JULY 29, 2016

2014 ANNUAL GROUNDWATER MONITORING REPORT

ARKEMA COATING RESINS
340 RAILROAD STREET
SAUKVILLE, WISCONSIN 53080
WDNR FID#: 246004330

ENDPOINT PROJECT NO. 341-001-003

PREPARED FOR:

RETIA USA LLC
486 THOMAS JONES WAY, SUITE 110
EXTON, PA 19341-2528

PREPARED BY:

Endpoint Solutions
6871 South Lovers Lane
Franklin, Wisconsin 53132
(414) 427-1200

2014 Annual Groundwater Monitoring Report

Arkema Coating Resins
340 Railroad Street
Saukville, Wisconsin

July 29, 2016

Prepared By: _____ July 29, 2016
Robert A. Cigale, P.G. Date
Principal

Reviewed By: _____ July 29, 2016
Kirk L. Kapfhammer, P.G. Date
Principal

Endpoint Solutions

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GLOSSARY

AOC	Area of Concern
Arkema	Arkema Coating Resins
BETX	Benzene, Ethylbenzene, Toluene, and Total Xylenes
CCP	CCP Composites US
CMS	Corrective Measures Study
COC	Chain-of-Custody
CVOC	Chlorinated Volatile Organic Compounds
cis-1,2 - DCE	cis-1,2 - Dichloroethene
EDD	Electronic Data Download
Endpoint	Endpoint Solutions Corp.
ES	WAC Chapter NR 140 Enforcement Standard
ft	Feet
Freeman	Freeman Chemical Corporation
gpm	Gallons per Minute
GEMS	Groundwater and Environmental Monitoring System
GWMP	Groundwater Monitoring Plan
MPPE	Macro-Porous Polymer Extraction
µg/kg	Micrograms per Kilogram
µg/L	Micrograms per Liter
msl	Mean Sea Level
PAL	WAC Chapter NR 140 Preventive Action Limit
PCB	Polychlorinated Biphenyl
POTW	Publicly Owned Treatment Works
RC	Ranney Collector
RCRA	Resource Conservation and Recovery Act
Reaction water	Esterification water
RFI	RCRA Facility Investigation
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compound
trans-1,2-DCE	trans-1,2-Dichloroethene
1,1,1 - TCA	1,1,1 - Trichloroethane
TCE	Trichloroethene
URS	URS Corp.
USEPA	United States Environmental Protection Agency
VC	Vinyl Chloride
VOC	Volatile Organic Compounds
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources
WDWPC	Wisconsin Department of Water Pollution Control
WPDES	Wisconsin Pollutant Discharge Elimination System

EXECUTIVE SUMMARY

This Annual Report is to summarize the groundwater data collected during the previous year of sampling at the Arkema Coating Resins (Arkema) Saukville facility, discuss any changes to the monitoring network, evaluate the effectiveness of the existing on-site extraction system and determine whether any changes to the monitoring or extraction networks are necessary to maintain control of the contaminants in the subsurface. In July 2011, the ownership of real property of the Saukville facility was transferred from CCP Composites US (CCP) to Arkema. On December 31, 2015, Arkema idled the Saukville facility, and responsibility for operating and maintaining the groundwater extraction system was transferred to RETIA USA LLC, a legacy site services group associated with Total Petrochemicals (the former owner of CCP).

No changes to the Wisconsin Department of Natural Resources (WDNR) approved 2005 Revised Groundwater Monitoring Plan (GWMP) for the Arkema Saukville facility occurred in 2014. A summary of the revised 2005 GWMP is presented below.

WINTER QUARTER

The Winter quarterly sampling event is performed in January and is limited to the sampling of Municipal Water Supply Well No. 1 (**MW-1**).

SPRING QUARTER

The Spring quarterly sampling event is performed in April and includes sampling the receptor monitoring points and the perimeter monitoring points, in addition to groundwater elevation measurements from all wells in the monitoring network.

SUMMER QUARTER

The Summer quarterly sampling event is performed in July and is limited to the sampling of **MW-1**.

FALL QUARTER

The Fall quarterly sampling event is performed in October and includes sampling the receptor monitoring points, the perimeter monitoring points and the remediation progress points. Groundwater elevation measurements are collected from all wells in the monitoring network.

The following exceptions to the 2005 revised GWMP occurred during the 2014 sampling events.

- Municipal Well No. 3 (**MW-3**) could not be sampled during the scheduled April sampling event. Therefore, a sample was collected from **MW-3** during the July sampling event instead.
- During the Fall 2014 groundwater sampling event, the following samples could not be collected:
    - Shallow dolomite extraction wells **W-28** and **W-29** did not produce any water when the pump controls were set to “Manual”.

Results of the groundwater sampling performed in 2014 indicate that contaminant concentrations are generally consistent with the trends observed during previous years. With the exception of estimated low concentrations of typical laboratory artifacts in a small portion of the samples, volatile organic compounds (VOC) concentrations in the deep dolomite aquifer, as evidenced by the results from Municipal Water Supply Wells **MW-1**, **MW-3** and **MW-4**, and on-site deep dolomite pumping well **W-30**, remain at non-detectable levels.

The groundwater extraction system currently operating at the Arkema Saukville facility was designed to minimize the downward migration of impacts from the glacial drift and shallow dolomite aquifers to the deep dolomite aquifer, and to control the off-site migration of impacts from within the glacial drift, shallow dolomite, and deep dolomite aquifers. Results of the groundwater sampling conducted in 2014 continue to indicate the extraction system is operating as designed.

In 2014, the perimeter monitoring wells remained generally free of detectable concentrations of VOCs. However, impacts from off-site sources continue to be detected in several upgradient perimeter monitoring wells, as well as several on-site monitoring wells. In addition, elevated concentrations of contaminants continue to be detected in the shallow dolomite aquifer along the southern fence line. However, the results from the glacial drift monitoring points along the southern fence line are free of detections.

Groundwater samples collected in 2014 from the on-site remediation progress points continue to indicate that contaminants are effectively being contained on-site and are slowly being removed from the subsurface through the active extraction system.

1.0 INTRODUCTION

Arkema Resin Coatings (Arkema) operated a polyester, acrylic and alkyd resin manufacturing facility located at 340 Railroad Street in Saukville, Wisconsin (the "Saukville facility"). The location of the Saukville facility is depicted on **Figure 1**. In 2011, Arkema purchased the Saukville facility from CCP Composites US (CCP). Although Arkema purchased the Saukville facility, the responsibility for operating and maintaining the groundwater extraction system remained with CCP. Prior to 1991, the Saukville facility was owned and operated by Freeman Chemical Corporation (Freeman). The Saukville facility was initially operated as a cannery until 1949 when Freeman installed resin manufacturing equipment. Alkyd, polyester and urethane synthetic resins have been manufactured at the Saukville facility since 1949. On December 31, 2015, Arkema idled the Saukville facility, and responsibility for operating and maintaining the groundwater extraction system was transferred to RETIA USA LLC, a legacy site services group associated with Total Petrochemicals (the former owner of CCP).

From 1952 to 1968, esterification water (reaction water) produced as a byproduct of the resin manufacturing process was disposed in a dry well formerly located on the western edge of the Saukville facility with approval from the Wisconsin Division of Water Pollution Control (WDWPC). The dry well method of disposal for the reaction water was replaced with an on-site hazardous waste incinerator in 1968, located south of the main office. The original hazardous waste incinerator was replaced in the early 1990's with a new hazardous waste incinerator east of the existing tank farm. The hazardous waste incinerator was in operation until 2003 when a macro-porous polymer extraction (MPPE) system was added to the process to render the hazardous reaction water non-hazardous. The incinerator continued to operate as a non-hazardous incinerator to dispose of the post-MPPE, non-hazardous reaction water, until October 2004. From October 2004 to 2010, reaction water has been disposed off-site via deep well injection in Texas after transport by rail.

Three (3) Areas of Concern (AOCs) were identified on the Saukville facility during the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI). The three (3) AOCs are as follows:

AOC No. 1 – Former Urethane Laboratory/Former Liquids Incinerator Area

The former liquids incinerator was used to dispose reaction water from 1968 to 1989. AOC No. 1 is located on the northeast portion of the Saukville facility in the vicinity of the former solid waste incinerator and the former soil vapor extraction (SVE) system near monitoring well **W-47**. In addition to being identified as an AOC in the Consent Order, AOC No. 1 is also regulated by the Wisconsin Department of Natural Resources (WDNR) under a *Closure Plan Modification (RMT – April 1992)* related to the former hazardous waste incinerator.

AOC No. 2 – Former Dry Well

The former dry well was used from approximately 1952 through 1968 to dispose of reaction water as approved by the WDWPC. AOC No. 2 is located in the west-central portion of the Saukville facility near monitoring well **W-06A**.

AOC No. 3 – Former Tank Farm Storage Area

A tank farm consisting of an earthen berm utilized for the storage of raw materials and finished product formerly occupied this area. AOC No. 3 is located near the center of the Saukville facility to the east and south of the existing non-hazardous liquid waste incinerator, in the vicinity of the existing concrete tank farm.

The existing layout of the Saukville facility, including the location of monitoring points and AOCs, is depicted on the Existing Site Layout included as **Figure 2**.

In compliance with the 1987 Corrective Action Order on Consent (Docket #V-W-88-R-002), October 19, 1987, 3008h order for RCRA, quarterly groundwater monitoring is required to be performed and reported for specific wells. RETIA USA LLC retains the obligation to remediate the site as determined in the Consent Order.

Groundwater samples were collected and submitted to Synergy Environmental Lab Inc. under standard chain-of-custody (COC) procedures by Endpoint Solutions Corp. (Endpoint) personnel for the January 2014 sampling event. Groundwater samples were collected and submitted to Environmental Monitoring and Technologies Inc. (EMT). under standard COC procedures by URS Corp. (URS) personnel for the April, July and October sampling events. The field data and results were compiled by Endpoint. All results were submitted on a quarterly basis to the WDNR. Exceedances of the Wisconsin Administrative Code (WAC) Chapter NR 140 Preventive Action Limit (PAL) and Enforcement Standard (ES) were reported quarterly in accordance with WAC Chapter NR 508. This report was prepared to summarize the results of the groundwater monitoring during the 2014 calendar year and to compare the results from the 2014 sampling events with those from previous years.

2.0 PURPOSE AND SCOPE

This document presents a summary of the data collected during the quarterly, semi-annual and annual groundwater sampling events conducted during 2014, and provides an evaluation of the historical groundwater elevation and quality trends at the Saukville facility. The water quality data has been submitted to the WDNR in the quarterly reports. Additionally, electronic data downloads (EDDs) of the analytical data are submitted to the WDNR Bureau of Waste Management Groundwater and Environmental Monitoring System (GEMS) on a quarterly basis. Copies of the analytical result summary tables created for each of the quarterly events in 2014 are included in **Appendix A**.

The contents of this report include the following:

- A summary of the site groundwater monitoring program, and contaminant concentrations by wells;
- Isoconcentration maps for select contaminants in groundwater in the glacial drift and shallow dolomite units;
- Time versus concentration plots of selected volatile organic compounds (VOCs) in groundwater in selected wells;
- An evaluation of the trends in groundwater quality for each of the monitoring groups;
- An evaluation of the effectiveness of the containment of the groundwater impacts by the on-site groundwater extraction system, based on groundwater flow and quality data; and,
- An estimate of the total VOC mass removed by the extraction system since 1992.

3.0 SITE HYDROGEOLOGY

3.1 DESCRIPTION OF HYDROGEOLOGIC UNITS

The geology at the Saukville facility has been divided into three (3) distinct hydrogeologic units. These units include the unconsolidated glacial drift deposits, the shallow dolomite unit consisting of the Silurian dolomite to approximately 100 feet below the ground surface (ft bgs), and the deep dolomite unit consisting of Silurian dolomite between approximately 100 ft and 600 ft below the ground surface. A detailed description of the three (3) units is provided below.

3.1.1 GLACIAL DRIFT

The glacial drift unit consists of a complex succession of fill and glaciolacustrine deposits that is underlain by a glacial till. The materials that compose this unit have been extensively used as fill at the Saukville facility. Both the till and the glaciolacustrine deposits are considered to be part of a partially confining hydrostratigraphic unit.

The total thickness of the glacial drift varies between 10 ft and 30 ft in the vicinity of the Saukville facility, but the glacial drift is generally on the order of 10 ft thick beneath the Saukville facility. Glaciolacustrine deposits are up to 20 ft thick on the western side of the Saukville facility, and consist of interbedded sands, silts and clays. The clay is soft to medium hard, gray, and plastic to slightly plastic. Between five (5) ft and 25 ft of glacial till is present beneath the eastern side of the Saukville facility. The till is composed of interbedded silty sands and sandy gravel. The sandy gravel varies from loose to very dense, is brown to gray, and is typically well-graded.

The stratigraphic order of the deposits from the ground surface is generally sand and silt overlying a laterally continuous layer of laminated silt and clay (glaciolacustrine deposits) above dense clay (glacial till). A thin layer of sand and gravel (glacial outwash) lies between this till unit and bedrock.

3.1.2 SHALLOW DOLOMITE

The glacial deposits are unconformably underlain by fractured, thin- to massive-bedded Silurian dolomite, with a total thickness of approximately 600 ft in the area, which includes the deep dolomite aquifer.

The uppermost 100 ft of the Silurian dolomite in the Saukville area tends to have a lower permeability than the underlying deep dolomite aquifer. Occasionally, transmissive zones are encountered in the shallow dolomite, such as at monitoring well **W-24A**, which extracts groundwater at 40 gallons per minute (gpm) and yet shows little drawdown.

3.1.3 DEEP DOLOMITE

The deep dolomite aquifer is defined as the Silurian dolomite from approximately 100 ft to 600 ft below the ground surface. The dominant lithology in the deep dolomite aquifer in the Saukville area is the Racine Formation. Municipal wells in the vicinity of the Saukville facility are typically cased to approximately 100 ft below the ground surface, and are completed in the Silurian dolomite to depths in the range of 450 ft to 550 ft below the ground surface.

Several solution features have been identified in the dolomite beneath the Saukville facility. An apparent sinkhole, filled with glacial deposits, which extends to a depth of approximately 200 ft below the ground surface, was encountered on the eastern edge of the Saukville facility during the installation of wells **W-3A**, **W-3B**, and **W-20**. The aerial extent of the sinkhole was further defined based on the seismic refraction survey performed by Minnesota Geophysical Associates. Further evidence of the karstic features includes solution enlarged joints in the dolomite observed during the borehole video logging of deep pumping well **W-30**. These observations, coupled with the hydraulic response of the aquifer during pumping tests in Saukville, suggest that groundwater flow in the Silurian dolomite is primarily fracture controlled in the vicinity of the Saukville facility.

3.2 GROUNDWATER LEVELS AND FLOW PATTERNS IN 2014

Groundwater levels in the monitoring wells were measured prior to purging and sampling during the Spring and Fall sampling events. **Table 1 – 2014 Summary of Groundwater Level Measurements** presents a summary of the water level measurements collected in 2014. The water level data collected in 2014 was used to develop water table maps for the glacial drift unit, and potentiometric surface maps for the shallow and deep dolomite units. These maps were created using groundwater elevation data from the Fall 2014 sampling event and are attached as **Figures 3 and 4**.

Groundwater elevations on-site are influenced by the groundwater extraction system active at the Saukville facility. A total of nine (9) glacial drift wells, four (4) shallow dolomite wells, and one (1) deep dolomite well are actively pumped to contain the extent of impacts. **Table 2 – 2014 Summary of Well Running Times and Volume Removed**, provides a summary of the monthly pump running times and an estimate of the volume of groundwater removed by each well during 2014. A review of the estimated volumes removed indicates that the majority of groundwater extraction during 2014 occurred in the deep dolomite unit. Approximately 166,557,384 gallons of groundwater were removed from the deep dolomite aquifer through near-continuous pumping of **W-30** for non-contact cooling water in 2014, approximately 3,188,911 gallons of groundwater were removed during 2014 from the glacial drift aquifer, and approximately 6,498,588 gallons of groundwater were removed from the shallow dolomite aquifer during 2014. In total, approximately 176,244,883 gallons of groundwater were removed from the glacial, shallow dolomite and deep dolomite aquifers in 2014. With the exception of the groundwater extracted from the deep dolomite aquifer, all extracted groundwater is discharged to the Saukville publicly-owned treatment works (POTW). Groundwater extracted from the deep dolomite aquifer is discharged to the Milwaukee River via Outfall 001 under limits imposed by the Wisconsin Pollutant Discharge Elimination System (WPDES) permit.

In order to evaluate the continued effectiveness of the on-site groundwater extraction system, annual pump run times and volume removal rates were evaluated. A summary of the trends observed are as follows.

Glacial Drift Unit

- Glacial drift extraction well **W-31** pumped a total of 5.4 hours in 2014 removing approximately 23 gallons of groundwater, an increase from 0.1 hours in 2013.
- Glacial drift extraction well **W-32** pumped for a total of 4,903.4 hours in 2014, removing approximately 20,594 gallons of groundwater, an increase from 1,697.8 hours in 2013.
- Glacial drift extraction well **W-33** pumped for a total of 2,718.9 hours in 2014, removing approximately 11,419 gallons of groundwater, an increase from 1,459.7 hours in 2013.
- Glacial drift extraction well **W-34** pumped for a total of 343.3 hours in 2014, removing approximately 1,442 gallons of groundwater, a decrease from 1,267.7 hours in 2013.
- Glacial drift extraction well **W-35** pumped for a total of 12.2 hours in 2014, removing approximately 51 gallons of groundwater, an increase from not pumping at all in 2013.
- Ranney Collector No. 1 (**RC-1**) pumped for a total of 2,514.3 hours in 2014, removing approximately 452,574 gallons of groundwater, a decrease from 3,135.5 hours in 2013.
- Ranney Collector No. 2 (**R-2**) pumped for a total of 8,834.6 hours in 2014, removing approximately 1,590,228 gallons of groundwater, an increase from 4,634 hours in 2013.
- Ranney Collector No. 3 (**RC-3**) pumped for a total of 6,181 hours in 2014, removing approximately 1,112,580 gallons of groundwater an increase from 119 hours in 2013.

Shallow Dolomite Unit

- Shallow dolomite extraction well **W-21A** pumped for a total of 8,592.9 hours in 2014, removing approximately 1,031,148 gallons of groundwater, a slight increase from 8,211.9 hours in 2013.
- Shallow dolomite extraction well **W-24A** pumped for a total of 485.5 hours in 2014, removing approximately 1,165,200 gallons of groundwater, nearly doubling the 211.6 hours in 2013.
- Shallow dolomite extraction well **W-28** pumped for a total of 1,066.4 hours in 2014, removing approximately 127,968 gallons of groundwater, an increase from not pumping at all in 2013.
- Shallow dolomite extraction well **W-29** pumped for a total of 5,797.6 hours in 2014, removing approximately 4,174,272 gallons of groundwater, an increase from 1,824.9 hours in 2013.

Appendix B includes plots of Pump Run Time Trends from 1992 – 2014.

3.2.1 Groundwater Elevation Trends

Groundwater elevation trends from 1995 to 2014 were also evaluated as part of this Annual Report. The water levels tend to follow a general trend where increases are observed during the Spring and Summer quarters and decreases are observed during the Fall and Winter quarters. The water level measurements continue to indicate that dewatering of the on-site glacial deposits is occurring,

there is convergent flow within the shallow dolomite unit towards the extraction wells, and the on-site extraction system is controlling off-site migration of groundwater in the glacial drift.

3.2.2 Glacial Drift Hydrogeologic Unit

Monitoring well **W-20** is constructed as a piezometer within the glacial drift present in the sinkhole identified in the northeast corner of the Saukville facility, and the hydraulic head within this well is representative of groundwater flow in the shallow dolomite unit. Therefore, water levels from monitoring well **W-20** were not used to construct the water table maps, but have been used to construct the potentiometric surface maps for the shallow dolomite unit.

The water table occurs in the glacial drift unit. In 2014, the depth to the water table at the Saukville facility ranged between 3.73 and 30.19 ft bgs, with an average depth of 11.06 ft bgs. The water table beneath the Saukville facility generally slopes from the southwest to the northeast, towards the Milwaukee River. However, on-site shallow groundwater flow is diverted towards the Ranney Collectors and the active on-site extraction network.

3.2.3 Shallow Dolomite Unit

The piezometers constructed at the Saukville facility have been completed at varying depths in the dolomite. The shallow dolomite and deep dolomite are typically mapped as one (1) unit. In 2014, the depth to groundwater in the shallow dolomite unit ranged between 11.89 and 29.54 ft bgs, with an average depth of 18.50 ft bgs. In general, the potentiometric surface in the shallow and deep dolomite aquifers indicate a steep cone of depression in the vicinity of deep dolomite well W-30. The continuous pumping at deep dolomite well W-30 appears to have dewatered the shallow dolomite in the vicinity of shallow dolomite extraction well W-28. The influence of pumping at W-30 appears to extend approximately over 50% of the Arkema facility, as well as the adjoining Saukville Feed Mill and JT Roofing properties to the west.

3.2.4 Deep Dolomite Unit

Well **W-30** has a bottom elevation of approximately 215 ft above mean sea level (msl), and is utilized to provide non-contact cooling water extracted from both the shallow and deep dolomite units. **W-30** typically pumps at approximately 320 gpm, and has induced a large cone of depression in the shallow dolomite unit. Based on the results of the groundwater modeling conducted during the RFI, groundwater flow in the deep dolomite unit in the Saukville area is towards well **W-30**, and the three (3) existing off-site Saukville municipal water supply wells (**MW-1**, **MW-3** and **MW-4**). Only one (1) on-site data point (W-30) is available to document flow direction in the deep dolomite unit. Therefore, there is insufficient data to prepare potentiometric surface maps for the deep dolomite unit. However, groundwater on the Saukville facility exhibits a strong downward flow from the glacial deposits and the shallow dolomite unit to the deep dolomite unit due to the continuous pumping of well **W-30** for use as non-contact cooling water. Downward migration of groundwater appears to be directly related to the cone of depression formed by the pumping of well **W-30**.

3.3 GROUNDWATER GRADIENTS

3.3.1 HORIZONTAL GRADIENTS

3.3.1.1 GLACIAL DRIFT AQUIFER

In 2014, the groundwater in the glacial drift aquifer flowed eastward with a horizontal gradient of 0.032. According to information included in the *Site Construction Documentation Report* (Hatcher Incorporated – February 15, 1988), the permeability of the glacial deposits was measured to range between 1.2×10^{-8} to 5.5×10^{-8} centimeters per second (cm/sec).

3.3.1.2 SHALLOW DOLOMITE AQUIFER

In 2014, the groundwater in the shallow dolomite unit exhibited convergent flow towards deep dolomite pumping well W-30. The gradient appears much steeper to the west of W-30 as compared to the east, based on the natural west to east flow in the dolomite aquifers. The hydraulic gradient ranged from 1.0 to the west of W-30 to 0.5 to the east of W-30. According to information included in the *Site Construction Documentation Report* (Hatcher Incorporated – February 15, 1988), the natural potentiometric gradient in the dolomite aquifer was 0.0125 from the center of the Arkema facility to the Milwaukee River prior to the onset of pumping from the extraction system and deep dolomite well.

3.3.2 VERTICAL GRADIENT

Using the groundwater elevations measured in nested pairs of glacial drift and shallow dolomite aquifer wells W-18A and W-22, and W-43 and W-38 measured during the Fall 2014 sampling event, the vertical gradient ranged between 0.25 and 0.39 ft/ft downward.

Hydrogeologic calculations are summarized in **Appendix C**.

4.0 GROUNDWATER MONITORING PROGRAM

4.1 PROGRAM DESCRIPTION

The groundwater monitoring network at the Saukville facility includes 46 monitoring points consisting of 21 glacial drift wells, 14 shallow dolomite wells, five (5) deep dolomite wells, three (3) RCs, and three (3) sample points at the Village of Saukville POTW. The monitoring points are further grouped according to four (4) sampling objectives: receptor points, perimeter monitoring points, remediation progress points, and groundwater elevation monitoring points. The organization of the monitoring wells by monitoring objective is summarized in **Table 3 – Modified Groundwater Monitoring Plan Summary**.

Receptor monitoring points include three (3) municipal water supply wells (**MW-1**, **MW-3**, and **MW-4**), POTW influent, effluent, and sludge, and three (3) RCs. The RCs are essentially French drains which intercept shallow groundwater and discharge to the sanitary sewer system. The receptor monitoring points are sampled semi-annually during the Spring and Fall quarterly sampling events. Municipal water supply well **MW-2** was abandoned by CCP in November 2004 following transfer of the **MW-2** property from the Village of Saukville to CCP. At the request of the Village of Saukville, Municipal water supply well **MW-1** is sampled on a quarterly basis.

Perimeter monitoring points include monitoring wells which are located both on-site and off-site at, or beyond, the edge of the extent of the VOC impacts. These monitoring points provide necessary information to define the extent of the plume. The perimeter monitoring points are sampled semi-annually during the Spring and Fall sampling events.

Remediation progress points are monitoring wells and extraction wells located within the area of impacts. These wells provide an indication regarding the effectiveness of the on-site extraction wells. The remediation progress points are sampled annually during the Fall sampling event.

Each of the monitoring points is also grouped based on hydrogeologic unit monitored. The hydrogeologic units monitored at the Saukville facility include: glacial drift; shallow dolomite; and deep dolomite units. This subdivision allows for more effective evaluation of the on-site groundwater flow and quality trends.

4.2 CHANGES IN MONITORING NETWORK

Since the onset of the monitoring program, three (3) monitoring points have been abandoned. Monitoring wells **W-25** (shallow dolomite) and **W-37** (glacial drift) were abandoned due to damage to the wells from nearby construction projects. Municipal water supply well **MW-2** (deep dolomite) was abandoned following transfer of ownership from the Village of Saukville to CCP in 2004. These wells have not been replaced since the remaining monitoring network is providing sufficient data for plume assessment.

In July 2005, the WDNR approved a revised GWMP for the Saukville facility. The revised GWMP reflected the abandonment of the two (2) perimeter monitoring points (**W-25** and **W-37**), the abandonment of the Village water supply well (**MW-2**), the addition of five (5) new perimeter

monitoring points (**W-49**, **W-50**, **W-51**, **W-52** and **W-53**), and historical concentration trends for the existing monitoring network.

4.3 SAMPLING SCHEDULE

Table 3 – Modified Groundwater Sampling Plan Summary presents the sampling schedule that was developed as part of the revised GWMP, submitted to, and approved by the WDNR, along with the analytical methods used each quarter. The methods and associated parameters are listed in **Table 4 – Summary of Analytes and Methods**. The analytical testing was performed by Synergy Environmental Lab located in Appleton, Wisconsin (WI Certification # 445037560) for the January sampling event and by Environmental Monitoring and Technologies Inc. (EMT) lab located in Morton Grove, Illinois (WI Certification # 999888890) for the April, July and October sampling events. The following methods were used to analyze the submitted samples:

VOC	SW846 8260B
Semi-Volatile Organic Compounds (SVOC)	SW846 8270C
Metals	SW846 6020
Polychlorinated Biphenyls (PCBs)	SW846 8081

5.0 GROUNDWATER QUALITY

5.1 VOC SAMPLING RESULTS

The tabulated results of the VOC concentrations in each well and the supporting laboratory data were presented in each of the four (4) quarterly reports. Copies of the result summary tables included in each of the quarterly reports have been attached in **Appendix A**.

