-14C	T	7/1/2000	TRICHLOROETHYLENE (TCE)	2.0E-01		3	3
MW-14C	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.1E-01		3	3
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -128

Confidence in Trend: 100.0%

Coefficient of Variation: 1.68

Mann Kendall Concentration Trend: (See Note) D

Data Table:

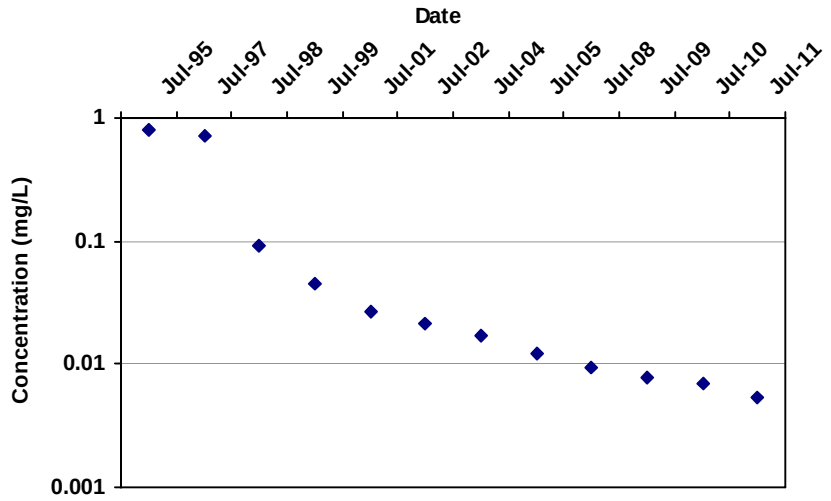
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-14E	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.3E+00		11	11
MW-14E	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.7E+00		2	2
MW-14E	T	7/1/1997	TRICHLOROETHYLENE (TCE)	6.3E+00		2	2
MW-14E	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.6E+00		3	3
MW-14E	T	7/1/1999	TRICHLOROETHYLENE (TCE)	8.4E-01		2	2
MW-14E	T	7/1/2000	TRICHLOROETHYLENE (TCE)	4.5E-01		3	3
MW-14E	T	7/1/2001	TRICHLOROETHYLENE (TCE)	4.0E-01		3	3
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -66

Confidence in Trend: 100.0%

Coefficient of Variation: 1.96

Mann Kendall Concentration Trend: (See Note) D

Data Table:

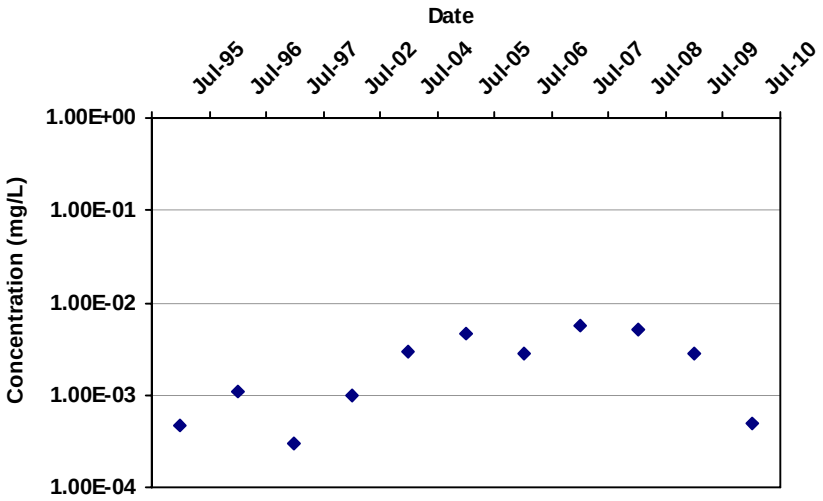
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-15E	T	7/1/1995	TRICHLOROETHYLENE (TCE)	8.1E-01		2	2
MW-15E	T	7/1/1997	TRICHLOROETHYLENE (TCE)	7.0E-01		2	2
MW-15E	T	7/1/1998	TRICHLOROETHYLENE (TCE)	9.2E-02		2	2
MW-15E	T	7/1/1999	TRICHLOROETHYLENE (TCE)	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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: 18

Confidence in Trend: 90.5%

Coefficient of Variation: 0.80

Mann Kendall Concentration Trend: (See Note) PI

Data Table:

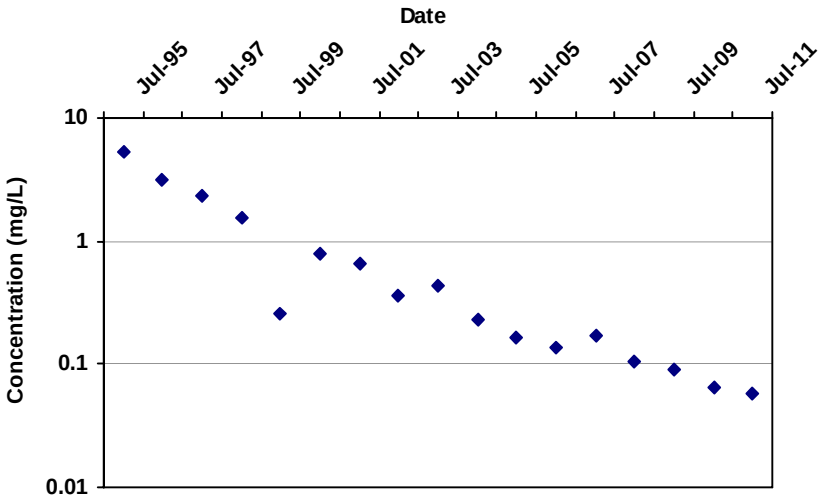
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-16E	T	7/1/1995	TRICHLOROETHYLENE (TCE)	4.6E-04		2	2
MW-16E	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.1E-03		2	2
MW-16E	T	7/1/1997	TRICHLOROETHYLENE (TCE)	3.0E-04	ND	1	0
MW-16E	T	7/1/2002	TRICHLOROETHYLENE (TCE)	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)	5.0E-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-18D
Well Type: T
COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -122

Confidence in Trend: 100.0%

Coefficient of Variation: 1.53

Mann Kendall Concentration Trend: (See Note) D

Data Table:

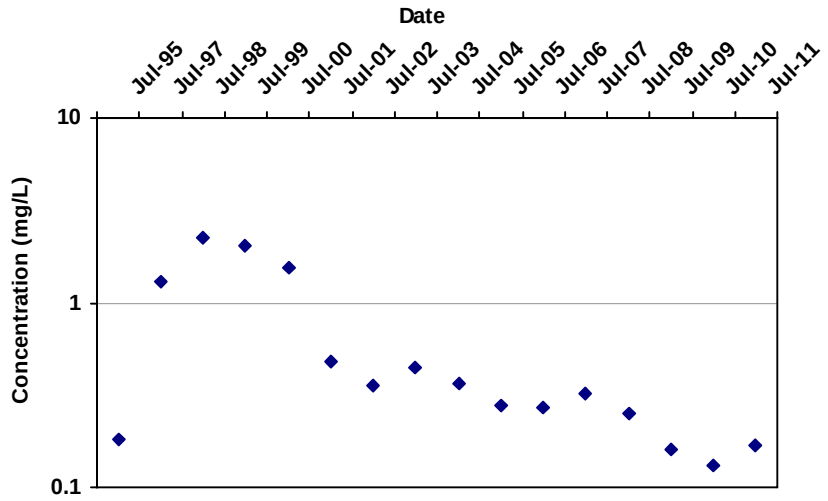
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-18D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	5.3E+00		11	11
MW-18D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.2E+00		8	8
MW-18D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.3E+00		9	9
MW-18D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	1.5E+00		3	3
MW-18D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	2.6E-01		2	2
MW-18D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	7.9E-01		3	3
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -78

Confidence in Trend: 100.0%

Coefficient of Variation: 1.07

Mann Kendall Concentration Trend: (See Note) D

Data Table:

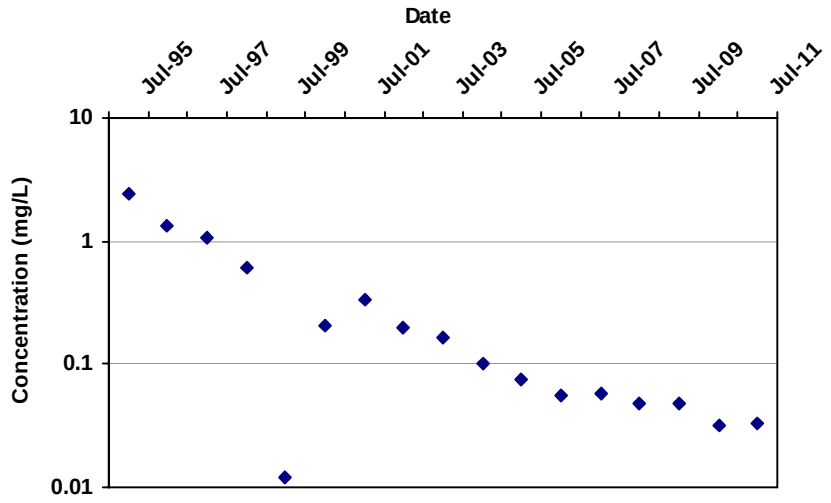
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-18E	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.8E-01		2	2
MW-18E	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.3E+00		2	2
MW-18E	T	7/1/1998	TRICHLOROETHYLENE (TCE)	2.3E+00		2	2
MW-18E	T	7/1/1999	TRICHLOROETHYLENE (TCE)	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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -104

Confidence in Trend: 100.0%

Coefficient of Variation: 1.62

Mann Kendall Concentration Trend: (See Note) D

Data Table:

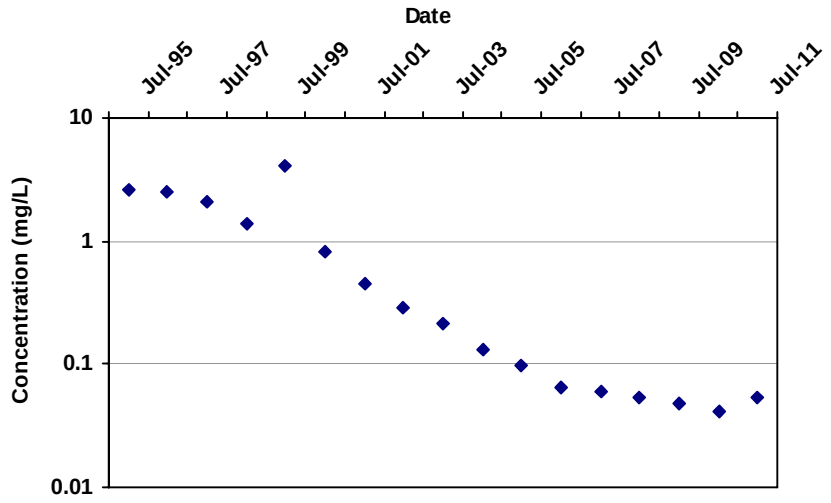
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-19D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.4E+00		11	11
MW-19D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.3E+00		12	12
MW-19D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.1E+00		6	6
MW-19D	T	7/1/1998	TRICHLOROETHYLENE (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)	3.4E-01		3	3
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -122

Confidence in Trend: 100.0%

Coefficient of Variation: 1.39

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)	8.2E-01		3	3
MW-20D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	4.5E-01		3	3
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

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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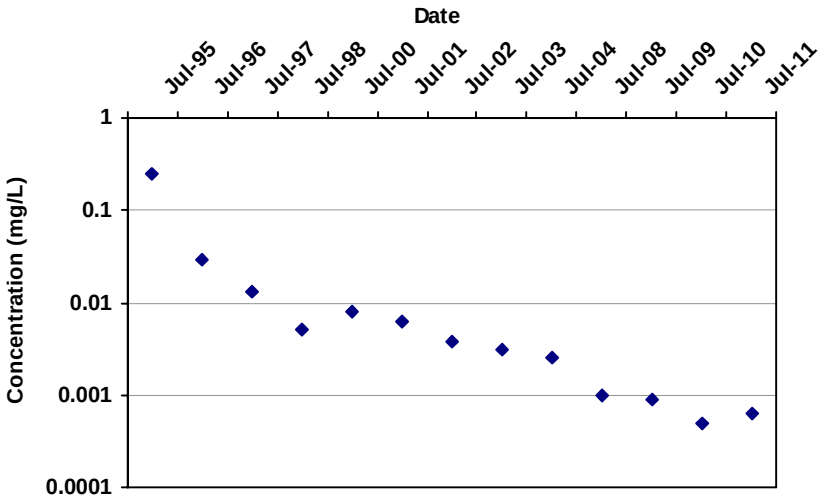
CHURCH OF GOD WELLS

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -72

Confidence in Trend: 100.0%

Coefficient of Variation: 2.70

Mann Kendall Concentration Trend: (See Note) D

Data Table:

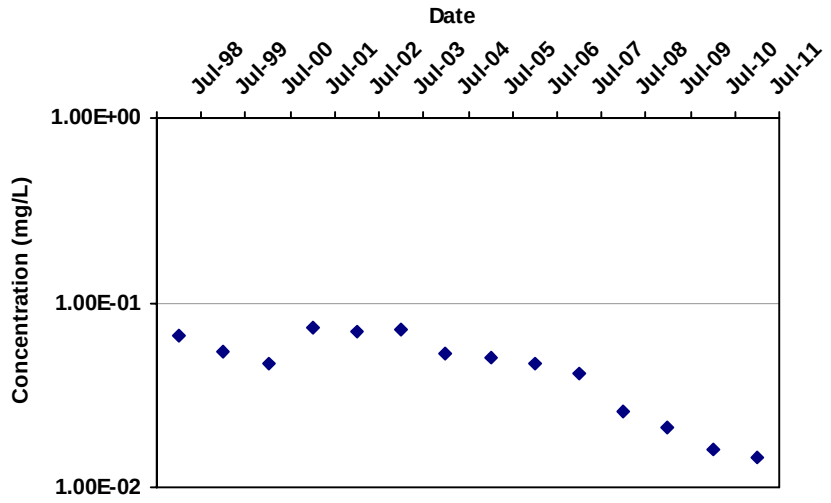
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-14	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.4E-01		2	2
AMW-14	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.0E-02		2	2
AMW-14	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.3E-02		2	2
AMW-14	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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)	5.0E-04	ND	2	0
AMW-14	T	7/1/2011	TRICHLOROETHYLENE (TCE)	6.4E-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-27
Well Type: T
COC: TRICHLOROETHYLENE (TCE)

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -67

Confidence in Trend: 100.0%

Coefficient of Variation: 0.44

Mann Kendall Concentration Trend: (See Note) D

Data Table:

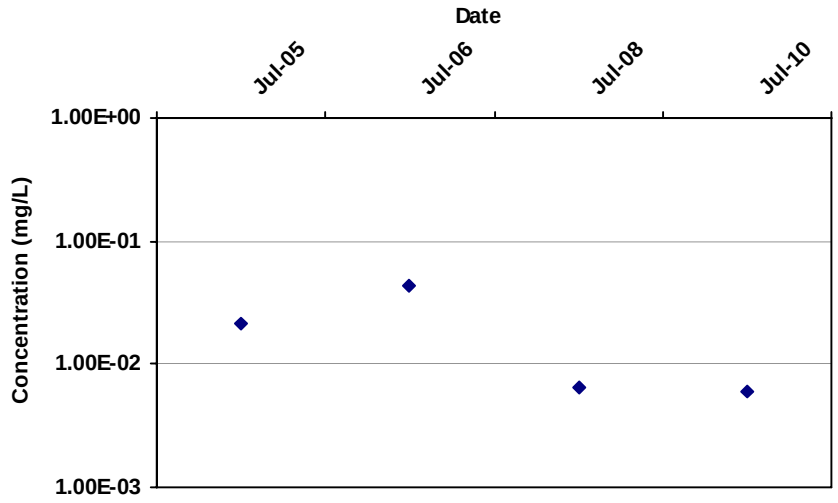
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-27	T	7/1/1998	TRICHLOROETHYLENE (TCE)	6.6E-02		1	1
AMW-27	T	7/1/1999	TRICHLOROETHYLENE (TCE)	5.4E-02		2	2
AMW-27	T	7/1/2000	TRICHLOROETHYLENE (TCE)	4.6E-02		3	3
AMW-27	T	7/1/2001	TRICHLOROETHYLENE (TCE)	7.3E-02		3	3
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -4

Confidence in Trend: 83.3%

Coefficient of Variation: 0.90

Mann Kendall Concentration Trend: (See Note) S

Data Table:

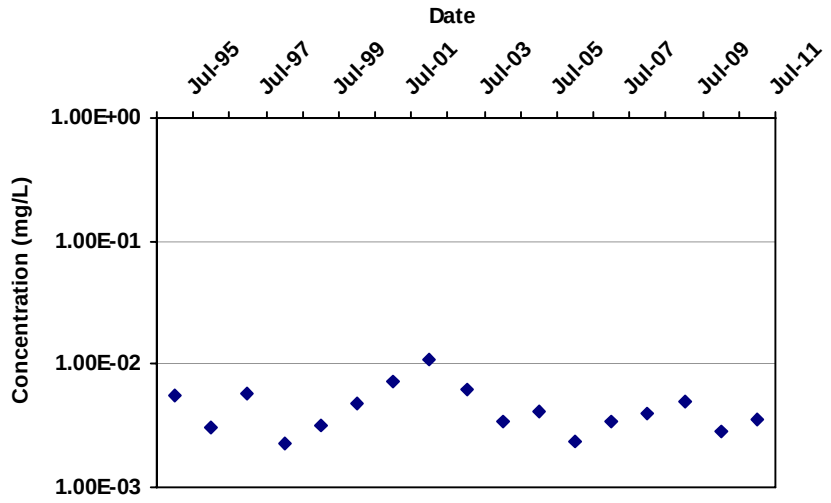
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-61	T	7/1/2005	TRICHLOROETHYLENE (TCE)	2.1E-02		2	2
AMW-61	T	7/1/2006	TRICHLOROETHYLENE (TCE)	4.3E-02		1	1
AMW-61	T	7/1/2008	TRICHLOROETHYLENE (TCE)	6.5E-03		1	1
AMW-61	T	7/1/2010	TRICHLOROETHYLENE (TCE)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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -12

Confidence in Trend: 67.2%

Coefficient of Variation: 0.48

Mann Kendall Concentration Trend: (See Note) S

Data Table:

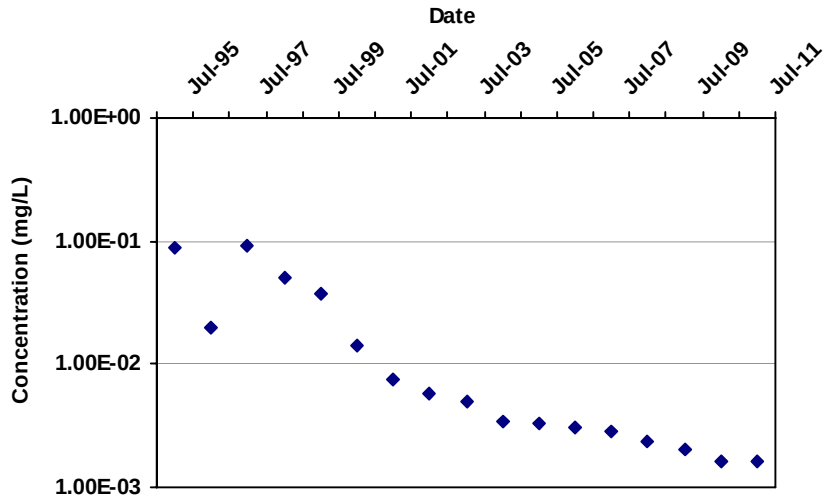
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
CPU-12	T	7/1/1995	TRICHLOROETHYLENE (TCE)	5.5E-03		2	1
CPU-12	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.1E-03		2	1
CPU-12	T	7/1/1997	TRICHLOROETHYLENE (TCE)	5.7E-03		2	2
CPU-12	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -126