The individual detected VOCs in the glacial drift, and the shallow dolomite unit for 2014 are depicted on **Figure 5 – VOC Detections - Glacial Drift Aquifer – Fall 2014** and **Figure 6 – VOC Detections - Shallow and Deep Dolomite Aquifers – Fall 2014**. A discussion of the VOC detections during 2014 follows.

5.1.1 MUNICIPAL WATER SUPPLY WELLS

Results of the groundwater samples collected from the Municipal Water Supply Wells during 2014 were as follows:

- Winter 2014 – No VOCs were detected in the sample collected from municipal well **MW-1**.
- Spring 2014 – No VOCs were detected in the sample collected from municipal well **MW-4**. Municipal well **MW-3** was down for maintenance and therefore, could not be sampled during the Spring 2014 sampling event. An estimated concentration of chloroform (0.64 µg/L) was detected in the sample collected from municipal well **MW-1**.
- Summer 2014 – No VOCs were detected in the samples collected from municipal wells **MW-1** and **MW-3**. Municipal MW-3 was sampled during the Summer 2014 sampling event as the well was not functioning and could not be sampled during the Spring 2014 sampling event in April.
- Fall 2014 – With the exception of estimated concentrations of chloroform (0.480 µg/L) and toluene (0.62 µg/L) detected in the sample collected from municipal well MW-1, no VOCs were detected in the samples collected from municipal wells **MW-3** and **MW-4**.

5.1.2 RANNEY COLLECTORS

Ranney Collectors are wells with slotted stainless steel pipes that stretch out like spider legs (French Drains) and drain water from soil by gravity to the center well casing where the pump is located. All three (3) Ranney Collectors were sampled during both the Spring and Fall sampling events.

- RC-1 - No VOCs were detected in the samples collected from Ranney Collector **RC-1**. Ranney Collector **RC-1** is located on the eastern portion of the Saukville facility and collects groundwater to the east of AOCs 1 and 3.
- RC-2 - The samples collected from Ranney Collector **RC-2** contained elevated concentrations of benzene, ethylbenzene, toluene and xylenes. The concentrations detected during the Spring sampling event were greater than the concentrations detected during the Fall sampling event with the concentration of benzene exceeding its ES and the

concentration of xylenes exceeding its PAL during the Spring sampling event. Benzene was the only constituent detected during the Fall sampling event which exceeded its PAL. Ranney Collector **RC-2** is located in the southwest corner of the Saukville facility with a single leg which extends to the north along the west side of AOC 2.

- RC-3 - The samples collected from Ranney Collector **RC-3** contained elevated concentrations of ethylbenzene, toluene and xylenes. The concentrations detected during the Spring sampling event were greater than the concentrations detected during the Fall sampling event with the concentrations of ethylbenzene, toluene and xylenes exceeding their respective ESs during the Spring sampling event. No VOC constituents were detected during the Fall sampling event exceeding their respective PALs. Ranney Collector **RC-3** is located near the center of the Saukville facility with legs which extending to the east and southwest of AOC 1 and to south in between AOCs 2 and 3.

5.1.3 POTW

Samples were collected from the Village of Saukville POTW during the Spring and Fall 2014 sampling events per the revised GWMP. Samples were collected from the **POTW-Influent**, **POTW-Effluent** and the **POTW-Sludge** and submitted for VOC analysis. During 2014, the total VOC concentration in the **POTW-Influent** ranged between 52.41 µg/L during the Spring 2014 sampling event and 95.68 µg/L during the Fall 2014 sampling event. In general, the **POTW-Influent** contained the greatest amount of detectable constituents when compared to the **POTW-Sludge** and **POTW-Effluent**. Individual constituents detected in the **POTW-Influent** samples included: acetone; chloroform; cis-1,2-dichloroethene; ethylbenzene; naphthalene; toluene; trichlorofluoromethane; and, xylenes.

VOCs were not detected in the **POTW-Effluent** sample collected during the 2014 Spring sampling event. However, chloroform and xylenes were detected in the sample collected from **POTW-E** during the Fall 2014 sampling event.

The total VOC concentration in the **POTW-Sludge** samples ranged from 0 µg/L during the Spring 2014 sampling event to 12.70 µg/L during the Fall 2014 sampling event. During the Fall 2014 sampling event, the **POTW-Sludge** contained detectable concentrations of chloroform and methylene chloride.

5.1.4 Detected Contaminants in the Glacial Drift Unit

The distribution of VOCs detected in the glacial drift aquifer in 2014 is depicted on **Figure 5 – VOC Detections - Glacial Drift Aquifer – Fall 2014**. Monitoring points in the glacial drift unit include the following:

Perimeter Monitoring

- **W-01A**, **W-03B**, **W-04A**, **W-08R**, **W-16A**, **W-27**, **W-49** and **W-51**.

Remediation Progress

- **W-06A**, **W-19A**, **W-41**, **W-42**, **W-43** and **W-47**.

As discussed in Section 3, monitoring well **W-20** is completed in the glacial drift deposit within the sinkhole in the shallow dolomite unit, and therefore, the results obtained from **W-20** are more representative of the water quality in the shallow dolomite aquifer. Isoconcentration contours in the glacial drift unit do not include total VOC concentrations in the RCs. The RC samples are composite groundwater samples that are collected from broad areas of the Saukville facility through radial collection lines.

The distribution of VOCs in the groundwater in the glacial drift in 2014 is generally similar to the distribution observed in the past. In general, the impacts observed in the glacial drift aquifer are closely related to the three (3) on-site AOCs. Exceedances for benzene, ethylbenzene, toluene and total xylenes are primarily located in AOCs Nos. 1 and 2.

Chlorinated VOCs (CVOCs), primarily in the form of TCE, 1,1,1-trichloroethane (1,1,1-TCA), 1,2-DCE and VC, were detected in the groundwater samples collected from glacial drift wells **W-06A**, **W-19A**, **W-27** and **W-47**. The highest concentration of TCE, the apparent parent product, was detected in off-site, upgradient well **W-27**. These results continue to indicate an off-site, upgradient source of the CVOC impacts. Currently, a site investigation is underway on the adjacent property to the west (the former Northern Signal property) to evaluate the character and extent of CVOC impacts in the soil and groundwater beneath that site. More details regarding this investigation are provided in Section 5.1.4.1.

5.1.4.1 Perimeter Monitoring Group – Glacial Drift

In general, VOC concentrations in the glacial drift perimeter monitoring wells have not changed significantly since 1995. No detectable concentrations of VOCs were reported in the samples collected from the following wells:

W-01A, **W-03B**, **W-04A**, **W-08R**, **W-16A**, **W-49** and **W-51** during the Spring 2014 sampling event.

During the Fall 2014 sampling event, these same wells contained estimated concentrations of either chloroform, 1,4-dichlorobenzene or methylene chloride. Chloroform is a common contaminant found in aged VOC vials pre-preserved with hydrochloric acid and methylene chloride is a common laboratory solvent. Based on over 20 years of non-detect results from these wells, the estimated concentrations of chloroform, methylene chloride and 1,4-dichlorobenzene detected during the Fall 2014 sampling event are not considered indicative of the groundwater characteristics, but rather are the result of old pre-preserved glassware and/or laboratory contamination.

<u>W-27</u>

TCE, 1,2-DCE and 1,1,1-TCA were detected in the samples collected from **W-27** during the Spring and Fall 2014 sampling events. In addition, naphthalene was detected in the sample collected during the Spring 2014 sampling event and ethylbenzene and methylene chloride were detected in the sample collected during the Fall 2014 sampling event.

The concentrations of TCE detected during the Spring and Fall 2014 sampling events exceeded its ES and the concentration of methylene chloride detected during the Fall 2014 sampling event exceeded its PAL. As discussed above, methylene chloride is a common laboratory contaminant.

It should be noted, perimeter monitoring point **W-27** is located upgradient of the Saukville facility on the JT Roofing (former Laubenstein Roofing and Northern Signal) property. CVOCs have never been utilized at the Saukville facility. However, a chlorinated solvent degreasing pit was historically located at the former Northern Signal site in the general vicinity of perimeter monitoring point **W-27**.

According to information contained on the WDNR Bureau of Remediation and Redevelopment Tracking System (BRRTS) online database, a site investigation report was submitted to WDNR in April 2014. However, in May 2014, the site investigation report was not approved by the WDNR, and more information was requested. It should be noted that there is also an open leaking underground storage tank (LUST) case at the JT Roofing property. The WDNR indicates that diesel fuel has impacted the soil and fractured bedrock. As of May 2014, WDNR has requested a status update from the responsible party. However, no response has been received.

5.1.4.2 Remediation Progress Group

Overall, contaminant concentrations in the glacial drift remediation progress wells have been relatively stable since 1995, with annual variance in the range of a standard deviation. Remediation progress points are sampled once annually during the Fall sampling event. A discussion of the specific contaminant concentrations observed in the glacial drift remediation progress wells during 2014 is as follows.

- The groundwater sample collected from glacial drift remediation progress monitoring well **W-06A** during the Fall 2014 groundwater sampling event contained detectable concentrations of the following VOCs: total xylenes; toluene; ethylbenzene; benzene; 1,2-DCE; TCE; methylene chloride; and, PCE. In addition, the groundwater sample collected from glacial drift remediation progress monitoring well **W-06A** during the Fall 2014 groundwater sampling event contained detectable concentrations of arsenic, barium, 2,4-dimethylphenol, 3&4-methylphenol, acetophenone, 2-methylphenol, phenol, bis(2-ethylhexyl)phthalate, naphthalene and 2-methylnaphthalene. The concentrations of total xylenes, toluene, ethylbenzene, benzene, arsenic and bis(2-ethylhexyl)phthalate exceeded their respective WAC Chapter NR 140 ESs, while the concentration of TCE, methylene chloride and PCE exceeded their respective WAC Chapter NR 140 PALs. Glacial drift remediation progress monitoring well **W-06A** is located within AOC 3 and contained the highest concentrations of benzene, ethylbenzene, toluene and total xylenes of all samples collected during the Fall 2014 sampling event.
- The groundwater sample collected from glacial drift remediation progress point **W-19A** during the Fall 2014 groundwater sampling event contained detectable concentrations of 1,2-DCE, TCE, VC, PCE and methylene chloride. The concentrations of TCE and VC exceed their respective ESs while the concentrations of PCE and methylene chloride exceed their respective PALs. Glacial drift remediation progress point **W-19A** is located offsite to the west of the Saukville facility on the adjoining JT Roofing (former Northern Signal) property and is hydrogeologically upgradient to the Saukville facility.

- The groundwater sample collected from glacial drift remediation progress monitoring point **W-41** during the Fall 2014 groundwater sampling event contained detectable concentrations of total xylenes and benzene. The concentrations of benzene exceeded its PAL.
- The groundwater sample collected from glacial drift remediation progress monitoring well **W-42** during the Fall 2014 groundwater sampling event contained detectable concentrations of total xylenes, ethylbenzene, benzene and toluene. The concentrations of total xylenes and benzene exceed their respective ESs.
- The groundwater sample collected from glacial drift remediation progress monitoring well **W-43** during the Fall 2014 groundwater sampling event contained detectable concentrations of ethylbenzene, total xylenes, benzene, methylene chloride, 1,4-dichlorobenzene, arsenic and, bis(2-ethylhexyl)phthalate. The concentrations of benzene methylene chloride and bis(2-ethylhexyl)phthalate exceeded their respective PALs.
- The groundwater sample collected from glacial drift remediation progress monitoring well **W-47** contained detectable concentrations of total xylenes, ethylbenzene, toluene, benzene, 1,2-DCE, VC, chloroform, barium, 2,4-dimethylphenol, acetophenone, bis(2-ethylhexyl)phthalate, 3&4-methylphenol, naphthalene, 2-methylphenol, 2-methylnaphthalene, and phenol. The concentrations of total xylenes, ethylbenzene, benzene, vinyl chloride and bis(2-ethylhexyl)phthalate exceeded their respective ESs, while the concentrations of toluene, and chloroform exceeded their respective PALs.

5.1.5 Detected Contaminants in the Shallow Dolomite Unit

VOC concentrations detected in the shallow dolomite aquifer in 2014 are shown on **Figure 6- VOC Detections – Shallow and Deep Dolomite Aquifers – Fall 2014**. Monitoring points in the shallow dolomite unit include the following:

Perimeter Monitoring

W-03A, **W-07**, **W-20**, **W-22**, **W-23**, **W-40**, **W-50** and **W-52**.

Remediation Progress

W-21A, **W-24A**, **W-28**, **W-29** and **W-38**.

The overall horizontal extent of the contaminants observed in the shallow dolomite wells is generally the same as observed in previous years. More details regarding the results of the sampling are presented in the following sections.

5.1.5.1 Perimeter Monitoring Group – Shallow Dolomite

In general, VOC concentrations in the shallow dolomite perimeter monitoring wells have not changed significantly since 1995. No detectable concentrations of VOCs were noted in the following wells during 2014:

- **W-03A**, **W-07**and **W-22** during the Spring and Fall 2014 sampling event and **W-50** during the Fall sampling event.

A discussion of the specific contaminant concentrations observed in the shallow dolomite perimeter monitoring wells during 2014 is as follows.

- The groundwater sample collected from perimeter shallow dolomite monitoring point **W-20** during the Spring 2014 sampling event contained an elevated concentration of 1,3,5-trimethylbenzene. However, the concentration detected was well below its PAL. The groundwater sample collected from **W-20** during the Fall 2014 sampling event contained elevated concentrations of methylene chloride and total xylenes. The concentration of methylene chloride exceeded its PAL. Based on over 20 years of non-detect results in samples collected from **W-20**, the detected concentrations of 1,3,5-trimethylbenzene, methylene chloride and total xylenes are not considered indicative of the groundwater characteristics, but rather are the result of laboratory and/or field contamination.
- The groundwater samples collected from perimeter shallow dolomite monitoring point **W-22** contained an elevated concentration of TCE during the Sparing sampling event and an elevated concentration of chloroform during the Fall sampling event. Neither concentration exceeded its respective PAL.
- The groundwater samples collected from perimeter shallow dolomite monitoring point **W-23** contained detectable concentrations benzene and c-1,2-DCE during the Spring sampling event and chloroform during the Fall sampling event. None of the concentrations exceeded their respective PALs.
- The groundwater sample collected from perimeter shallow dolomite point **W-40** during the Fall sampling event contained a detectable concentration of naphthalene and a detection of chloroform during the Spring sampling event. Neither concentration exceeded its respective PAL.
- The groundwater sample collected from perimeter shallow dolomite monitoring point **W-50** contained an elevated concentration of chloroform in the sample collected during the Fall sampling event. The concentration of chloroform did not exceed its PAL.
- The groundwater samples collected from perimeter shallow dolomite piezometer **W-52** during the Spring and Fall sampling events contained detectable concentrations of benzene, and TCE. Elevated concentrations of c-1,2-DCE and t-1,2-DCE were also detected in the sample collected during the Spring sampling event. Elevated concentrations of VC, 1,4-dioxane and chloroform were detected in the sample collected during the Fall sampling event. The concentrations of benzene detected during both sampling events and the concentration of VC and 1,4-dioxane during the Fall sampling event exceeded their respective ESs while the concentrations of TCE during both sampling events and c-1,2-DCE during the Spring sampling event exceeded their respective PALs.

5.1.5.2 Remediation Progress Group – Shallow Dolomite

In general, the contaminant concentrations detected in the shallow dolomite remediation progress wells indicate a stable trend since 1995. Due to a pump malfunction or a lack of groundwater, shallow dolomite remediation progress wells **W-28 and W-29** could not be sampled during the Fall sampling event. Records indicate that shallow dolomite remediation progress well **W-28** actively pumped only in June and July 2014. Specific contaminants observed in the shallow dolomite remediation progress wells during 2014 are as follows.

- The sample collected from shallow dolomite extraction well **W-21A** during the Fall sampling event contained elevated concentrations of ethylbenzene, total xylenes, barium, naphthalene, acetophenone, 2,4-dimethylphenol, bis(2-ethylhexyl)phthalate, phenol and 2-methylnaphthalene. The concentration of ethylbenzene exceeded its ES, while the concentrations of total xylenes, naphthalene and bis(2-ethylhexyl)phthalate exceeded their respective PALs.
- The groundwater sample collected from shallow dolomite extraction well **W-24A** during the Fall 2014 groundwater sampling event contained detectable concentrations of VC, barium and bis(2-ethylhexyl)phthalate. The concentration of VC exceeded its ES, while the concentration of bis(2-ethylhexyl)phthalate exceeded its PAL.
- The groundwater sample collected from shallow dolomite remediation progress point **W-38** during the Fall 2014 groundwater sampling event contained a detectable concentration of chloroform. The concentration of chloroform did not exceed its PAL.

5.1.6 Detected Contaminants in the Deep Dolomite Unit

VOC concentrations detected in the shallow dolomite aquifer in 2014 are shown on **Figure 6 - VOC Detections – Shallow and Deep Dolomite Aquifers – Fall 2014**. In general, the contaminant concentrations detected in the deep dolomite monitoring points are consistent with results observed since sampling of these wells began. Besides the three (3) municipal water supply wells (**MW-1**, **MW-2** and **MW-3**), the only deep dolomite wells sampled as part of the groundwater monitoring program are deep dolomite extraction well **W-30**, historically used for non-contact cooling water at the Saukville facility and deep dolomite monitoring well **PW-08** located on the former Northern Signal property. No VOCs were detected in the groundwater samples collected from **PW-08** during the Fall 2014 sampling event.

- The groundwater samples collected from deep dolomite perimeter monitoring point **PW-08** during the Spring and Fall sampling events did not contain any detectable concentrations of VOCs.
- The groundwater sample collected from deep dolomite pumping well **W-30** during the Fall sampling event did not contain any detectable concentrations of VOCs. However, elevated concentrations of barium, bis(2-ethylhexyl)phthalate and naphthalene were detected in the sample collected during the Fall sampling event. The concentration of bis(2-ethylhexyl)phthalate exceeded its PAL.

5.1.7 VOC DISTRIBUTION

In general, benzene, ethylbenzene and xylene are the most common VOCs detected in the groundwater at the Saukville facility. In order to effectively evaluate the character of the extent of impacts, isoconcentration maps were developed for each of the BETX compounds in both the glacial drift and shallow dolomite aquifers. In addition, CVOCs have been detected in the glacial drift and shallow dolomite aquifers, migrating onto the Saukville facility from an upgradient source.

5.1.7.1 GLACIAL DRIFT AQUIFER

Isoconcentration maps for benzene, ethylbenzene, toluene and total xylenes in the glacial drift aquifer are presented as **Figures 7, 8, 9 and 10**, respectively. TCE and VC detections in the glacial drift aquifer are shown on **Figure 11**.

Based on an evaluation of the above-described maps, the VOC impacts in the glacial drift aquifer attributed to releases at the Saukville facility are primarily located in an area extending between AOCs 1 and 2, located generally along the western boundary of the Saukville facility. The highest concentrations of benzene, ethylbenzene, toluene and total xylenes were detected in remediation progress point **W-06A** located in AOC 2 near the former dry well disposal area**.** Significantly lower concentrations were detected in AOC 1 and no PAL or ES exceedances were detected in AOC 3.

CVOCs, in the form of TCE, were detected in primarily off-site upgradient glacial drift wells during the 2014 sampling events as follows:

- The highest TCE concentrations in the glacial drift aquifer were detected upgradient in perimeter monitoring points **W-27** (88.8 µg/L) and **W-19A** (11.5 µg/L). The concentrations of TCE detected in **W-19A** and **W-27** exceed its ES. VC was also detected at concentrations above its ES in samples collected from **W-19A** and **W-47**.

5.1.7.2 SHALLOW DOLOMITE AQUIFER

The isoconcentration map for benzene in the shallow dolomite aquifer is presented as **Figures 12**. TCE and VC detections in the shallow dolomite aquifer are shown on **Figure 13**. In contrast to the location of the VOC impacts in the glacial drift aquifer, the VOC impacts in the shallow dolomite aquifer are located near the center of the Site, from the south fence line to the north fence line adjoining the church yard. The lack of data from shallow dolomite extraction well **W-29**, which could not be sampled due to a pump malfunction somewhat skews the apparent extent of the contamination in the shallow dolomite. However, perimeter shallow dolomite monitoring point **W-52** is the only shallow dolomite monitoring point exhibiting an ES exceedance for benzene and shallow dolomite extraction well **W-21A** is the only shallow dolomite point exhibiting an ES exceedance for ethylbenzene.

In general, the concentrations of contaminants detected in the shallow dolomite aquifer are significantly less than the concentrations observed in the glacial drift aquifer. In addition, the results from the shallow dolomite sampling indicate an absence of toluene in the shallow dolomite aquifer. Specific observations are as follows:

- The highest benzene concentration (10.6 µg/L) was detected during all of the 2014 sampling was in shallow dolomite perimeter monitoring point **W-52.** The highest ethylbenzene and total xylene concentrations, 7,180 µg/L and 1,580 µg/L, respectively, were detected in shallow dolomite extraction well **W-21A**.
- CVOCs were detected in two (2) shallow dolomite monitoring points (**W-24A** and **W-52**), both located along the south fence line of the Saukville facility. VC was detected in exceedance of its ES in both wells.

5.2 METALS RESULTS AND DISTRIBUTION

A total of eight (8) on-site remediation progress wells are scheduled to be sampled for arsenic and barium concentrations on an annual basis during the Fall groundwater sampling event. The wells scheduled to be sampled for metals include glacial drift monitoring wells **W-06A**, **W-43** and **W-47**, shallow dolomite extraction wells **W-21A**, **W-24A**, **W-28** and **W-29**, and deep dolomite pumping well **W-30**. In 2014, shallow dolomite extraction wells **W-28** and **W-29** were not sampled due to a pump malfunction and/or a lack of water. The samples collected for metals analysis were field-filtered prior to preservation and analysis to provide a dissolved metals concentration result. The results of the metals analyses are depicted on **Figure 14 - Metals in Groundwater – Fall 2014**. A discussion of the results follows:

5.2.1 ARSENIC

Only one (1) of the six (6) of the wells sampled during the Fall 2014 sampling event contained detectable concentrations of arsenic. An estimated arsenic concentration of 24.1 µg/L was reported in the sample collected from glacial drift remediation progress well **W-06A**. The arsenic concentration detected exceeded its ES.

The concentration trends for arsenic have been relatively stable since the onset of analyzing for arsenic in 1994. It should be noted that naturally occurring arsenic has been detected in Wisconsin at concentrations similar to those detected in the groundwater at the Saukville facility.

5.2.2 BARIUM

All six (6) of the groundwater samples collected and analyzed for barium during the Fall 2014 sampling event contained detectable concentrations of barium. Detected concentrations of barium ranged between 8.25 µg/L in glacial drift monitoring point **W-43** to 2,530 µg/L in shallow dolomite extraction well **W-21A**. None of the barium results detected in the samples collected during the Fall 2014 groundwater sampling event exceeded its PAL.

5.3 SVOC RESULTS AND DISTRIBUTION

A total of eight (8) on-site remediation progress monitoring wells are scheduled to be sampled on an annual basis during the Fall groundwater sampling event for SVOC analysis. The wells scheduled to be sampled for SVOCs include glacial drift monitoring wells **W-06A**, **W-43** and **W-47**, shallow dolomite extraction wells **W-21A**, **W-24A**, **W-28** and **W-29**, and deep dolomite pumping well **W-30**. In 2014, shallow dolomite extraction wells **W-29** and **W-29** were not sampled due to a pump malfunction and/or a lack of water.

The results of the SVOC sampling performed in 2014 are as follows:

- The sample collected from glacial drift monitoring point **W-06A** contained detections of all of the SVOC constituents required to be reported. However, the concentration of bis(2-ethylhexyl)phthalate was the only SVOC which exceeded its ES.
- Six (6) of eight (8) SVOC constituents were detected in the sample collected from shallow dolomite extraction well **W-21A**. However, only the concentrations of bis(2-ethylhexyl)phthalate and naphthalene exceeded their respective PALs.
- Bis(2-ethylhexyl)phthalate was the only SVOC constituent detected in the sample collected from shallow dolomite extraction well **W-24A**. The concentration detected exceeded the PAL.
- Bis(2-ethylhexyl)phthalate and naphthalene were the only SVOC constituents detected in the sample collected from deep dolomite pumping well **W-30**. The concentration of bis(2-ethylhexyl)phthalate exceeded its PAL.
- Bis(2-ethylhexyl)phthalate was the only SVOC constituent detected in the sample collected from glacial drift remediation progress point **W-43**. The concentration detected exceeded the PAL.
- The sample collected from glacial drift monitoring point **W-47** contained detections of all of the SVOC constituents required to be reported. However, the concentration of bis(2-ethylhexyl)phthalate was the only SVOC which exceeded its ES.

SVOC detections in groundwater are depicted on **Figure 15 - SVOCs in Groundwater – Fall 2014**.

5.4 PCB RESULTS

Glacial drift monitoring point **W-47** was the only well scheduled to be sampled for PCBs during the Fall 2014 sampling event. No PCB congeners were detected in the sample collected from **W-47**.

Historical individual contaminant trends for selected parameters in selected wells are attached in **Appendix D**.

6.0 CONTAMINANT CONTAINMENT

6.1 CONTAINMENT OF GROUNDWATER IMPACTS

The discussion in this section combines groundwater flow and quality trends from the receptor, perimeter, and remediation progress wells in the glacial drift and dolomite, to present an evaluation of the effectiveness of the containment at the Saukville facility.

6.1.1 GLACIAL DRIFT UNIT

Based on the results of the laboratory analyses performed during 2014 on the groundwater samples collected from the glacial drift perimeter monitoring wells, the groundwater contamination resulting from historical on-site operations appear to be contained within the bounds of the Saukville facility. Samples collected from off-site, upgradient glacial drift monitoring wells **W-19A** and **W-27** continue to contain elevated concentrations of CVOCs. With the exception of estimated low-level concentrations of methylene chloride and chloroform in numerous samples collected during the Fall 2014 groundwater sampling event, VOCs have not historically been detected in the downgradient or sidegradient perimeter monitoring points in the glacial drift aquifer.

6.1.2 SHALLOW DOLOMITE UNIT

With the exception of estimated low-level concentrations of methylene chloride and chloroform detected in groundwater samples collected from off-site downgradient shallow dolomite perimeter monitoring points, the downgradient monitoring points continue to be free of detectable concentrations of VOCs. The groundwater samples collected from shallow dolomite monitoring points **W-24A** and **W-52**, located along the south fence line of the Saukville facility, continued to contain elevated concentrations of several CVOCs, as well as benzene specifically detected in **W-52**. The concentrations of benzene and VC detected in the samples collected from **W-52** exceeded their respective ESs, while the concentration of VC detected in the sample collected from **W-24A** during the Fall 2014 sampling event exceeded its ES. While the presence of CVOCs in the groundwater on the Saukville facility can be traced back to an off-site source on the former Northern Signal property, the presence of benzene in the sample collected from perimeter groundwater monitoring well **W-52** could be an indication of an expansion of the contaminant mass to the south. Presently there is no hydraulic control along the southern boundary of the Saukville facility. Since the installation of W-52 in 2005, the concentration of benzene detected in the groundwater at this location has fluctuated between approximately 10 µg/L and approximately 20 µg/L (See page D-44 in **Appendix D**).