Confidence in Trend: 100.0%

Coefficient of Variation: 1.49

Mann Kendall Concentration Trend: (See Note) D

Data Table:

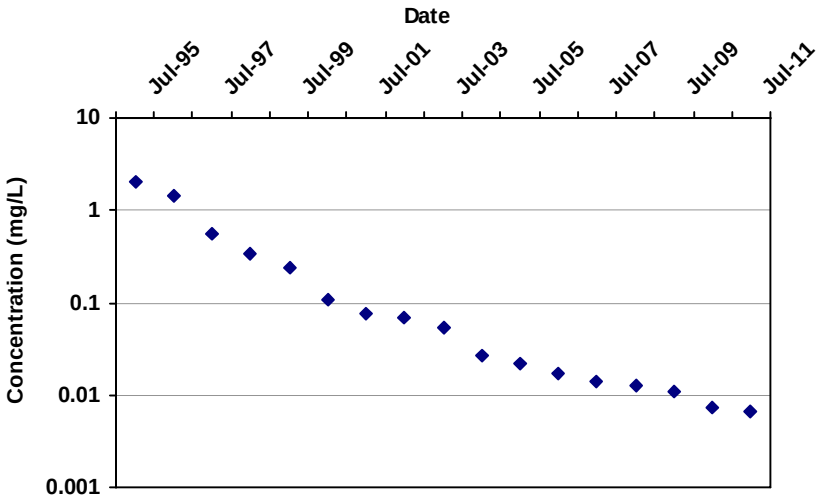
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
CPU-13	T	7/1/1995	TRICHLOROETHYLENE (TCE)	9.0E-02		11	11
CPU-13	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.0E-02		2	2
CPU-13	T	7/1/1997	TRICHLOROETHYLENE (TCE)	9.2E-02		2	2
CPU-13	T	7/1/1998	TRICHLOROETHYLENE (TCE)	5.0E-02		2	2
CPU-13	T	7/1/1999	TRICHLOROETHYLENE (TCE)	3.7E-02		2	2
CPU-13	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.4E-02		3	3
CPU-13	T	7/1/2001	TRICHLOROETHYLENE (TCE)	7.6E-03		3	3
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -136

Confidence in Trend: 100.0%

Coefficient of Variation: 1.92

Mann Kendall Concentration Trend: (See Note) D

Data Table:

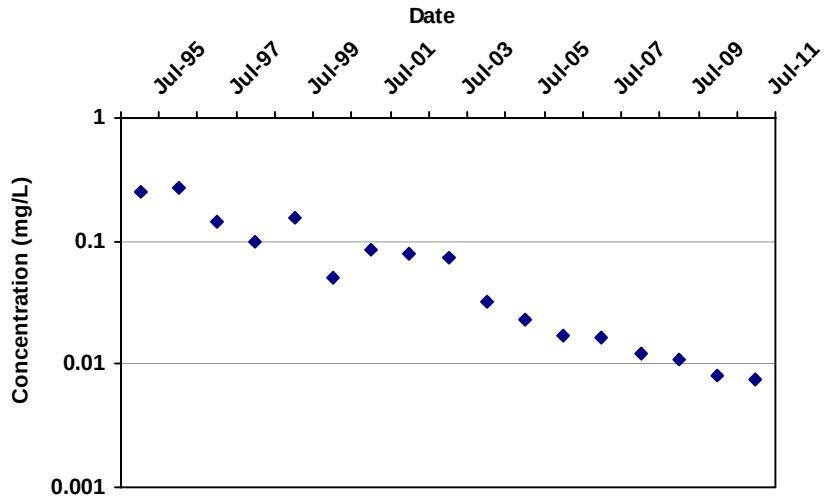
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-21D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.0E+00		11	11
MW-21D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.4E+00		12	12
MW-21D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	5.5E-01		9	9
MW-21D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	3.5E-01		3	3
MW-21D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	2.3E-01		2	2
MW-21D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.1E-01		3	3
MW-21D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	7.5E-02		3	3
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -124

Confidence in Trend: 100.0%

Coefficient of Variation: 1.06

Mann Kendall Concentration Trend: (See Note) D

Data Table:

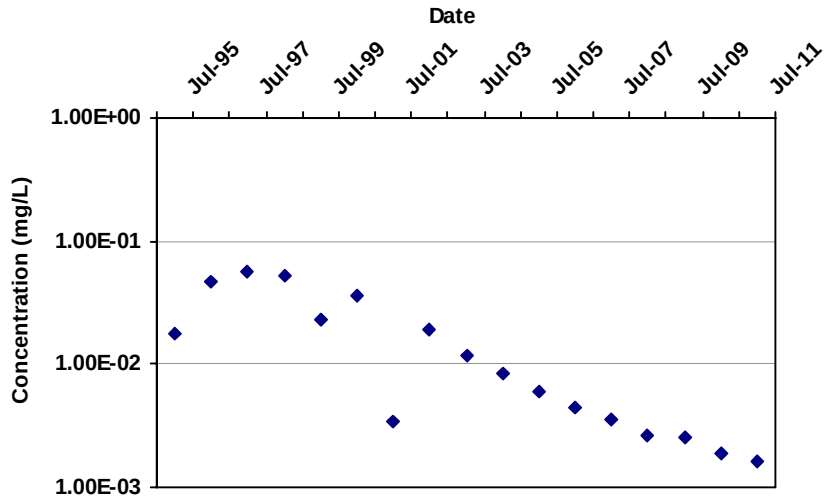
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-22D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.5E-01		11	11
MW-22D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	2.7E-01		11	11
MW-22D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.4E-01		9	9
MW-22D	T	7/1/1998	TRICHLOROETHYLENE (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)	5.1E-02		3	3
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -106

Confidence in Trend: 100.0%

Coefficient of Variation: 1.08

Mann Kendall Concentration Trend: (See Note) D

Data Table:

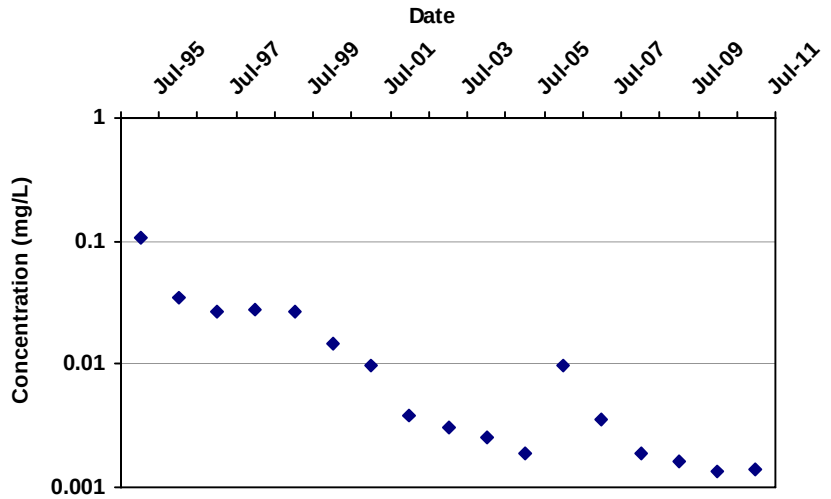
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-23D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.7E-02		2	2
MW-23D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	4.6E-02		2	2
MW-23D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	5.6E-02		2	2
MW-23D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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)	3.5E-03		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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -115

Confidence in Trend: 100.0%

Coefficient of Variation: 1.57

Mann Kendall Concentration Trend: (See Note) D

Data Table:

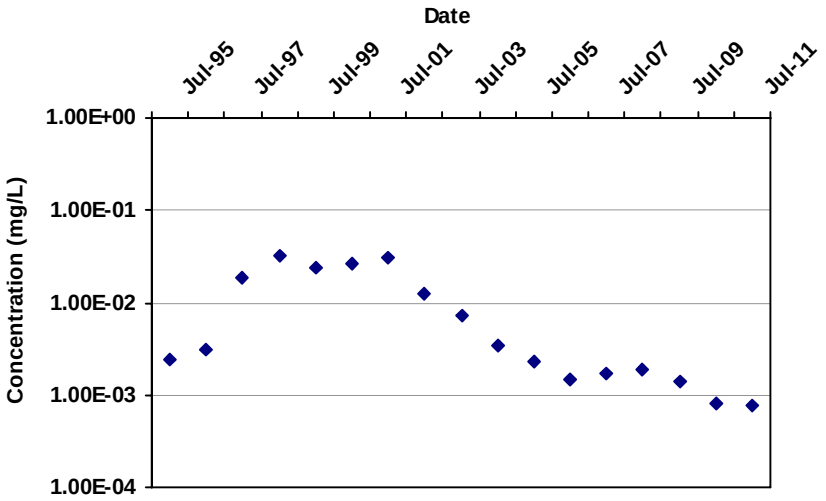
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-25D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	1.1E-01		12	12
MW-25D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.4E-02		12	12
MW-25D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.7E-02		9	9
MW-25D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	2.8E-02		3	3
MW-25D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	2.7E-02		2	2
MW-25D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.5E-02		3	3
MW-25D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	9.7E-03		3	3
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -82

Confidence in Trend: 100.0%

Coefficient of Variation: 1.15

Mann Kendall Concentration Trend: (See Note) D

Data Table:

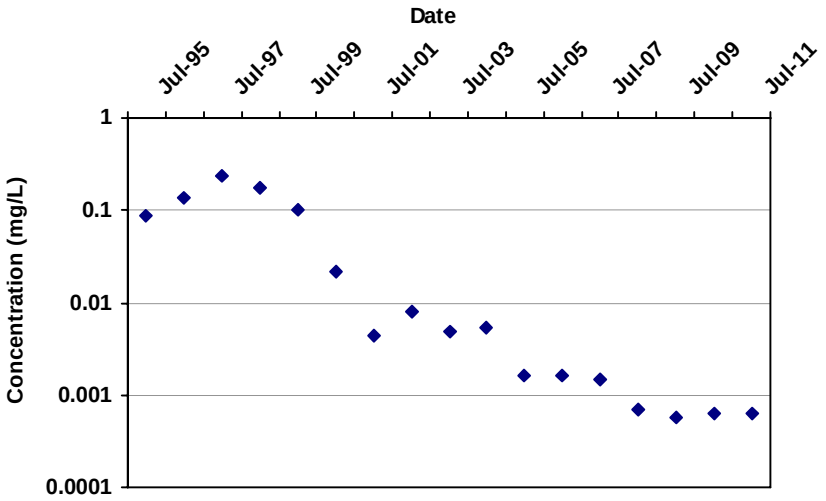
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-26D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	2.4E-03		11	10
MW-26D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	3.1E-03		12	12
MW-26D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	1.9E-02		9	9
MW-26D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	3.2E-02		3	3
MW-26D	T	7/1/1999	TRICHLOROETHYLENE (TCE)	2.4E-02		2	2
MW-26D	T	7/1/2000	TRICHLOROETHYLENE (TCE)	2.6E-02		3	3
MW-26D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	3.0E-02		3	3
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -111

Confidence in Trend: 100.0%

Coefficient of Variation: 1.60

Mann Kendall Concentration Trend: (See Note) D

Data Table:

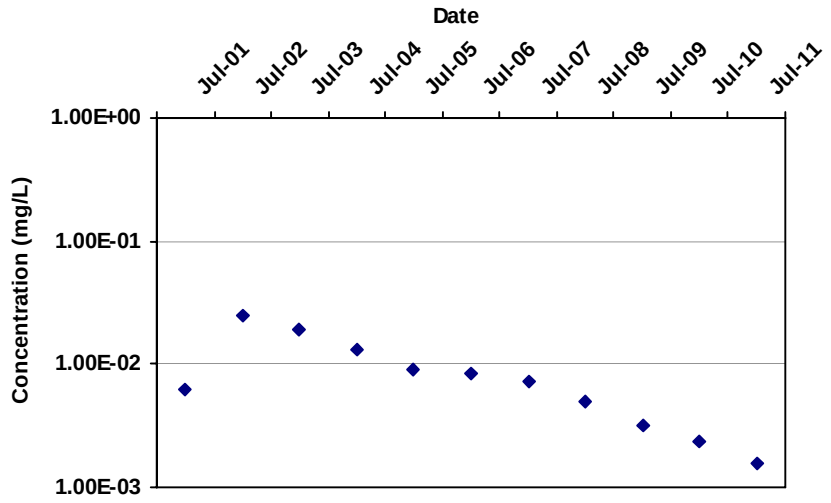
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-27D	T	7/1/1995	TRICHLOROETHYLENE (TCE)	8.9E-02		11	11
MW-27D	T	7/1/1996	TRICHLOROETHYLENE (TCE)	1.4E-01		2	2
MW-27D	T	7/1/1997	TRICHLOROETHYLENE (TCE)	2.4E-01		2	2
MW-27D	T	7/1/1998	TRICHLOROETHYLENE (TCE)	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)	2.2E-02		3	3
MW-27D	T	7/1/2001	TRICHLOROETHYLENE (TCE)	4.4E-03		3	2
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -43

Confidence in Trend: 100.0%

Coefficient of Variation: 0.80

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	7/1/2001	TRICHLOROETHYLENE (TCE)	6.3E-03		3	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

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

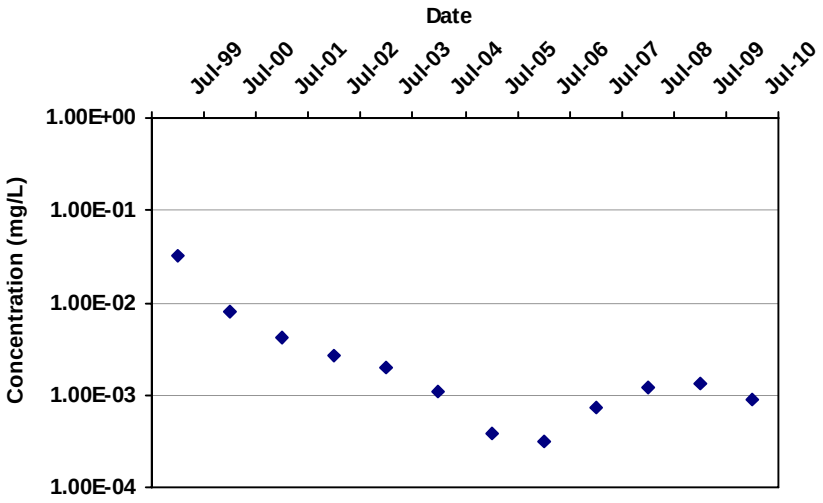
TOE OF PLUME

Other Toe Wells

MAROS Mann-Kendall Statistics Summary

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

Time Period: 1/19/1995 **to** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -38

Confidence in Trend: 99.6%

Coefficient of Variation: 1.97

Mann Kendall Concentration Trend: (See Note) D

Data Table:

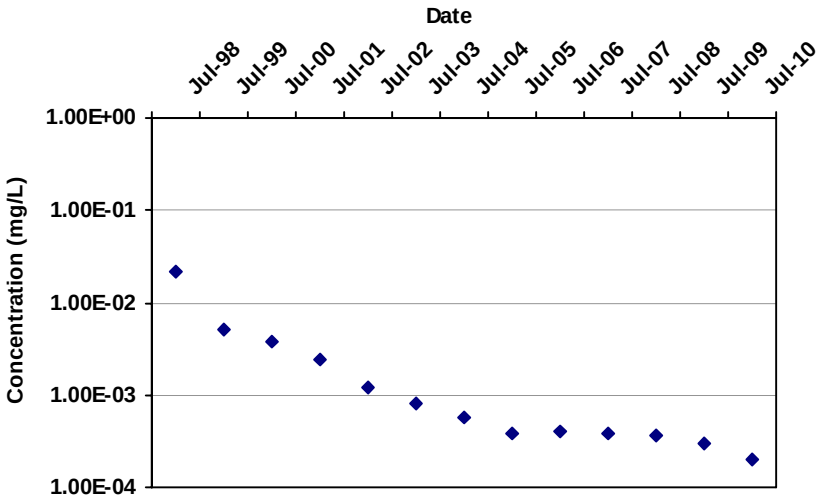
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AMW-42	T	7/1/1999	TRICHLOROETHYLENE (TCE)	3.3E-02		3	3
AMW-42	T	7/1/2000	TRICHLOROETHYLENE (TCE)	8.0E-03		3	3
AMW-42	T	7/1/2001	TRICHLOROETHYLENE (TCE)	4.1E-03		3	3
AMW-42	T	7/1/2002	TRICHLOROETHYLENE (TCE)	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)	1.1E-03		6	5
AMW-42	T	7/1/2005	TRICHLOROETHYLENE (TCE)	3.9E-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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -74

Confidence in Trend: 100.0%

Coefficient of Variation: 2.03

Mann Kendall Concentration Trend: (See Note) D

Data Table:

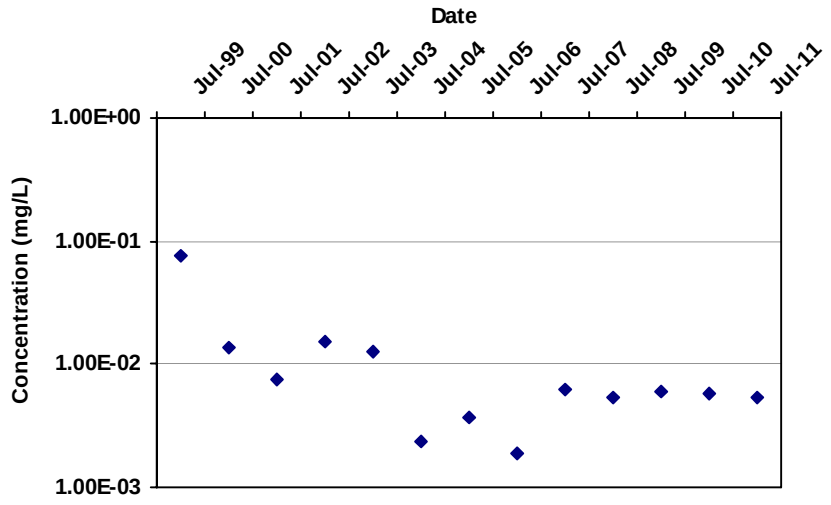
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-31	T	7/1/1998	TRICHLOROETHYLENE (TCE)	2.2E-02		2	2
MW-31	T	7/1/1999	TRICHLOROETHYLENE (TCE)	5.2E-03		2	2
MW-31	T	7/1/2000	TRICHLOROETHYLENE (TCE)	3.8E-03		3	3
MW-31	T	7/1/2001	TRICHLOROETHYLENE (TCE)	2.4E-03		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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -34

Confidence in Trend: 97.9%

Coefficient of Variation: 1.56

Mann Kendall Concentration Trend: (See Note) D

Data Table:

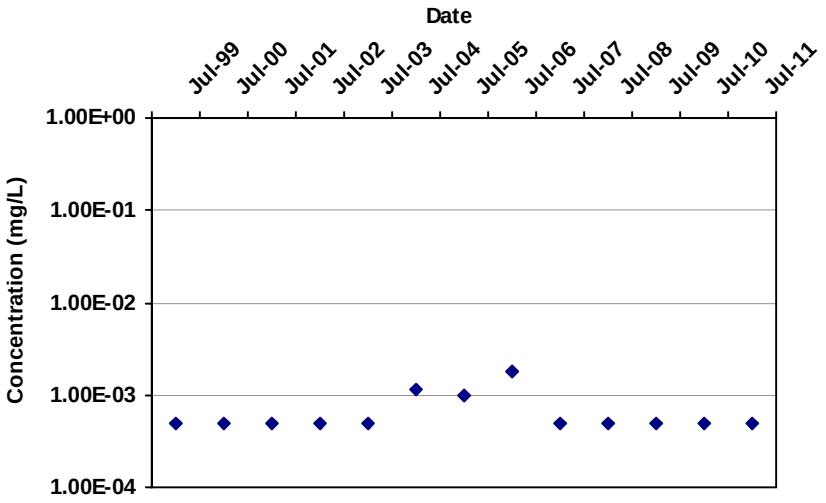
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-35	T	7/1/1999	TRICHLOROETHYLENE (TCE)	7.6E-02		2	2
MW-35	T	7/1/2000	TRICHLOROETHYLENE (TCE)	1.4E-02		3	3
MW-35	T	7/1/2001	TRICHLOROETHYLENE (TCE)	7.4E-03		3	2
MW-35	T	7/1/2002	TRICHLOROETHYLENE (TCE)	1.5E-02		6	6
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

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
ND Values: Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -21

Confidence in Trend: 88.6%

Coefficient of Variation: 0.57

Mann Kendall Concentration Trend: (See Note) S

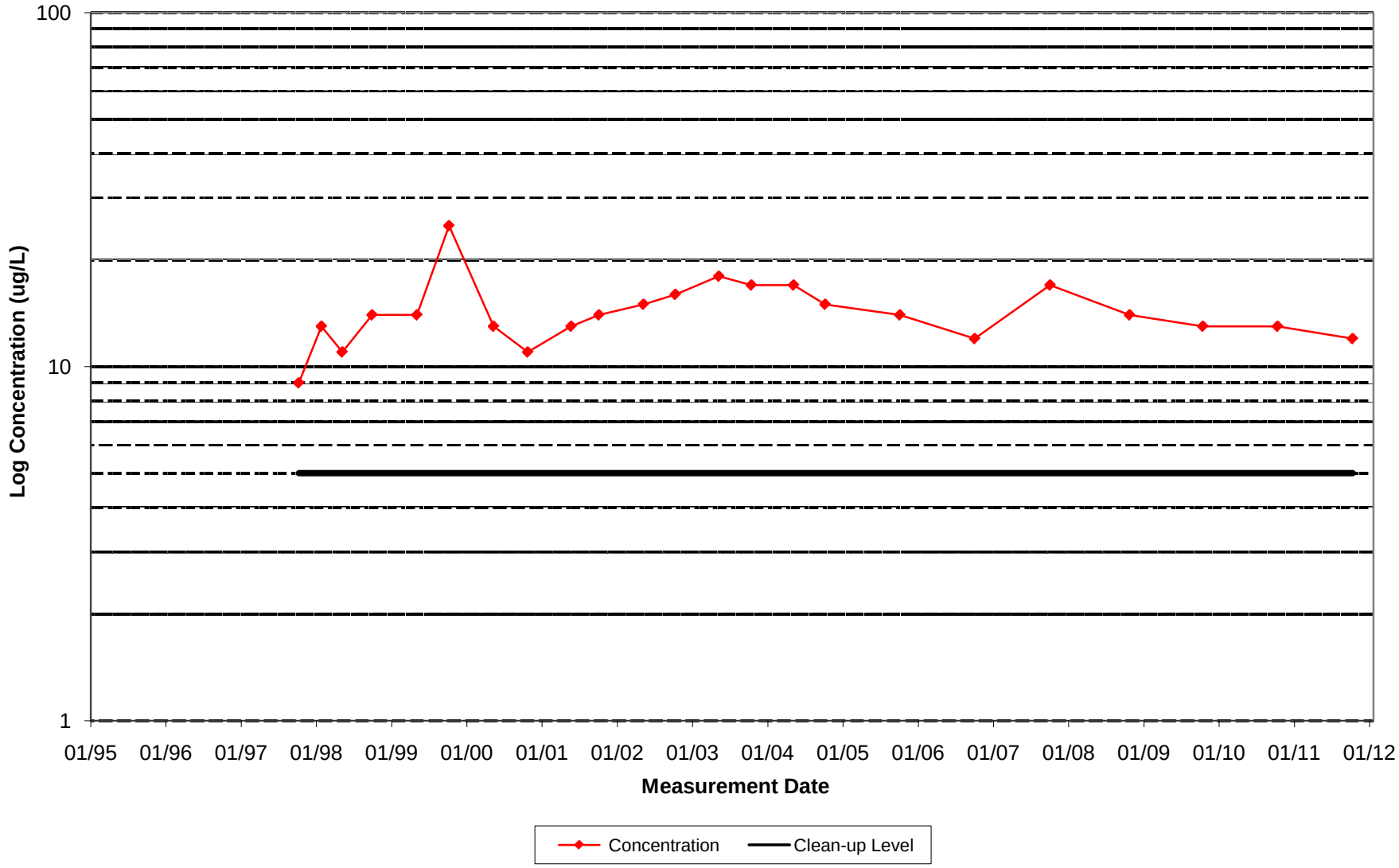
Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
MW-41	T	7/1/1999	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	3	0
MW-41	T	7/1/2000	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	3	0
MW-41	T	7/1/2001	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	3	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)	9.9E-04		5	4
MW-41	T	7/1/2006	TRICHLOROETHYLENE (TCE)	1.8E-03		2	1
MW-41	T	7/1/2007	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	4	0
MW-41	T	7/1/2008	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	2	0
MW-41	T	7/1/2009	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	2	0
MW-41	T	7/1/2010	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	1	0
MW-41	T	7/1/2011	TRICHLOROETHYLENE (TCE)	5.0E-04	ND	1	0

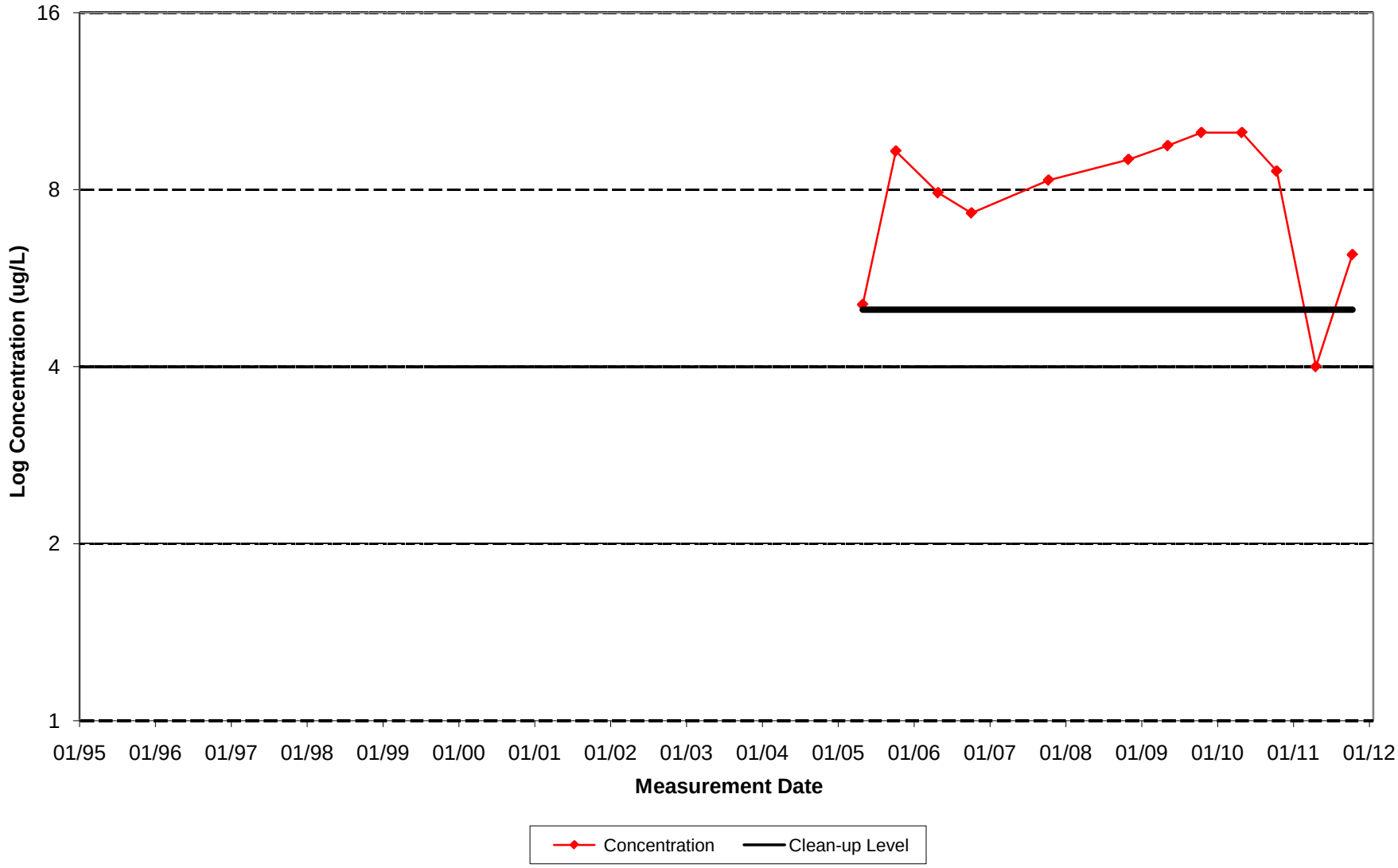
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

TROUTDALE WELLS

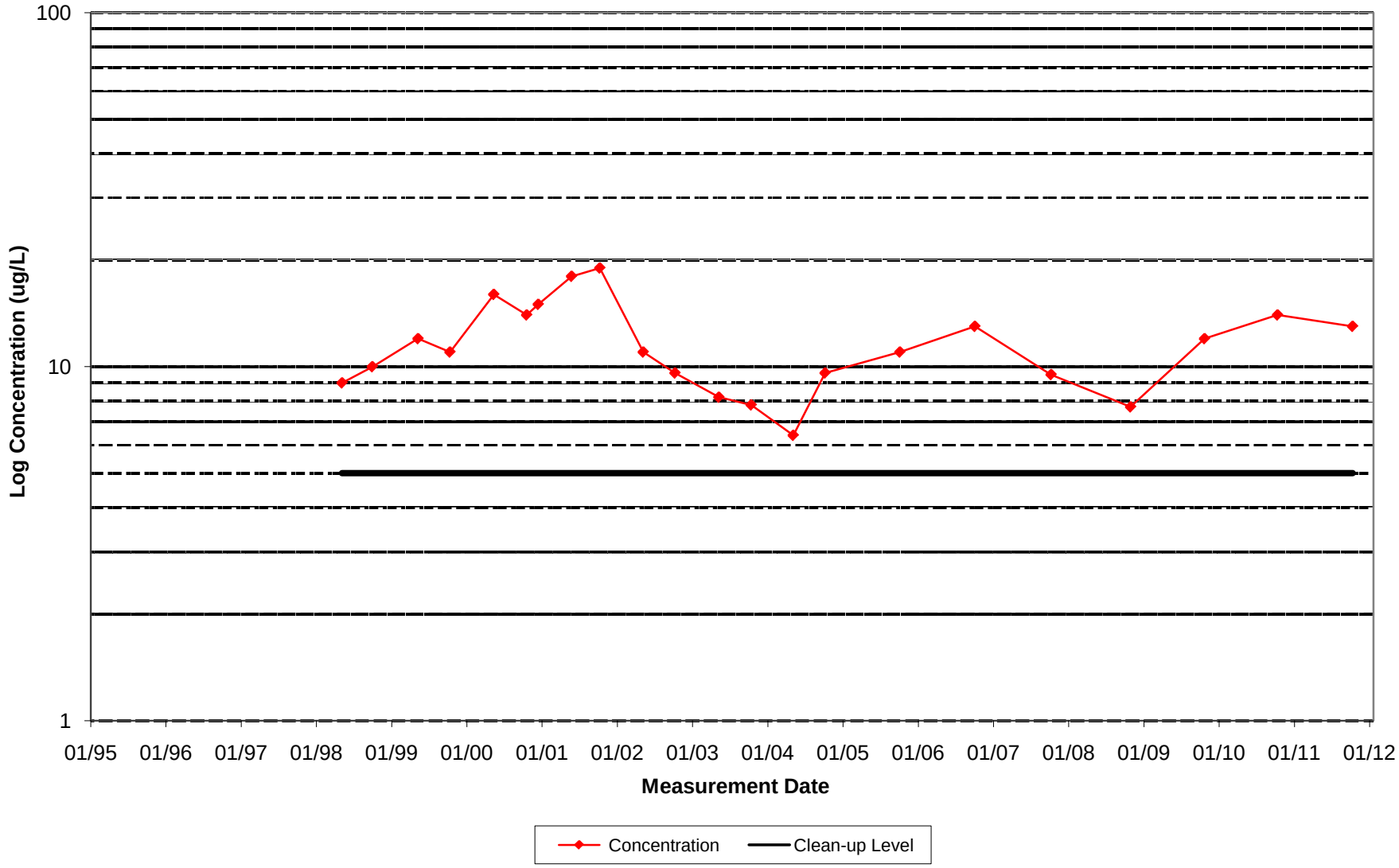
AMW-24 - TCE (ug/L)



BENNETT - TCE (ug/L)



MW-33 - TCE (ug/L)


100
10
1
Log Concentration (ug/L)
01/95
01/96
01/97
01/98
01/99
01/00
01/01
01/02
01/03
01/04
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
Measurement Date
Concentration
Clean-up Level

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APPENDIX C

WELL EVALUATION TABLES
AND
ADDITIONAL MAROS OUTPUTS

APPENDIX C-1

WELL EVALUATION TABLES

TABLE C-1. 2011 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	8	S	0.38	Attained	Attained	Attained	Yes	Yes		7	S	0.41	Attained	Cont Sampling	Attained	Yes	Yes		NFS	NFS
AMW-7A	13	NT	0.19	Attained	Attained	Attained	Yes	Yes		8	D	0.18	Attained	Attained	Attained	Yes	Yes		NFS	NFS
AMW-8A	16	D	1.76	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-10A	7	PD	0.50	Attained	Cont Sampling	Attained	Yes	Yes		6	NT	0.27	Attained	Attained	Attained	Yes	Yes		NFS	NFS
AMW-11A	8	NT	0.37	Attained	Attained	Attained	Yes	Yes		7	S	0.23	Attained	Attained	Attained	Yes	Yes		NFS	NFS
TCE Source Wells																				
AMW-1A	17	D	1.56	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
AMW-2A	17	D	1.22	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
AMW-2B	12	PD	2.09	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-3A	16	D	0.96	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-12A	17	D	1.54	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
AMW-13A	16	NT	1.86	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-19A	15	D	1.41	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-26	14	D	1.39	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-52A	8	D	0.71	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-53A	9	D	1.85	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
AMW-54A	8	PD	1.35	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-55A	7	NT	1.56	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-56A	8	D	2.42	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-1A	17	D	0.96	Cont Sampling	Cont Sampling	Cont Sampling	No	No		12	NT	1.57	Attained	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
Proximal Wells																				
AMW-58	4	D	0.94	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-2A	14	D	0.63	Cont Sampling	Not Attained	Cont Sampling	Yes	No		16	NT	1.06	Cont Sampling	Not Attained	Not Attained	No	No		Annual	Annual
MW-3A								NA		14	D	0.63	Cont Sampling	Not Attained	Cont Sampling	No	No		NA	Annual
MW-3B	9	D	0.91	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-4A								NA		12	PD	0.87	Cont Sampling	Not Attained	Cont Sampling	No	No		NA	Annual
MW-4B	9	NT	2.49	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		10	D	0.80	Cont Sampling	Not Attained	Cont Sampling	No	No		Annual	Annual
MW-4BShed										9	D	1.45	Cont Sampling	Cont Sampling	Cont Sampling	No	No		NA	Annual
MW-6A										3	N/A	0.00	N/C	N/C	N/C	No	No		NA	Quarterly
MW-6B	17	D	1.38	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		17	D	2.00	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	8	D	1.77	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-9B	9	D	1.44	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
MW-10B	17	D	1.63	Cont Sampling	Not Attained	Not Attained	No	No		17	D	0.91	Cont Sampling	Not Attained	Cont Sampling	Yes	No		Annual	Annual
MW-10C	17	D	1.70	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		17	D	1.95	Cont Sampling	Not Attained	Not Attained	Yes	No		Annual	Annual
MW-12C	16	D	2.53	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
MW-13C	16	D	0.77	Cont Sampling	Not Attained	Cont Sampling	No	No											Annual	NA
PW-1B	17	D	1.31	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		17	D	1.64	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
Intermediate Wells																				
AMW-16	16	D	1.28	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
AMW-17	16	D	1.62	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
AMW-18	15	I	1.70	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Quarterly	NA
AMW-59	6	S	0.40	Cont Sampling	Not Attained	Cont Sampling	No	No											Annual	NA
CPU-14	17	D	0.67	Cont Sampling	Not Attained	Cont Sampling	No	No		17	D	0.91	Cont Sampling	Not Attained	Cont Sampling	Yes	No		Annual	Annual

TABLE C-1. 2011 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	17	D	1.72	Cont Sampling	Cont Sampling	Cont Sampling	No	No		17	D	1.45	Cont Sampling	Not Attained	Not Attained	Yes	No		Annual	Annual
MW-14E	17	D	1.68	Cont Sampling	Not Attained	Not Attained	No	No		17	D	2.14	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-15E	12	D	1.96	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
MW-16E	11	PI	0.80	Attained	Cont Sampling	Attained	Yes	Yes											NFS	NA
MW-18D	17	D	1.53	Cont Sampling	Not Attained	Not Attained	No	No		17	D	1.72	Cont Sampling	Cont Sampling	Cont Sampling	No	No		Annual	Annual
MW-18E	16	D	1.07	Cont Sampling	Not Attained	Not Attained	No	No											Annual	NA
MW-19D	17	D	1.63	Cont Sampling	Cont Sampling	Cont Sampling	No	No	TRUE	17	D	1.90	Cont Sampling	Cont Sampling	Cont Sampling	No	No		Annual	Annual
MW-20D	17	D	1.39	Cont Sampling	Cont Sampling	Cont Sampling	No	No		17	D	1.90	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
Church of God Wells																				
AMW-14	13	D	2.70	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		13	D	2.45	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
AMW-27	14	D	0.44	Cont Sampling	Not Attained	Cont Sampling	No	No		14	D	1.12	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
AMW-61	4	S	0.90	Cont Sampling	Cont Sampling	Cont Sampling	No	No											Annual	NA
CPU-12	17	S	0.48	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
CPU-13	17	D	1.49	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		17	D	1.56	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-21D	17	D	1.92	Cont Sampling	Cont Sampling	Cont Sampling	No	No		17	D	2.39	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-22D	17	D	1.06	Cont Sampling	Not Attained	Not Attained	No	No		17	D	1.57	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-23D	17	D	1.08	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No											Annual	NA
MW-25D	17	D	1.57	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		17	D	2.61	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-26D	17	D	1.15	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		17	D	1.31	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-27D	17	D	1.60	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		17	D	2.05	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-49	11	D	0.80	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		11	D	0.97	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
Toe Wells																				
AMW-42	12	D	1.97	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		12	D	2.03	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	13	D	2.03	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		13	D	2.32	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-35	13	D	1.56	Cont Sampling	Not Attained	Not Attained	No	No		13	D	3.26	Cont Sampling	Cont Sampling	Cont Sampling	Yes	No		Annual	Annual
MW-41	13	S	0.57	Attained	Cont Sampling	Attained	Yes	Yes		13	S	0.92	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.