6.1.3 DEEP DOLOMITE UNIT

No VOCs were detected in the deep dolomite receptor (municipal) wells in 2014. Nor were VOCs detected in the deep dolomite pumping well W-30 or deep dolomite perimeter monitoring point PW-08.

The convergent flow observed around **W-30**, the relatively stable total VOC concentrations in the extracted groundwater, and the continued non-detectable concentrations of VOCs in the municipal

wells indicate that the migration of the impacted groundwater in the deep dolomite aquifer continues to be effectively controlled by on-site pumping. The lack of detectable VOCs in the sample collected from deep dolomite pumping well **W-30** indicate that while the pumping of **W-30** is effectively containing the contaminants in the glacial drift and shallow dolomite aquifers, the contaminants are not migrating downward into the deep dolomite aquifer.

It should be noted that benzene is not the most highly concentrated of the BETX compounds in the groundwater beneath the footprint of the Saukville facility. As discussed in previous sections, total xylenes are typically detected at the highest relative concentrations as compared to benzene, ethylbenzene and toluene. Historical documents indicate that the adjacent upgradient Saukville Feed Supply site was a former bulk petroleum fuel storage and distribution facility with numerous large aboveground storage tanks (ASTs) seen on historic aerial photographs. Investigations of the site have documented benzene impacts to the soil and groundwater beneath the Saukville Feed Supply site. However, the investigation of the Saukville Feed site did not include sufficient vertical delineation of the noted impacts to determine whether the impacts present were also responsible for the historical detections observed in the now abandoned **MW-2** and the on-site deep dolomite pumping well **W-30**.

6.1.4 Mass Removal Estimates

Utilizing annual pumping rates along with average total VOC concentration data, an estimate of total VOC mass removal has been prepared. The estimated total is based on individual total VOC mass removal trend plots for each extraction well. Since 1992, approximately 408 pounds of total VOCs are estimated to have been removed from the glacial (approximately 195 pounds), shallow dolomite (approximately 170 pounds) and deep dolomite (approximately 43 pounds) aquifers beneath the Saukville facility. In 2014, it is estimated nearly 13.3 pounds of VOCs were removed.

Removal rates in several of the extraction wells have become asymptotic with no additional appreciable VOC removal occurring. However, several extraction wells continue to show significant removal rates, such as: **RC-3** (approximately 5.90 pounds removed in 2014) and**W-21A** (approximately 5.26 pounds removed in 2014). In 2014, approximately 7.29 pounds of VOCs were removed from the glacial aquifer and 6.04 pounds of VOCs were removed from the shallow dolomite aquifer.

VOC removal trends are shown on the graphs included as **Appendix E.**

7.0 CONCLUSIONS

The purpose of the quarterly groundwater sampling program is to document the effectiveness of the remediation system. Per the recommendations included in the Corrective Measures Study (CMS) (Woodward-Clyde, 1996), the recommended corrective measure strategy involves the following groundwater hydraulic control elements:

- Continued operation of the Ranney collector system to dewater unconsolidated soil and maintain hydraulic control of the shallow groundwater system;
- Continued operation of the shallow dolomite wells to maintain hydraulic control of the shallow groundwater system and prevent contamination of the deep dolomite aquifer; and,
- Continued operation of the deep dolomite pumping well to maintain the effective site-wide hydraulic control and provide an inward gradient for capture and recovery of off-site contaminated groundwater.

The results of the quarterly groundwater sampling performed in 2014, as summarized in this annual report, indicate the existing extraction system operating at the Saukville facility continues to effectively control off-site migration of the groundwater impacts in the glacial drift aquifer while reducing the volume of contaminants present in the groundwater. The results from shallow dolomite perimeter monitoring point **W-52** continue to indicate elevated concentrations of CVOCs and benzene along the south fence line of the Saukville facility. While the elevated CVOC concentrations in **W-52** can be attributed to the upgradient source on the JT Roofing property, the elevated benzene concentration is most likely the result of the onsite plume emanating from AOC 2.

At the **W-51/W-52** well nest, groundwater elevations indicate a downward migration from the glacial aquifer to the shallow dolomite aquifer (vertical gradient of 0.472). The shallow dolomite aquifer is present approximately 20 ft bgs with approximately nine (9) to ten (10) feet of non-contaminated water present within the glacial drift aquifer above the shallow dolomite aquifer. The adjoining residences are supplied with potable water via the Village municipal distribution system. Therefore, the potential groundwater exposure pathway is not complete. In addition, due to the presence of the uncontaminated glacial drift aquifer above the shallow dolomite aquifer and the downward vertical gradient, the potential vapor intrusion threat from the contaminants in the shallow dolomite is not complete. We recommend continuing to monitor the concentrations of contaminants in **W-51** and **W-52** semi-annually as required in the modified GWMP. Should concentrations in **W-52** increase significantly, or should contaminants be detected in **W-51**, additional groundwater control may be required.

8.0 REFERENCES

ELM Consulting, LLC. Modified Groundwater Monitoring Plan – Cook Composites and Polymers Co. July 2005.

Endpoint Solutions Corp. (Endpoint) 2014. Report of Results – Winter 2014 Groundwater Sampling Event. March 10, 2014.

Hatcher Incorporated. Summary – Hydrologic Assessment Activities. January 11, 1985.

Hatcher Incorporated. Site Construction Documentation Report. February 15, 1988.

RMT, Inc. Closure Plan Modification. April 1992.

Wisconsin Administrative Code Chapter NR 140 – Groundwater Quality.

Wisconsin Department of Natural Resources. RCRA 3008(h) Corrective Action Order. September 3, 1987.

Wisconsin Department of Natural Resources. 2005 Proposed Modified Groundwater Monitoring Plan, Cook Composites and Polymers Co. – Approval Letter. July 2005.

Woodward-Clyde. Corrective Measures Study – On-Site Areas of Concern 1, 2 and 3. September 17, 1996.

TABLES

Table 1

2014 Summary of Groundwater Level Measurements (ft, msl)
Arkema Coating Resins
Saukville, Wisconsin

GEOLOGIC UNIT	WELL ID	TOC	Apr-14	Oct-14
Glacial	W-1A	768.55	763.33	760.01
Glacial	W-3B	770.32	741.87	738.39
Glacial	W-4A	767.55	758.93	757.67
Glacial	W-6A	773.27	NM	769.54
Glacial	W-8R	759.71	751.46	746.63
Glacial	W-14B	773.07	NM	767.19
Glacial	W-16A	768.82	761.99	754.05
Glacial	W-18A	772.07	NM	767.88
Glacial	W-19A	775.48	NM	765.96
Glacial	W-20	767.91	740.63	736.49
Glacial	W-27	775.70	770.28	770.18
Glacial	W-37	Well Abondoned 8/1996		
Glacial	W-41	773.73	NM	761.17
Glacial	W-42	774.40	NM	761.28
Glacial	W-43	768.44	NM	764.54
Glacial	W-44	769.30	NM	758.45
Glacial	W-45	767.97	NM	754.57
Glacial	W-46	766.17	NM	760.47
Glacial	W-47	771.22	NM	761.16
Glacial	W-48	773.37	NM	762.34
Glacial	W-49	765.83	756.93	755.23
Glacial	W-51	773.48	762.53	757.68
Glacial	W-53	773.12	NM	759.53
Shallow Dolomite	W-3A	769.31	741.47	738.07
Shallow Dolomite	W-7	759.32	749.94	744.92
Shallow Dolomite	W-21A*	769.22		
Shallow Dolomite	W-22	772.29	760.49	757.58
Shallow Dolomite	W-23	768.90	745.88	742.92
Shallow Dolomite	W-24A*	772.45		
Shallow Dolomite	W-25	Well Abondoned 7/1997		
Shallow Dolomite	W-28*	772.41		
Shallow Dolomite	W-29*	765.45		
Shallow Dolomite	W-38	768.75	NM	751.32
Shallow Dolomite	W-39	782.19	NM	NM
Shallow Dolomite	W-40	768.36	762.43	750.06
Shallow Dolomite	W-50	765.74	752.18	747.53
Shallow Dolomite	W-52	773.01	750.99	748.29
Deep Dolomite	MW-1	766	663	656
Deep Dolomite	MW-2	Well Abandoned 12/2004		
Deep Dolomite	MW-3	756	NM	529
Deep Dolomite	MW-4	771	658	658
Deep Dolomite	PW-08	775.66	732.34	726.36
Deep Dolomite	W-30*	771.64	533.44	544.79

* = Extraction Well
TOC = top of casing
Access to measure water levels in W-21A, W-24A, W-28 and W-29 removed to provide sampling access from ground surface.

TABLE 2
2014 SUMMARY OF WELL RUNNING TIMES AND VOLUME REMOVED
ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Hydrogeologic Unit	Well ID	Monthly Running Times (hours)												Annual Total (hours)	Pumping Rate (gpm)	Volume Removed (gal)	Comments
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.				
Glacial Drift	W-31	0.0	0.0	0.0	0.0	0.0	3.1	1.6	0.0	0.4	0.1	0.1	0.1	5.4	0.07	23	Continued pumping assists in controlling off-site migration of
	W-32	0.0	0.0	0.0	0.0	0.0	630.9	837.9	674.6	616.7	839.1	674.1	630.1	4,903.4	0.07	20,594	Continued pumping assists in controlling off-site migration of
	W-33	0.0	0.0	0.0	0.0	0.0	473.3	705.3	497.8	410.4	632.1	0.0	0.0	2,718.9	0.07	11,419	Continued pumping assists in controlling off-site migration of
	W-34	14.3	11.1	40.3	97.9	50.1	44.5	34.0	7.1	5.7	12.7	9.8	15.8	343.3	0.07	1,442	Continued pumping assists in controlling off-site migration of
	W-35	0.0	0.0	0.0	0.0	0.0	6.5	1.7	0.7	0.9	1.9	0.3	0.2	12.2	0.07	51	Dewatering of glacial drift due to pumping at W-30 has affected
	RC-1	26.3	17.9	58.3	488.3	414.0	294.0	825.6	389.0	0.9	0.0	0.0	0.0	2,514.3	3	452,574	Continued pumping assists in controlling off-site migration of
	RC-2	846.1	666.3	670.4	841.9	671.0	644.9	844.4	674.6	651.8	809.1	674.1	840.0	8,834.6	3	1,590,228	Continued pumping assists in controlling off-site migration of
	RC-3	17.2	0.0	59.8	623.2	671.0	673.4	837.7	674.2	507.9	839.0	437.6	840.0	6,181.0	3	1,112,580	Continued pumping assists in controlling off-site migration of
																3,188,911	**Total Removed from Glacial Drift**
Shallow	W-21A	842.1	665.1	537.9	820.1	671.0	673.4	837.9	673.6	669.1	688.7	674.0	840.0	8,592.9	2	1,031,148	Pumping is contributing to the creation of a large dewatered
	W-24A	0.0	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.0	5.8	356.2	118.4	485.5	40	1,165,200	Pumping is contributing to the creation of a large dewatered
	W-28	0.0	0.0	0.0	0.0	0.0	365.2	701.2	0.0	0.0	0.0	0.0	0.0	1,066.4	2	127,968	Pumping is contributing to the creation of a large dewatered
	W-29	846.1	666.1	670.4	841.1	671.0	673.4	837.9	461.5	27.4	32.5	30.7	39.5	5,797.6	12	4,174,272	Pumping is contributing to the creation of a large dewatered
																6,498,588	**Total Removed from Shallow Dolomite**
Deep	W-30													8,760	316.89	**166,557,384**	**Total Removed from Deep Dolomite**
																176,244,883	**Total Removed from All Aquifers**

Table 3

Modified Groundwater Monitoring Plan Summary
Arkema Coating Resins
Saukville, Wisconsin

Monitoring Objective	Sampling Point	Sampling Event				Parameters	Duplicates		Sample Method
		January	April	July	October		Blind	MS/MSD	
Receptor Monitoring Points	MW-1	X	X	X	X	8260			Tap
	MW-3		X		X	8260		X	Tap
	MW-4		X		X	8260	DUP1		Tap
	RC-1		X		X	8021			Manhole
	RC-2		X		X	8021			Manhole
	RC-3		X		X	8021			Manhole
	POTW-I		X		X	8260			Trough
	POTW-E		X		X	8260			Aeration
	POTW-S		X		X	8260			Sink
Perimeter Monitoring Points	W-01A		X		X	8260			Bailer
	W-03A		X		X	8260	DUP3		Pump
	W-03B		X		X	8260			Pump
	W-04A		X		X	8260			Bailer
	W-07		X		X	8260			Bailer
	W-08R		X		X	8260			Bailer
	W-16A		X		X	8260			Bailer
	W-20		X		X	8260			Pump
	W-22		X		X	8260			Pump
	W-23		X		X	8260	DUP2		Pump
	W-27		X		X	8260			Pump
	W-40		X		X	8260			Pump
	W-49		X		X	8260			Bailer
	W-50		X		X	8260			Bailer
	W-51		X		X	8260			Bailer
	W-52		X		X	8260			Bailer
	PW-08		X		X	8260			Pump
Remediation Progress Point	W-06A				X	Appendix IX 8260, Appendix IX 8270, 7060, 6010			Bailer
	W-19A				X	8260	X		Bailer
	W-21A				X	Appendix IX 8260, Appendix IX 8270, 7060, 6010			Tap
	W-24A				X	Appendix IX 8260, Appendix IX 8270, 7060, 6010			Tap
	W-28				X	Appendix IX 8260, Appendix IX 8270, 7060, 6010			Tap
	W-29				X	Appendix IX 8260, Appendix IX 8270, 7060, 6010			Tap
	W-30				X	Appendix IX 8260, Appendix IX 8270, 7060, 6010	X		Tap
	W-38				X	8260			Pump
	W-41				X	8260		X	Bailer
	W-42				X	8260			Bailer
	W-43				X	Appendix IX 8260, Appendix IX 8270, 7060, 6010			Bailer
	W-47				X	Appendix IX 8260, Appendix IX 8270, 7060, 6010, 8081	X (8081)		Peristaltic

MS/MSD: Matrix Spike/Matrix Spike Duplicate
WPDES: Wisconsin Pollution Discharge Elimination System

TABLE 4

SUMMARY OF ANALYTES AND METHODS

Volatile Organic Compounds by Method 8260		
Chloroethane	1,1,1-Trichloroethane	2-Hexanone
Chloromethane	Carbon Tetrachloride	4-Methyl-2-Pentanone
Bromomethane	Vinyl Acetate	Tetrachloroethene
Vinyl Chloride	Bromodichloromethane	Toluene[1]
Methylene Chloride	1,1,2,2-Tetrachloroethane	Chlrorbenzene[1]
Acetone	1,2-Dichloropropane	Ethylbenzene[1]
Carbon Disulfide	trans-1,2-Dichloropropene	Styrene
1,1-Dichloroethene	Trichloroethene	Xylenes (total)[1]
1,1-Dichloroethane	Dibromochloromethane	1,4-Dichlorobenzene[1]
1,2-Dichloroethene (total)	1,1,2-Trichloroethane	1,3-Dichlorobenzene[1]
Chloroform	Benzene	1,2-Dichlorobenzene[1]
1,2-Dichlroethane	cis-1,3-Dichloropropene	
2-Butanone	Bromoform	

Volatile Aromatic Organics by Method 8021[1]
Benzene
Toluene
Ethylbenzene
Chlorobenzene
Xylenes (total)
1,4-Dichlorobenzene
1,3-Dichlorobenzene
1,2-Dichlorobenzene

Semivolatile Organic Compounds by Method 8270[2]
1,4-Dioxane
2,4-Dimethylphenol
2-Methylnaphthalene
2-Methylphenol
4-Methylphenol
Acetophenone
bis(2-ethylhexyl)phthalate
Naphthalene
Phenanthrene
Phenol

Polychlorinated Biphenyls (PCBs) by Method 8080[3]
Arochlor 1016
Arochlor 1221
Arochlor 1232
Arochlor 1242
Arochlor 1248
Arochlor 1254
Arochlor 1260

Metals by Methods 7060, 6010[2]
Barium
Arsenic

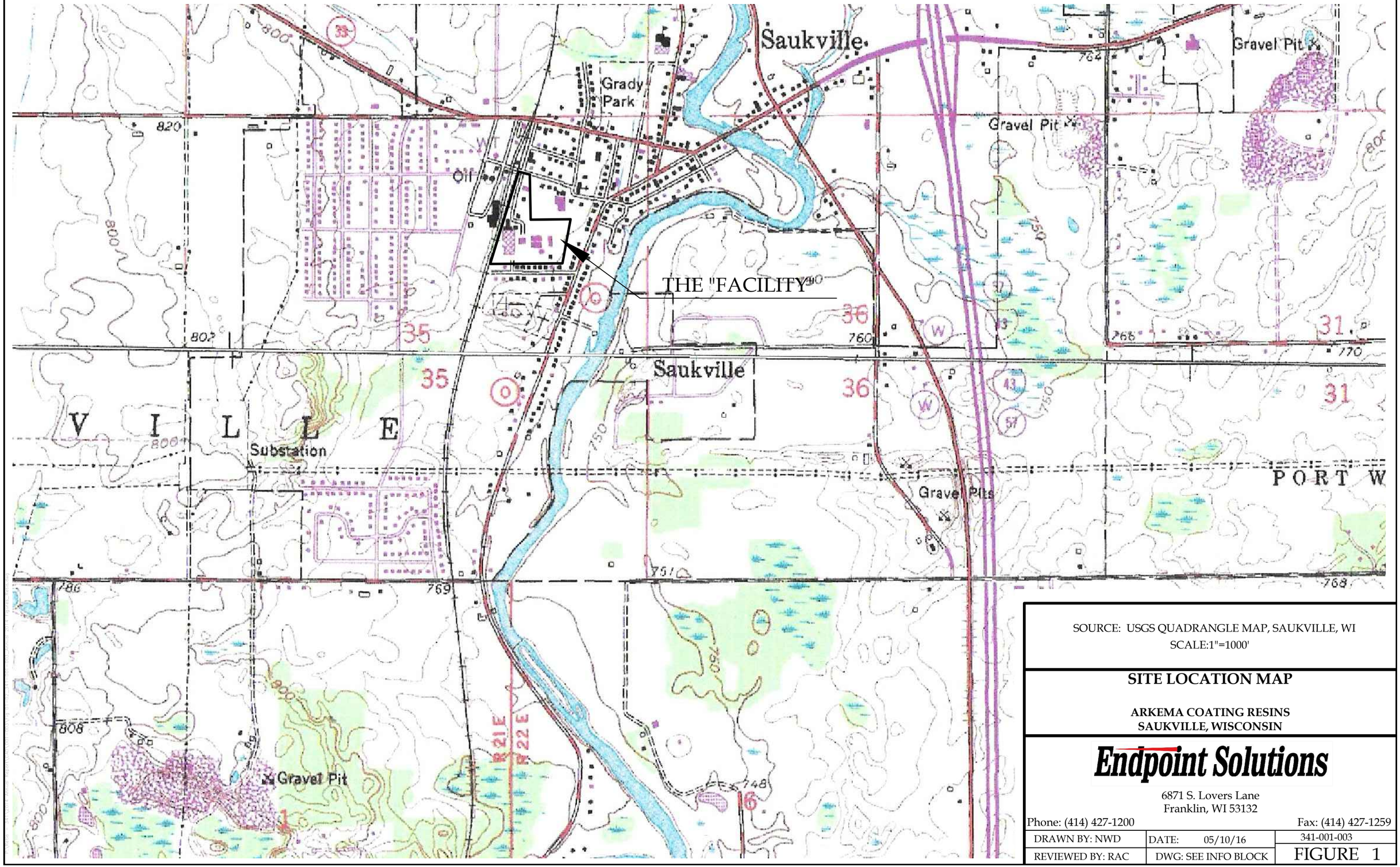
NOTES

[1] Volatile aromatic compounds.

[2] Analyzed annually at wells W-06A, W-43, W-47, W-21A, W-24A, W-28, W-29, and W-30.

[3] Only well W-47 is analyzed for PCBs.

FIGURES



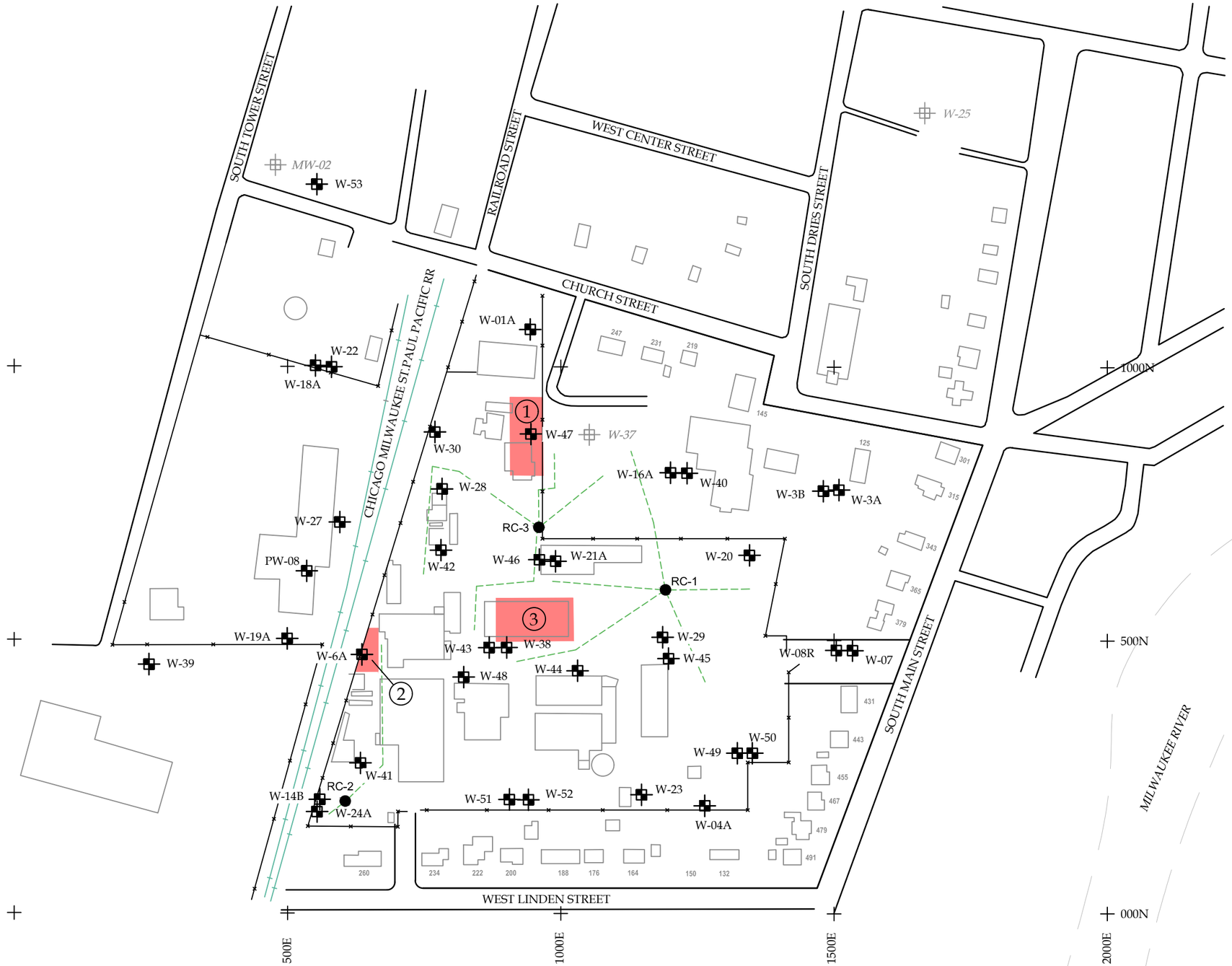
SOURCE: USGS QUADRANGLE MAP, SAUKVILLE, WI
SCALE:1"=1000'

SITE LOCATION MAP

ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

DRAWN BY: NWD	DATE: 05/10/16	341-001-003
REVIEWED BY: RAC	DWG: SEE INFO BLOCK	FIGURE 1



LEGEND

- BUILDING
- ROAD
- FENCE
- RAILROAD
- W-18A — MONITORING WELL LOCATION AND NUMBER
- W-25 — ABANDONED WELL LOCATION AND NUMBER
- RANNEY COLLECTOR
- 1 — AREA OF CONCERN

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

0 200' 400' 600'

EXISTING SITE LAYOUT

ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

DRAWN BY: NWD	DATE: 05/10/16	341-001-003
REVIEWED BY: RAC	DWG: SEE INFO BLOCK	FIGURE 2

LEGEND

W-18A	MONITORING WELL LOCATION AND NUMBER
W-18A	ABANDONED WELL LOCATION AND NUMBER
	GROUNDWATER FLOW DIRECTION
NM	NOT MEASURED
	CONTOUR INTERVAL = 5 FEET
	RANNEY COLLECTOR
1	AREA OF CONCERN

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

WATER TABLE MAP
GLACIAL DRIFT AQUIFER - FALL 2014

ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

DRAWN BY: NWD	DATE: 06/20/16	341-001-003
REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 3

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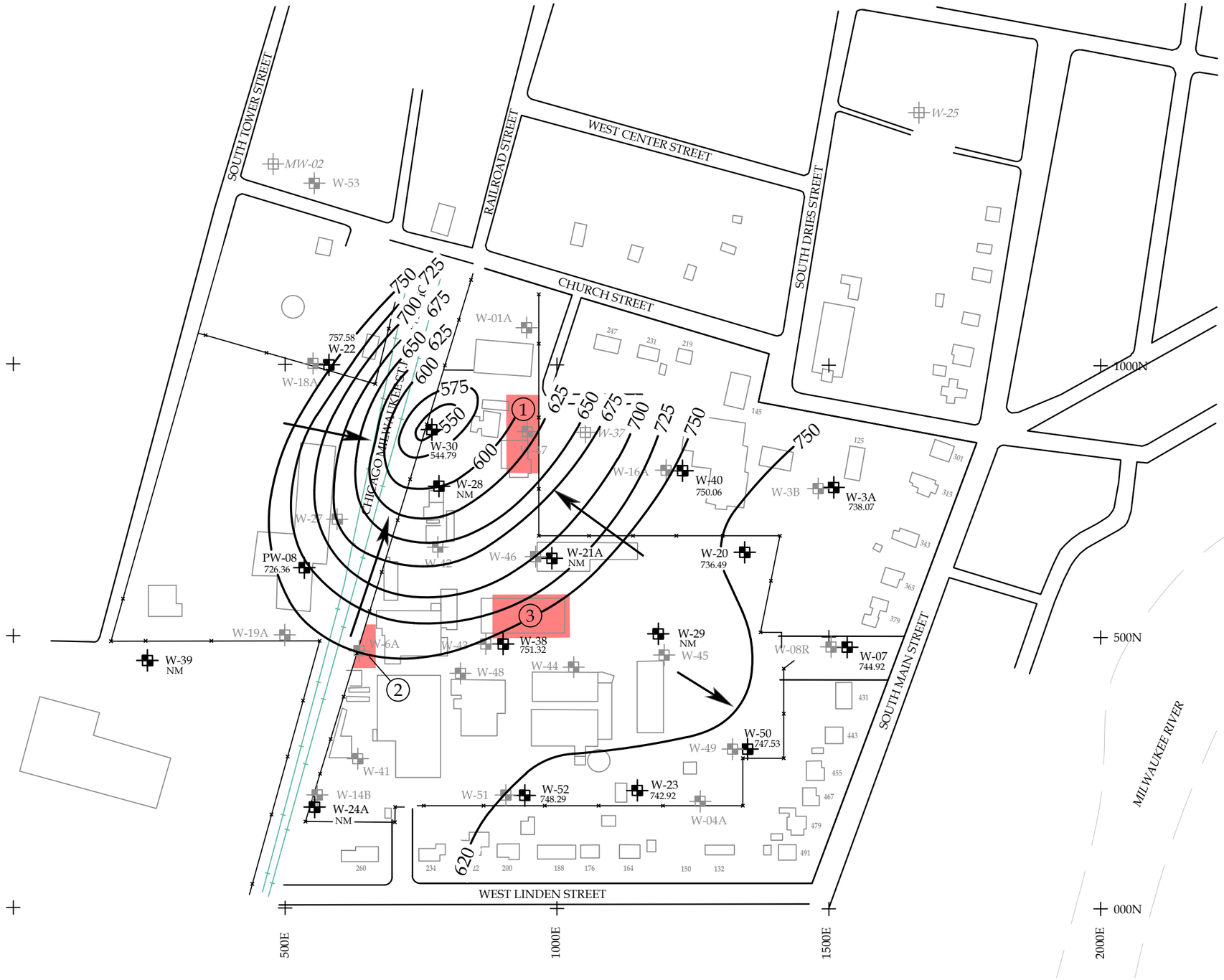