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: 26

Number of Source Wells: 8

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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
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 montoring 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	D	D	L	Continue remediation mechanism unitl 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 Analysi 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	1.47	-128	100.0%	D
1st Moment: Distance to Source					
	CHROMIUM, HEXAVALENT	0.19	-102	100.0%	D
2nd Moment: Sigma XX					
	CHROMIUM, HEXAVALENT	0.16	58	99.1%	I
2nd Moment: Sigma YY					
	CHROMIUM, HEXAVALENT	0.14	54	98.6%	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** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
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									
PW-1B	S	9.1E-01	2.7E-01	1.5E+00	No	-7.7E-04	1.64	100.0%	D
MW-3A	S	4.7E-01	3.8E-01	3.0E-01	No	-2.8E-04	0.63	100.0%	D
MW-4A	S	1.4E+00	9.6E-01	1.3E+00	No	-2.1E-04	0.87	96.8%	D
MW-4B	S	1.2E+00	9.4E-01	9.8E-01	No	-1.6E-04	0.80	96.7%	D
MW-4BSHED	S	1.5E+00	2.6E-01	2.1E+00	No	-1.1E-03	1.45	99.8%	D
MW-6A	S	6.1E-02	1.2E-02	9.2E-02	No	0.0E+00	0.00	0.0%	N/A
MW-6B	S	2.2E-01	4.9E-02	4.5E-01	No	-5.6E-04	2.00	100.0%	D
MW-2A	S	6.4E-01	4.1E-01	7.0E-01	No	-9.4E-06	1.08	100.0%	D
AMW-7A	T	4.2E-03	4.4E-03	7.8E-04	No	-7.6E-05	0.18	95.4%	D
AMW-6A	T	7.4E-03	5.9E-03	3.0E-03	No	6.0E-05	0.41	72.0%	NT
AMW-42	T	1.5E-01	2.7E-02	3.1E-01	No	-9.0E-04	2.03	99.9%	D
AMW-27	T	2.2E+00	1.3E+00	2.4E+00	No	-1.1E-03	1.12	100.0%	D
AMW-14	T	5.4E-01	1.2E-01	1.3E+00	No	-4.9E-04	2.45	100.0%	D
CPU-14	T	3.2E-01	1.8E-01	2.9E-01	No	-5.7E-04	0.91	100.0%	D
AMW-10A	T	5.8E-03	5.5E-03	1.6E-03	No	-2.6E-05	0.27	65.1%	S
MW-10B	T	3.0E-01	2.3E-01	2.7E-01	No	-5.0E-04	0.91	100.0%	D
AMW-11A	T	4.4E-03	4.9E-03	1.0E-03	No	-2.4E-05	0.23	63.6%	S
MW-20D	T	5.7E+00	6.9E-01	1.1E+01	No	-1.1E-03	1.90	100.0%	D
MW-41	T	1.1E-02	5.0E-03	1.0E-02	No	-1.4E-04	0.92	80.0%	S
MW-35	T	3.4E-01	2.9E-02	1.1E+00	No	-6.2E-04	3.26	98.4%	D
MW-31	T	4.3E-02	1.1E-02	1.0E-01	No	-5.8E-04	2.32	99.8%	D
MW-27D	T	7.1E-01	4.4E-02	1.5E+00	No	-1.2E-03	2.05	100.0%	D
MW-26D	T	9.0E-01	1.5E-01	1.2E+00	No	-1.2E-03	1.31	100.0%	D
MW-25D	T	1.1E+00	2.0E-02	2.8E+00	No	-1.4E-03	2.61	100.0%	D
CPU-13	T	9.4E-01	1.5E-01	1.5E+00	No	-1.0E-03	1.56	100.0%	D
MW-21D	T	2.8E+00	1.6E-01	6.6E+00	No	-1.3E-03	2.39	100.0%	D
MW-49	T	2.3E-01	2.5E-01	2.3E-01	No	-1.1E-03	0.98	100.0%	D
MW-1A	T	1.7E-02	8.0E-03	2.2E-02	No	-6.1E-06	1.32	100.0%	D
MW-19D	T	2.3E+00	4.0E-01	4.4E+00	No	-7.3E-04	1.90	100.0%	D
MW-18D	T	3.0E+00	5.4E-01	5.1E+00	No	-8.1E-04	1.72	100.0%	D
MW-14E	T	2.6E+00	2.1E-01	5.5E+00	No	-1.0E-03	2.14	100.0%	D
MW-14C	T	7.9E-01	4.3E-01	1.1E+00	No	-5.6E-04	1.45	100.0%	D
MW-10C	T	5.6E-01	2.4E-01	1.1E+00	No	-3.7E-04	1.95	99.8%	D
MW-22D	T	1.5E+00	5.0E-01	2.4E+00	No	-9.5E-04	1.57	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

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MAROS Mann-Kendall Statistics Summary

Project: Boomsnub/Airco Superfund Site
User Name:
Location: Hazel Dell
State: Washington

Time Period: 1/19/1995 **to** 10/17/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
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-2A	S	16	16	1.08	-4	55.3%	No	NT
MW-6B	S	17	17	2.00	-76	99.9%	No	D
MW-6A	S	3	2	0.00	0	0.0%	No	N/A
MW-4BSHED	S	9	9	1.45	-32	100.0%	No	D
MW-4B	S	10	10	0.80	-23	97.7%	No	D
MW-4A	S	12	12	0.87	-20	90.2%	No	PD
MW-3A	S	14	14	0.63	-57	99.9%	No	D
PW-1B	S	17	17	1.64	-122	100.0%	No	D
MW-14C	T	17	17	1.45	-102	100.0%	No	D
MW-10C	T	17	17	1.95	-72	99.9%	No	D
MW-10B	T	17	17	0.91	-96	100.0%	No	D
CPU-14	T	17	17	0.91	-98	100.0%	No	D
CPU-13	T	17	17	1.56	-132	100.0%	No	D
AMW-7A	T	8	7	0.18	-20	99.3%	No	D
AMW-6A	T	7	7	0.41	-1	50.0%	No	S
MW-14E	T	17	17	2.14	-128	100.0%	No	D
AMW-27	T	14	14	1.12	-85	100.0%	No	D
MW-21D	T	17	17	2.39	-136	100.0%	No	D
AMW-14	T	13	13	2.45	-72	100.0%	No	D
AMW-11A	T	7	6	0.23	-5	71.9%	No	S
AMW-42	T	12	12	2.03	-46	100.0%	No	D
MW-18D	T	17	17	1.72	-134	100.0%	No	D
MW-19D	T	17	17	1.90	-128	100.0%	No	D
AMW-10A	T	6	6	0.27	1	50.0%	No	NT
MW-20D	T	17	17	1.90	-130	100.0%	No	D
MW-22D	T	17	17	1.57	-132	100.0%	No	D
MW-25D	T	17	16	2.61	-122	100.0%	No	D
MW-26D	T	17	17	1.31	-132	100.0%	No	D
MW-27D	T	17	17	2.05	-122	100.0%	No	D
MW-31	T	13	13	2.32	-39	99.1%	No	D
MW-35	T	13	13	3.26	-32	97.1%	No	D
MW-41	T	13	6	0.92	-15	79.9%	No	S
MW-49	T	11	11	0.98	-45	100.0%	No	D
MW-1A	T	12	8	1.32	3	55.4%	No	NT

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
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** 10/17/2011

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	6	6.27E-03	1.75E-03	Attained	Attained	0.05	0.8
AMW-11A	7	4.57E-03	1.09E-03	Attained	Attained	0.05	0.8
AMW-14	13	5.95E-01	1.51E+00	Cont Sampling	Cont Sampling	0.05	0.8
AMW-27	14	2.19E+00	2.43E+00	Cont Sampling	Cont Sampling	0.05	0.8
AMW-42	12	1.67E-01	3.54E-01	Cont Sampling	Cont Sampling	0.05	0.8
AMW-6A	7	7.73E-03	3.42E-03	Attained	Cont Sampling	0.05	0.8
AMW-7A	8	4.29E-03	7.53E-04	Attained	Attained	0.05	0.8
CPU-13	17	9.47E-01	1.47E+00	Cont Sampling	Cont Sampling	0.05	0.8
CPU-14	17	3.28E-01	2.98E-01	Cont Sampling	Not Attained	0.05	0.8
MW-10B	17	3.60E-01	3.56E-01	Cont Sampling	Not Attained	0.05	0.8
MW-10C	17	5.79E-01	1.12E+00	Cont Sampling	Not Attained	0.05	0.8
MW-14C	17	8.62E-01	1.35E+00	Cont Sampling	Not Attained	0.05	0.8
MW-14E	17	2.66E+00	5.56E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-18D	17	3.04E+00	5.24E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-19D	17	2.39E+00	4.49E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-1A	12	1.98E-02	2.32E-02	Attained	Cont Sampling	0.05	0.8
MW-20D	17	5.91E+00	1.12E+01	Cont Sampling	Cont Sampling	0.05	0.8
MW-21D	17	2.88E+00	6.83E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-22D	17	1.56E+00	2.43E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-25D	17	1.13E+00	2.93E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-26D	17	9.20E-01	1.21E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-27D	17	7.26E-01	1.50E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-2A	16	6.75E-01	7.16E-01	Cont Sampling	Not Attained	0.05	0.8
MW-31	13	4.50E-02	1.04E-01	Cont Sampling	Cont Sampling	0.05	0.8
MW-35	13	3.43E-01	1.11E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-3A	14	4.97E-01	3.32E-01	Cont Sampling	Not Attained	0.05	0.8
MW-41	13	2.48E-02	3.23E-02	Attained	Cont Sampling	0.05	0.8
MW-49	11	2.79E-01	2.77E-01	Cont Sampling	Cont Sampling	0.05	0.8
MW-4A	12	1.49E+00	1.28E+00	Cont Sampling	Not Attained	0.05	0.8
MW-4B	10	1.67E+00	2.32E+00	Cont Sampling	Not Attained	0.05	0.8
MW-4BSHED	9	1.57E+00	2.30E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-6A	3	6.28E-02	9.05E-02	N/C	N/C	0.05	0.8

Project: Boomsnub/Airco Superfund Site **User Name:**

Location: Hazel Dell **State:** Washington

Well	Sample Szie	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-6B	17	2.90E-01	6.57E-01	Cont Sampling	Cont Sampling	0.05	0.8
PW-1B	17	9.98E-01	1.71E+00	Cont Sampling	Cont Sampling	0.05	0.8

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 celanup 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** 10/17/2011

				Normal Distribution Assumption			Lognormal Distribution Assumption		
Well	**Sample Size**	**Sample Mean**	**Sample Stdev.**	**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 = 0.8	
AMW-10A	6	6.27E-03	1.75E-03	YES	1.000	<=3	YES	1.000	<=3
AMW-11A	7	4.57E-03	1.09E-03	YES	1.000	<=3	YES	1.000	<=3
AMW-14	13	5.95E-01	1.51E+00	NO	S/E	S/E	NO	S/E	S/E
AMW-27	14	2.19E+00	2.43E+00	NO	S/E	S/E	NO	S/E	S/E
AMW-42	12	1.67E-01	3.54E-01	NO	S/E	S/E	NO	S/E	S/E
AMW-6A	7	7.73E-03	3.42E-03	YES	1.000	<=3	YES	1.000	<=3
AMW-7A	8	4.29E-03	7.53E-04	YES	1.000	<=3	YES	1.000	<=3
CPU-13	17	9.47E-01	1.47E+00	NO	S/E	S/E	NO	S/E	S/E
CPU-14	17	3.28E-01	2.98E-01	NO	S/E	S/E	NO	S/E	S/E
MW-10B	17	3.60E-01	3.56E-01	NO	S/E	S/E	NO	S/E	S/E
MW-10C	17	5.79E-01	1.12E+00	NO	S/E	S/E	NO	S/E	S/E
MW-14C	17	8.62E-01	1.35E+00	NO	S/E	S/E	NO	S/E	S/E
MW-14E	17	2.66E+00	5.56E+00	NO	S/E	S/E	NO	S/E	S/E
MW-18D	17	3.04E+00	5.24E+00	NO	S/E	S/E	NO	S/E	S/E
MW-19D	17	2.39E+00	4.49E+00	NO	S/E	S/E	NO	S/E	S/E
MW-1A	12	1.98E-02	2.32E-02	YES	1.000	<=3	YES	0.998	5
MW-20D	17	5.91E+00	1.12E+01	NO	S/E	S/E	NO	S/E	S/E
MW-21D	17	2.88E+00	6.83E+00	NO	S/E	S/E	NO	S/E	S/E
MW-22D	17	1.56E+00	2.43E+00	NO	S/E	S/E	NO	S/E	S/E
MW-25D	17	1.13E+00	2.93E+00	NO	S/E	S/E	NO	S/E	S/E
MW-26D	17	9.20E-01	1.21E+00	NO	S/E	S/E	NO	S/E	S/E
MW-27D	17	7.26E-01	1.50E+00	NO	S/E	S/E	NO	S/E	S/E
MW-2A	16	6.75E-01	7.16E-01	NO	S/E	S/E	NO	S/E	S/E
MW-31	13	4.50E-02	1.04E-01	NO	0.321	56	YES	0.880	11
MW-35	13	3.43E-01	1.11E+00	NO	S/E	S/E	NO	S/E	S/E
MW-3A	14	4.97E-01	3.32E-01	NO	S/E	S/E	NO	S/E	S/E
MW-41	13	2.48E-02	3.23E-02	YES	1.000	<=3	YES	0.944	8
MW-49	11	2.79E-01	2.77E-01	NO	S/E	S/E	NO	S/E	S/E
MW-4A	12	1.49E+00	1.28E+00	NO	S/E	S/E	NO	S/E	S/E
MW-4B	10	1.67E+00	2.32E+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	6.28E-02	9.05E-02	N/C	N/C	N/C	N/C	S/E	S/E

Project: Boomsnub/Airco Superfund Site **User Name:**

Location: Hazel Dell **State:** Washington

Well	Sample Szie	Sample Mean	Sample Stdev.	Normal Distribution Assumption: Significantly < Cleanup Goal?	Normal Distribution Assumption: Power	Normal Distribution Assumption: Expected Sample Size	Lognormal Distribution Assumption: Significantly < Cleanup Goal?	Lognormal Distribution Assumption: Power	Lognormal Distribution Assumption: Expected Sample Size
CHROMIUM, HEXAVALENT		Cleanup Goal (mg/L) = 0.08		Alpha Level = 0.05			Expected Power = 0.8		
MW-6B	17	2.90E-01	6.57E-01	NO	S/E	S/E	NO	S/E	S/E
PW-1B	17	9.98E-01	1.71E+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 celanup 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.

MAROS Sampling Frequency Optimization Results

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

The Overall Number of Sampling Events: 226

"Recent Period" defined by events: **From** Sample Event 1 (1/19/1995) **To** Sample Event 226 (10/17/2011)

"Rate of Change" parameters used:

Constituent	Cleanup Goal	Low Rate	Medium Rate	High Rate
CHROMIUM, HEXAVALENT	0.08	0.04	0.08	0.16

Units: Cleanup Goal is in mg/L; all rate parameters are in mg/L/year.

Well	Recommended Sampling Frequency	Frequency Based on Recent Data	Frequency Based on Overall Data
CHROMIUM, HEXAVALENT			
AMW-10A	Biennial	Annual	Annual
AMW-11A	Biennial	Annual	Annual
AMW-14	Annual	Annual	Annual
AMW-27	Annual	Annual	Annual
AMW-42	Annual	Annual	Annual
AMW-6A	Biennial	Annual	Annual
AMW-7A	Biennial	Annual	Annual
CPU-13	Annual	Annual	Annual
CPU-14	Annual	Annual	Annual
MW-10B	Annual	Annual	Annual
MW-10C	Annual	Annual	Annual
MW-14C	Annual	Annual	Annual
MW-14E	Annual	Annual	Annual
MW-18D	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-25D	Annual	Annual	Annual
MW-26D	Annual	Annual	Annual
MW-27D	Annual	Annual	Annual
MW-2A	Annual	Annual	Annual
MW-31	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-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 1/19/1995 **to** Sample Event 226 10/17/2011

Parameters used:

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

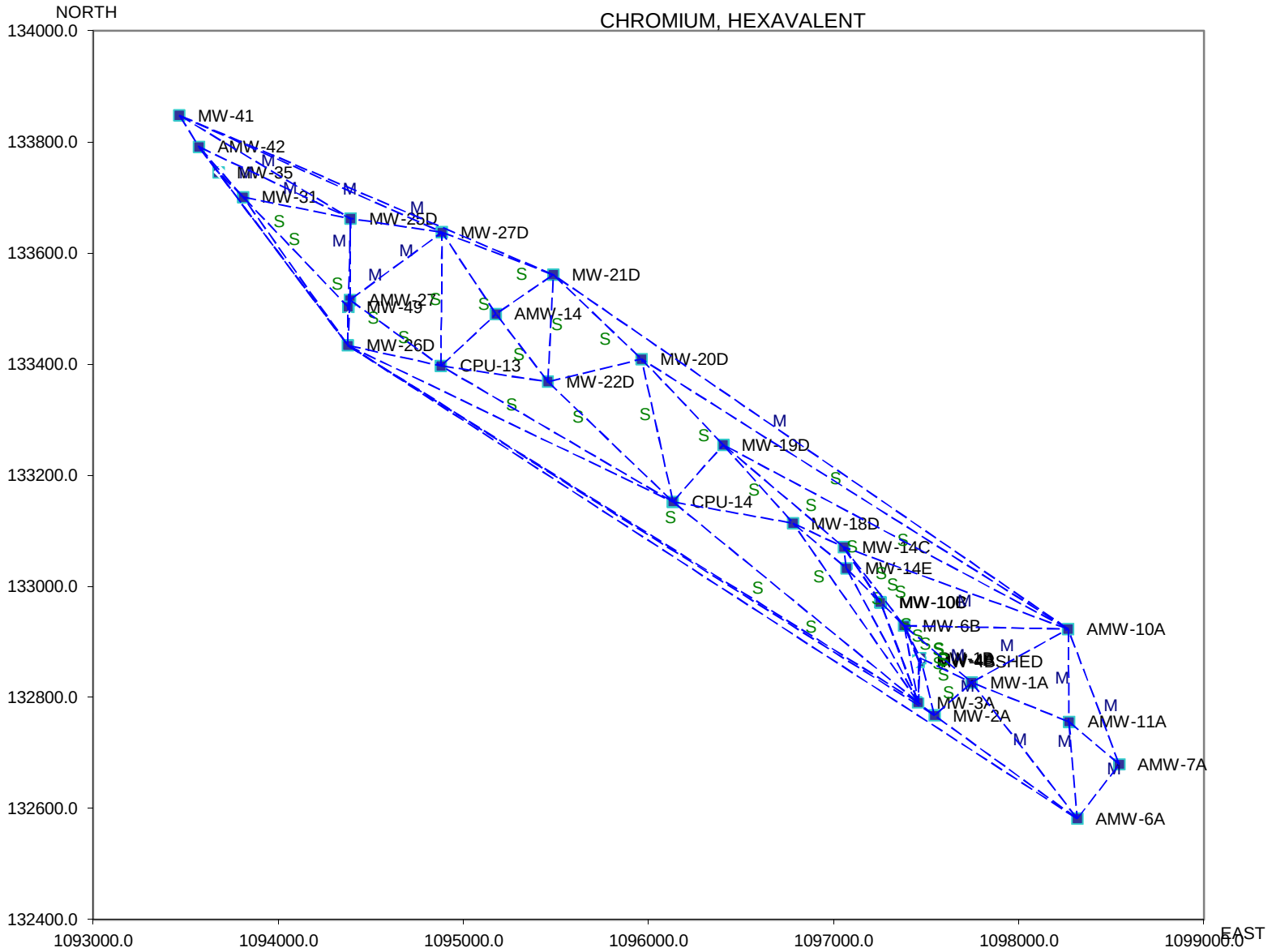
Well	X (feet)	Y (feet)	Removable?	Average Slope Factor*	Minimum Slope Factor*	Maximum Slope Factor*	Eliminated?
CHROMIUM, HEXAVALENT							
AMW-10A	1098266.25	132923.33	☑	0.510	0.355	0.682	☐
AMW-11A	1098270.63	132756.36	☑	0.386	0.101	0.812	☐
AMW-14	1095174.75	133490.42	☑	0.352	0.035	0.587	☐
AMW-27	1094386.13	133515.81	☑	0.318	0.155	0.623	☐
AMW-42	1093570.50	133791.39	☑	0.289	0.014	0.705	☐
AMW-6A	1098315.50	132581.84	☑	0.255	0.127	0.499	☐
AMW-7A	1098542.13	132679.81	☑	0.445	0.149	0.655	☐
CPU-13	1094877.75	133397.00	☑	0.146	0.001	0.656	☐
CPU-14	1096130.75	133152.42	☑	0.335	0.092	0.620	☐
MW-10B	1097254.00	132970.84	☑	0.319	0.001	0.912	☐
MW-10C	1097250.75	132971.34	☑	0.313	0.000	0.846	☐
MW-14C	1097053.75	133070.84	☑	0.216	0.013	0.952	☐
MW-14E	1097068.38	133032.61	☑	0.214	0.029	0.574	☐
MW-18D	1096779.50	133113.73	☑	0.202	0.012	0.691	☐
MW-19D	1096403.13	133254.94	☑	0.112	0.002	0.416	☐
MW-1A	1097744.75	132827.19	☑	0.820	0.763	0.855	☐
MW-20D	1095961.75	133409.30	☑	0.215	0.022	0.447	☐
MW-21D	1095484.63	133561.14	☑	0.235	0.008	0.664	☐
MW-22D	1095455.50	133368.55	☑	0.187	0.012	0.452	☐
MW-25D	1094389.25	133662.33	☑	0.425	0.047	0.868	☐
MW-26D	1094375.13	133433.91	☑	0.225	0.008	0.748	☐
MW-27D	1094883.38	133637.58	☑	0.221	0.008	0.855	☐
MW-2A	1097544.25	132767.69	☑	0.357	0.038	0.699	☐
MW-31	1093810.00	133700.70	☑	0.380	0.086	0.806	☐
MW-35	1093675.75	133745.42	☑	0.282	0.003	0.783	☐
MW-3A	1097456.25	132791.06	☑	0.042	0.005	0.098	☐
MW-41	1093463.88	133848.02	☑	0.542	0.013	0.798	☐
MW-49	1094376.50	133503.09	☑	0.201	0.028	0.761	☐

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-4A	1097458.00	132868.42	☑	0.197	0.105	0.297	☐
MW-4B	1097458.00	132868.41	☑	0.260	0.136	0.318	☐
MW-4BSHED	1097459.00	132864.77	☑	0.221	0.007	0.440	☐
MW-6A	1097386.13	132930.42	☑		0.000	0.000	☐
MW-6B	1097380.50	132929.25	☑	0.351	0.004	0.981	☐
PW-1B	1097467.75	132870.81	☑	0.270	0.002	0.754	☐

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

Back to Access

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MAROS Zeroth Moment Analysis

Project: Boomsnub/Airco Superfund Site

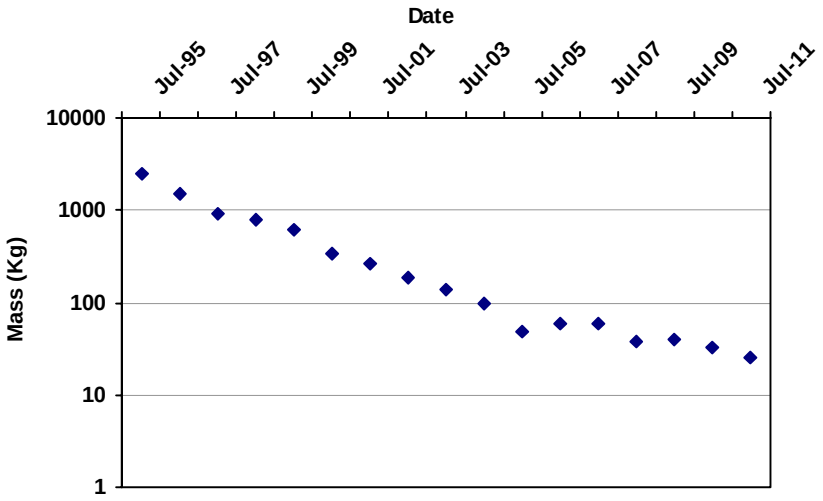
User Name:

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:

-128

Confidence in Trend:

100.0%

Coefficient of Variation:

1.47

Zeroth Moment Trend:

D

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/1995	CHROMIUM, HEXAVALENT	2.4E+03	27
7/1/1996	CHROMIUM, HEXAVALENT	1.5E+03	19
7/1/1997	CHROMIUM, HEXAVALENT	9.2E+02	24
7/1/1998	CHROMIUM, HEXAVALENT	8.0E+02	24
7/1/1999	CHROMIUM, HEXAVALENT	6.0E+02	26
7/1/2000	CHROMIUM, HEXAVALENT	3.3E+02	27
7/1/2001	CHROMIUM, HEXAVALENT	2.7E+02	28
7/1/2002	CHROMIUM, HEXAVALENT	1.9E+02	28
7/1/2003	CHROMIUM, HEXAVALENT	1.4E+02	29
7/1/2004	CHROMIUM, HEXAVALENT	9.7E+01	29
7/1/2005	CHROMIUM, HEXAVALENT	4.9E+01	25
7/1/2006	CHROMIUM, HEXAVALENT	5.8E+01	30
7/1/2007	CHROMIUM, HEXAVALENT	6.0E+01	28
7/1/2008	CHROMIUM, HEXAVALENT	3.7E+01	31
7/1/2009	CHROMIUM, HEXAVALENT	4.1E+01	33
7/1/2010	CHROMIUM, HEXAVALENT	3.3E+01	32
7/1/2011	CHROMIUM, HEXAVALENT	2.6E+01	25

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

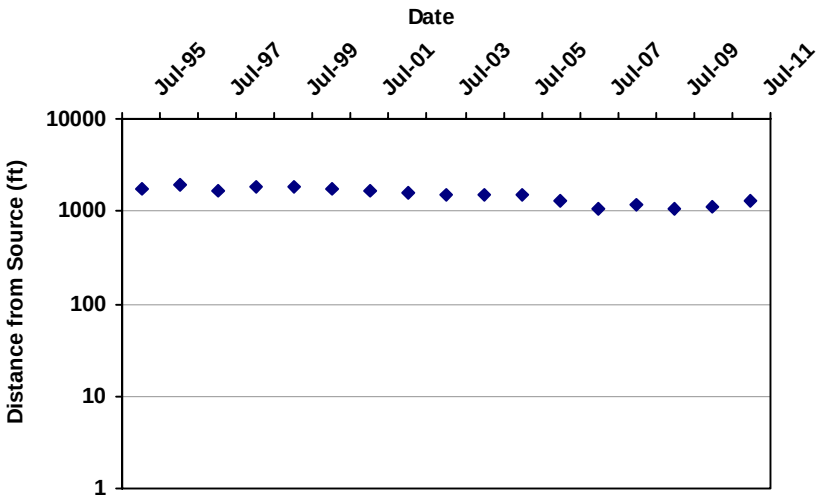
User Name:

Location: Hazel Dell

State: Washington

COC: CHROMIUM, HEXAVALENT

Distance from Source to Center of Mass



Mann Kendall S Statistic:

-102

Confidence in Trend:

100.0%

Coefficient of Variation:

0.19

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	1,095,771	133,344	1,759	27
7/1/1996	CHROMIUM, HEXAVALENT	1,095,607	133,372	1,924	19
7/1/1997	CHROMIUM, HEXAVALENT	1,095,850	133,292	1,669	24
7/1/1998	CHROMIUM, HEXAVALENT	1,095,694	133,301	1,822	24
7/1/1999	CHROMIUM, HEXAVALENT	1,095,686	133,315	1,833	26
7/1/2000	CHROMIUM, HEXAVALENT	1,095,751	133,284	1,763	27
7/1/2001	CHROMIUM, HEXAVALENT	1,095,879	133,250	1,630	28
7/1/2002	CHROMIUM, HEXAVALENT	1,095,929	133,246	1,581	28
7/1/2003	CHROMIUM, HEXAVALENT	1,095,974	133,247	1,538	29
7/1/2004	CHROMIUM, HEXAVALENT	1,095,994	133,233	1,514	29
7/1/2005	CHROMIUM, HEXAVALENT	1,095,982	133,256	1,531	25
7/1/2006	CHROMIUM, HEXAVALENT	1,096,225	133,191	1,280	30
7/1/2007	CHROMIUM, HEXAVALENT	1,096,424	133,136	1,074	28
7/1/2008	CHROMIUM, HEXAVALENT	1,096,303	133,190	1,205	31
7/1/2009	CHROMIUM, HEXAVALENT	1,096,438	133,146	1,063	33
7/1/2010	CHROMIUM, HEXAVALENT	1,096,360	133,165	1,143	32
7/1/2011	CHROMIUM, HEXAVALENT	1,096,215	133,178	1,286	25

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.

MAROS First Moment Analysis

Project: Boomsnub/Airco Superfund Site

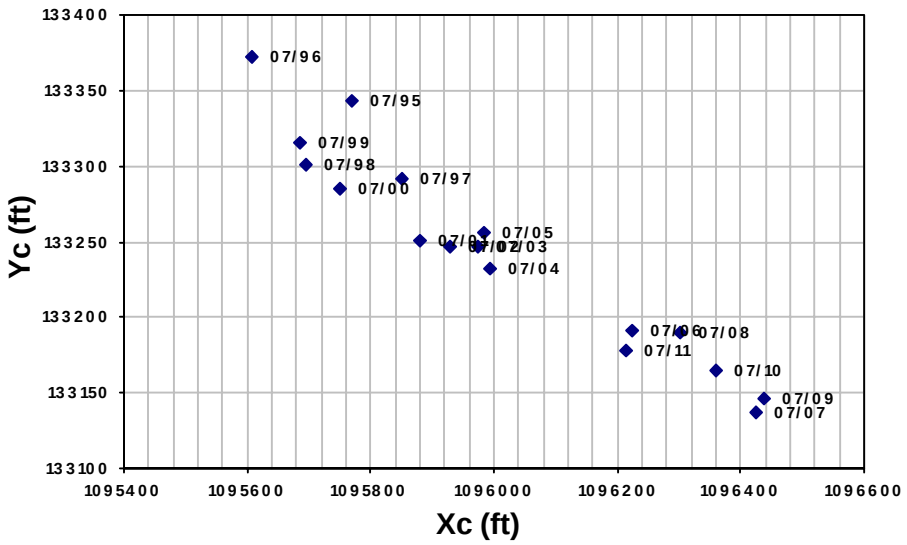
User Name:

Location: Hazel Dell

State: Washington

COC: CHROMIUM, HEXAVALENT

Change in Location of Center of Mass Over Time



Groundwater Flow Direction:

Source Coordinate:

X: 1,097,463

Y: 132,865

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source (ft)	Number of Wells
7/1/1995	CHROMIUM, HEXAVALENT	1,095,771	133,344	1,759	27
7/1/1996	CHROMIUM, HEXAVALENT	1,095,607	133,372	1,924	19
7/1/1997	CHROMIUM, HEXAVALENT	1,095,850	133,292	1,669	24
7/1/1998	CHROMIUM, HEXAVALENT	1,095,694	133,301	1,822	24
7/1/1999	CHROMIUM, HEXAVALENT	1,095,686	133,315	1,833	26
7/1/2000	CHROMIUM, HEXAVALENT	1,095,751	133,284	1,763	27
7/1/2001	CHROMIUM, HEXAVALENT	1,095,879	133,250	1,630	28
7/1/2002	CHROMIUM, HEXAVALENT	1,095,929	133,246	1,581	28
7/1/2003	CHROMIUM, HEXAVALENT	1,095,974	133,247	1,538	29
7/1/2004	CHROMIUM, HEXAVALENT	1,095,994	133,233	1,514	29
7/1/2005	CHROMIUM, HEXAVALENT	1,095,982	133,256	1,531	25
7/1/2006	CHROMIUM, HEXAVALENT	1,096,225	133,191	1,280	30
7/1/2007	CHROMIUM, HEXAVALENT	1,096,424	133,136	1,074	28
7/1/2008	CHROMIUM, HEXAVALENT	1,096,303	133,190	1,205	31
7/1/2009	CHROMIUM, HEXAVALENT	1,096,438	133,146	1,063	33
7/1/2010	CHROMIUM, HEXAVALENT	1,096,360	133,165	1,143	32
7/1/2011	CHROMIUM, HEXAVALENT	1,096,215	133,178	1,286	25

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.

MAROS Second Moment Analysis

Project: Boomsnub/Airco Superfund Site

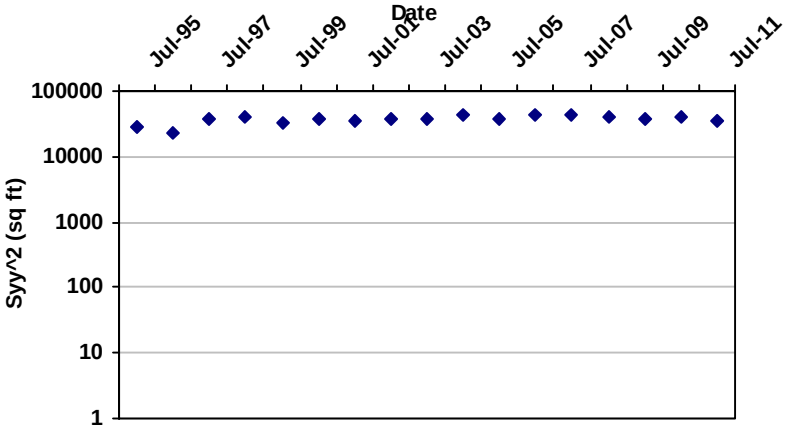
User Name:

Location: Hazel Dell

State: Washington

COC: CHROMIUM, HEXAVALENT

Change in Plume Spread Over Time

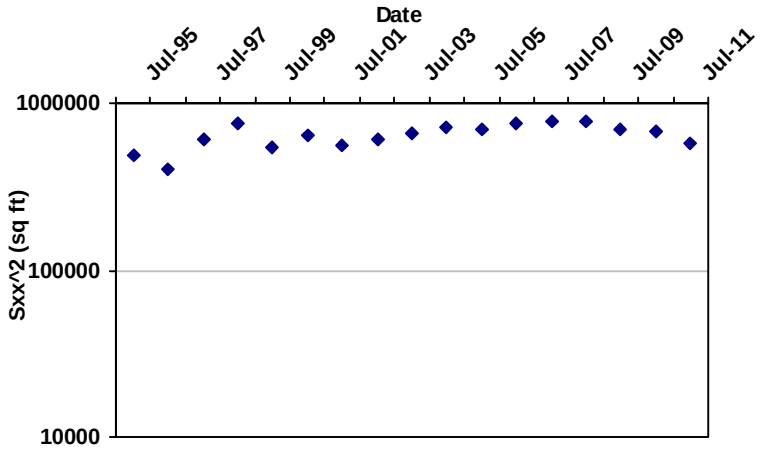


Mann Kendall S Statistic: 54

Confidence in Trend: 98.6%

Coefficient of Variation: 0.14

Second Moment Trend: I



Mann Kendall S Statistic: 58

Confidence in Trend: 99.1%

Coefficient of Variation: 0.16

Second Moment Trend: I

Data Table:

Effective Date	Constituent	Sigma XX (sq ft)	Sigma YY (sq ft)	Number of Wells
7/1/1995	CHROMIUM, HEXAVALENT	494,152	28,486	27
7/1/1996	CHROMIUM, HEXAVALENT	407,316	23,121	19
7/1/1997	CHROMIUM, HEXAVALENT	616,004	37,093	24
7/1/1998	CHROMIUM, HEXAVALENT	749,230	38,845	24
7/1/1999	CHROMIUM, HEXAVALENT	549,521	32,495	26
7/1/2000	CHROMIUM, HEXAVALENT	642,822	36,394	27
7/1/2001	CHROMIUM, HEXAVALENT	562,814	34,175	28
7/1/2002	CHROMIUM, HEXAVALENT	612,205	36,567	28
7/1/2003	CHROMIUM, HEXAVALENT	660,603	37,873	29
7/1/2004	CHROMIUM, HEXAVALENT	725,747	44,128	29
7/1/2005	CHROMIUM, HEXAVALENT	705,597	37,031	25
7/1/2006	CHROMIUM, HEXAVALENT	767,241	42,539	30

MAROS Second Moment Analysis

Effective Date	Constituent	Sigma XX (sq ft)	Sigma YY (sq ft)	Number of Wells
7/1/2007	CHROMIUM, HEXAVALENT	780,367	42,988	28
7/1/2008	CHROMIUM, HEXAVALENT	783,910	40,460	31
7/1/2009	CHROMIUM, HEXAVALENT	702,439	38,328	33
7/1/2010	CHROMIUM, HEXAVALENT	681,197	39,121	32
7/1/2011	CHROMIUM, HEXAVALENT	568,453	36,103	25

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** 10/17/2011

Consolidation Period: Yearly

Consolidation Type: Geometric Mean

Duplicate Consolidation: Average

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-2A	S	16	16	6.4E-01	4.1E-01	No	NT	D	N/A	N/A
	MW-6B	S	17	17	2.2E-01	4.9E-02	No	D	D	N/A	N/A
	MW-6A	S	3	2	6.1E-02	1.2E-02	No	N/A	N/A	N/A	N/A
	MW-4BSHED	S	9	9	1.5E+00	2.6E-01	No	D	D	N/A	N/A
	MW-4B	S	10	10	1.2E+00	9.4E-01	No	D	D	N/A	N/A
	MW-4A	S	12	12	1.4E+00	9.6E-01	No	PD	D	N/A	N/A
	MW-3A	S	14	14	4.7E-01	3.8E-01	No	D	D	N/A	N/A
	PW-1B	S	17	17	9.1E-01	2.7E-01	No	D	D	N/A	N/A
	MW-14C	T	17	17	7.9E-01	4.3E-01	No	D	D	N/A	N/A
	MW-10C	T	17	17	5.6E-01	2.4E-01	No	D	D	N/A	N/A
	MW-10B	T	17	17	3.0E-01	2.3E-01	No	D	D	N/A	N/A
	CPU-14	T	17	17	3.2E-01	1.8E-01	No	D	D	N/A	N/A
	CPU-13	T	17	17	9.4E-01	1.5E-01	No	D	D	N/A	N/A
	AMW-7A	T	8	7	4.2E-03	4.4E-03	No	D	D	N/A	N/A
	AMW-6A	T	7	7	7.4E-03	5.9E-03	No	S	NT	N/A	N/A
	MW-14E	T	17	17	2.6E+00	2.1E-01	No	D	D	N/A	N/A
	AMW-27	T	14	14	2.2E+00	1.3E+00	No	D	D	N/A	N/A
	MW-21D	T	17	17	2.8E+00	1.6E-01	No	D	D	N/A	N/A
	AMW-14	T	13	13	5.4E-01	1.2E-01	No	D	D	N/A	N/A
	AMW-11A	T	7	6	4.4E-03	4.9E-03	No	S	S	N/A	N/A
	AMW-42	T	12	12	1.5E-01	2.7E-02	No	D	D	N/A	N/A
	MW-18D	T	17	17	3.0E+00	5.4E-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											
	MW-19D	T	17	17	2.3E+00	4.0E-01	No	D	D	N/A	N/A
	AMW-10A	T	6	6	5.8E-03	5.5E-03	No	NT	S	N/A	N/A
	MW-20D	T	17	17	5.7E+00	6.9E-01	No	D	D	N/A	N/A
	MW-22D	T	17	17	1.5E+00	5.0E-01	No	D	D	N/A	N/A
	MW-25D	T	17	16	1.1E+00	2.0E-02	No	D	D	N/A	N/A
	MW-26D	T	17	17	9.0E-01	1.5E-01	No	D	D	N/A	N/A
	MW-27D	T	17	17	7.1E-01	4.4E-02	No	D	D	N/A	N/A
	MW-31	T	13	13	4.3E-02	1.1E-02	No	D	D	N/A	N/A
	MW-35	T	13	13	3.4E-01	2.9E-02	No	D	D	N/A	N/A
	MW-41	T	13	6	1.1E-02	5.0E-03	No	S	S	N/A	N/A
	MW-49	T	11	11	2.3E-01	2.5E-01	No	D	D	N/A	N/A
	MW-1A	T	12	8	1.7E-02	8.0E-03	No	NT	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.