LEGEND

W-18A	MONITORING WELL LOCATION AND NUMBER
W-18A	ABANDONED WELL LOCATION AND NUMBER
	GROUNDWATER FLOW DIRECTION
NM	NOT MEASURED
	CONTOUR INTERVAL =25 FEET
1	AREA OF CONCERN

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

POTENTIOMETRIC SURFACE MAP
SHALLOW AND DEEP DOLOMITE AQUIFERS - FALL 2014
ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

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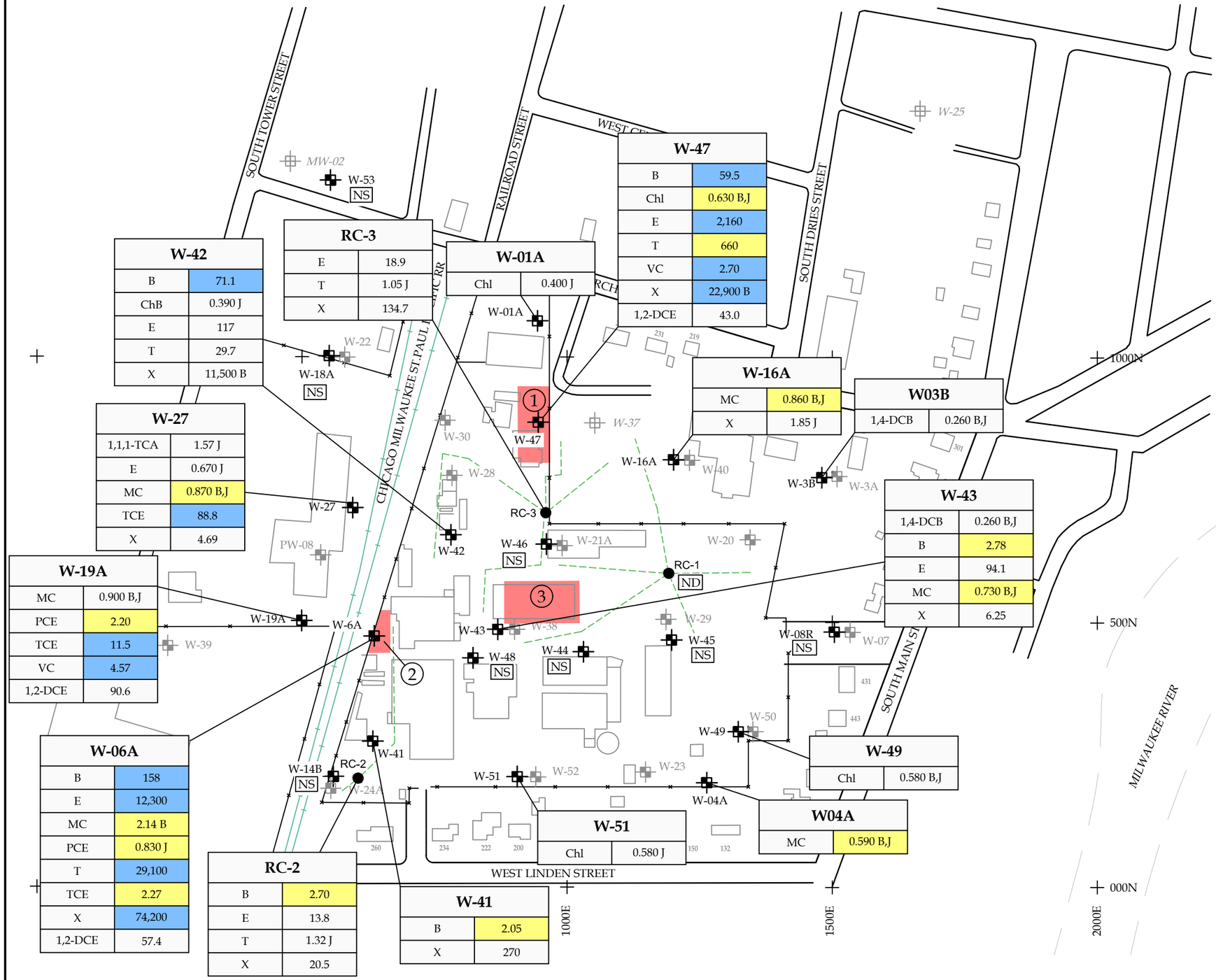
REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 4



LEGEND

- W-18A — MONITORING WELL LOCATION AND NUMBER
- *W-18A* — ABANDONED WELL LOCATION AND NUMBER
- RANNEY COLLECTOR
- ① AREA OF CONCERN

B	Benzene
Chb	Chlorobenzene
Chl	Chloroform
1,4-DCB	1,4-Dichlorobenzene
1,2-DCE	1,2-Dichloroethene
E	Ethylbenzene
MC	Methylene Chloride
PCE	Tetrachloroethene
T	Toluene
1,1,1-TCA	1,1,1-Trichloroethane
TCE	Trichloroethene
VC	Vinyl Chloride
X	Xylenes, Total

ND	Not Detected
NS	Not Sampled
J	Estimated value between the limit of detection (LOD) and the limit of quantification (LOQ)
B	Analyte was present in method blank
	PAL Exceedance
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

VOC DETECTIONS (ug/L)
GLACIAL DRIFT AQUIFER - FALL 2014
ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

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REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 5

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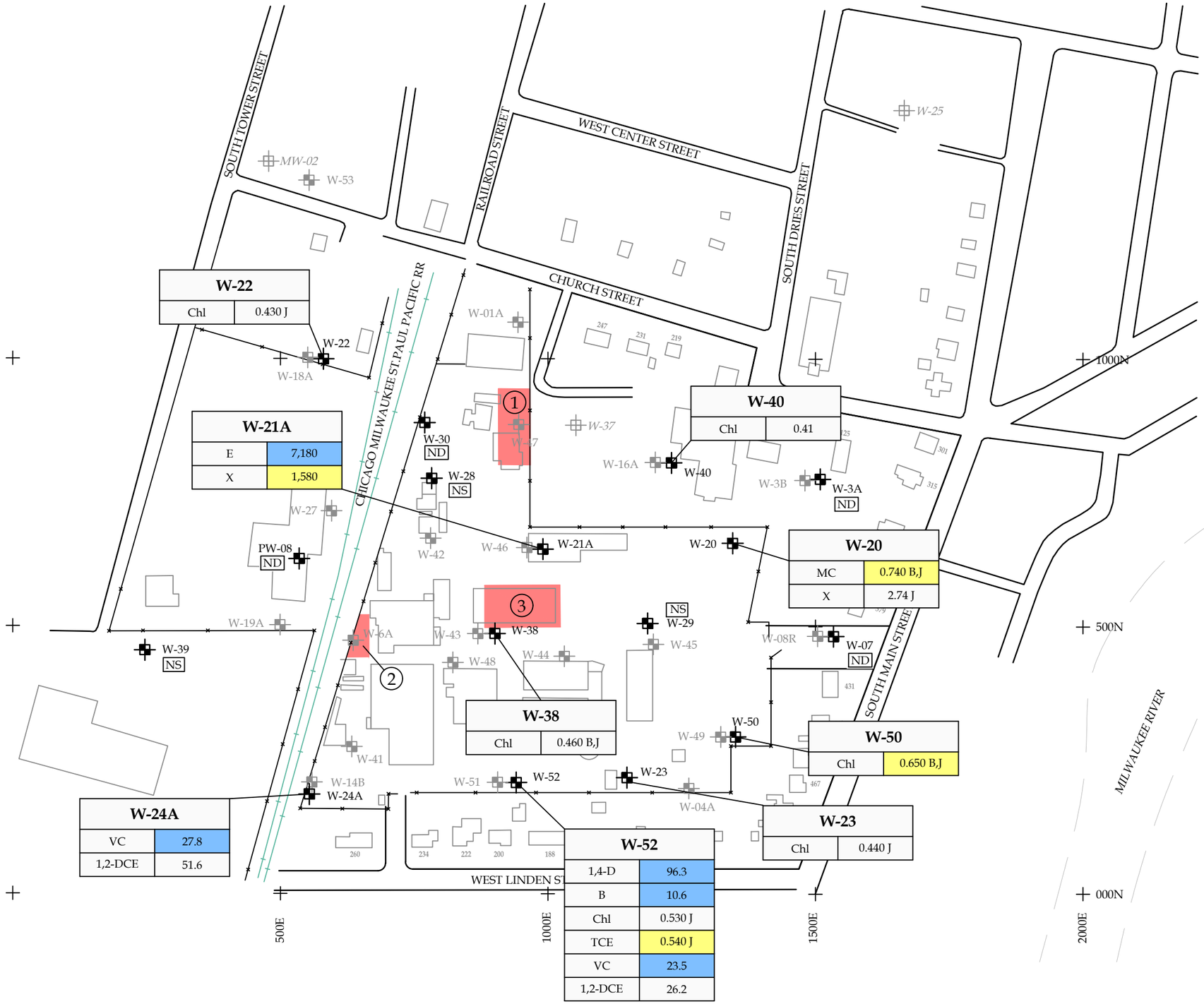


LEGEND

W-18A — MONITORING WELL LOCATION AND NUMBER

W-18A — ABANDONED WELL LOCATION AND NUMBER

① — AREA OF CONCERN

B	Benzene
Chb	Chlorobenzene
Chl	Chloroform
1,4-DCB	1,4-Dichlorobenzene
1,2-DCE	1,2-Dichloroethene
1,4-D	1,4-Dioxane
E	Ethylbenzene
MC	Methylene Chloride
PCE	Tetrachloroethene
T	Toluene
1,1,1-TCA	1,1,1-Trichloroethane
TCE	Trichloroethene
VC	Vinyl Chloride
X	Xylenes, Total

ND	Not Detected
NS	Not Sampled
J	Estimated value between the limit of detection (LOD) and the limit of quantification (LOQ)
B	Analyte was present in method blank
	PAL Exceedance
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

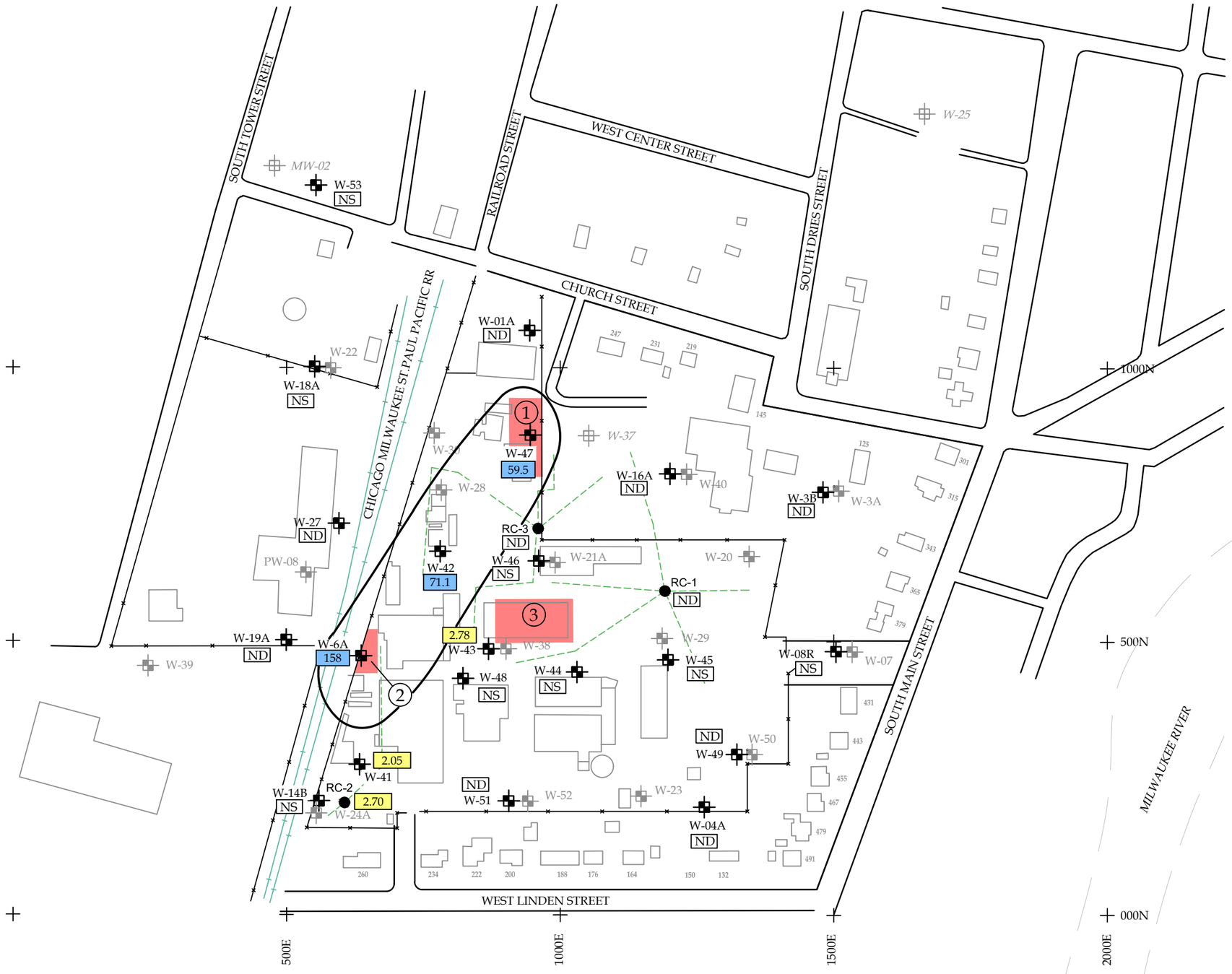
0 200' 400' 600'

VOC DETECTIONS (ug/L) SHALLOW AND DEEP DOLOMITE AQUIFERS - FALL 2014

ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

DRAWN BY: NWD	DATE: 07/21/16	341-001-003
REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 6



LEGEND

W-18A	MONITORING WELL LOCATION AND NUMBER
W-18A	ABANDONED WELL LOCATION AND NUMBER
	APPROXIMATE EXTENT OF BENZENE IN EXCESS OF ES (5 ug/L)
	RANNEY COLLECTOR
①	AREA OF CONCERN

ND	Not Detected
NS	Not Sampled
J	Estimated Value
	PAL Exceedance
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

BENZENE IN GROUNDWATER (ug/L)
GLACIAL DRIFT AQUIFER - FALL 2014
ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
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Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

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REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 7

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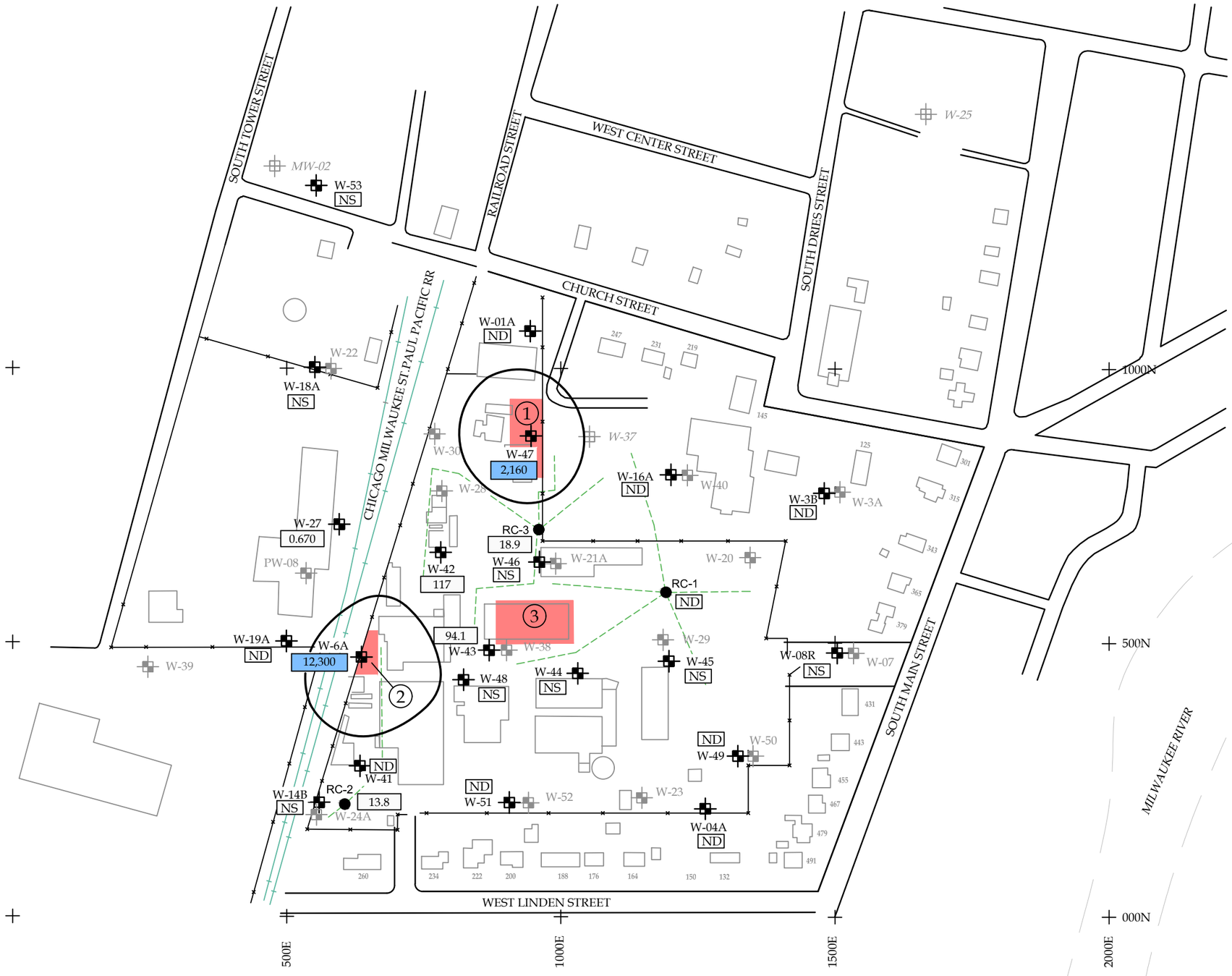

LEGEND

W-18A	MONITORING WELL LOCATION AND NUMBER
W-18A	ABANDONED WELL LOCATION AND NUMBER
	APPROXIMATE EXTENT OF ETHYLBENZENE IN EXCESS OF PAL (140 ug/L)
	RANNEY COLLECTOR
①	AREA OF CONCERN

ND	Not Detected
NS	Not Sampled
	PAL Exceedance
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

ETHYLBENZENE IN GROUNDWATER (ug/L)
GLACIAL DRIFT AQUIFER - FALL 2014
ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

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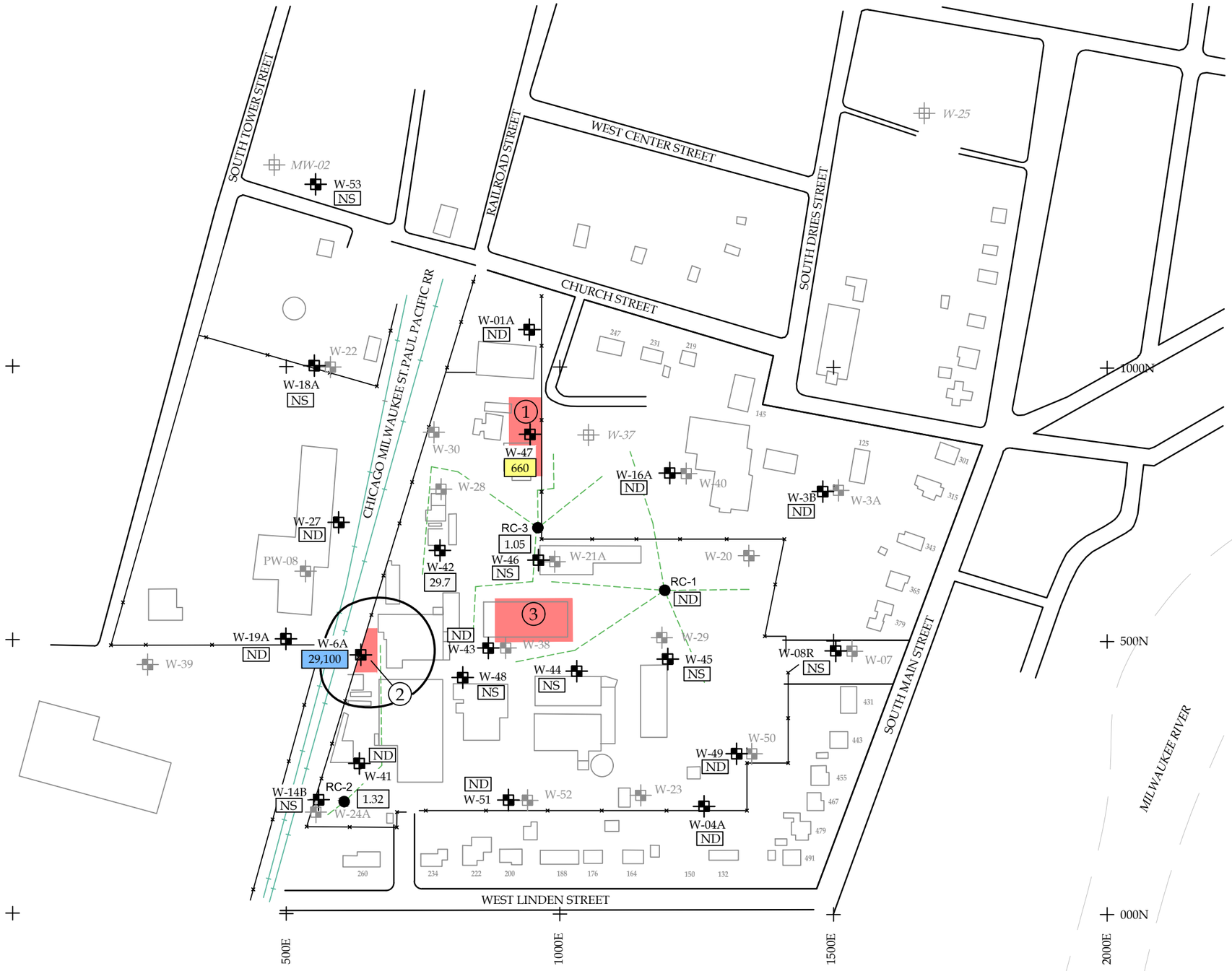
REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 8



LEGEND

- W-18A — MONITORING WELL LOCATION AND NUMBER
- *W-18A* — ABANDONED WELL LOCATION AND NUMBER
- APPROXIMATE EXTENT OF TOLUENE IN EXCESS OF ES (800 ug/L)
- RANNEY COLLECTOR
- ① — AREA OF CONCERN

ND	Not Detected
NS	Not Sampled
	PAL Exceedance
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

TOLUENE IN GROUNDWATER (ug/L)
GLACIAL DRIFT AQUIFER - FALL 2014
ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

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Franklin, WI 53132
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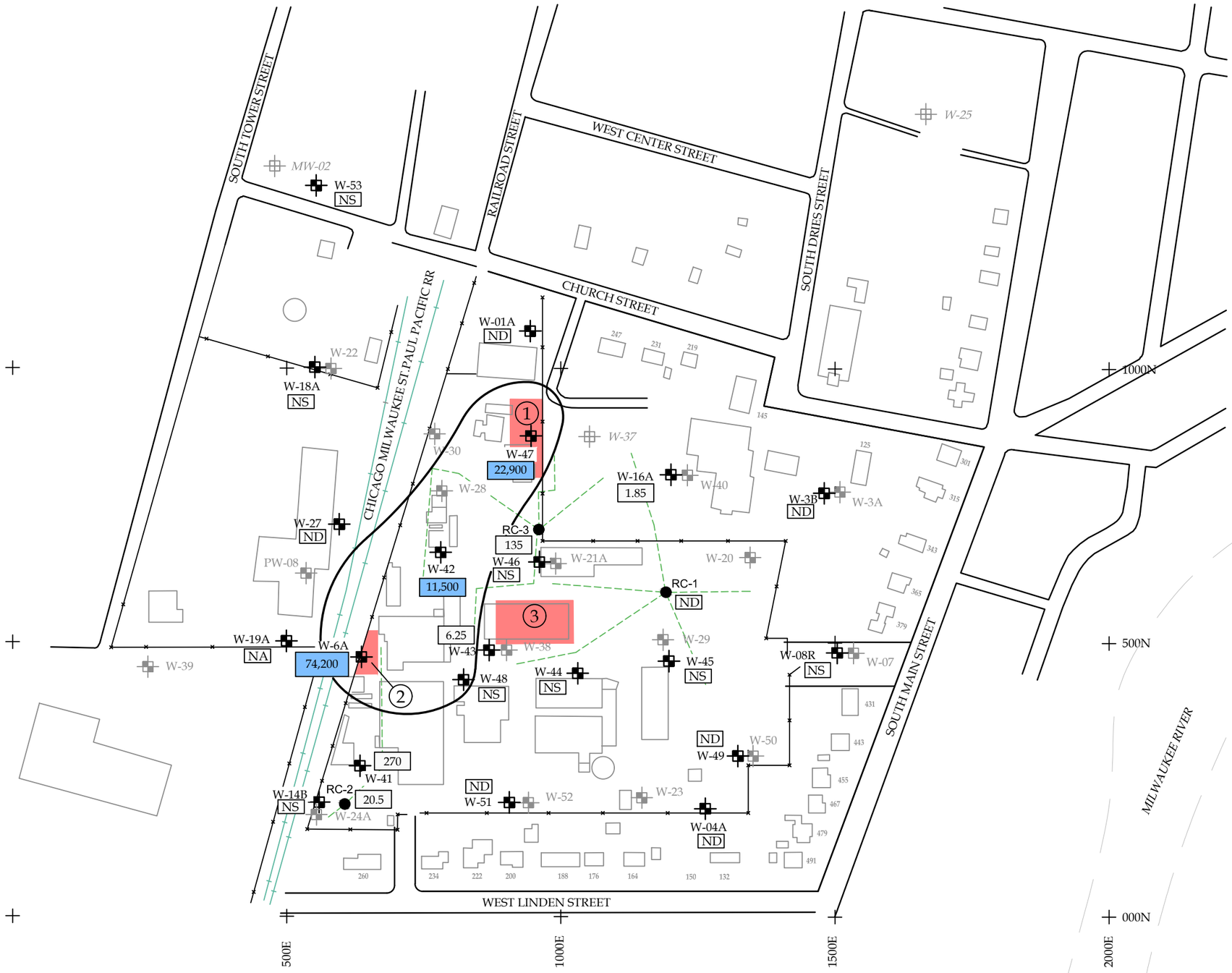
REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 9