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: 49

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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
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 montoring 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	D	L	Continue remediation mechanism unitl 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 Analysi 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)	1.10	-130	100.0%	D
1st Moment: Distance to Source					
	TRICHLOROETHYLENE (TCE)	0.10	-6	58.0%	S
2nd Moment: Sigma XX					
	TRICHLOROETHYLENE (TCE)	0.22	-48	97.4%	D
2nd Moment: Sigma YY					
	TRICHLOROETHYLENE (TCE)	0.30	-62	99.5%	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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
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-53A	S	4.2E-02	1.0E-02	7.8E-02	No	-1.2E-03	1.85	99.4%	D
AMW-12A	S	1.5E+00	4.9E-01	2.3E+00	No	-1.1E-03	1.54	100.0%	D
MW-1A	S	1.2E+00	1.1E+00	1.2E+00	No	-1.2E-03	0.96	100.0%	D
AMW-54A	S	4.4E-02	2.2E-03	5.9E-02	No	-2.0E-03	1.35	99.3%	D
AMW-52A	S	4.6E-04	3.8E-04	3.3E-04	No	-5.3E-04	0.71	95.7%	D
AMW-3A	S	6.5E-03	6.4E-03	6.3E-03	No	-7.1E-04	0.96	100.0%	D
AMW-2B	S	1.8E-03	5.5E-04	3.7E-03	No	-4.1E-04	2.09	99.2%	D
AMW-2A	S	1.2E+00	6.7E-01	1.5E+00	No	-1.1E-03	1.22	100.0%	D
AMW-26	S	1.8E-02	2.8E-03	2.5E-02	No	-1.2E-03	1.39	100.0%	D
AMW-1A	S	1.5E-01	5.9E-02	2.4E-01	No	-1.1E-03	1.56	100.0%	D
AMW-19A	S	8.3E-02	7.0E-02	1.2E-01	No	-1.1E-03	1.41	100.0%	D
AMW-13A	S	4.5E-03	1.2E-03	8.4E-03	No	-2.6E-04	1.86	90.9%	PD
AMW-55A	S	9.7E-03	9.5E-04	1.5E-02	No	-1.6E-03	1.56	99.4%	D
AMW-11A	T	5.7E-04	4.9E-04	2.1E-04	No	8.1E-05	0.37	87.8%	NT
AMW-58	T	1.9E-03	1.3E-03	1.7E-03	No	-1.1E-03	0.94	98.3%	D
CPU-12	T	4.6E-03	4.0E-03	2.2E-03	No	-4.3E-05	0.48	77.2%	S
AMW-8A	T	8.8E-02	4.7E-02	1.5E-01	No	-1.2E-03	1.76	100.0%	D
AMW-7A	T	5.1E-04	5.0E-04	9.6E-05	No	3.4E-05	0.19	83.5%	NT
AMW-6A	T	5.9E-04	5.4E-04	2.3E-04	No	-2.3E-05	0.38	61.4%	S
AMW-61	T	1.9E-02	1.4E-02	1.7E-02	No	-9.8E-04	0.90	91.4%	PD
AMW-59	T	1.4E-01	1.3E-01	5.5E-02	No	-3.7E-04	0.40	91.1%	PD
AMW-56A	T	8.8E-02	2.0E-03	2.1E-01	No	-2.3E-03	2.42	99.5%	D
AMW-42	T	4.6E-03	1.3E-03	9.1E-03	No	-7.4E-04	1.97	99.8%	D
AMW-27	T	4.6E-02	4.8E-02	2.0E-02	No	-3.1E-04	0.44	100.0%	D
AMW-18	T	8.8E-02	1.1E-03	1.5E-01	No	1.2E-03	1.70	100.0%	I
AMW-17	T	1.2E-02	2.5E-03	2.0E-02	No	-2.9E-04	1.62	94.3%	PD
CPU-14	T	2.6E-02	2.3E-02	1.7E-02	No	-3.6E-04	0.67	100.0%	D
AMW-14	T	2.4E-02	3.8E-03	6.6E-02	No	-7.8E-04	2.70	100.0%	D
MW-10B	T	1.1E-01	5.2E-02	1.8E-01	No	-2.6E-04	1.63	97.4%	D
AMW-10A	T	4.6E-04	4.0E-04	2.3E-04	No	-1.1E-04	0.50	86.7%	S
AMW-16	T	2.0E-02	6.1E-03	2.6E-02	No	-7.2E-04	1.28	100.0%	D
MW-23D	T	1.7E-02	8.4E-03	1.9E-02	No	-5.9E-04	1.08	100.0%	D
MW-9B	T	3.8E-01	6.0E-02	5.5E-01	No	-9.3E-04	1.44	100.0%	D
MW-8B	T	5.5E-01	3.5E-02	9.8E-01	No	-1.0E-03	1.77	99.7%	D
MW-7B	T	1.6E-01	1.1E-01	1.5E-01	No	-6.3E-04	0.97	97.3%	D
MW-6B	T	1.8E-01	1.4E-01	2.5E-01	No	-7.3E-04	1.38	100.0%	D
MW-4B	T	6.3E-02	7.2E-03	1.6E-01	No	2.8E-06	2.49	100.0%	I
MW-49	T	9.1E-03	7.3E-03	7.2E-03	No	-6.0E-04	0.80	99.9%	D
MW-41	T	6.8E-04	5.0E-04	3.9E-04	No	6.8E-06	0.57	100.0%	I

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-3B	T	1.0E-02	9.2E-03	9.4E-03	No	-4.0E-04	0.91	99.8%	D
MW-3A	T	9.0E-04	7.7E-04	5.5E-04	No	-1.6E-04	0.61	85.0%	S
MW-35	T	1.2E-02	6.1E-03	2.0E-02	No	-3.9E-04	1.56	98.2%	D
MW-31	T	2.9E-03	5.7E-04	5.9E-03	No	-9.1E-04	2.03	100.0%	D
MW-2A	T	6.3E-03	5.3E-03	3.9E-03	No	-2.4E-04	0.63	99.8%	D
MW-27D	T	4.7E-02	5.0E-03	7.4E-02	No	-1.1E-03	1.60	100.0%	D
CPU-13	T	2.0E-02	4.9E-03	3.0E-02	No	-7.0E-04	1.49	100.0%	D
MW-18D	T	9.3E-01	2.6E-01	1.4E+00	No	-7.1E-04	1.53	100.0%	D
MW-10C	T	1.9E-01	8.3E-02	3.3E-01	No	-7.9E-04	1.70	100.0%	D
MW-12C	T	8.4E-01	5.2E-02	2.1E+00	No	-1.0E-03	2.53	100.0%	D
MW-13C	T	9.0E-03	6.8E-03	6.9E-03	No	-3.7E-04	0.77	100.0%	D
MW-14C	T	2.5E-01	6.3E-02	4.3E-01	No	-6.3E-04	1.72	100.0%	D
MW-14E	T	9.5E-01	2.6E-01	1.6E+00	No	-7.1E-04	1.68	100.0%	D
MW-26D	T	1.0E-02	3.1E-03	1.1E-02	No	-5.0E-04	1.15	99.9%	D
MW-16E	T	2.5E-03	2.8E-03	2.0E-03	No	3.2E-04	0.80	97.3%	I
MW-25D	T	1.6E-02	3.8E-03	2.6E-02	No	-6.7E-04	1.57	100.0%	D
MW-18E	T	6.6E-01	3.4E-01	7.1E-01	No	-3.5E-04	1.07	99.8%	D
MW-19D	T	4.0E-01	1.0E-01	6.5E-01	No	-6.2E-04	1.62	100.0%	D
MW-20D	T	8.8E-01	2.1E-01	1.2E+00	No	-8.5E-04	1.39	100.0%	D
MW-21D	T	2.9E-01	5.4E-02	5.6E-01	No	-9.6E-04	1.92	100.0%	D
MW-22D	T	7.9E-02	5.1E-02	8.4E-02	No	-6.4E-04	1.06	100.0%	D
PW-1B	T	1.6E-01	8.5E-02	2.1E-01	No	-8.1E-04	1.31	100.0%	D
MW-15E	T	1.5E-01	1.9E-02	2.9E-01	No	-7.8E-04	1.96	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** 10/18/2011
Consolidation Period: Yearly
Consolidation Type: Geometric Mean
Duplicate Consolidation: Average
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-3A	S	16	16	0.96	-84	100.0%	No	D
MW-1A	S	17	17	0.96	-104	100.0%	No	D
AMW-55A	S	7	7	1.56	-7	80.9%	No	NT
AMW-54A	S	8	8	1.35	-12	91.1%	No	PD
AMW-53A	S	9	9	1.85	-22	98.8%	No	D
AMW-52A	S	8	7	0.71	-16	96.9%	No	D
AMW-2B	S	12	11	2.09	-22	92.4%	No	PD
AMW-2A	S	17	17	1.22	-110	100.0%	No	D
AMW-26	S	14	12	1.39	-62	100.0%	No	D
AMW-12A	S	17	17	1.54	-100	100.0%	No	D
AMW-19A	S	15	15	1.41	-69	100.0%	No	D
AMW-13A	S	16	14	1.86	-27	87.7%	No	NT
AMW-1A	S	17	17	1.56	-76	99.9%	No	D
CPU-13	T	17	17	1.49	-126	100.0%	No	D
CPU-12	T	17	17	0.48	-12	67.2%	No	S
AMW-8A	T	16	16	1.76	-120	100.0%	No	D
AMW-7A	T	13	6	0.19	1	50.0%	No	NT
AMW-6A	T	8	5	0.38	-8	80.1%	No	S
AMW-61	T	4	4	0.90	-4	83.3%	No	S
AMW-59	T	6	6	0.40	-7	86.4%	No	S
AMW-58	T	4	3	0.94	-6	95.8%	No	D
AMW-42	T	12	12	1.97	-38	99.6%	No	D
AMW-11A	T	8	6	0.37	2	54.8%	No	NT
AMW-14	T	13	12	2.70	-72	100.0%	No	D
AMW-10A	T	7	5	0.50	-11	93.2%	No	PD
AMW-16	T	16	16	1.28	-119	100.0%	No	D
MW-10C	T	17	17	1.70	-94	100.0%	No	D
AMW-17	T	16	16	1.62	-67	99.9%	No	D
AMW-18	T	15	14	1.70	62	99.9%	No	I
AMW-27	T	14	14	0.44	-67	100.0%	No	D
AMW-56A	T	8	8	2.42	-18	98.4%	No	D
MW-23D	T	17	17	1.08	-106	100.0%	No	D
MW-9B	T	9	9	1.44	-34	100.0%	No	D
MW-8B	T	8	8	1.77	-26	100.0%	No	D
MW-7B	T	5	5	0.97	-8	95.8%	No	D
MW-6B	T	17	17	1.38	-84	100.0%	No	D
MW-4B	T	9	9	2.49	-4	61.9%	No	NT
MW-49	T	11	11	0.80	-43	100.0%	No	D

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-41	T	13	3	0.57	-21	88.6%	No	S
MW-3B	T	9	9	0.91	-24	99.4%	No	D
MW-3A	T	11	10	0.61	-9	72.9%	No	S
MW-35	T	13	13	1.56	-34	97.9%	No	D
MW-31	T	13	13	2.03	-74	100.0%	No	D
MW-2A	T	14	14	0.63	-49	99.7%	No	D
MW-27D	T	17	17	1.60	-111	100.0%	No	D
CPU-14	T	17	17	0.67	-97	100.0%	No	D
MW-18D	T	17	17	1.53	-122	100.0%	No	D
PW-1B	T	17	17	1.31	-96	100.0%	No	D
MW-12C	T	16	16	2.53	-100	100.0%	No	D
MW-13C	T	16	16	0.77	-84	100.0%	No	D
MW-14C	T	17	17	1.72	-114	100.0%	No	D
MW-14E	T	17	17	1.68	-128	100.0%	No	D
MW-26D	T	17	17	1.15	-82	100.0%	No	D
MW-16E	T	11	9	0.80	18	90.5%	No	PI
MW-25D	T	17	17	1.57	-115	100.0%	No	D
MW-18E	T	16	16	1.07	-78	100.0%	No	D
MW-19D	T	17	17	1.62	-104	100.0%	No	D
MW-20D	T	17	17	1.39	-122	100.0%	No	D
MW-21D	T	17	17	1.92	-136	100.0%	No	D
MW-22D	T	17	17	1.06	-124	100.0%	No	D
MW-10B	T	17	17	1.63	-58	99.1%	No	D
MW-15E	T	12	12	1.96	-66	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** 10/18/2011

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	7	4.63E-04	2.30E-04	Attained	Cont Sampling	0.05	0.8
AMW-11A	8	5.98E-04	2.27E-04	Attained	Attained	0.05	0.8
AMW-12A	17	1.86E+00	3.07E+00	Cont Sampling	Cont Sampling	0.05	0.8
AMW-13A	16	5.61E-03	1.11E-02	Cont Sampling	Cont Sampling	0.05	0.8
AMW-14	13	2.98E-02	8.49E-02	Cont Sampling	Cont Sampling	0.05	0.8
AMW-16	16	2.01E-02	2.58E-02	Cont Sampling	Cont Sampling	0.05	0.8
AMW-17	16	1.42E-02	2.36E-02	Cont Sampling	Cont Sampling	0.05	0.8
AMW-18	15	8.83E-02	1.50E-01	Cont Sampling	Cont Sampling	0.05	0.8
AMW-19A	15	9.23E-02	1.22E-01	Cont Sampling	Cont Sampling	0.05	0.8
AMW-1A	17	1.69E-01	2.52E-01	Cont Sampling	Cont Sampling	0.05	0.8
AMW-26	14	1.88E-02	2.51E-02	Cont Sampling	Cont Sampling	0.05	0.8
AMW-27	14	4.73E-02	2.06E-02	Cont Sampling	Not Attained	0.05	0.8
AMW-2A	17	1.23E+00	1.47E+00	Cont Sampling	Cont Sampling	0.05	0.8
AMW-2B	12	2.18E-03	5.11E-03	Cont Sampling	Cont Sampling	0.05	0.8
AMW-3A	16	6.70E-03	6.55E-03	Cont Sampling	Cont Sampling	0.05	0.8
AMW-42	12	5.21E-03	1.09E-02	Cont Sampling	Cont Sampling	0.05	0.8
AMW-52A	8	1.33E-03	2.50E-03	Cont Sampling	Cont Sampling	0.05	0.8
AMW-53A	9	4.67E-02	7.79E-02	Cont Sampling	Cont Sampling	0.05	0.8
AMW-54A	8	4.53E-02	6.12E-02	Cont Sampling	Cont Sampling	0.05	0.8
AMW-55A	7	1.01E-02	1.49E-02	Cont Sampling	Cont Sampling	0.05	0.8
AMW-56A	8	9.30E-02	2.13E-01	Cont Sampling	Cont Sampling	0.05	0.8
AMW-58	4	2.12E-03	2.24E-03	Cont Sampling	Cont Sampling	0.05	0.8
AMW-59	6	1.41E-01	5.83E-02	Cont Sampling	Not Attained	0.05	0.8
AMW-61	4	1.93E-02	1.74E-02	Cont Sampling	Cont Sampling	0.05	0.8
AMW-6A	8	5.99E-04	2.26E-04	Attained	Attained	0.05	0.8
AMW-7A	13	5.18E-04	1.07E-04	Attained	Attained	0.05	0.8
AMW-8A	16	9.08E-02	1.55E-01	Cont Sampling	Cont Sampling	0.05	0.8
CPU-12	17	4.68E-03	2.17E-03	Cont Sampling	Cont Sampling	0.05	0.8
CPU-13	17	2.22E-02	3.13E-02	Cont Sampling	Cont Sampling	0.05	0.8
CPU-14	17	2.57E-02	1.72E-02	Cont Sampling	Not Attained	0.05	0.8
MW-10B	17	1.25E-01	2.04E-01	Cont Sampling	Not Attained	0.05	0.8
MW-10C	17	2.02E-01	3.32E-01	Cont Sampling	Cont Sampling	0.05	0.8

Project: Boomsnub/Airco Superfund Site **User Name:**

Location: Hazel Dell **State:** Washington

Well	Sample Szie	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		
MW-12C	16	8.82E-01	2.16E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-13C	16	9.21E-03	7.10E-03	Cont Sampling	Not Attained	0.05	0.8
MW-14C	17	2.83E-01	4.94E-01	Cont Sampling	Cont Sampling	0.05	0.8
MW-14E	17	9.63E-01	1.60E+00	Cont Sampling	Not Attained	0.05	0.8
MW-15E	12	1.57E-01	3.06E-01	Cont Sampling	Cont Sampling	0.05	0.8
MW-16E	11	2.56E-03	1.93E-03	Attained	Cont Sampling	0.05	0.8
MW-18D	17	1.00E+00	1.51E+00	Cont Sampling	Not Attained	0.05	0.8
MW-18E	16	6.85E-01	7.36E-01	Cont Sampling	Not Attained	0.05	0.8
MW-19D	17	4.21E-01	6.92E-01	Cont Sampling	Cont Sampling	0.05	0.8
MW-1A	17	1.27E+00	1.21E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-20D	17	8.93E-01	1.23E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-21D	17	3.04E-01	5.86E-01	Cont Sampling	Cont Sampling	0.05	0.8
MW-22D	17	8.10E-02	8.63E-02	Cont Sampling	Not Attained	0.05	0.8
MW-23D	17	1.89E-02	1.90E-02	Cont Sampling	Cont Sampling	0.05	0.8
MW-25D	17	1.75E-02	2.77E-02	Cont Sampling	Cont Sampling	0.05	0.8
MW-26D	17	1.07E-02	1.22E-02	Cont Sampling	Cont Sampling	0.05	0.8
MW-27D	17	4.81E-02	7.55E-02	Cont Sampling	Cont Sampling	0.05	0.8
MW-2A	14	6.71E-03	4.42E-03	Cont Sampling	Not Attained	0.05	0.8
MW-31	13	3.06E-03	6.35E-03	Cont Sampling	Cont Sampling	0.05	0.8
MW-35	13	1.38E-02	1.95E-02	Cont Sampling	Not Attained	0.05	0.8
MW-3A	11	9.28E-04	5.71E-04	Attained	Cont Sampling	0.05	0.8
MW-3B	9	1.05E-02	9.52E-03	Cont Sampling	Cont Sampling	0.05	0.8
MW-41	13	1.08E-03	1.12E-03	Attained	Cont Sampling	0.05	0.8
MW-49	11	9.93E-03	7.43E-03	Cont Sampling	Cont Sampling	0.05	0.8
MW-4B	9	6.40E-02	1.60E-01	Cont Sampling	Cont Sampling	0.05	0.8
MW-6B	17	2.16E-01	2.78E-01	Cont Sampling	Cont Sampling	0.05	0.8
MW-7B	5	1.92E-01	2.24E-01	Cont Sampling	Cont Sampling	0.05	0.8
MW-8B	8	6.03E-01	1.05E+00	Cont Sampling	Cont Sampling	0.05	0.8
MW-9B	9	4.05E-01	5.82E-01	Cont Sampling	Cont Sampling	0.05	0.8
PW-1B	17	1.63E-01	2.11E-01	Cont Sampling	Cont Sampling	0.05	0.8