LEGEND

W-18A	MONITORING WELL LOCATION AND NUMBER
W-18A	ABANDONED WELL LOCATION AND NUMBER
	APPROXIMATE EXTENT OF TOTAL XYLENES IN EXCESS OF ES (2,000 ug/L)
	RANNEY COLLECTOR
①	AREA OF CONCERN

NA	Not Analyzed
ND	Not Detected
NS	Not Sampled
J	Estimated Value
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

TOTAL XYLENES IN GROUNDWATER (ug/L)
GLACIAL DRIFT AQUIFER - FALL 2014
ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

DRAWN BY: NWD	DATE: 05/10/16	341-001-003
REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 10

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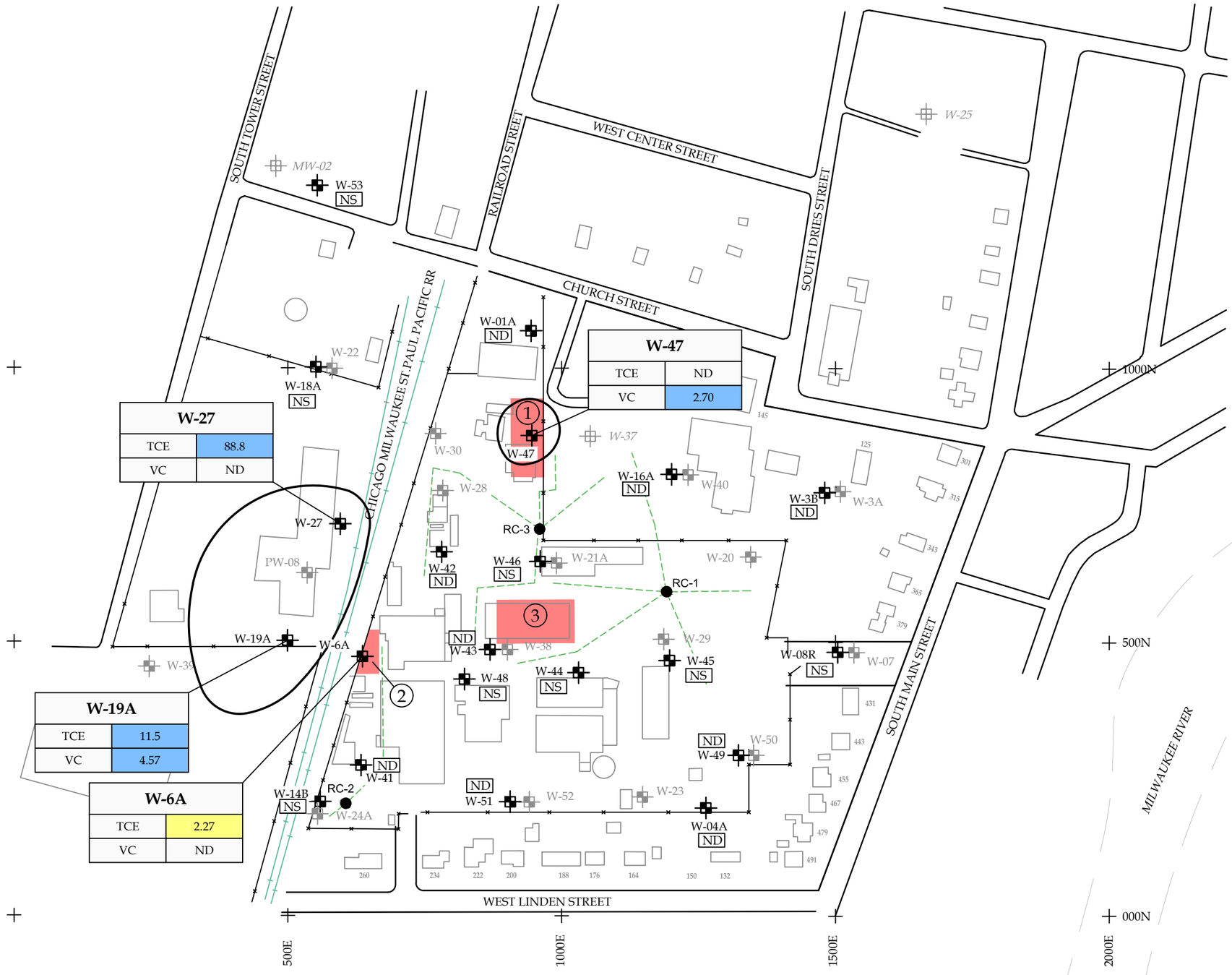

LEGEND

- W-18A — MONITORING WELL LOCATION AND NUMBER
- *W-18A* — ABANDONED WELL LOCATION AND NUMBER
- APPROXIMATE EXTENT OF GROUNDWATER CONTAINING TCE & VC
- RANNEY COLLECTOR
- ① — AREA OF CONCERN

TCE	Trichloroethene
VC	Vinyl Chloride

NA	Not Analyzed
ND	Not Detected
NS	Not Sampled
	PAL Exceedance
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

TCE AND VC IN GROUNDWATER (ug/L) GLACIAL DRIFT AQUIFER - FALL 2014

ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

DRAWN BY: NWD	DATE: 07/21/16	341-001-003
REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 11

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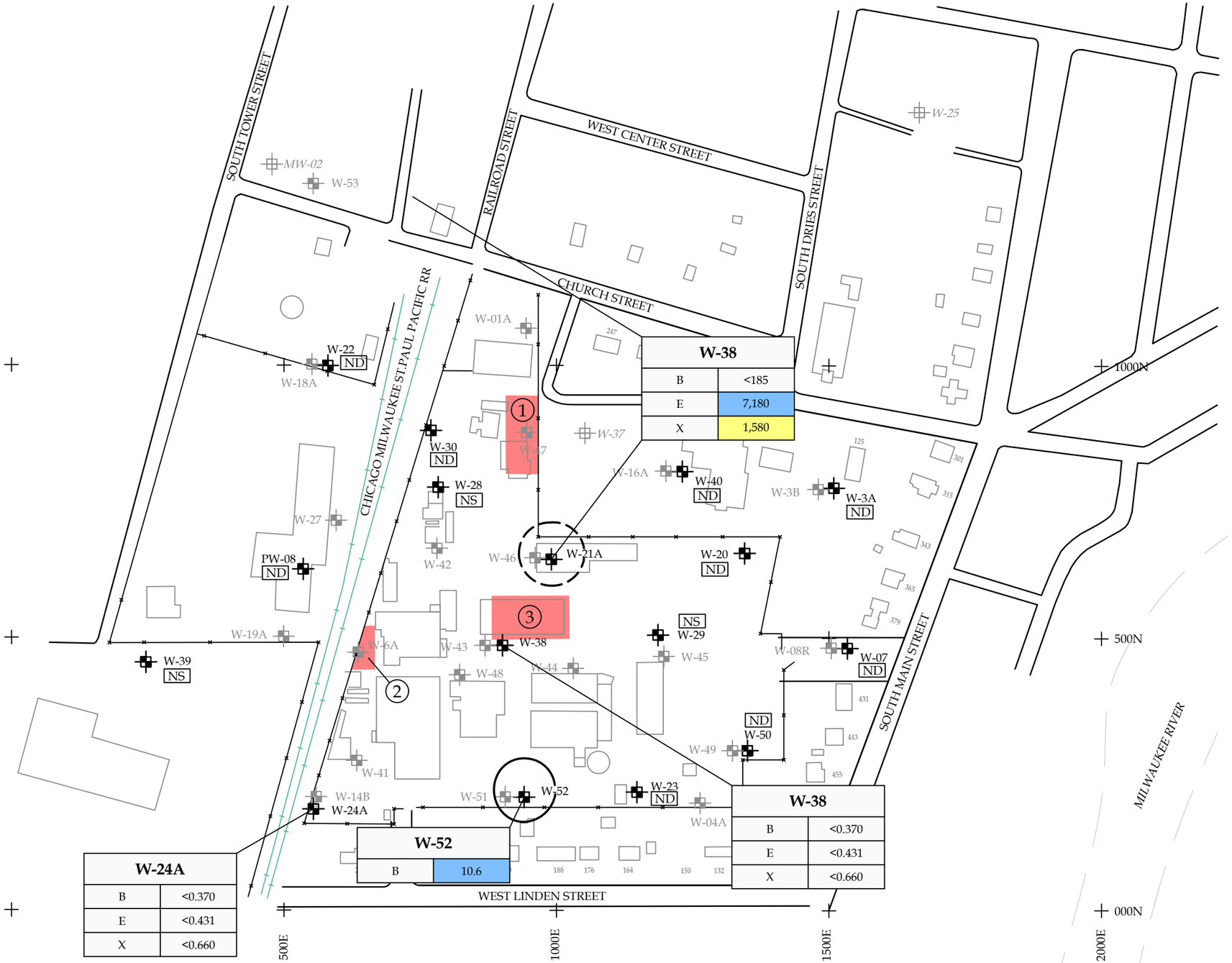


LEGEND

- W-18A — MONITORING WELL LOCATION AND NUMBER
- *W-18A* — ABANDONED WELL LOCATION AND NUMBER
- APPROXIMATE EXTENT OF BENZENE CONCENTRATIONS GREATER THAN ES
- APPROXIMATE EXTENT OF ETHYLBENZENE CONCENTRATIONS GREATER THAN ES
- ① — AREA OF CONCERN

B	Benzene
E	Ethylbenzene
X	Xylenes, Total

ND	Not Detected
NS	Not Sampled
	PAL Exceedance
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

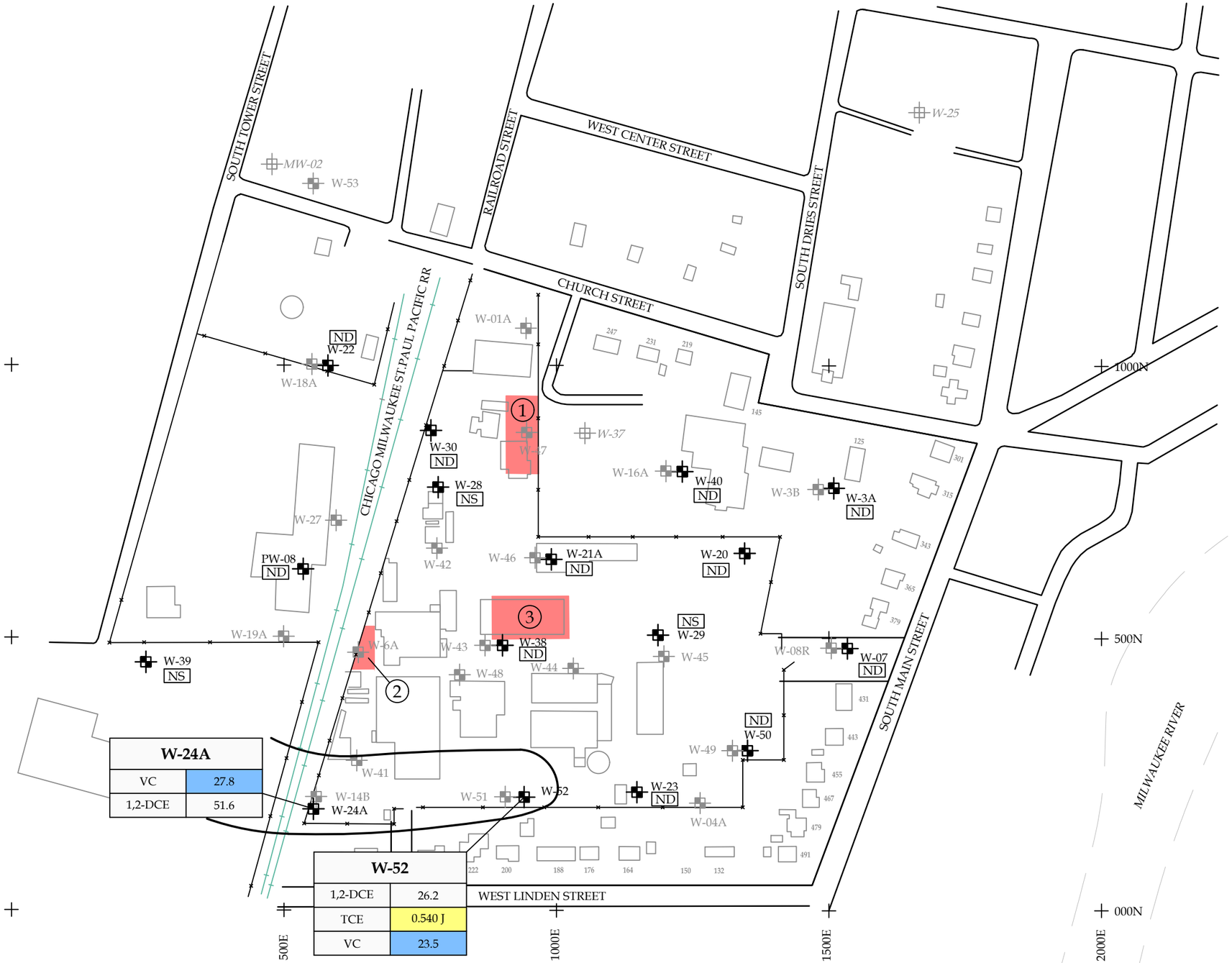
0 200' 400' 600'

BENZENE, ETHYLBENZENE & TOTAL XYLENES IN GROUNDWATER (ug/L) SHALLOW DOLOMITE AQUIFER - FALL 2014

ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

DRAWN BY: NWD	DATE: 07/29/16	341-001-003
REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 12



W-24A	
VC	27.8
1,2-DCE	51.6

W-52	
1,2-DCE	26.2
TCE	0.540 J
VC	23.5

LEGEND

- W-18A — MONITORING WELL LOCATION AND NUMBER
- *W-18A* — ABANDONED WELL LOCATION AND NUMBER
- APPROXIMATE EXTENT OF CVOCs IN EXCESS OF PALs AND ESs
- (1) — AREA OF CONCERN

1,2-DCE	1,2-Dichloroethene
TCE	Trichloroethene
VC	Vinyl Chloride

ND	Not Detected
NS	Not Sampled
J	Estimated Value
	PAL Exceedance
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

CVOCs IN GROUNDWATER (ug/L)
SHALLOW DOLOMITE AQUIFER - FALL 2014
ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

DRAWN BY: NWD	DATE: 07/21/16	341-001-003
REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 13

LEGEND

- W-18A — MONITORING WELL LOCATION AND NUMBER
- *W-18A* — ABANDONED WELL LOCATION AND NUMBER
- RANNEY COLLECTOR
- (1) — AREA OF CONCERN

A	Arsenic
B	Barium
ND	Not Detected
NS	Not Sampled
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

METALS IN GROUNDWATER (ug/L) COMBINED GLACIAL DRIFT & SHALLOW & DEEP DOLOMITE AQUIFERS -FALL 2014
ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

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REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 14

W-30	
2,4-DMP	<0.562
2-M	<0.116
2-MP	<2.69
3&4-MP	<1.41
ACE	<0.879
BIS	4.73 J
N	0.128 J
PH	<0.552

W-47	
2,4-DMP	95.1
2-M	1.54 J
2-MP	3.15 J
3&4-MP	7.15 J
ACE	8.99
BIS	7.69
N	5.71
PH	0.852 J

W-21A	
2,4-DMP	10.0
2-M	0.296 J
2-MP	<2.72
3&4-MP	<1.42
ACE	13.6
BIS	5.17 J
N	65.9
PH	1.25 J

W-6A	
2,4-DMP	87.9
2-M	0.121
2-MP	36.0
3&4-MP	53.5
ACE	41.1
BIS	6.15
N	4.94
PH	14.0

W-24A	
2,4-DMP	<0.560
2-M	<0.116
2-MP	<2.68
3&4-MP	<1.40
ACE	<0.876
BIS	4.88 J
N	<0.107
PH	<0.550

W-43	
2,4-DMP	<0.560
2-M	<0.116
2-MP	<2.68
3&4-MP	<1.40
ACE	<0.876
BIS	5.65
N	<0.107
PH	<0.550

LEGEND

- W-18A — MONITORING WELL LOCATION AND NUMBER
- *W-18A* — ABANDONED WELL LOCATION AND NUMBER
- RANNEY COLLECTOR
- ① — AREA OF CONCERN

2,4-DMP	2,4-Dimethylphenol
2-M	2-Methylnaphthalene
2-MP	2-Methylphenol
3&4-MP	3&4-Methylphenol
ACE	Acetophenone
BIS	bis(2-ethylhexyl)phthalate
N	Naphthalene
PH	Phenol

ND	Not Analyzed
NS	Not Sampled
J	Estimated Value
	PAL Exceedance
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

SVOCs IN GROUNDWATER (ug/L) COMBINED GLACIAL DRIFT AND DOLOMITE AQUIFERS - FALL 2014

ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

DRAWN BY: NWD	DATE: 07/21/16	341-001-003
REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 15

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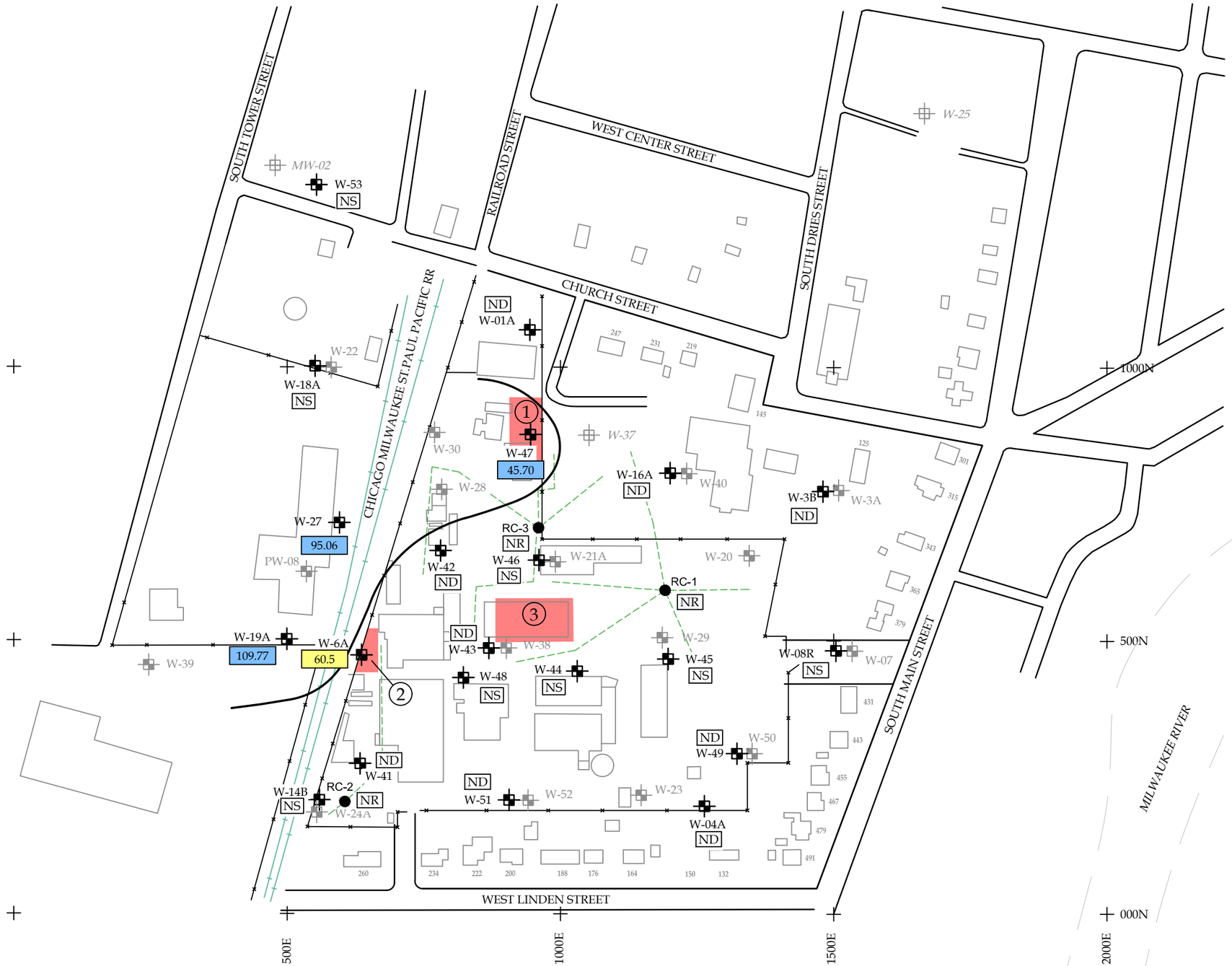


LEGEND

- W-18A — MONITORING WELL LOCATION AND NUMBER
- *W-18A* — ABANDONED WELL LOCATION AND NUMBER
- APPROXIMATE EXTENT OF CVOCs IN GROUNDWATER
- RANNEY COLLECTOR
- (1) AREA OF CONCERN

ND	Not Detected
NS	Not Sampled
NR	Not Reported
	PAL Exceedance
	ES Exceedance

NOTES

1. BASE MAP WAS DEVELOPED FROM DRAWINGS PROVIDED BY RMT, INC.
2. W-37 WAS ABANDONED AUGUST 2, 1996.
3. W-25 WAS ABANDONED JULY 29, 1997.
4. MW-02 WAS ABANDONED NOVEMBER 2004.

SCALE:1"=200'

0 200' 400' 600'

TOTAL CVOCs IN GROUNDWATER (ug/L)
GLACIAL DRIFT AQUIFER - FALL 2014

ARKEMA COATING RESINS
SAUKVILLE, WISCONSIN

Endpoint Solutions
6871 S. Lovers Lane
Franklin, WI 53132
Phone: (414) 427-1200 Fax: (414) 427-1259

DRAWN BY: NWD	DATE: 07/21/16	341-001-003
REVIEWED BY: RAC	DWG: ANNUAL 2014 FIGURES	FIGURE 16

APPENDIX A

QUARTERLY REPORT SUMMARY TABLES

January 2014

Municipal Water Supply Wells - VOC Results
Arkema Coating Resins
Saukville, Wisconsin

			Sample ID	MW-1-14-1	DUP1-14-1	Trip Blank
			Collection Date	1/28/2014	1/28/2014	1/28/2014
			Laboratory ID	5026456A	5026456B	5026456C
			Duplicate Parent		MW-1-14-1	
			Monitoring Objective	Receptor		
			Hydrogeologic Unit	Deep Dolomite		
			Dilution	1	1	1
Parameter	PAL	ES	Units			
Benzene	0.5	5	µg/L	<0.24	<0.24	<0.24
Bromobenzene	--	--	µg/L	<0.32	<0.32	<0.32
Bromodichloromethane	0.06	0.6	µg/L	<0.37	<0.37	<0.37
Bromoform	0.44	4.4	µg/L	<0.35	<0.35	<0.35
tert-Butylbenzene	--	--	µg/L	<0.36	<0.36	<0.36
sec-Butylbenzene	--	--	µg/L	<0.33	<0.33	<0.33
n-Butylbenzene	--	--	µg/L	<0.35	<0.35	<0.35
Carbon tetrachloride	0.5	5	µg/L	<0.33	<0.33	<0.33
Chlorobenzene	20	100	µg/L	<0.24	<0.24	<0.24
Chloroethane	80	400	µg/L	<0.63	<0.63	<0.63
Chloroform	0.6	6	µg/L	<0.28	<0.28	<0.28
Chloromethane	3	30	µg/L	<0.81	<0.81	<0.81
2-Chlorotoluene	--	--	µg/L	<0.21	<0.21	<0.21
4-Chlorotoluene	--	--	µg/L	<0.21	<0.21	<0.21
1,2-Dibromo-3-chloropropane	0.02	0.2	µg/L	<0.88	<0.88	<0.88
Dibromochloromethane	6	60	µg/L	<0.22	<0.22	<0.22
1,4-Dichlorobenzene	15	75	µg/L	<0.3	<0.3	<0.3
1,3-Dichlorobenzene	120	600	µg/L	<0.28	<0.28	<0.28
1,2-Dichlorobenzene	60	600	µg/L	<0.36	<0.36	<0.36
Dichlorodifluoromethane	200	1000	µg/L	<0.44	<0.44	<0.44
1,2-Dichloroethane	0.5	5	µg/L	<0.41	<0.41	<0.41
1,1-Dichloroethane	85	850	µg/L	<0.3	<0.3	<0.3
1,1-Dichloroethene	0.7	7	µg/L	<0.4	<0.4	<0.4
cis-1,2-Dichloroethene	7	70	µg/L	<0.38	<0.38	<0.38
trans-1,2-Dichloroethene	20	100	µg/L	<0.35	<0.35	<0.35
1,2-Dichloropropane	0.5	5	µg/L	<0.32	<0.32	<0.32
2,2-Dichloropropane	--	--	µg/L	<0.36	<0.36	<0.36
1,3-Dichloropropane	--	--	µg/L	<0.33	<0.33	<0.33
Di-isopropyl ether	--	--	µg/L	<0.23	<0.23	<0.23
1,2-Dibromomethane (EDB)	0.005	0.05	µg/L	<0.44	<0.44	<0.44
Ethylbenzene	140	70	µg/L	<0.55	<0.55	<0.55
Hexachlorobutadiene	--	--	µg/L	<1.5	<1.5	<1.5
Isopropylbenzene	--	--	µg/L	<0.3	<0.3	<0.3
p-Isopropyltoluene	--	--	µg/L	<0.31	<0.31	<0.31
Methylene chloride	0.5	5	µg/L	<0.5	<0.5	<0.5
Methyl-tert-butyl-ether (MTBE)	12	60	µg/L	<0.23	<0.23	<0.23
Naphthalene	10	100	µg/L	<1.7	<1.7	<1.7
n-Propylbenzene	--	--	µg/L	<0.25	<0.25	<0.25
1,1,2,2-Tetrachloroethane	0.02	0.2	µg/L	<0.45	<0.45	<0.45
1,1,1,2-Tetrachloroethane	7	70	µg/L	<0.33	<0.33	<0.33
Tetrachloroethene	0.5	5	µg/L	<0.33	<0.33	<0.33
Toluene	160	800	µg/L	<0.69	<0.69	<0.69
1,2,4-Trichlorobenzene	14	70	µg/L	<0.98	<0.98	<0.98
1,3,5-Trichlorobenzene	--	--	µg/L	<1.8	<1.8	<1.8
1,1,1-Trichloroethane	40	200	µg/L	<0.33	<0.33	<0.33
1,1,2-Trichloroethane	0.5	5	µg/L	<0.34	<0.34	<0.34
Trichloroethene	0.5	5	µg/L	<0.33	<0.33	<0.33
Trichlorofluoromethane	--	--	µg/L	<0.71	<0.71	<0.71
1,2,4-Trimethylbenzene	96	480	µg/L	<2.2	<2.2	<2.2
1,3,5-Trimethylbenzene			µg/L	<1.4	<1.4	<1.4
Vinyl Chloride	0.02	0.2	µg/L	<0.18	<0.18	<0.18
m&p-Xylenes	400	2000	µg/L	<0.69	<0.69	<0.69
o-Xylenes			µg/L	<0.63	<0.63	<0.63
Total VOCs			µg/L	0.0	0.0	0.0
Previous Results			µg/L	0.0		
Date				October-13		