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 celanup 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** 10/18/2011

				Normal Distribution Assumption			Lognormal Distribution Assumption		
Well	**Sample Size**	**Sample Mean**	**Sample Stdev.**	**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 = 0.8	
AMW-10A	7	4.63E-04	2.30E-04	YES	1.000	<=3	YES	1.000	<=3
AMW-11A	8	5.98E-04	2.27E-04	YES	1.000	<=3	YES	1.000	<=3
AMW-12A	17	1.86E+00	3.07E+00	NO	S/E	S/E	NO	S/E	S/E
AMW-13A	16	5.61E-03	1.11E-02	NO	S/E	S/E	NO	0.053	>100
AMW-14	13	2.98E-02	8.49E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-16	16	2.01E-02	2.58E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-17	16	1.42E-02	2.36E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-18	15	8.83E-02	1.50E-01	NO	S/E	S/E	NO	S/E	S/E
AMW-19A	15	9.23E-02	1.22E-01	NO	S/E	S/E	NO	S/E	S/E
AMW-1A	17	1.69E-01	2.52E-01	NO	S/E	S/E	NO	S/E	S/E
AMW-26	14	1.88E-02	2.51E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-27	14	4.73E-02	2.06E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-2A	17	1.23E+00	1.47E+00	NO	S/E	S/E	NO	S/E	S/E
AMW-2B	12	2.18E-03	5.11E-03	YES	0.581	22	YES	0.961	7
AMW-3A	16	6.70E-03	6.55E-03	NO	S/E	S/E	NO	S/E	S/E
AMW-42	12	5.21E-03	1.09E-02	NO	S/E	S/E	NO	0.091	>100
AMW-52A	8	1.33E-03	2.50E-03	YES	0.989	4	YES	0.946	6
AMW-53A	9	4.67E-02	7.79E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-54A	8	4.53E-02	6.12E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-55A	7	1.01E-02	1.49E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-56A	8	9.30E-02	2.13E-01	NO	S/E	S/E	NO	S/E	S/E
AMW-58	4	2.12E-03	2.24E-03	YES	0.743	5	NO	0.362	13
AMW-59	6	1.41E-01	5.83E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-61	4	1.93E-02	1.74E-02	NO	S/E	S/E	NO	S/E	S/E
AMW-6A	8	5.99E-04	2.26E-04	YES	1.000	<=3	YES	1.000	<=3
AMW-7A	13	5.18E-04	1.07E-04	YES	1.000	<=3	YES	1.000	<=3
AMW-8A	16	9.08E-02	1.55E-01	NO	S/E	S/E	NO	S/E	S/E
CPU-12	17	4.68E-03	2.17E-03	NO	0.149	>100	NO	0.174	>100
CPU-13	17	2.22E-02	3.13E-02	NO	S/E	S/E	NO	S/E	S/E
CPU-14	17	2.57E-02	1.72E-02	NO	S/E	S/E	NO	S/E	S/E
MW-10B	17	1.25E-01	2.04E-01	NO	S/E	S/E	NO	S/E	S/E
MW-10C	17	2.02E-01	3.32E-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 Szie	Sample Mean	Sample Stdev.	Normal Distribution Assumption: Significantly < Cleanup Goal?	Normal Distribution Assumption: Power	Normal Distribution Assumption: Expected Sample Size	Lognormal Distribution Assumption: Significantly < Cleanup Goal?	Lognormal Distribution Assumption: Power	Lognormal Distribution Assumption: Expected Sample Size
TRICHLOROETHYLENE (TCE)	Cleanup Goal (mg/L) = 0.005			Alpha Level = 0.05			Expected Power = 0.8		
MW-12C	16	8.82E-01	2.16E+00	NO	S/E	S/E	NO	S/E	S/E
MW-13C	16	9.21E-03	7.10E-03	NO	S/E	S/E	NO	S/E	S/E
MW-14C	17	2.83E-01	4.94E-01	NO	S/E	S/E	NO	S/E	S/E
MW-14E	17	9.63E-01	1.60E+00	NO	S/E	S/E	NO	S/E	S/E
MW-15E	12	1.57E-01	3.06E-01	NO	S/E	S/E	NO	S/E	S/E
MW-16E	11	2.56E-03	1.93E-03	YES	0.992	5	NO	0.472	27
MW-18D	17	1.00E+00	1.51E+00	NO	S/E	S/E	NO	S/E	S/E
MW-18E	16	6.85E-01	7.36E-01	NO	S/E	S/E	NO	S/E	S/E
MW-19D	17	4.21E-01	6.92E-01	NO	S/E	S/E	NO	S/E	S/E
MW-1A	17	1.27E+00	1.21E+00	NO	S/E	S/E	NO	S/E	S/E
MW-20D	17	8.93E-01	1.23E+00	NO	S/E	S/E	NO	S/E	S/E
MW-21D	17	3.04E-01	5.86E-01	NO	S/E	S/E	NO	S/E	S/E
MW-22D	17	8.10E-02	8.63E-02	NO	S/E	S/E	NO	S/E	S/E
MW-23D	17	1.89E-02	1.90E-02	NO	S/E	S/E	NO	S/E	S/E
MW-25D	17	1.75E-02	2.77E-02	NO	S/E	S/E	NO	S/E	S/E
MW-26D	17	1.07E-02	1.22E-02	NO	S/E	S/E	NO	S/E	S/E
MW-27D	17	4.81E-02	7.55E-02	NO	S/E	S/E	NO	S/E	S/E
MW-2A	14	6.71E-03	4.42E-03	NO	S/E	S/E	NO	S/E	S/E
MW-31	13	3.06E-03	6.35E-03	NO	0.282	68	NO	0.482	31
MW-35	13	1.38E-02	1.95E-02	NO	S/E	S/E	NO	S/E	S/E
MW-3A	11	9.28E-04	5.71E-04	YES	1.000	<=3	YES	1.000	<=3
MW-3B	9	1.05E-02	9.52E-03	NO	S/E	S/E	NO	S/E	S/E
MW-41	13	1.08E-03	1.12E-03	YES	1.000	<=3	YES	1.000	<=3
MW-49	11	9.93E-03	7.43E-03	NO	S/E	S/E	NO	S/E	S/E
MW-4B	9	6.40E-02	1.60E-01	NO	S/E	S/E	NO	S/E	S/E
MW-6B	17	2.16E-01	2.78E-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	8	6.03E-01	1.05E+00	NO	S/E	S/E	NO	S/E	S/E
MW-9B	9	4.05E-01	5.82E-01	NO	S/E	S/E	NO	S/E	S/E
PW-1B	17	1.63E-01	2.11E-01	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 celanup 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.

MAROS Sampling Frequency Optimization Results

Project: Boomsnub/Airco Superfund Site

User Name:

Location: Hazel Dell

State: Washington

The Overall Number of Sampling Events: 290

"Recent Period" defined by events: **From** Sample Event 1 (1/19/1995) **To** Sample Event 290 (10/18/2011)

"Rate of Change" parameters used:

Constituent	Cleanup Goal	Low Rate	Medium Rate	High Rate
TRICHLOROETHYLENE (TCE)	0.005	0.0025	0.005	0.01

Units: Cleanup Goal is in mg/L; all rate parameters are in mg/L/year.

Well	Recommended Sampling Frequency	Frequency Based on Recent Data	Frequency Based on Overall Data
TRICHLOROETHYLENE (TCE)			
AMW-10A	Biennial	Annual	Annual
AMW-11A	Biennial	Annual	Annual
AMW-12A	Annual	Annual	Annual
AMW-13A	Annual	Annual	Annual
AMW-14	Annual	Annual	Annual
AMW-16	Annual	Annual	Annual
AMW-17	Annual	Annual	Annual
AMW-18	Quarterly	Quarterly	Quarterly
AMW-19A	Annual	Annual	Annual
AMW-1A	Annual	Annual	Annual
AMW-26	Annual	Annual	Annual
AMW-27	Annual	Annual	Annual
AMW-2A	Annual	Annual	Annual
AMW-2B	Annual	Annual	Annual
AMW-3A	Annual	Annual	Annual
AMW-42	Annual	Annual	Annual
AMW-52A	Annual	Annual	Annual
AMW-53A	Annual	Annual	Annual
AMW-54A	Annual	Annual	Annual
AMW-55A	Annual	Annual	Annual
AMW-56A	Annual	Annual	Annual
AMW-58	Annual	Annual	Annual
AMW-59	Annual	Annual	Annual
AMW-61	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
AMW-6A	Annual	Annual	Annual
AMW-7A	Biennial	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-3A	Biennial	Annual	Annual
MW-3B	Annual	Annual	Annual
MW-41	Annual	Annual	Annual
MW-49	Annual	Annual	Annual
MW-4B	Annual	Annual	Annual
MW-6B	Annual	Annual	Annual
MW-7B	Annual	Annual	Annual
MW-8B	Annual	Annual	Annual
MW-9B	Annual	Annual	Annual
PW-1B	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

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 (1/19/1995) **to** Sample Event 290 (10/18/2011)

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	☑	0.417	0.000	0.729	☐
AMW-11A	1098270.63	132756.36	☑	0.245	0.000	1.000	☐
AMW-12A	1097891.63	132766.36	☑	0.388	0.028	0.709	☐
AMW-13A	1097844.38	133039.89	☑	0.384	0.000	0.963	☐
AMW-14	1095174.75	133490.42	☑	0.392	0.087	1.000	☐
AMW-16	1095988.00	133665.55	☑	0.299	0.023	0.578	☐
AMW-17	1096562.13	133519.91	☑	0.498	0.061	0.888	☐
AMW-18	1096976.25	133403.75	☑	0.585	0.327	1.000	☐
AMW-19A	1097961.38	132745.06	☑	0.175	0.012	0.705	☐
AMW-1A	1097845.25	132893.08	☑	0.319	0.015	0.753	☐
AMW-26	1097846.25	132924.05	☑	0.347	0.026	0.768	☐
AMW-27	1094386.13	133515.81	☑	0.313	0.058	0.653	☐
AMW-2A	1097832.00	132820.73	☑	0.420	0.022	0.755	☐
AMW-2B	1097831.75	132828.42	☑	0.693	0.233	0.891	☐
AMW-3A	1097892.63	132637.25	☑	0.520	0.212	0.961	☐
AMW-42	1093570.50	133791.39	☑	0.364	0.001	0.816	☐
AMW-52A	1097747.50	132981.05	☑	0.657	0.213	1.000	☐
AMW-53A	1097744.75	132910.84	☑	0.325	0.001	0.776	☐
AMW-54A	1097745.50	132769.86	☑	0.221	0.014	0.490	☐
AMW-55A	1097744.50	132704.05	☑	0.267	0.076	0.489	☐
AMW-56A	1097844.25	132760.16	☑	0.388	0.008	0.708	☐
AMW-58	1097533.63	132838.81	☑	0.482	0.482	0.482	☐
AMW-59	1097015.63	133051.66	☑	0.280	0.160	0.501	☐
AMW-61	1094367.25	133467.44	☑	0.117	0.116	0.117	☐
AMW-6A	1098315.50	132581.84	☑	0.227	0.000	0.609	☐
AMW-7A	1098542.13	132679.81	☑	0.411	0.000	0.783	☐
AMW-8A	1098555.38	133089.64	☑	0.248	0.022	0.716	☐
CPU-12	1095433.88	133157.64	☑	0.399	0.020	1.000	☐

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-13	1094877.75	133397.00	☑	0.221	0.001	0.758	☐
CPU-14	1096130.75	133152.42	☑	0.331	0.059	0.753	☐
MW-10B	1097254.00	132970.84	☑	0.248	0.004	0.709	☐
MW-10C	1097250.75	132971.34	☑	0.245	0.003	0.670	☐
MW-12C	1097182.25	133074.94	☑	0.347	0.094	0.773	☐
MW-13C	1097114.13	132873.94	☑	0.371	0.009	0.697	☐
MW-14C	1097053.75	133070.84	☑	0.158	0.001	0.513	☐
MW-14E	1097068.38	133032.61	☑	0.203	0.025	0.593	☐
MW-15E	1096785.25	133249.44	☑	0.218	0.034	0.393	☐
MW-16E	1096698.50	133044.53	☑	0.612	0.124	1.000	☐
MW-18D	1096779.50	133113.73	☑	0.218	0.026	0.524	☐
MW-18E	1096799.50	133118.36	☑	0.326	0.038	0.721	☐
MW-19D	1096403.13	133254.94	☑	0.093	0.000	0.502	☑
MW-1A	1097744.75	132827.19	☑	0.311	0.035	0.679	☐
MW-20D	1095961.75	133409.30	☑	0.198	0.002	0.391	☐
MW-21D	1095484.63	133561.14	☑	0.186	0.003	0.654	☐
MW-22D	1095455.50	133368.55	☑	0.152	0.001	0.586	☐
MW-23D	1095517.00	133764.66	☑	0.264	0.065	0.835	☐
MW-25D	1094389.25	133662.33	☑	0.419	0.008	0.900	☐
MW-26D	1094375.13	133433.91	☑	0.513	0.049	0.893	☐
MW-27D	1094883.38	133637.58	☑	0.249	0.007	0.769	☐
MW-2A	1097544.25	132767.69	☑	0.415	0.111	0.811	☐
MW-31	1093810.00	133700.70	☑	0.430	0.015	0.832	☐
MW-35	1093675.75	133745.42	☑	0.361	0.056	0.739	☐
MW-3A	1097456.25	132791.06	☑	0.787	0.516	0.971	☐
MW-3B	1097456.25	132791.00	☑	0.244	0.082	0.369	☐
MW-41	1093463.88	133848.02	☑	0.554	0.427	0.754	☐
MW-49	1094376.50	133503.09	☑	0.217	0.071	0.825	☐
MW-4B	1097458.00	132868.42	☑	0.471	0.239	0.807	☐
MW-6B	1097380.50	132929.25	☑	0.141	0.016	0.753	☐
MW-7B	1097465.63	132874.84	☑	0.271	0.112	0.429	☐
MW-8B	1097500.63	133005.73	☑	0.221	0.059	0.418	☐
MW-9B	1097327.25	133029.19	☑	0.169	0.011	0.478	☐
PW-1B	1097467.75	132870.81	☑	0.244	0.004	0.780	☐

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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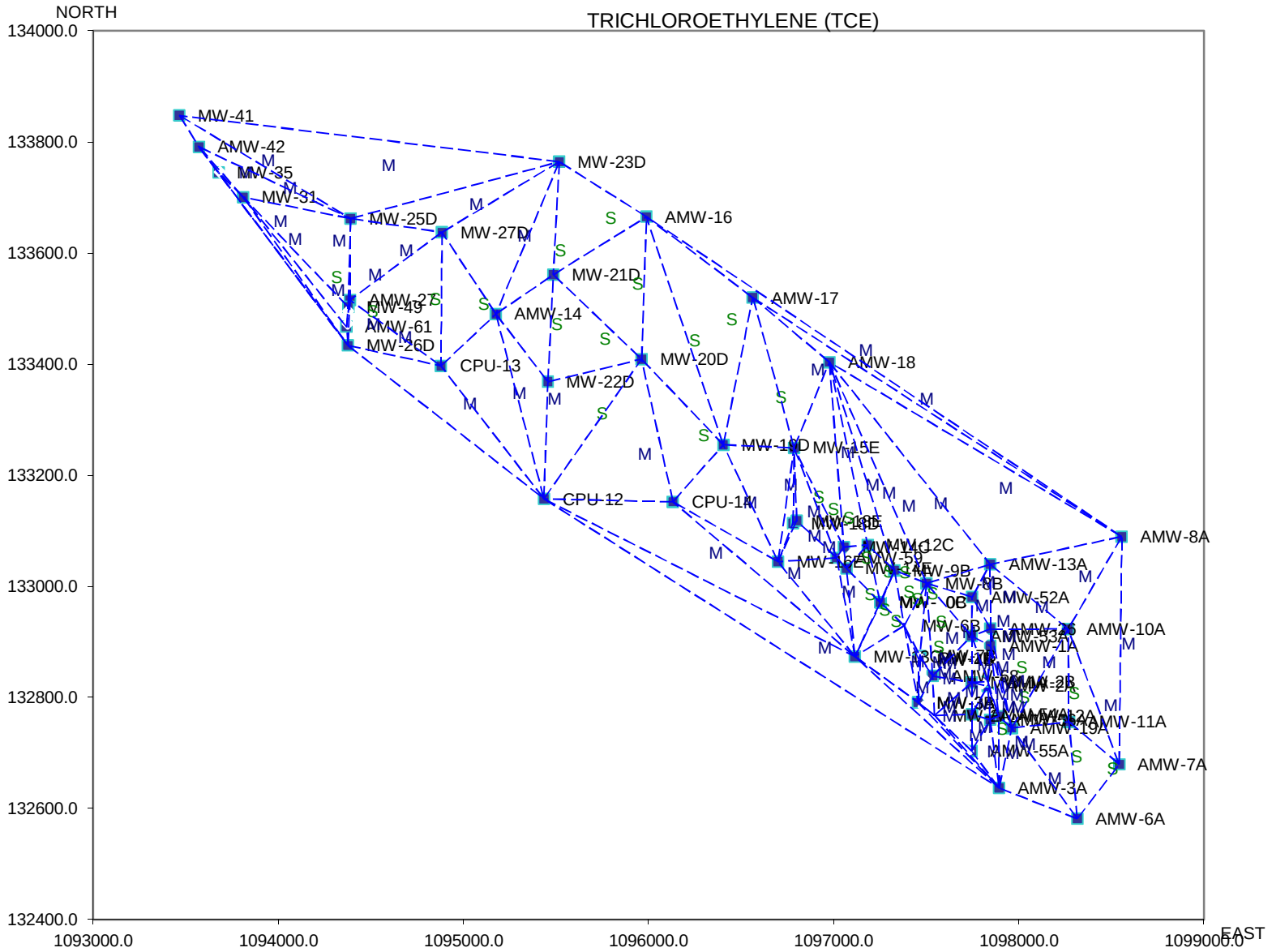
TRICHLOROETHYLENE (TCE)
NORTH
EAST
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133800.0
133600.0
133400.0
133200.0
133000.0
132800.0
132600.0
132400.0
1093000.0
1094000.0
1095000.0
1096000.0
1097000.0
1098000.0
1099000.0
MW-41
AMW-42
MW-35
MW-31
MW-25D
MW-27D
MW-23D
AMW-16
MW-21D
AMW-17
AMW-27
MW-49
AMW-61
MW-26D
AMW-14
CPU-13
MW-22D
MW-20D
AMW-18
MW-19D
MW-15E
CPU-12
CPU-14
AMW-8A
AMW-13A
AMW-52A
AMW-10A
AMW-11A
AMW-7A
AMW-3A
AMW-6A
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
Back to Access

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MAROS Zeroth Moment Analysis

Project: Boomsnub/Airco Superfund Site

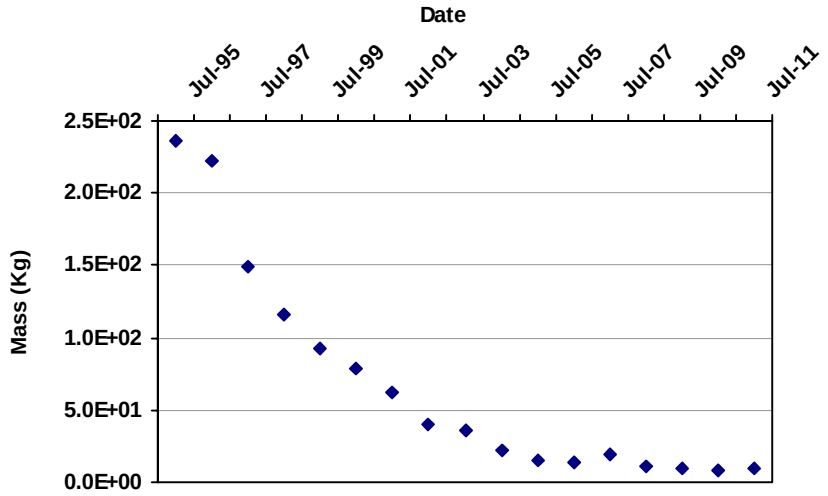
User Name:

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:

-130

Confidence in Trend:

100.0%

Coefficient of Variation:

1.10

Zeroth Moment Trend:

D

Data Table:

Effective Date	Constituent	Estimated Mass (Kg)	Number of Wells
7/1/1995	TRICHLOROETHYLENE (TCE)	2.4E+02	46
7/1/1996	TRICHLOROETHYLENE (TCE)	2.2E+02	36
7/1/1997	TRICHLOROETHYLENE (TCE)	1.5E+02	48
7/1/1998	TRICHLOROETHYLENE (TCE)	1.2E+02	44
7/1/1999	TRICHLOROETHYLENE (TCE)	9.3E+01	45
7/1/2000	TRICHLOROETHYLENE (TCE)	7.9E+01	39
7/1/2001	TRICHLOROETHYLENE (TCE)	6.3E+01	44
7/1/2002	TRICHLOROETHYLENE (TCE)	4.1E+01	46
7/1/2003	TRICHLOROETHYLENE (TCE)	3.6E+01	50
7/1/2004	TRICHLOROETHYLENE (TCE)	2.3E+01	56
7/1/2005	TRICHLOROETHYLENE (TCE)	1.5E+01	51
7/1/2006	TRICHLOROETHYLENE (TCE)	1.3E+01	57
7/1/2007	TRICHLOROETHYLENE (TCE)	1.9E+01	51
7/1/2008	TRICHLOROETHYLENE (TCE)	1.2E+01	60
7/1/2009	TRICHLOROETHYLENE (TCE)	1.0E+01	55
7/1/2010	TRICHLOROETHYLENE (TCE)	8.4E+00	60
7/1/2011	TRICHLOROETHYLENE (TCE)	9.9E+00	37

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

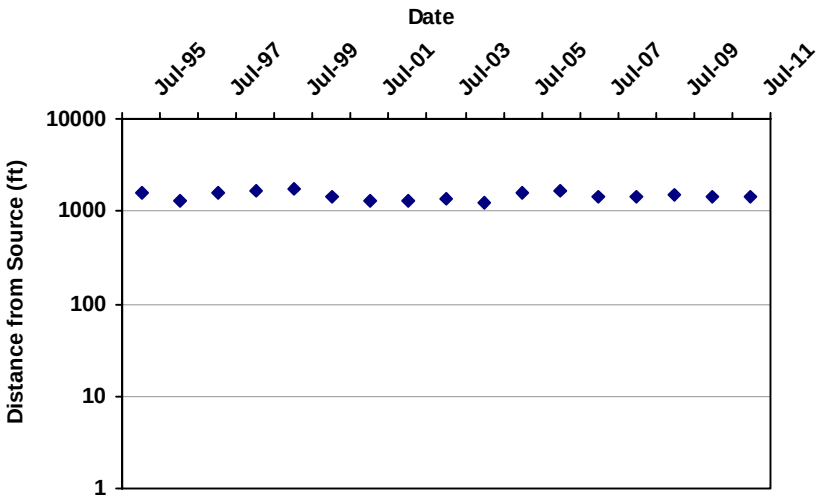
User Name:

Location: Hazel Dell

State: Washington

COC: TRICHLOROETHYLENE (TCE)

Distance from Source to Center of Mass



Mann Kendall S Statistic:

-6

Confidence in Trend:

58.0%

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)	1,096,403	133,289	1,579	46
7/1/1996	TRICHLOROETHYLENE (TCE)	1,096,652	133,226	1,323	36
7/1/1997	TRICHLOROETHYLENE (TCE)	1,096,425	133,259	1,548	48
7/1/1998	TRICHLOROETHYLENE (TCE)	1,096,325	133,271	1,648	44
7/1/1999	TRICHLOROETHYLENE (TCE)	1,096,195	133,288	1,777	45
7/1/2000	TRICHLOROETHYLENE (TCE)	1,096,507	133,222	1,460	39
7/1/2001	TRICHLOROETHYLENE (TCE)	1,096,681	133,165	1,276	44
7/1/2002	TRICHLOROETHYLENE (TCE)	1,096,655	133,176	1,304	46
7/1/2003	TRICHLOROETHYLENE (TCE)	1,096,591	133,186	1,369	50
7/1/2004	TRICHLOROETHYLENE (TCE)	1,096,711	133,166	1,248	56
7/1/2005	TRICHLOROETHYLENE (TCE)	1,096,381	133,230	1,582	51
7/1/2006	TRICHLOROETHYLENE (TCE)	1,096,317	133,282	1,659	57
7/1/2007	TRICHLOROETHYLENE (TCE)	1,096,576	133,256	1,405	51
7/1/2008	TRICHLOROETHYLENE (TCE)	1,096,526	133,256	1,451	60
7/1/2009	TRICHLOROETHYLENE (TCE)	1,096,495	133,250	1,480	55
7/1/2010	TRICHLOROETHYLENE (TCE)	1,096,542	133,257	1,437	60
7/1/2011	TRICHLOROETHYLENE (TCE)	1,096,516	133,268	1,465	37

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.

MAROS First Moment Analysis

Project: Boomsnub/Airco Superfund Site

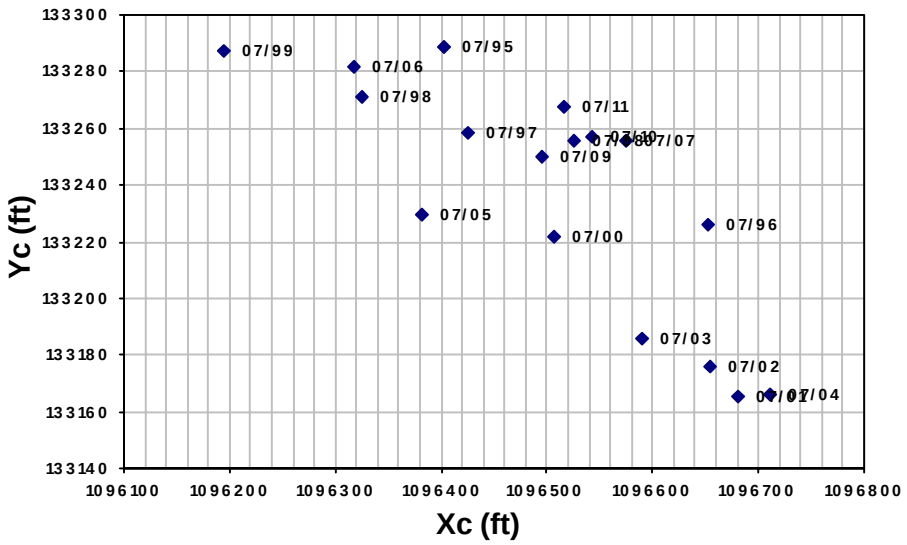
User Name:

Location: Hazel Dell

State: Washington

COC: TRICHLOROETHYLENE (TCE)

Change in Location of Center of Mass Over Time



Groundwater Flow Direction:

Source Coordinate:

X: 1,097,901

Y: 132,790

Effective Date	Constituent	Xc (ft)	Yc (ft)	Distance from Source (ft)	Number of Wells
7/1/1995	TRICHLOROETHYLENE (TCE)	1,096,403	133,289	1,579	46
7/1/1996	TRICHLOROETHYLENE (TCE)	1,096,652	133,226	1,323	36
7/1/1997	TRICHLOROETHYLENE (TCE)	1,096,425	133,259	1,548	48
7/1/1998	TRICHLOROETHYLENE (TCE)	1,096,325	133,271	1,648	44
7/1/1999	TRICHLOROETHYLENE (TCE)	1,096,195	133,288	1,777	45
7/1/2000	TRICHLOROETHYLENE (TCE)	1,096,507	133,222	1,460	39
7/1/2001	TRICHLOROETHYLENE (TCE)	1,096,681	133,165	1,276	44
7/1/2002	TRICHLOROETHYLENE (TCE)	1,096,655	133,176	1,304	46
7/1/2003	TRICHLOROETHYLENE (TCE)	1,096,591	133,186	1,369	50
7/1/2004	TRICHLOROETHYLENE (TCE)	1,096,711	133,166	1,248	56
7/1/2005	TRICHLOROETHYLENE (TCE)	1,096,381	133,230	1,582	51
7/1/2006	TRICHLOROETHYLENE (TCE)	1,096,317	133,282	1,659	57
7/1/2007	TRICHLOROETHYLENE (TCE)	1,096,576	133,256	1,405	51
7/1/2008	TRICHLOROETHYLENE (TCE)	1,096,526	133,256	1,451	60
7/1/2009	TRICHLOROETHYLENE (TCE)	1,096,495	133,250	1,480	55
7/1/2010	TRICHLOROETHYLENE (TCE)	1,096,542	133,257	1,437	60
7/1/2011	TRICHLOROETHYLENE (TCE)	1,096,516	133,268	1,465	37

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.

MAROS Second Moment Analysis

Project: Boomsnub/Airco Superfund Site

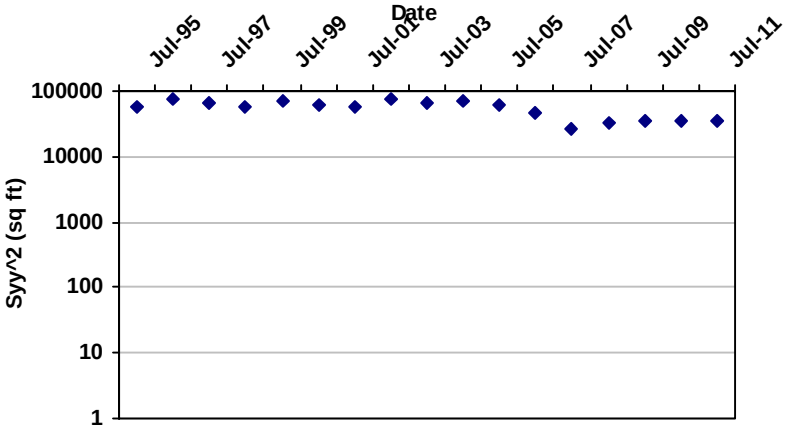
User Name:

Location: Hazel Dell

State: Washington

COC: TRICHLOROETHYLENE (TCE)

Change in Plume Spread Over Time

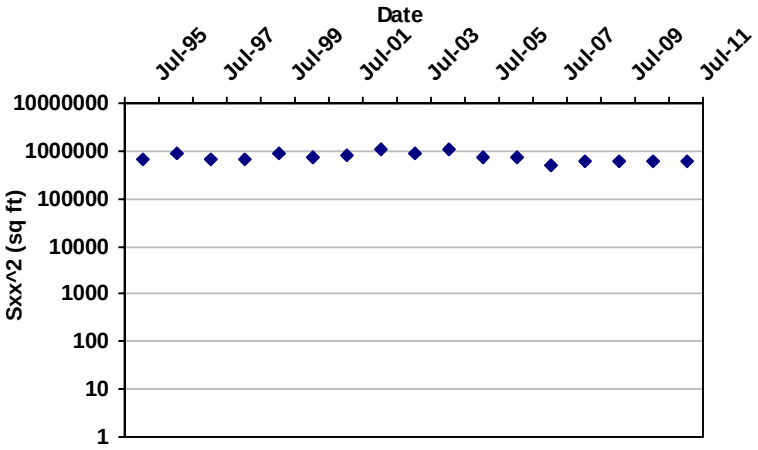


Mann Kendall S Statistic: -62

Confidence in Trend: 99.5%

Coefficient of Variation: 0.30

Second Moment Trend: D



Mann Kendall S Statistic: -48

Confidence in Trend: 97.4%

Coefficient of Variation: 0.22

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)	682,820	57,969	46
7/1/1996	TRICHLOROETHYLENE (TCE)	927,327	74,001	36
7/1/1997	TRICHLOROETHYLENE (TCE)	690,921	64,362	48
7/1/1998	TRICHLOROETHYLENE (TCE)	676,641	57,304	44
7/1/1999	TRICHLOROETHYLENE (TCE)	915,653	72,150	45
7/1/2000	TRICHLOROETHYLENE (TCE)	737,097	61,600	39
7/1/2001	TRICHLOROETHYLENE (TCE)	836,253	58,705	44
7/1/2002	TRICHLOROETHYLENE (TCE)	1,095,852	75,373	46
7/1/2003	TRICHLOROETHYLENE (TCE)	859,390	63,900	50
7/1/2004	TRICHLOROETHYLENE (TCE)	1,038,644	70,987	56
7/1/2005	TRICHLOROETHYLENE (TCE)	749,476	61,250	51
7/1/2006	TRICHLOROETHYLENE (TCE)	740,125	45,674	57

MAROS Second Moment Analysis

Effective Date	Constituent	Sigma XX (sq ft)	Sigma YY (sq ft)	Number of Wells
7/1/2007	TRICHLOROETHYLENE (TCE)	500,191	25,800	51
7/1/2008	TRICHLOROETHYLENE (TCE)	625,461	31,735	60
7/1/2009	TRICHLOROETHYLENE (TCE)	622,965	35,038	55
7/1/2010	TRICHLOROETHYLENE (TCE)	613,008	35,842	60
7/1/2011	TRICHLOROETHYLENE (TCE)	589,689	34,906	37

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** 10/18/2011

Consolidation Period: Yearly

Consolidation Type: Geometric Mean

Duplicate Consolidation: Average

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-3A	S	16	16	6.5E-03	6.4E-03	No	D	D	N/A	N/A
	MW-1A	S	17	17	1.2E+00	1.1E+00	No	D	D	N/A	N/A
	AMW-55A	S	7	7	9.7E-03	9.5E-04	No	NT	D	N/A	N/A
	AMW-54A	S	8	8	4.4E-02	2.2E-03	No	PD	D	N/A	N/A
	AMW-53A	S	9	9	4.2E-02	1.0E-02	No	D	D	N/A	N/A
	AMW-52A	S	8	7	4.6E-04	3.8E-04	No	D	D	N/A	N/A
	AMW-2B	S	12	11	1.8E-03	5.5E-04	No	PD	D	N/A	N/A
	AMW-2A	S	17	17	1.2E+00	6.7E-01	No	D	D	N/A	N/A
	AMW-26	S	14	12	1.8E-02	2.8E-03	No	D	D	N/A	N/A
	AMW-12A	S	17	17	1.5E+00	4.9E-01	No	D	D	N/A	N/A
	AMW-19A	S	15	15	8.3E-02	7.0E-02	No	D	D	N/A	N/A
	AMW-13A	S	16	14	4.5E-03	1.2E-03	No	NT	PD	N/A	N/A
	AMW-1A	S	17	17	1.5E-01	5.9E-02	No	D	D	N/A	N/A
	CPU-13	T	17	17	2.0E-02	4.9E-03	No	D	D	N/A	N/A
	CPU-12	T	17	17	4.6E-03	4.0E-03	No	S	S	N/A	N/A
	AMW-8A	T	16	16	8.8E-02	4.7E-02	No	D	D	N/A	N/A
	AMW-7A	T	13	6	5.1E-04	5.0E-04	No	NT	NT	N/A	N/A
	AMW-6A	T	8	5	5.9E-04	5.4E-04	No	S	S	N/A	N/A
	AMW-61	T	4	4	1.9E-02	1.4E-02	No	S	PD	N/A	N/A
	AMW-59	T	6	6	1.4E-01	1.3E-01	No	S	PD	N/A	N/A
	AMW-58	T	4	3	1.9E-03	1.3E-03	No	D	D	N/A	N/A
	AMW-42	T	12	12	4.6E-03	1.3E-03	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-11A	T	8	6	5.7E-04	4.9E-04	No	NT	NT	N/A	N/A
	AMW-14	T	13	12	2.4E-02	3.8E-03	No	D	D	N/A	N/A
	AMW-10A	T	7	5	4.6E-04	4.0E-04	No	PD	S	N/A	N/A
	AMW-16	T	16	16	2.0E-02	6.1E-03	No	D	D	N/A	N/A
	MW-10C	T	17	17	1.9E-01	8.3E-02	No	D	D	N/A	N/A
	AMW-17	T	16	16	1.2E-02	2.5E-03	No	D	PD	N/A	N/A
	AMW-18	T	15	14	8.8E-02	1.1E-03	No	I	I	N/A	N/A
	AMW-27	T	14	14	4.6E-02	4.8E-02	No	D	D	N/A	N/A
	AMW-56A	T	8	8	8.8E-02	2.0E-03	No	D	D	N/A	N/A
	MW-23D	T	17	17	1.7E-02	8.4E-03	No	D	D	N/A	N/A
	MW-9B	T	9	9	3.8E-01	6.0E-02	No	D	D	N/A	N/A
	MW-8B	T	8	8	5.5E-01	3.5E-02	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-6B	T	17	17	1.8E-01	1.4E-01	No	D	D	N/A	N/A
	MW-4B	T	9	9	6.3E-02	7.2E-03	No	NT	I	N/A	N/A
	MW-49	T	11	11	9.1E-03	7.3E-03	No	D	D	N/A	N/A
	MW-41	T	13	3	6.8E-04	5.0E-04	No	S	I	N/A	N/A
	MW-3B	T	9	9	1.0E-02	9.2E-03	No	D	D	N/A	N/A
	MW-3A	T	11	10	9.0E-04	7.7E-04	No	S	S	N/A	N/A
	MW-35	T	13	13	1.2E-02	6.1E-03	No	D	D	N/A	N/A
	MW-31	T	13	13	2.9E-03	5.7E-04	No	D	D	N/A	N/A
	MW-2A	T	14	14	6.3E-03	5.3E-03	No	D	D	N/A	N/A
	MW-27D	T	17	17	4.7E-02	5.0E-03	No	D	D	N/A	N/A
	CPU-14	T	17	17	2.6E-02	2.3E-02	No	D	D	N/A	N/A
	MW-18D	T	17	17	9.3E-01	2.6E-01	No	D	D	N/A	N/A
	PW-1B	T	17	17	1.6E-01	8.5E-02	No	D	D	N/A	N/A
	MW-12C	T	16	16	8.4E-01	5.2E-02	No	D	D	N/A	N/A
	MW-13C	T	16	16	9.0E-03	6.8E-03	No	D	D	N/A	N/A
	MW-14C	T	17	17	2.5E-01	6.3E-02	No	D	D	N/A	N/A
	MW-14E	T	17	17	9.5E-01	2.6E-01	No	D	D	N/A	N/A
	MW-26D	T	17	17	1.0E-02	3.1E-03	No	D	D	N/A	N/A
	MW-16E	T	11	9	2.5E-03	2.8E-03	No	PI	I	N/A	N/A
	MW-25D	T	17	17	1.6E-02	3.8E-03	No	D	D	N/A	N/A
	MW-18E	T	16	16	6.6E-01	3.4E-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
TRICHLOROETHYLENE (TCE)											
	MW-19D	T	17	17	4.0E-01	1.0E-01	No	D	D	N/A	N/A
	MW-20D	T	17	17	8.8E-01	2.1E-01	No	D	D	N/A	N/A
	MW-21D	T	17	17	2.9E-01	5.4E-02	No	D	D	N/A	N/A
	MW-22D	T	17	17	7.9E-02	5.1E-02	No	D	D	N/A	N/A
	MW-10B	T	17	17	1.1E-01	5.2E-02	No	D	D	N/A	N/A
	MW-15E	T	12	12	1.5E-01	1.9E-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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UPGRADIENT WELLS

TCE SOURCE WELLS

PROXIMAL WELLS

INTERMEDIATE WELLS

CHURCH OF GOD WELLS

TOE OF PLUME

Other Toe Wells

OTHER WELLS

TROUTDALE WELLS