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Preventive Action Limit (PAL)
Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Enforcement Standard (ES)

VOC - volatile organic compound
µg/L - micrograms per liter

April 2014

Municipal Water Supply Wells - VOC Results
Arkema Coating Resins
Saukville, Wisconsin

		Sample ID		MW-01	MW-04	Trip Blanks
		Collection Date		4/22/2014	4/22/2014	4/22/2014
		Laboratory ID		14D0795-30	14D0795-20	14D0795-10
		Duplicate Parent				
		Monitoring Objective		Receptor	Receptor	
		Hydrogeologic Unit		Deep Dolomite	Deep Dolomite	
		Dilution		1	1	1
Parameter	PAL	ES	Units			
1,1,1-Trichloroethane	40	200	µg/L	<0.349	<0.349	<0.349
1,1,2,2-Tetrachloroethane	0.02	0.2	µg/L	<0.291	<0.291	<0.291
1,1,2-Trichloroethane	0.5	5	µg/L	<0.264	<0.264	<0.264
1,1-Dichloroethane	85	850	µg/L	<1.94	<1.94	<1.94
1,1-Dichloroethene	0.7	7	µg/L	<1.02	<1.02	<1.02
1,2,4-Trimethylbenzene	96	480	µg/L	<0.338	<0.338	<0.338
1,3,5-Trimethylbenzene				<0.488	<0.488	<0.488
1,2-Dibromo-3-chloropropane	0.02	0.2	µg/L	<0.320	<0.320	<0.320
1,2-Dibromethane	0.005	0.05	µg/L	<0.274	<0.274	<0.274
1,2-Dichloroethane	0.5	5	µg/L	<1.11	<1.11	<1.11
1,2-Dichloropropane	0.5	5	µg/L	<0.310	<0.310	<0.310
1-Butanol	-	-	µg/L	<6.69	<6.69	<6.69
2-Butanone	-	-	µg/L	<1.38	<1.38	<1.38
2-Hexanone	-	-	µg/L	<1.04	<1.04	<1.04
4-Methyl-2-pentanone	50	500	µg/L	<0.660	<0.660	<0.660
Acetone	1800	9,000	µg/L	<3.75	<3.75	<3.75
Acrolein	-	-	µg/L	<6.63	<6.63	<6.63
Acrylonitrile	-	-	µg/L	<0.742	<0.742	<0.742
Benzene	0.5	5	µg/L	<0.370	<0.370	<0.370
Bromodichloromethane	0.06	0.6	µg/L	<0.310	<0.310	<0.310
Bromoform	0.44	4.4	µg/L	<0.254	<0.254	<0.254
Bromomethane	1	10	µg/L	<3.30	<3.30	<3.30
Carbon disulfide	200	1,000	µg/L	<0.259	<0.259	<0.259
Carbon tetrachloride	0.5	5	µg/L	<0.390	<0.390	<0.390
Chlorobenzene	20	100	µg/L	<0.358	<0.358	<0.358
Chloroethane	80	400	µg/L	<0.906	<0.906	<0.906
Chloroform	0.6	6	µg/L	**0.64 J**	<0.397	<0.397
Chloromethane	3	30	µg/L	<2.23	<2.23	<2.23
cis-1,2-Dichloroethene	7	70	µg/L	<0.421	<0.421	<0.421
cis-1,3-Dichloropropene	0.04	0.4	µg/L	<0.278	<0.278	<0.278
Dibromochloromethane	6	60	µg/L	<0.492	<0.492	<0.492
Ethylbenzene	140	700	µg/L	<0.431	<0.431	<0.431
Methyl tert-butyl ether (MTBE)	12	60	µg/L	<0.322	<0.322	<0.322
Methylene chloride	0.5	5	µg/L	<0.358	<0.358	<0.358
Naphthalene	10	100	µg/L	<0.377	<0.377	<0.377
m,p-Xylenes	400	2,000	µg/L	<0.310	<0.310	<0.310
o-Xylenes				<0.349	<0.349	<0.349
Styrene	10	100	µg/L	<0.534	<0.534	<0.534
Tetrachloroethene	0.5	5	µg/L	<0.400	<0.400	<0.400
Toluene	160	800	µg/L	<0.299	<0.299	<0.299
trans 1,2-Dichloroethene	27	170	µg/L	<0.433	<0.433	<0.433
trans 1,3-Dichloropropene	27	170	µg/L	<0.314	<0.314	<0.314
Trichloroethene	0.5	5	µg/L	<0.439	<0.439	<0.439
Trichlorofluoromethane	-	-	µg/L	<0.259	<0.259	<0.259
Vinyl acetate	-	-	µg/L	<1.01	<1.01	<1.01
Vinyl Chloride	0.02	0.2	µg/L	<0.316	<0.316	<0.316
Xylenes, total	400	2,000	µg/L	<0.660	<0.660	<0.660
1,3-Dichloropropene, total	0.04	0.4	µg/L	<0.592	<0.592	<0.592
Total VOCs			µg/L	**0.64**	0.00	
Previous Results			µg/L	0.0	0.0	
Date				Jan-14	Oct-13	
Dissolved Oxygen			mg/L	NM	NM	
pH				NM	NM	
Conductivity			mS/cm	NM	NM	
Temperature			°C	NM	NM	
Oxidation-Reduction Potential			mV	NM	NM	

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Preventive Action Limit (PAL)
Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Enforcement Standard (ES)

VOC - volatile organic compound
µg/L - micrograms per liter
mg/L - milligrams per liter
mS/cm - millisiemens per centimeter
°C - degrees celsius
mV - millivolts
J - Estimated value between the limit of detection (LOD) and the limit of quantitation (LOQ).

April 2014

POTW VOC Results
Arkema Coating Resins
Saukville, Wisconsin

Sample ID		POTW-I		POTW-E	POTW-S
Collection Date		4/22/2014		4/22/2014	4/22/2014
Laboratory ID		14D0795-27		14D0795-28	14D0795-29
Duplicate Parent					
Monitoring Objective		Receptor		Receptor	Receptor
Hydrogeologic Unit		POTW		POTW	POTW
Dilution		1		1	1
Parameter	Units				
1,1,1-Trichloroethane	µg/L	<0.349		<0.349	<6.64
1,1,2,2-Tetrachloroethane	µg/L	<0.291		<0.291	<12.9
1,1,2-Trichloroethane	µg/L	<0.264		<0.264	<8.38
1,1-Dichloroethane	µg/L	<1.94		<1.94	<6.85
1,1-Dichloroethene	µg/L	<1.02		<1.02	<16.5
1,2,4-Trimethylbenzene	µg/L	<0.338		<0.338	<7.53
1,3,5-Trimethylbenzene	µg/L	<0.310		<0.310	<7.13
1,2-Dibromo-3-chloropropane	µg/L	<0.488		<0.488	<22.5
1,2-Dibromethane	µg/L	<0.320		<0.320	<9.26
1,2-Dichloroethane	µg/L	<0.274		<0.274	<6.13
1,2-Dichloropropane	µg/L	<1.11		<1.11	<18.6
1-Butanol	µg/L	<6.69		<6.69	<424
2-Butanone	µg/L	<1.38		<1.38	<63.7
2-Hexanone	µg/L	<1.04		<1.04	<45.0
4-Methyl-2-pentanone	µg/L	<0.660		<0.660	<51.3
Acetone	µg/L	**39.5**		<3.75	<100
Acrolein	µg/L	<6.63		<6.63	NA
Acrylonitrile	µg/L	<0.742		<0.742	<42.0
Benzene	µg/L	<0.370		<0.370	<4.79
Bromodichloromethane	µg/L	<0.310		<0.310	<11.8
Bromoform	µg/L	<0.254		<0.254	<8.75
Bromomethane	µg/L	<3.30		<3.30	NA
Carbon disulfide	µg/L	<0.259		<0.259	<4.10
Carbon tetrachloride	µg/L	<0.390		<0.390	<3.93
Chlorobenzene	µg/L	<0.358		<0.358	<3.18
Chloroethane	µg/L	<0.906		<0.906	NA
Chloroform	µg/L	**0.820**	J	<0.397	<5.44
Chloromethane	µg/L	<2.23		<2.23	NA
cis-1,2-Dichloroethene	µg/L	**0.700**	J	<0.421	<6.02
cis-1,3-Dichloropropene	µg/L	<0.278		<0.278	NA
Dibromochloromethane	µg/L	<0.492		<0.492	<12.2
Ethylbenzene	µg/L	<0.431		<0.431	<3.84
Methyl tert-butyl ether (MTBE)	µg/L	<0.322		<0.322	<5.05
Methylene chloride	µg/L	<0.358		<0.358	<9.85
Naphthalene	µg/L	**0.96**	B, J	<0.377	<13.3
m,p-Xylenes	µg/L	**1.71**	J	<0.310	<9.04
o-Xylenes	µg/L	**1.40**	J	<3.49	<6.90
Styrene	µg/L	<0.534		<0.534	<6.71
Tetrachloroethene	µg/L	<0.400		<0.400	<8.31
Toluene	µg/L	**2.59**		<0.299	NA
trans 1,2-Dichloroethene	µg/L	<0.433		<0.433	<5.94
trans 1,3-Dichloropropene	µg/L	<0.314		<0.314	NA
Trichloroethene	µg/L	<0.439		<0.439	<7.19
Trichlorofluoromethane	µg/L	**1.62**	J	<0.259	NA
Vinyl acetate	µg/L	<1.01		<1.01	<11.9
Vinyl Chloride	µg/L	<0.316		<0.316	<4.55
Xylenes, total	µg/L	**3.11**	J	<0.660	<15.9
1,3-Dichloropropene, total	µg/L	<0.592		<0.592	<12.0
Total VOCs	µg/L	**52.410**		0.00	0.00
Previous Results	µg/L	12.52		0.00	118.73
Date		Oct-13		Oct-13	Oct-13

VOC - volatile organic compound

µg/L - micrograms per liter

J - Estimated value between the limit of detection (LOD) and the limit of quantitation (LOQ).

April 2014

Ranney Collector VOC Results
Arkema Coating Resins
Saukville, Wisconsin

			Sample ID	RC-1	RC-2	RC-3
			Collection Date	4/21/2014	4/21/2014	4/21/2014
			Laboratory ID	14D0795-22	14D0795-23	14D0795-24
			Duplicate Parent			
			Monitoring Objective	Receptor	Receptor	Receptor
			Hydrogeologic Unit	Glacial Drift	Glacial Drift	Glacial Drift
			Dilution	1	1	1
Parameter	PAL	ES	Units			
1,2,4-Trimethylbenzene	96	480	µg/L	<0.336	<3.36	<16.8
1,3,5-Trimethylbenzene			µg/L	<0.250	<2.50	<12.5
Benzene	0.5	5	µg/L	<0.284	**7.42** J	<14.2
Ethylbenzene	140	700	µg/L	<0.336	**43.0**	**955**
Methyl tert-butyl ether (MTBE)	12	60	µg/L	<0.356	<3.56	4240
Naphthalene	10	100	µg/L	<0.283	<2.83	<17.8
m,p-Xylenes	400	2,000	µg/L	<0.422	**266**	**4,240**
o-Xylenes			µg/L	<0.289	**206**	**1,420**
Toluene	160	800	µg/L	<0.252	**63.4**	**1,390**
Xylenes, total	400	2,000	µg/L	<0.711	**472**	**5,660**
Total VOCs			µg/L	**0.00**	**1,057.82**	**17,905**
Previous Results			µg/L	**154.5**	0.0	**616.85**
Date				Oct-13	Oct-13	Oct-13

VOC - volatile organic compound

µg/L - micrograms per liter

J - Estimated value between the limit of detection (LOD) and the limit of quantitation (LOQ).

April 2014

Perimeter - Glacial Drift Monitoring Wells - VOC Results
Arkema Coating Resins
Saukville, Wisconsin

Sample ID				W-01A	W-03B	W-04A	W-08R	W-16A	W-27	W-49	W-51
Collection Date				4/22/2014	4/23/2014	4/21/2014	4/21/2014	4/22/2014	4/22/2014	4/21/2014	4/21/2014
Laboratory ID				14D0795-04	14D0795-09	14D0795-15	14D0795-19	14D0795-06	14D0795-01	14D0795-17	14D0795-11
Duplicate Parent											
Monitoring Objective				Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter
Hydrogeologic Unit				Glacial Drift	Glacial Drift	Glacial Drift	Glacial Drift	Glacial Drift	Glacial Drift	Glacial Drift	Glacial Drift
Dilution				1	1	1	1	1	1	1	1
Parameter	PAL	ES	Units								
1,1,1-Trichloroethane	40	200	µg/L	<0.349	<0.349	<0.349	<0.349	<0.349	**1.12** J	<0.349	<0.349
1,1,2,2-Tetrachloroethane	0.02	0.2	µg/L	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291
1,1,2-Trichloroethane	0.5	5	µg/L	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264
1,1-Dichloroethane	85	850	µg/L	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
1,1-Dichloroethene	0.7	7	µg/L	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02
1,2,4-Trimethylbenzene	96	480	µg/L	<0.338	<0.338	<0.338	<0.338	<0.338	<0.338	<0.338	<0.338
1,3,5-Trimethylbenzene			µg/L	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310
1,2-Dibromo-3-chloropropane	0.02	0.2	µg/L	<0.488	<0.488	<0.488	<0.488	<0.488	<0.488	<0.488	<0.488
1,2-Dibromethane	0.005	0.05	µg/L	<0.320	<0.320	<0.320	<0.320	<0.320	<0.320	<0.320	<0.320
1,2-Dichloroethane	0.5	5	µg/L	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274
1,2-Dichloropropane	0.5	5	µg/L	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11
1-Butanol	-	-	µg/L	<6.69	<6.69	<6.69	<6.69	<6.69	<6.69	<6.69	<6.69
2-Butanone	-	-	µg/L	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38
2-Hexanone	-	-	µg/L	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04
4-Methyl-2-pentanone	50	500	µg/L	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660
Acetone	1800	9,000	µg/L	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75
Acrolein	-	-	µg/L	<6.63	<6.63	<6.63	<6.63	<6.63	<6.63	<6.63	<6.63
Acrylonitrile	-	-	µg/L	<0.742	<0.742	<0.742	<0.742	<0.742	<0.742	<0.742	<0.742
Benzene	0.5	5	µg/L	<0.370	<0.370	<0.370	<0.370	<0.370	<0.370	<0.370	<0.370
Bromodichloromethane	0.06	0.6	µg/L	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310
Bromoform	0.44	4.4	µg/L	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254
Bromomethane	1	10	µg/L	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30
Carbon disulfide	200	1,000	µg/L	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259
Carbon tetrachloride	0.5	5	µg/L	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390
Chlorobenzene	20	100	µg/L	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358
Chloroethane	80	400	µg/L	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906
Chloroform	0.6	6	µg/L	<0.397	<0.397	<0.397	<0.397	<0.397	<0.397	<0.397	<0.397
Chloromethane	3	30	µg/L	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23
cis-1,2-Dichloroethene	7	70	µg/L	<0.421	<0.421	<0.421	<0.421	<0.421	**3.49**	<0.421	<0.421
cis-1,3-Dichloropropene	0.04	0.4	µg/L	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278
Dibromochloromethane	6	60	µg/L	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492
Ethylbenzene	140	700	µg/L	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431
Methyl tert-butyl ether (MTBE)	12	60	µg/L	<0.322	<0.322	<0.322	<0.322	<0.322	<0.322	<0.322	<0.322
Methylene chloride	0.5	5	µg/L	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358
Naphthalene	10	100	µg/L	<0.377	<0.377	<0.377	<0.377	<0.377	**0.612** B, J	<0.377	<0.377
m,p-Xylenes	400	2,000	µg/L	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310
o-Xylenes			µg/L	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349
Styrene	10	100	µg/L	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534
Tetrachloroethene	0.5	5	µg/L	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400
Toluene	160	800	µg/L	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299
trans 1,2-Dichloroethene	27	170	µg/L	<0.433	<0.433	<0.433	<0.433	<0.433	<0.433	<0.433	<0.433
trans 1,3-Dichloropropene	27	170	µg/L	<0.314	<0.314	<0.314	<0.314	<0.314	<0.314	<0.314	<0.314
Trichloroethene	0.5	5	µg/L	<0.439	<0.439	<0.439	<0.439	<0.439	**54.3**	<0.439	<0.439
Trichlorofluoromethane	-	-	µg/L	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259
Vinyl acetate	-	-	µg/L	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01
Vinyl Chloride	0.02	0.2	µg/L	<0.316	<0.316	<0.316	<0.316	<0.316	<0.316	<0.316	<0.316
Xylenes, total	400	2,000	µg/L	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660
1,3-Dichloropropene, total	0.04	0.4	µg/L	<0.592	<0.592	<0.592	<0.592	<0.592	<0.592	<0.592	<0.592
Total VOCs			µg/L	0.00	0.00	0.00	0.00	0.00	**59.522**	0.00	0.00
Previous Results			µg/L	0.00	0.00	**0.96**	0.00	**1.24**	**120.55**	0.00	0.00
Date				Oct-13	Oct-13	Oct-13	Oct-13	Oct-13	Oct-13	Oct-13	Oct-13
Dissolved Oxygen			mg/L	8.20	0.10	8.50	10.30	9.91	7.70	6.50	0.70
pH				7.33	7.56	7.27	7.55	7.50	6.94	7.39	7.09
Conductivity			mS/cm	1.747	0.960	1.532	0.508	0.760	0.580	1.601	2.131
Temperature			°C	8.30	10.90	8.10	8.00	10.27	7.80	6.60	10.70
Oxidation-Reduction Potential			mV	100.0	-121.0	62.0	54.0	41.7	117.0	73.0	45.0

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Preventive Action Limit (PAL)

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Enforcement Standard (ES)

VOC - volatile organic compound

µg/L - micrograms per liter

mg/L - milligrams per liter

mS/cm - millisiemens per centimeter

°C - degrees celsius

mV - millivolts

B - Analyte was present in method blank

J - Estimated value between the limit of detection (LOD) and the limit of quantitation (LOQ).

April 2014

Perimeter - Shallow and Deep Dolomite Wells - VOC Results
Arkema Coating Resins
Saukville, Wisconsin

	Sample ID			W-03A	W-07	W-20	W-22	W-22 DUP	W-23	W-40	W-50	W-52	W-52-DUP	PW-08
	Collection Date			4/23/2014	4/21/2014	4/21/2014	4/22/2014	4/22/2014	4/21/2014	4/22/2014	4/21/2014	4/21/2014	4/21/2014	4/22/2014
	Laboratory ID			14D0795-08	14D0795-18	14D0795-21	14D0795-02	14D0795-03	14D0795-14	14D0795-07	14D0795-16	14D0795-12	14D0795-13	14D0795-05
	Duplicate Parent													
	Monitoring Objective			Perimeter	Perimeter	Perimeter	Perimeter		Perimeter	Perimeter	Perimeter	Perimeter		Perimeter
	Hydrogeologic Unit			Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite		Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite		Deep Dolomite
	Dilution			1	1	1	1		1	1	1	1	1	1
Parameter	PAL	ES	Units											
1,1,1-Trichloroethane	40	200	µg/L	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349
1,1,2,2-Tetrachloroethane	0.02	0.2	µg/L	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291
1,1,2-Trichloroethane	0.5	5	µg/L	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264
1,1-Dichloroethane	85	850	µg/L	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
1,1-Dichloroethene	0.7	7	µg/L	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02
1,2,4-Trimethylbenzene	96	480	µg/L	<0.338	<0.338	<0.338	<0.338	<0.338	<0.338	<0.338	<0.338	<0.338	<0.338	<0.338
1,3,5-Trimethylbenzene			µg/L	<0.310	<0.310	**0.490** J	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310
1,2-Dibromo-3-chloropropane	0.02	0.2	µg/L	<0.488	<0.488	<0.488	<0.488	<0.488	<0.488	<0.488	<0.488	<0.488	<0.488	<0.488
1,2-Dibromethane	0.005	0.05	µg/L	<0.320	<0.320	<0.320	<0.320	<0.320	<0.320	<0.320	<0.320	<0.320	<0.320	<0.320
1,2-Dichloroethane	0.5	5	µg/L	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274
1,2-Dichloropropane	0.5	5	µg/L	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11
1-Butanol	-	-	µg/L	<6.69	<6.69	<6.69	<6.69	<6.69	<6.69	<6.69	<6.69	<6.69	<6.69	<6.69
2-Butanone	-	-	µg/L	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38
2-Hexanone	-	-	µg/L	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04
4-Methyl-2-pentanone	50	500	µg/L	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660
Acetone	1800	9,000	µg/L	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75
Acrolein	-	-	µg/L	<6.63	<6.63	<6.63	<6.63	<6.63	<6.63	<6.63	<6.63	<6.63	<6.63	<6.63
Acrylonitrile	-	-	µg/L	<0.742	<0.742	<0.742	<0.742	<0.742	<0.742	<0.742	<0.742	<0.742	<0.742	<0.742
Benzene	0.5	5	µg/L	<0.370	<0.370	<0.370	<0.370	<0.370	**0.378** J	<0.370	<0.370	**7.66**	**8.2**	<0.370
Bromodichloromethane	0.06	0.6	µg/L	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310
Bromoform	0.44	4.4	µg/L	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254
Bromomethane	1	10	µg/L	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30
Carbon disulfide	200	1,000	µg/L	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259
Carbon tetrachloride	0.5	5	µg/L	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390
Chlorobenzene	20	100	µg/L	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358
Chloroethane	80	400	µg/L	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906
Chloroform	0.6	6	µg/L	<0.397	<0.397	<0.397	<0.397	<0.397	<0.397	<0.397	<0.397	<0.397	<0.397	<0.397
Chloromethane	3	30	µg/L	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23
cis-1,2-Dichloroethene	7	70	µg/L	<0.421	<0.421	<0.421	<0.421	<0.421	**0.808** J	<0.421	<0.421	**36.2**	**35.6**	<0.421
cis-1,3-Dichloropropene	0.04	0.4	µg/L	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278
Dibromochloromethane	6	60	µg/L	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492
Ethylbenzene	140	700	µg/L	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431
Methyl tert-butyl ether (MTBE)	12	60	µg/L	<0.322	<0.322	<0.322	<0.322	<0.322	<0.322	<0.322	<0.322	<0.322	<0.322	<0.322
Methylene chloride	0.5	5	µg/L	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358
Naphthalene	10	100	µg/L	<0.377	<0.377	<0.377	<0.377	<0.377	<0.377	**0.46** J	<0.377	<0.377	<0.377	<0.377
m,p-Xylenes	400	2,000	µg/L	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310
o-Xylenes			µg/L	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349
Styrene	10	100	µg/L	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534
Tetrachloroethene	0.5	5	µg/L	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400
Toluene	160	800	µg/L	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299
trans 1,2-Dichloroethene	27	170	µg/L	<0.433	<0.433	<0.433	<0.433	<0.433	<0.433	<0.433	<0.433	**1.86** J	**1.79** J	<0.433
trans 1,3-Dichloropropene	27	170	µg/L	<0.314	<0.314	<0.314	<0.314	<0.314	<0.314	<0.314	<0.314	<0.314	<0.314	<0.314
Trichloroethene	0.5	5	µg/L	<0.439	<0.439	<0.439	**0.454** J	<0.439	<0.439	<0.439	<0.439	**0.624** J	**0.634** J	<0.439
Trichlorofluoromethane	-	-	µg/L	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259
Vinyl acetate	-	-	µg/L	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01
Vinyl Chloride	0.02	0.2	µg/L	<0.316	<0.316	<0.316	<0.316	<0.316	<0.316	<0.316	<0.316	<0.316	<0.316	<0.316
Xylenes, total	400	2,000	µg/L	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660
1,3-Dichloropropene, total	0.04	0.4	µg/L	<0.592	<0.592	<0.592	<0.592	<0.592	<0.592	<0.592	<0.592	<0.592	<0.592	<0.592
Total VOCs			µg/L	0.00	0.00	**0.490**	**0.454**	0.00	**1.186**	**0.46**	0.00	**46.344**	**43.800**	0.00
Previous Results			µg/L	0.00	0.00	0.00	0.00		**0.40**	**1.17**	0.00	**59.50**		0.00
Date				Oct-13	Oct-13	Oct-13	Oct-13		Oct-13	Oct-13	Oct-13	Oct-13		Oct-13
Dissolved Oxygen			mg/L	0.10	7.90	0.18	4.20		0.80	0.26	0.50	0.30		0.17
pH				7.65	7.57	7.73	7.35		7.10	7.35	7.37	7.33		7.86
Conductivity			mS/cm	0.480	0.682	0.550	1.355		2.170	0.906	1.634	1.277		0.523
Temperature			°C	10.60	9.70	12.32	9.10		12.00	12.70	9.60	12.40		11.08
Oxidation-Reduction Potential			mV	-171.0	43.0	-19.9	91.0		-36.0	-110.0	40.0	-41.0		-153.4

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Preventive Action Limit (PAL)

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Enforcement Standard (ES)

VOC - volatile organic compound

µg/L - micrograms per liter

mg/L - milligrams per liter

mS/cm - millisiemens per centimeter

°C - degrees celsius

mV - millivolts

J - Estimated value between the limit of detection (LOD) and the limit of quantitation (LOQ).

July 2014

Municipal Water Supply Wells - VOC Results
Arkema Coating Resins
Saukville, Wisconsin

		Sample ID		MW1	MW3	Trip Blank
		Collection Date		7/22/2014	7/22/2014	-----
		Laboratory ID		14G0663-01	14G0663-02	14G0663-03
		Duplicate Parent				
		Monitoring Objective		Receptor	Receptor	
		Hydrogeologic Unit		Deep Dolomite	Deep Dolomite	
		Dilution		1	1	1
Parameter	PAL	ES	Units			
1,1,1-Trichloroethane	40	200	µg/L	<0.349	<0.349	<0.349
1,1,2,2-Tetrachloroethane	0.02	0.2	µg/L	<0.291	<0.291	<0.291
1,1,2-Trichloroethane	0.5	5	µg/L	<0.264	<0.264	<0.264
1,1-Dichloroethane	85	850	µg/L	<1.94	<1.94	<1.94
1,1-Dichloroethene	0.7	7	µg/L	<1.02	<1.02	<1.02
1,2,4-Trimethylbenzene	96	480	µg/L	<0.338	<0.338	<0.338
1,3,5-Trimethylbenzene				<0.310	<0.310	<0.310
1,2-Dibromo-3-chloropropane	0.02	0.2	µg/L	<0.488	<0.488	<0.488
1,2-Dibromethane	0.005	0.05	µg/L	<0.320	<0.320	<0.320
1,2-Dichloroethane	0.5	5	µg/L	<0.274	<0.274	<0.274
1,2-Dichloropropane	0.5	5	µg/L	<1.11	<1.11	<1.11
1-Butanol	-	-	µg/L	<6.69	<6.69	<6.69
2-Butanone	-	-	µg/L	<1.38	<1.38	<1.38
2-Hexanone	-	-	µg/L	<1.04	<1.04	<1.04
4-Methyl-2-pentanone	50	500	µg/L	<0.660	<0.660	<0.660
Acetone	1800	9,000	µg/L	<3.75	<3.75	<3.75
Acrolein	-	-	µg/L	<6.63	<6.63	<6.63
Acrylonitrile	-	-	µg/L	<0.742	<0.742	<0.742
Benzene	0.5	5	µg/L	<0.370	<0.370	<0.370
Bromodichloromethane	0.06	0.6	µg/L	<0.310	<0.310	<0.310
Bromoform	0.44	4.4	µg/L	<0.254	<0.254	<0.254
Bromomethane	1	10	µg/L	<3.30	<3.30	<3.30
Carbon disulfide	200	1,000	µg/L	<0.259	<0.259	<0.259
Carbon tetrachloride	0.5	5	µg/L	<0.390	<0.390	<0.390
Chlorobenzene	20	100	µg/L	<0.358	<0.358	<0.358
Chloroethane	80	400	µg/L	<0.906	<0.906	<0.906
Chloroform	0.6	6	µg/L	<0.397	<0.397	<0.397
Chloromethane	3	30	µg/L	<2.23	<2.23	<2.23
cis-1,2-Dichloroethene	7	70	µg/L	<0.421	<0.421	<0.421
cis-1,3-Dichloropropene	0.04	0.4	µg/L	<0.278	<0.278	<0.278
Dibromochloromethane	6	60	µg/L	<0.492	<0.492	<0.492
Ethylbenzene	140	700	µg/L	<0.431	<0.431	<0.431
Methyl tert-butyl ether (MTBE)	12	60	µg/L	<0.322	<0.322	<0.322
Methylene chloride	0.5	5	µg/L	<0.358	<0.358	<0.358
Naphthalene	10	100	µg/L	<0.377	<0.377	<0.377
m,p-Xylenes	400	2,000	µg/L	<0.310	<0.310	<0.310
o-Xylenes				<0.349	<0.349	<0.349
Styrene	10	100	µg/L	<0.534	<0.534	<0.534
Tetrachloroethene	0.5	5	µg/L	<0.400	<0.400	<0.400
Toluene	160	800	µg/L	<0.299	<0.299	<0.299
trans 1,2-Dichloroethene	27	170	µg/L	<0.433	<0.433	<0.433
trans 1,3-Dichloropropene	27	170	µg/L	<0.314	<0.314	<0.314
Trichloroethene	0.5	5	µg/L	<0.439	<0.439	<0.439
Trichlorofluoromethane	-	-	µg/L	<0.259	<0.259	<0.259
Vinyl acetate	-	-	µg/L	<1.01	<1.01	<1.01
Vinyl Chloride	0.02	0.2	µg/L	<0.316	<0.316	<0.316
Xylenes, total	400	2,000	µg/L	<0.660	<0.660	<0.660
1,3-Dichloropropene, total	0.04	0.4	µg/L	<0.592	<0.592	<0.592
Total VOCs			µg/L	0.0	0.0	0.0
Previous Results			µg/L	0.0	0.0	0.0
Date				Apr-14	Oct-13	
Dissolved Oxygen			mg/L	5.24	4.62	
pH				6.50	7.06	
Conductivity			mS/cm	0.575	0.519	
Temperature			ºC	10.54	9.89	
Oxidation-Reduction Potential			mV	91.2	14.2	

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Preventive Action Limit (PAL)
Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Enforcement Standard (ES)

VOC - volatile organic compound
µg/L - micrograms per liter
mg/L - milligrams per liter
mS/cm - millisiemens per centimeter
ºC - degrees celsius
mV - millivolts
J - Estimated value between the limit of detection (LOD) and the limit of quantitation (LOQ).
NM - Not measured

October 2014

Municipal Water Supply Wells - VOC Results
Arkema Coating Resins
Saukville, Wisconsin

		Sample ID		MW-01	MW-03	MW-04	Trip Blank 1
		Collection Date		10/14/2014	10/14/2014	10/14/2014	10/16/2014
		Laboratory ID		14J0264-06	14J0263-32	14J0263-31	14J0263-35
		Duplicate Parent					
		Monitoring Objective		Receptor	Receptor	Receptor	
		Hydrogeologic Unit		Deep Dolomite	Deep Dolomite	Deep Dolomite	
		Dilution		1	1	1	1
Parameter	PAL	ES	Units				
1,1,1-Trichloroethane	40	200	µg/L	<0.349	<0.349	<0.349	<0.349
1,1,2,2-Tetrachloroethane	0.02	0.2	µg/L	<0.291	<0.291	<0.291	<0.291
1,1,2-Trichloroethane	0.5	5	µg/L	<0.264	<0.264	<0.264	<0.264
1,1-Dichloroethane	85	850	µg/L	<1.94	<1.94	<1.94	<1.94
1,1-Dichloroethene	0.7	7	µg/L	<1.02	<1.02	<1.02	<1.02
1,2-Dichloroethane	0.5	5	µg/L	<0.274	<0.274	<0.274	<0.274
1,2-Dichloropropane	0.5	5	µg/L	<1.11	<1.11	<1.11	<1.11
1,3-Dichlorobenzene	120	600	µg/L	<0.250	<0.250	<0.250	<0.250
1,4-Dioxane	0.3	3	µg/L	<10.1	<10.1	<10.1	<10.1
1,4-Dichlorobenzene	15	75	µg/L	<0.250	<0.250	<0.250	<0.250
2-Butanone	-	-	µg/L	<1.38	<1.38	<1.38	<1.38
2-Hexanone	-	-	µg/L	<1.04	<1.04	<1.04	<1.04
4-Methyl-2-pentanone	50	500	µg/L	<0.660	<0.660	<0.660	<0.660
Acetone	1800	9,000	µg/L	<3.75	<3.75	<3.75	<3.75
Benzene	0.5	5	µg/L	<0.370	<0.370	<0.370	<0.370
Bromodichloromethane	0.06	0.6	µg/L	<0.310	<0.310	<0.310	<0.310
Bromoform	0.44	4.4	µg/L	<0.254	<0.254	<0.254	<0.254
Bromomethane	1	10	µg/L	<3.30	<3.30	<3.30	<3.30
Carbon disulfide	200	1,000	µg/L	<0.259	<0.259	<0.259	<0.259
Carbon tetrachloride	0.5	5	µg/L	<0.390	<0.390	<0.390	<0.390
Chlorobenzene	20	100	µg/L	<0.358	<0.358	<0.358	<0.358
Chloroethane	80	400	µg/L	<0.906	<0.906	<0.906	<0.906
Chloroform	0.6	6	µg/L	**0.480** J	<0.397	<0.397	<0.397
Chloromethane	3	30	µg/L	<2.23	<2.23	<2.23	<2.23
cis-1,3-Dichloropropene	0.04	0.4	µg/L	<0.278	<0.278	<0.278	<0.278
Dibromochloromethane	6	60	µg/L	<0.492	<0.492	<0.492	<0.492
Ethylbenzene	140	700	µg/L	<0.431	<0.431	<0.431	<0.431
Methylene chloride	0.5	5	µg/L	<0.358	<0.358	<0.358	<0.358
Styrene	10	100	µg/L	<0.534	<0.534	<0.534	<0.534
Tetrachloroethene	0.5	5	µg/L	<0.400	<0.400	<0.400	<0.400
Toluene	160	800	µg/L	**0.62** J	<0.299	<0.299	<0.299
Trichloroethene	0.5	5	µg/L	<0.439	<0.439	<0.439	<0.439
Vinyl acetate	-	-	µg/L	<1.01	<1.01	<1.01	<1.01
Vinyl Chloride	0.02	0.2	µg/L	<0.316	<0.316	<0.316	<0.316
Xylenes, total	400	2,000	µg/L	<0.660	<0.660	<0.660	<0.660
1,2-Dichloroethene, total	-	-	µg/L	<0.854	<0.854	<0.854	<0.854
Total VOCs			µg/L	**1.10**	0.0	0.0	0.0
Previous Results			µg/L	0.0	0.0	0.0	
Date				Jul-14	Jul-14	Apr-14	
Dissolved Oxygen			mg/L	6.20	4.17	7.06	
pH				7.42	7.24	7.47	
Conductivity			mS/cm	0.556	0.606	0.555	
Temperature			°C	10.04	9.75	10.06	
Oxidation-Reduction Potential			mV	81.7	30.1	122.7	

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Preventive Action Limit (PAL)

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Enforcement Standard (ES)

VOC - volatile organic compound
µg/L - micrograms per liter
mg/L - milligrams per liter
mS/cm - millisiemens per centimeter
°C - degrees celsius
mV - millivolts
B - Analyte was present in method blank
J - Estimated value between the limit of detection (LOD) and the limit of quantitation (LOQ).

October 2014

POTW VOC Results
Arkema Coating Resins
Saukville, Wisconsin

Sample ID		POTW-I	POTW-E	POTW-S
Collection Date		10/14/2014	10/14/2014	10/14/2014
Laboratory ID		14J0264-07	14J0264-09	14J0264-08
Duplicate Parent				
Monitoring Objective		Receptor	Receptor	Receptor
Hydrogeologic Unit		POTW	POTW	POTW
Dilution		1	1	1
Parameter	Units			
1,1,1-Trichloroethane	µg/L	<0.375	<0.375	<3.75
1,1,2,2-Tetrachloroethane	µg/L	<0.462	<0.462	<4.62
1,1,2-Trichloroethane	µg/L	<0.390	<0.390	<3.90
1,1-Dichloroethane	µg/L	<0.472	<0.472	<4.72
1,1-Dichloroethene	µg/L	<0.479	<0.479	<4.79
1,2,4-Trimethylbenzene	µg/L	<0.786	<0.786	<7.86
1,3,5-Trimethylbenzene	µg/L	<0.479	<0.479	<4.79
1,2-Dibromo-3-chloropropane	µg/L	<1.02	<1.02	<10.2
1,2-Dibromethane	µg/L	<0.463	<0.463	<4.63
1,2-Dichloroethane	µg/L	<0.326	<0.326	<3.26
1,2-Dichloropropane	µg/L	<0.310	<0.310	<3.10
1-Butanol	µg/L	<22.3	<22.3	<223
2-Butanone	µg/L	<1.30	<1.30	<13.0
2-Hexanone	µg/L	<1.10	<1.10	<11.0
4-Methyl-2-pentanone	µg/L	<1.14	<1.14	<11.4
Acetone	µg/L	**70.2**	<9.69	<485
Acrolein	µg/L	<3.74	<3.74	<187
Acrylonitrile	µg/L	<0.650	<0.650	<6.50
Benzene	µg/L	<0.423	<0.423	<4.23
Bromodichloromethane	µg/L	<0.424	<0.424	<4.24
Bromoform	µg/L	<0.493	<0.493	<4.93
Bromomethane	µg/L	<0.688	<0.688	<3.44
Carbon disulfide	µg/L	<0.482	<0.482	<24.1
Carbon tetrachloride	µg/L	<0.545	<0.545	<5.45
Chlorobenzene	µg/L	<0.474	<0.474	<4.74
Chloroform	µg/L	**1.03** B, J	**0.530** B, J	**7.70** B, J
Chloromethane	µg/L	<0.669	<0.669	<6.69
cis-1,2-Dichloroethene	µg/L	<2.25	<2.25	<22.5
cis-1,3-Dichloropropene	µg/L	<0.227	<0.227	<2.27
Dibromochloromethane	µg/L	<0.416	<0.416	<4.16
Ethylbenzene	µg/L	**1.02** J	<0.457	<4.57
Methyl tert-butyl ether (MTBE)	µg/L	<0.250	<0.250	<2.50
Methylene chloride	µg/L	<0.384	<0.384	<3.84
Naphthalene	µg/L	<0.392	<0.392	**5.00** B, J
m,p-Xylenes	µg/L	**9.57**	**3.77** J	<9.00
o-Xylenes	µg/L	**1.64** J	**0.650** J	<4.49
Styrene	µg/L	<0.310	<0.310	<3.10
Tetrachloroethene		<0.612	<0.612	<6.12
Toluene		**1.02** J	<0.394	<3.94
trans 1,2-Dichloroethene		<2.34	<2.34	<23.4
trans 1,3-Dichloropropene		<0.250	<0.250	<2.50
Trichloroethene		<0.479	<0.479	<4.79
Trichlorofluoromethane		<1.24	<1.24	<12.4
Vinyl acetate		<0.555	<0.555	<5.55
Vinyl Chloride		<0.426	<0.426	<4.26
Xylenes, total		**11.2**	**4.42** J	<13.5
1,3-Dichloropropene, total		<0.477	<0.477	<4.77
Total VOCs	µg/L	**95.68**	**4.95**	**12.70**
Previous Results	µg/L	**52.41**	0.00	480
Date		Apr-14	Apr-14	Apr-14

VOC - volatile organic compound
µg/L - micrograms per liter
B - Analyte was present in method blank
J - Estimated Value

October 2014

Ranney Collector VOC Results
Arkema Coating Resins
Saukville, Wisconsin

			Sample ID	RC-1	RC-2	RC-3
			Collection Date	10/14/2014	10/13/2014	10/15/2014
			Laboratory ID	14J0264-03	14J0264-04	14J0264-05
			Duplicate Parent			
			Monitoring Objective	Receptor	Receptor	Receptor
			Hydrogeologic Unit	Glacial Drift	Glacial Drift	Glacial Drift
			Dilution	1	1	1
Parameter	PAL	ES	Units			
1,2,4-Trimethylbenzene	96	480	µg/L	<0.0255	<0.0255	<0.0255
1,3,5-Trimethylbenzene			µg/L	<0.0414	<0.0414	<0.0414
Benzene	0.5	5	µg/L	<0.0242	**2.70**	<0.0242
Ethylbenzene	140	700	µg/L	<0.0244	**13.8**	**18.9**
Methyl tert-butyl ether (MTBE)	12	60	µg/L	<0.0966	<0.0966	<0.0966
Naphthalene	10	100	µg/L	<0.0761	<0.0761	<0.0761
m,p-Xylene	400	2,000	µg/L	<0.0955	**17.3**	**96.4**
o-Xylene			µg/L	<0.0513	**3.12**	**38.3**
Toluene	160	800	µg/L	<0.0434	**1.32** J	**1.05** J
Xylenes, total	400	2,000	µg/L	<0.147	**20.5**	**135**
Total VOCs			µg/L	0.0	**58.74**	**289.65**
Previous Results			µg/L	0.0	**1,057.82**	**17,905**
Date				Apr-14	Apr-14	Apr-14

VOC - volatile organic compound

µg/L - micrograms per liter

B - Analyte was present in method blank

J - Estimated value between the limit of detection (LOD) and the limit of quantitation (LOQ).

October 2014

Perimeter - Glacial Drift Monitoring Wells - VOC Results
Arkema Coating Resins
Saukville, Wisconsin

			Sample ID	W-01A	W-03B	W-04A	W-08R	W-16A	W-27	W-49	W-51
			Collection Date	10/14/2014	10/14/2014	10/14/2014	No Sample	10/15/2014	10/15/2014	10/14/2014	10/14/2014
			Laboratory ID	14J0263-17	14J0263-16	14J0263-15	Collected	14J0263-13	14J0263-10	14J0263-04	14J0263-02
			Duplicate Parent								
			Monitoring Objective	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter
			Hydrogeologic Unit	Glacial Drift	Glacial Drift	Glacial Drift	Glacial Drift	Glacial Drift	Glacial Drift	Glacial Drift	Glacial Drift
			Dilution	1	1	1		1	1	1	1
Parameter	PAL	ES	Units								
1,1,1-Trichloroethane	40	200	µg/L	<0.349	<0.349	<0.349		<0.349	**1.57** J	<0.349	<0.349
1,1,2,2-Tetrachloroethane	0.02	0.2	µg/L	<0.291	<0.291	<0.291		<0.291	<0.291	<0.291	<0.291
1,1,2-Trichloroethane	0.5	5	µg/L	<0.264	<0.264	<0.264		<0.264	<0.264	<0.264	<0.264
1,1-Dichloroethane	85	850	µg/L	<1.94	<1.94	<1.94		<1.94	<1.94	<1.94	<1.94
1,1-Dichloroethene	0.7	7	µg/L	<1.02	<1.02	<1.02		<1.02	<1.02	<1.02	<1.02
1,2-Dichloroethane	0.5	5	µg/L	<0.274	<0.274	<0.274		<0.274	<0.274	<0.274	<0.274
1,2-Dichloropropane	0.5	5	µg/L	<1.11	<1.11	<1.11		<1.11	<1.11	<1.11	<1.11
1,3-Dichlorobenzene	120	600	µg/L	<0.250	<0.250	<0.250		<0.250	<0.250	<0.250	<0.250
1,4-Dioxane	0.3	3	µg/L	<10.1	<10.1	<10.1		<10.1	<10.1	<10.1	<10.1
1,4-Dichlorobenzene	15	75	µg/L	<0.250	**0.260** B, J	<0.250		<0.250	<0.250	<0.250	<0.250
2-Butanone	-	-	µg/L	<1.38	<1.38	<1.38		<1.38	<1.38	<1.38	<1.38
2-Hexanone	-	-	µg/L	<1.04	<1.04	<1.04		<1.04	<1.04	<1.04	<1.04
4-Methyl-2-pentanone	50	500	µg/L	<0.660	<0.660	<0.660		<0.660	<0.660	<0.660	<0.660
Acetone	1800	9,000	µg/L	<3.75	<3.75	<3.75		<3.75	<3.75	<3.75	<3.75
Benzene	0.5	5	µg/L	<0.370	<0.370	<0.370		<0.370	<0.370	<0.370	<0.370
Bromodichloromethane	0.06	0.6	µg/L	<0.310	<0.310	<0.310		<0.310	<0.310	<0.310	<0.310
Bromoform	0.44	4.4	µg/L	<0.254	<0.254	<0.254		<0.254	<0.254	<0.254	<0.254
Bromomethane	1	10	µg/L	<3.30	<3.30	<3.30		<3.30	<3.30	<3.30	<3.30
Carbon disulfide	200	1,000	µg/L	<0.259	<0.259	<0.259		<0.259	<0.259	<0.259	<0.259
Carbon tetrachloride	0.5	5	µg/L	<0.390	<0.390	<0.390		<0.390	<0.390	<0.390	<0.390
Chlorobenzene	20	100	µg/L	<0.358	<0.358	<0.358		<0.358	<0.358	<0.358	<0.358
Chloroethane	80	400	µg/L	<0.906	<0.906	<0.906		<0.906	<0.906	<0.906	<0.906
Chloroform	0.6	6	µg/L	**0.400** J	<0.397	<0.397		<0.397	<0.397	**0.580** B, J	**0.580** J
Chloromethane	3	30	µg/L	<2.23	<2.23	<2.23		<2.23	<2.23	<2.23	<2.23
cis-1,3-Dichloropropene	0.04	0.4	µg/L	<0.278	<0.278	<0.278		<0.278	<0.278	<0.278	<0.278
Dibromochloromethane	6	60	µg/L	<0.492	<0.492	<0.492		<0.492	<0.492	<0.492	<0.492
Ethylbenzene	140	700	µg/L	<0.431	<0.431	<0.431		<0.431	0.670 J	<0.431	<0.431
Methylene chloride	0.5	5	µg/L	<0.358	<0.358	**0.590** B, J		**0.860** B, J	**0.870** B, J	<0.358	<0.358
Styrene	10	100	µg/L	<0.534	<0.534	<0.534		<0.534	<0.534	<0.534	<0.534
Tetrachloroethene	0.5	5	µg/L	<0.400	<0.400	<0.400		<0.400	<0.400	<0.400	<0.400
Toluene	160	800	µg/L	<0.299	<0.299	<0.299		<0.299	<0.299	<0.299	<0.299
Trichloroethene	0.5	5	µg/L	<0.439	<0.439	<0.439		<0.439	**88.8**	<0.439	<0.439
Vinyl acetate	-	-	µg/L	<1.01	<1.01	<1.01		<1.01	<1.01	<1.01	<1.01
Vinyl Chloride	0.02	0.2	µg/L	<0.316	<0.316	<0.316		<0.316	<0.316	<0.316	<0.316
Xylenes, total	400	2,000	µg/L	<0.660	<0.660	<0.660		**1.85** J	<0.660	<0.660	<0.660
1,2-Dichloroethene, total	-	-	µg/L	<0.854	<0.854	<0.854		<0.854	**4.69**	<0.854	<0.854
Total VOCs			µg/L	**0.400**	**0.260**	**0.590**		**2.710**	**96.600**	**0.580**	**0.580**
Previous Results			µg/L	0.00	0.00	0.00	0.00	0.00	**59.580**	0.00	0.00
Date				Apr-14	Apr-14	Apr-14	Apr-14	Apr-14	Apr-14	Apr-14	Apr-14
Dissolved Oxygen			mg/L	5.98	7.46	4.50		6.15	3.80	6.00	0.32
pH				7.20	7.47	6.72		7.02	7.20	6.83	7.02
Conductivity			mS/cm	0.926	0.790	1.620		1.147	0.629	0.657	2.081
Temperature			℃	14.20	12.26	12.10		13.65	13.60	12.90	12.13
Oxidation-Reduction Potential			mV	50.5	-93.3	77.0		-73.6	93.0	28.0	-74.1

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Preventive Action Limit (PAL)
Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Enforcement Standard (ES)

VOC - volatile organic compound
µg/L - micrograms per liter
mg/L - milligrams per liter
mS/cm - millisiemens per centimeter
℃ - degrees celsius
mV - millivolts
B - Analyte was present in method blank
J - Estimated value between the limit of detection (LOD) and the limit of quantitation (LOQ).

October 2014

Perimeter - Shallow and Deep Dolomite Wells - VOC Results
Arkema Coating Resins
Saukville, Wisconsin

			Sample ID	W-03A	W-07	W-20	W-22	W-23	W-40	W-50	W-52	PW-08
			Collection Date	10/14/2014	10/14/2014	10/14/2014	10/15/2014	10/14/2014	10/15/2014	10/14/2014	10/14/2014	10/15/2014
			Laboratory ID	14J0263-27	14J0263-26	14J0263-12	14J0263-24	14J0263-23	14J0263-18	14J0263-03	14J0263-01	14J0263-30
			Duplicate Parent									
			Monitoring Objective	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter	Perimeter
			Hydrogeologic Unit	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Deep Dolomite
			Dilution	1	1	1	1	1	1	1	1	1
Parameter	PAL	ES	Units									
1,1,1-Trichloroethane	40	200	µg/L	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349
1,1,2,2-Tetrachloroethane	0.02	0.2	µg/L	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291
1,1,2-Trichloroethane	0.5	5	µg/L	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264
1,1-Dichloroethane	85	850	µg/L	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
1,1-Dichloroethene	0.7	7	µg/L	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02
1,2-Dichloroethane	0.5	5	µg/L	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274
1,2-Dichloropropane	0.5	5	µg/L	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11
1,3-Dichlorobenzene	120	600	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
1,4-Dioxane	0.3	3	µg/L	<10.1	<10.1	<10.1	<10.1	<10.1	<10.1	<10.1	**96.3**	<10.1
1,4-Dichlorobenzene	15	75	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-Butanone	-	-	µg/L	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38
2-Hexanone	-	-	µg/L	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04
4-Methyl-2-pentanone	50	500	µg/L	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660
Acetone	1800	9,000	µg/L	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75
Benzene	0.5	5	µg/L	<0.370	<0.370	<0.370	<0.370	<0.370	<0.370	<0.370	**10.6**	<0.370
Bromodichloromethane	0.06	0.6	µg/L	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310
Bromoform	0.44	4.4	µg/L	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254
Bromomethane	1	10	µg/L	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30	<3.30
Carbon disulfide	200	1,000	µg/L	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259
Carbon tetrachloride	0.5	5	µg/L	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390
Chlorobenzene	20	100	µg/L	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358
Chloroethane	80	400	µg/L	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906	<0.906
Chloroform	0.6	6	µg/L	<0.397	<0.397	<0.397	**0.430** J	**0.440** J	**0.410**	**0.650** B, J	**0.530** J	<0.397
Chloromethane	3	30	µg/L	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23
cis-1,3-Dichloropropene	0.04	0.4	µg/L	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278
Dibromochloromethane	6	60	µg/L	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492
Ethylbenzene	140	700	µg/L	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431	<0.431
Methylene chloride	0.5	5	µg/L	<0.358	<0.358	**0.740** B, J	<0.358	<0.358	<0.358	<0.358	<0.358	<0.358
Styrene	10	100	µg/L	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534
Tetrachloroethene	0.5	5	µg/L	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400
Toluene	160	800	µg/L	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299	<0.299
Trichloroethene	0.5	5	µg/L	<0.439	<0.439	<0.439	<0.439	<0.439	<0.439	<0.439	**0.540** J	<0.439
Vinyl acetate	-	-	µg/L	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01
Vinyl Chloride	0.02	0.2	µg/L	<0.316	<0.316	<0.316	<0.316	<0.316	<0.316	<0.316	**23.5**	<0.316
Xylenes, total	400	2,000	µg/L	<0.660	<0.660	**2.74** J	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660
1,2-Dichloroethene, total	-	-	µg/L	<0.854	<0.854	<0.854	<0.854	<0.854	<0.854	<0.854	**26.2**	<0.854
Total VOCs			µg/L	0.00	0.00	**3.480**	**0.430**	**0.440**	**0.410**	**0.650**	**157.67**	0.00
Previous Results			µg/L	0.00	0.00	**0.490**	**0.454**	**1.184**	**0.46**	0.00	**46.344**	0.00
Date				Apr-14	Apr-14	Apr-14	Apr-14	Apr-14	Apr-14	Apr-14	Apr-14	Apr-14
Dissolved Oxygen			mg/L	0.25	0.50	0.20	0.90	0.40	0.50	0.70	0.34	0.20
pH				8.04	7.22	7.68	7.03	7.00	7.44	7.01	7.10	8.13
Conductivity			mS/cm	0.345	0.579	0.459	1.398	1.863	0.745	1.638	1.176	0.338
Temperature			°C	10.93	12.50	11.20	10.60	11.50	12.50	11.90	11.77	11.80
Oxidation-Reduction Potential			mV	-138.9	45.0	53.0	144.0	-35.1	-138.0	89.0	-59.3	-173.0

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Preventive Action Limit (PAL)
Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Enforcement Standard (ES)

VOC - volatile organic compound
µg/L - micrograms per liter
mg/L - milligrams per liter
mS/cm - millisiemens per centimeter
°C - degrees celsius
mV - millivolts
B - Analyte was present in method blank
J - Results reported between the Method Detection Limit (MDL) and the Limit of Quantitation (LOQ) are less certain than results at or above the LOQ.

October 2014

Remediation Progress - Glacial Drift and Shallow Dolomite Wells - VOC Results
Arkema Coating Resins
Saukville, Wisconsin

			Sample ID	W-19A	W-38	W-41	W-42	DUP 02	DUP 03
			Collection Date	10/15/2014	10/15/2014	10/14/2014	10/15/2014	10/14/2014	10/14/2014
			Laboratory ID	14J0263-11	14J0263-19	14J0263-09	14J0263-08	14J0263-42	14J0263-41
			Duplicate Parent						
			Monitoring Objective	Remediation Progress	Remediation Progress	Remediation Progress	Remediation Progress		
			Hydrogeologic Unit	Glacial Drift	Shallow Dolomite	Glacial Drift	Glacial Drift		
			Dilution	1	1	1	1	1	1
Parameter	PAL	ES	Units						
1,1,1-Trichloroethane	40	200	µg/L	<0.349	<0.349	<0.349	<0.349	<0.349	<0.349
1,1,2,2-Tetrachloroethane	0.02	0.2	µg/L	<0.291	<0.291	<0.291	<0.291	<0.291	<0.291
1,1,2-Trichloroethane	0.5	5	µg/L	<0.264	<0.264	<0.264	<0.264	<0.264	<0.264
1,1-Dichloroethane	85	850	µg/L	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
1,1-Dichloroethene	0.7	7	µg/L	<1.02	<1.02	<1.02	<1.02	<1.02	<1.02
1,2-Dichloroethane	0.5	5	µg/L	<0.274	<0.274	<0.274	<0.274	<0.274	<0.274
1,2-Dichloropropane	0.5	5	µg/L	<1.11	<1.11	<1.11	<1.11	<1.11	<1.11
1,3-Dichlorobenzene	120	600	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
1,4-Dioxane	0.3	3	µg/L	<10.1	<10.1	<10.1	<10.1	<10.1	<10.1
1,4-Dichlorobenzene	15	75	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-Butanone	-	-	µg/L	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38
2-Hexanone	-	-	µg/L	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04
4-Methyl-2-pentanone	50	500	µg/L	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660
Acetone	1800	9,000	µg/L	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75
Benzene	0.5	5	µg/L	<0.370	<0.370	**2.05**	**71.1**	<0.370	<0.370
Bromodichloromethane	0.06	0.6	µg/L	<0.310	<0.310	<0.310	<0.310	<0.310	<0.310
Bromoform	0.44	4.4	µg/L	<0.254	<0.254	<0.254	<0.254	<0.254	<0.254
Bromomethane	1	10	µg/L	NA	<3.30	<3.30	NA	<3.30	<3.30
Carbon disulfide	200	1,000	µg/L	<0.259	<0.259	<0.259	<0.259	<0.259	<0.259
Carbon tetrachloride	0.5	5	µg/L	<0.390	<0.390	<0.390	<0.390	<0.390	<0.390
Chlorobenzene	20	100	µg/L	<0.358	<0.358	<0.358	**0.390** J	<0.358	<0.358
Chloroethane	80	400	µg/L	NA	<0.906	<0.906	NA	<0.906	<0.906
Chloroform	0.6	6	µg/L	<0.397	**0.460** B, J	<0.397	<0.397	<0.397	<0.397
Chloromethane	3	30	µg/L	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23
cis-1,3-Dichloropropene	0.04	0.4	µg/L	<0.278	<0.278	<0.278	<0.278	<0.278	<0.278
Dibromochloromethane	6	60	µg/L	<0.492	<0.492	<0.492	<0.492	<0.492	<0.492
Ethylbenzene	140	700	µg/L	<0.431	<0.431	<0.431	**117**	<0.431	<0.431
Methylene chloride	0.5	5	µg/L	**0.900** B, J	<0.358	<0.358	<0.358	<0.358	<0.358
Styrene	10	100	µg/L	<0.534	<0.534	<0.534	<0.534	<0.534	<0.534
Tetrachloroethene	0.5	5	µg/L	**2.20**	<0.400	<0.400	<0.400	<0.400	<0.400
Toluene	160	800	µg/L	<0.299	<0.299	<0.299	**29.7**	<0.299	<0.299
Trichloroethene	0.5	5	µg/L	**11.5**	<0.439	<0.439	<0.439	<0.439	<0.439
Vinyl acetate	-	-	µg/L	<1.01	<1.01	<1.01	<1.01	<1.01	<1.01
Vinyl Chloride	0.02	0.2	µg/L	**4.57**	<0.316	<0.316	<0.316	<0.316	<0.316
Xylenes, total	400	2,000	µg/L	NA	<0.660	**270**	**11,500** B	<0.660	<0.660
1,2-Dichloroethene, total	-	-	µg/L	**90.6**	<0.854	<0.854	<0.854	<0.854	<0.854
Total VOCs			µg/L	**109.770**	**0.460**	**272.05**	**11,718.19**	0.00	0.00
Previous Results			µg/L	**171.80**	**1,858.8**	**178.3**	10,458.00		
Date				Oct-13	Oct-13	Oct-13	Oct-13		
Dissolved Oxygen			mg/L	2.89	0.54	0.42	0.60		
pH				6.74	7.01	7.13	6.81		
Conductivity			mS/cm	2.102	4.553	0.928	6.095		
Temperature			°C	13.06	13.57	16.24	14.60		
Oxidation-Reduction Potential				-21.0	-127.3	-117.3	-62.0		

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Preventive Action Limit (PAL)
Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Enforcement Standard (ES)

VOC - volatile organic compound
µg/L - micrograms per liter
mg/L - milligrams per liter
mS/cm - millisiemens per centimeter
°C - degrees celsius
mV - millivolts
B - Analyte was present in method blank
J - Results reported between the Method Detection Limit (MDL) and the Limit of Quantitation (LOQ) are less certain than results at or above the LOQ.
NA - Parameter Not Analyzed

October 2014

Remediation Progress - Glacial Drift, Shallow and Deep Dolomite Wells - Metals, SVOCS and PCBs Results
Arkema Coating Resins
Saukville, Wisconsin

Sample ID				W-06A	W-21A	W-24A	W-28	W-29	W-30	W-43	W-47
Collection Date				10/15/2014	10/15/2014	10/16/2014	NOT	NOT	10/16/2014	10/15/2014	10/16/2014
Laboratory ID				14J0263-14	14J0263-25	14J0263-22	SAMPLED	SAMPLED	14J0263-29	14J0263-07	14J0263-06
Duplicate Parent											
Monitoring Objective				Remediation Progress	Remediation Progress	Remediation Progress	Remediation Progress	Remediation Progress	Remediation Progress	Remediation Progress	Remediation Progress
Hydrogeologic Unit				Glacial Drift	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Deep Dolomite	Glacial Drift	Glacial Drift
Parameter	PAL	ES	Units								
Arsenic	1	10	µg/L	**24.1** J	<8.70	<8.70			<8.70	<8.70	<8.70
Barium	400	2,000	µg/L	**55.2** J	**253**	**74.8**			**94.1**	**8.25**	**55.9**
Parameter	PAL	ES	Units								
Aroclor 1016			ug/L	NA	NA	NA			NA	NA	<0.157
Aroclor 1221			ug/L	NA	NA	NA			NA	NA	<0.238
Aroclor 1232			ug/L	NA	NA	NA			NA	NA	<0.312
Aroclor 1242			ug/L	NA	NA	NA			NA	NA	<0.283
Aroclor 1248	0.003	0.03	ug/L	NA	NA	NA			NA	NA	<0.287
Aroclor 1254			ug/L	NA	NA	NA			NA	NA	<0.255
Aroclor 1262			ug/L	NA	NA	NA			NA	NA	<0.192
Aroclor 1268			ug/L	NA	NA	NA			NA	NA	<0.299
Aroclor 1260			ug/L	NA	NA	NA			NA	NA	<0.156
Parameter	PAL	ES	Units								
2,4-Dimethylphenol	-	-	µg/L	**87.9**	**10.0**	<0.560			<0.562	<0.560	**95.1**
2-Methylnaphthalene	-	-	µg/L	**0.121**	**0.296** J	<0.116			<0.116	<0.116	**1.54** J
2-Methylphenol	-	-	µg/L	**36.0**	<2.72	<2.68			<2.69	<2.68	**3.15** J
3 & 4-Methylphenol	-	-	µg/L	**53.5**	<1.42	<1.40			<1.41	<1.40	**7.15** J
Acetophenone	-	-	µg/L	**41.1**	**13.6**	<0.876			<0.879	<0.876	**8.99**
bis(2-ethylhexyl)phthalate	0.6	6	µg/L	**6.15**	**5.17** J	**4.88** J			**4.73** J	**5.65**	**7.69**
Naphthalene	10	100	µg/L	**4.94**	**65.9**	<0.107			**0.128** J	<0.107	**5.71**
Phenol	400	2,000	µg/L	**14.0**	**1.25** J	<0.550			<0.552	<0.550	**0.852** J

Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Preventive Action Limit (PAL)
Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Enforcement Standard (ES)

J - Results reported between the Method Detection Limit (MDL) and the Limit of Quantitation (LOQ) are less certain than results at or above the LOQ.
B - Results reported are greater than or equal to the Method Detection Limit (MDL) but less than the Reporting Limit (RL)
µg/L - micrograms per liter

Ocotber 2014

Remediation Progress - Glacial Drift, Shallow and Deep Dolomite Wells - VOC Results
Arkema Coating Resins
Saukville, Wisconsin

Sample ID				W-06A	W-21A	W-24A	W-28	W-29	W-30	W-43	W-47
Collection Date				10/15/2014	10/15/2014	10/16/2014	NOT	NOT	10/16/2014	10/15/2014	10/16/2014
Laboratory ID				14J0263-14	14J0263-25	14J0263-22	SAMPLED	SAMPLED	14J0263-29	14J0263-07	14J0263-06
Duplicate Parent											
Monitoring Objective				Remediation Progress	Remediation Progress	Remediation Progress	Remediation Progress	Remediation Progress	Remediation Progress	Remediation Progress	Remediation Progress
Hydrogeologic Unit				Glacial Drift	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Shallow Dolomite	Deep Dolomite	Glacial Drift	Glacial Drift
Parameter	PAL	ES	Units								
1,1,1-Trichloroethane	40	200	µg/L	<0.349	<175	<0.349			<0.349	<0.349	<0.349
1,1,2,2-Tetrachloroethane	0.02	0.2	µg/L	<0.291	<146	<0.291			<0.291	<0.291	<0.291
1,1,2-Trichloroethane	0.5	5	µg/L	<0.264	<132	<0.264			<0.264	<0.264	<0.264
1,1-Dichloroethane	85	850	µg/L	<1.94	<972	<1.94			<1.94	<1.94	<1.94
1,1-Dichloroethene	0.7	7	µg/L	<1.02	<511	<1.02			<1.02	<1.02	<1.02
1,2-Dichloroethane	0.5	5	µg/L	<0.274	<137	<0.274			<0.274	<0.274	<0.274
1,2-Dichloropropane	0.5	5	µg/L	<1.11	<555	<1.11			<1.11	<1.11	<1.11
1,3-Dichlorobenzene	120	600	µg/L	<0.250	<125	<0.250			<0.250	<0.250	<0.250
1,4-Dioxane	0.3	3	µg/L	<10.1	<5060	<10.1			<10.1	<10.1	<10.1
1,4-Dichlorobenzene	15	75	µg/L	<0.250	<125	<0.250			<0.250	**0.260** B, J	<0.250
2-Butanone	-	-	µg/L	<1.38	<689	<1.38			<1.38	<1.38	<1.38
2-Hexanone	-	-	µg/L	<1.04	<519	<1.04			<1.04	<1.04	<1.04
4-Methyl-2-pentanone	50	500	µg/L	<0.660	<330	<0.660			<0.660	<0.660	<0.660
Acetone	1800	9,000	µg/L	<3.75	<1880	<3.75			<3.75	<3.75	<3.75
Benzene	0.5	5	µg/L	**158**	<185	<0.370			<0.370	**2.78**	**59.5**
Bromodichloromethane	0.06	0.6	µg/L	<0.310	<155	<0.310			<0.310	<0.310	<0.310
Bromoform	0.44	4.4	µg/L	<0.254	<127	<0.254			<0.254	<0.254	<0.254
Bromomethane	1	10	µg/L	<1650	<1650	<3.30			<3.30	<3.30	<3.30
Carbon disulfide	200	1,000	µg/L	<0.259	<129	<0.259			<0.259	<0.259	<25.9
Carbon tetrachloride	0.5	5	µg/L	<0.390	<195	<0.390			<0.390	<0.390	<0.390
Chlorobenzene	20	100	µg/L	<0.358	<179	<0.358			<0.358	<0.358	<0.358
Chloroethane	80	400	µg/L	<453	<453	<0.906			<0.906	<0.906	<0.906
Chloroform	0.6	6	µg/L	<0.397	<199	<0.397			<0.397	<0.397	**0.630** B, J
Chloromethane	3	30	µg/L	<2.23	<1120	<2.23			<2.23	<2.23	<2.23
cis-1,3-Dichloropropene	0.04	0.4	µg/L	<0.278	<139	<0.278			<0.278	<0.278	<0.278
Dibromochloromethane	6	60	µg/L	<0.492	<246	<0.492			<0.492	<0.492	<0.492
Ethylbenzene	140	700	µg/L	**12,300**	**7,180**	<0.431			<0.431	**94.1**	**2,160**
Methylene chloride	0.5	5	µg/L	**2.14** B	<179	<0.358			<0.358	**0.730** B, J	<0.358
Styrene	10	100	µg/L	<0.534	<267	<0.534			<0.534	<0.534	<0.534
Tetrachloroethene	0.5	5	µg/L	**0.830** J	<200	<0.400			<0.400	<0.400	<0.400
Toluene	160	800	µg/L	**29,100**	<149	<0.299			<0.299	<0.299	**660**
Trichloroethene	0.5	5	µg/L	**2.27**	<219	<0.439			<0.439	<0.439	<0.439
Vinyl acetate	-	-	µg/L	<1.01	<504	<1.01			<1.01	<1.01	<1.01
Vinyl Chloride	0.02	0.2	µg/L	<0.316	<158	**27.8**			<0.316	<0.316	**2.70**
Xylenes, total	400	2,000	µg/L	**74,200**	**1,580**	<0.660			<0.660	**6.25**	**22,900** B
1,2-Dichloroethene, total	-	-	µg/L	**57.4**	<427	**51.6**			<0.854	<0.854	**43.0**
Total VOCs			µg/L	**115,820.64**	**8,760**	**79.4**			0.00	**104.120**	**25,825.830**
Previous Results			µg/L	**147,375**	**9,425**	**297.1**		**22,359**	**1.70**	**4,545**	**39,834**
Date				Oct-13	Oct-11	Oct-13	Oct-13	Oct-13	Oct-13	Oct-13	Oct-13
Dissolved Oxygen			mg/L	0.40	5.92	4.61			5.60	2.80	1.38
pH				6.72	7.01	7.15			6.72	8.48	6.61
Conductivity			mS/cm	0.851	3.384	0.750			0.723	0.457	0.951
Temperature			°C	18.62	16.25	11.88			10.30	16.20	14.15
Oxidation-Reduction Potential			mV	-145.2	-92.8	-98.4			108.0	-21.0	-96.2

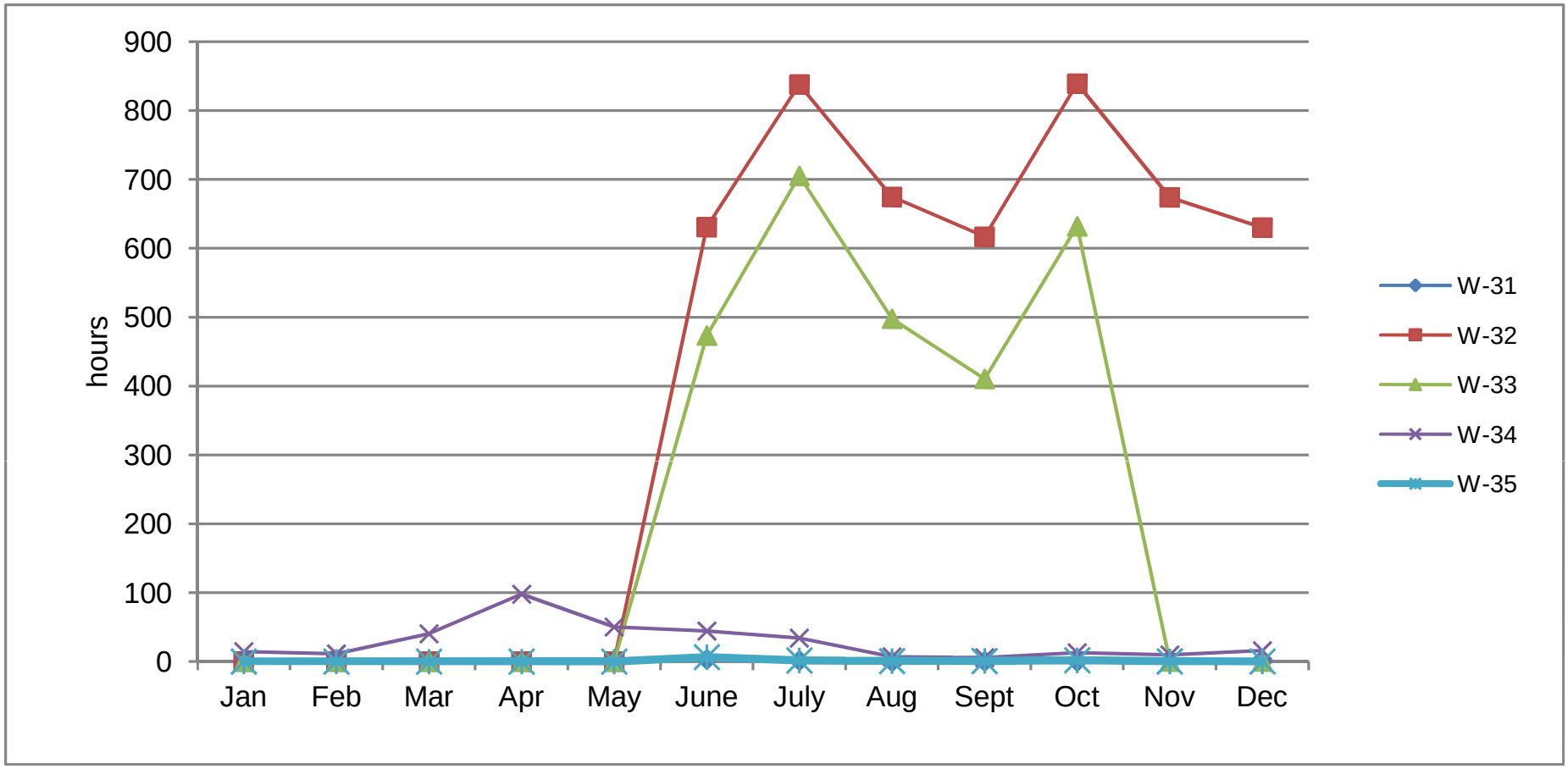
Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Preventive Action Limit (PAL)
Indicates concentration in exceedance of Wisconsin Administrative Code Chapter NR140 Enforcement Standard (ES)

VOC - volatile organic compound
NS - Not Sampled
µg/L - micrograms per liter
mg/L - milligrams per liter
mS/cm - millisiemens per centimeter
°C - degrees celsius
mV - millivolts

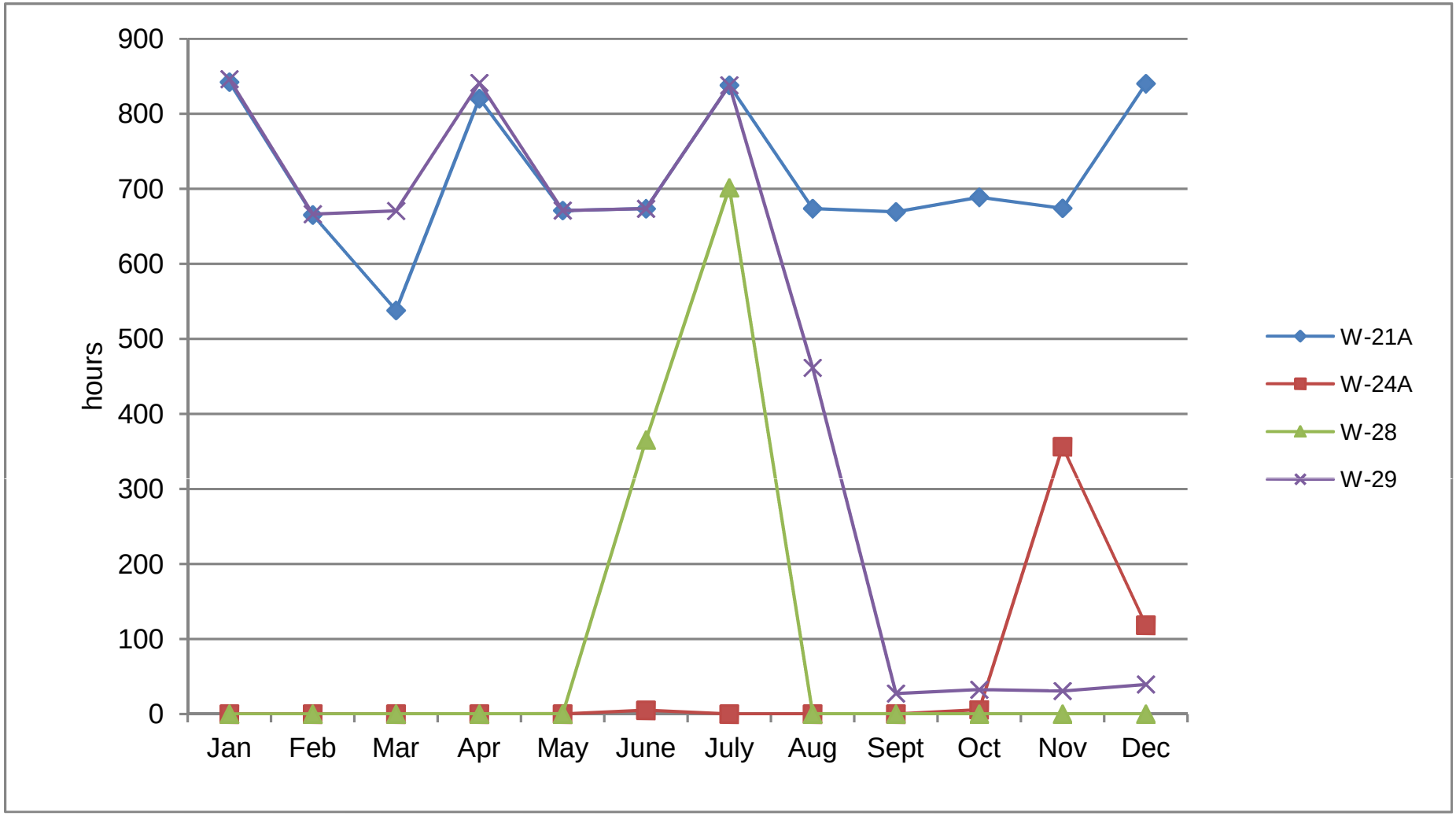
APPENDIX B

PUMP RUN TIME TRENDS: 1992 - 2014

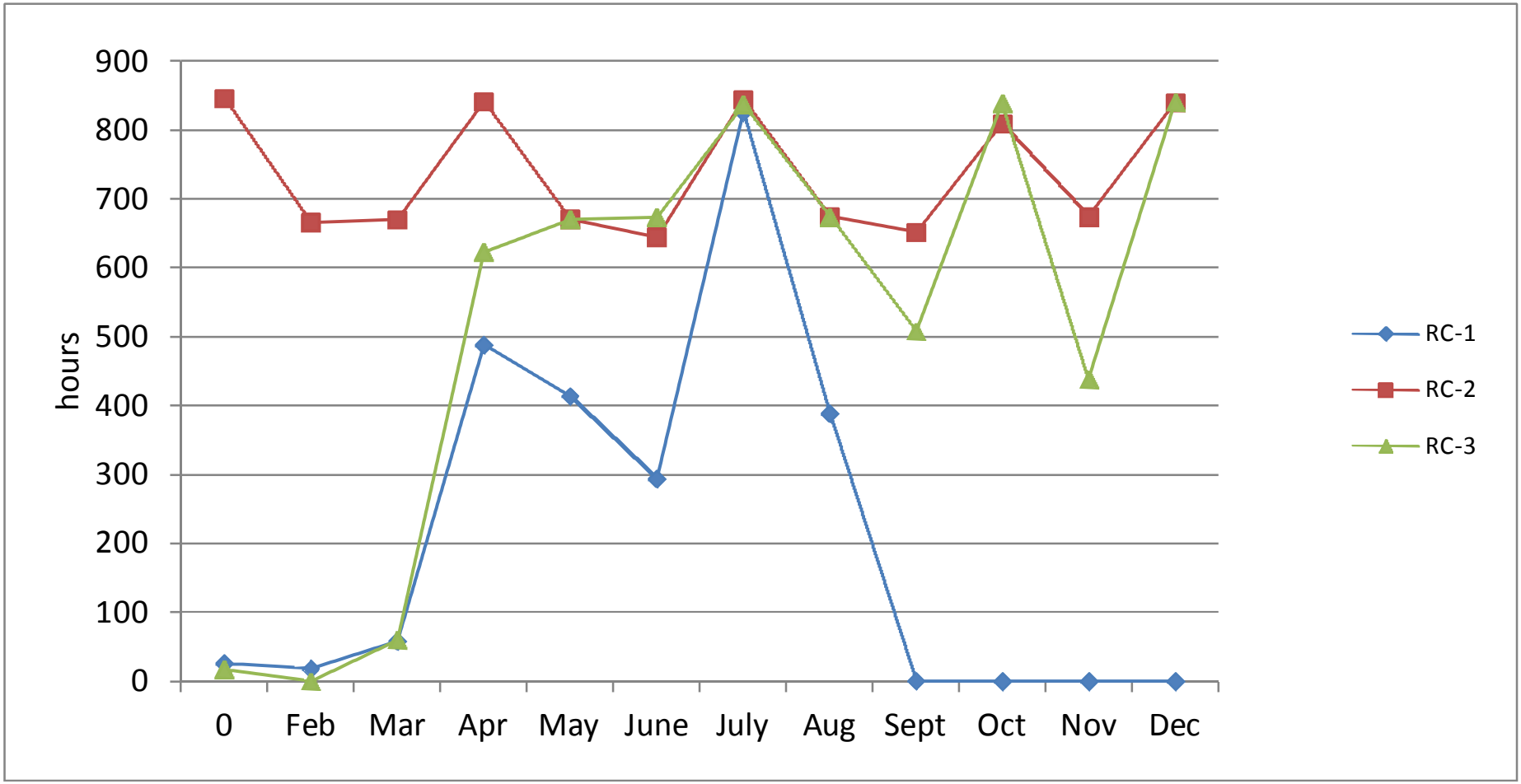
Glacial Extraction Wells
2014 Pump Run Times
Arkema Coating Resins
Saukville, Wisconsin



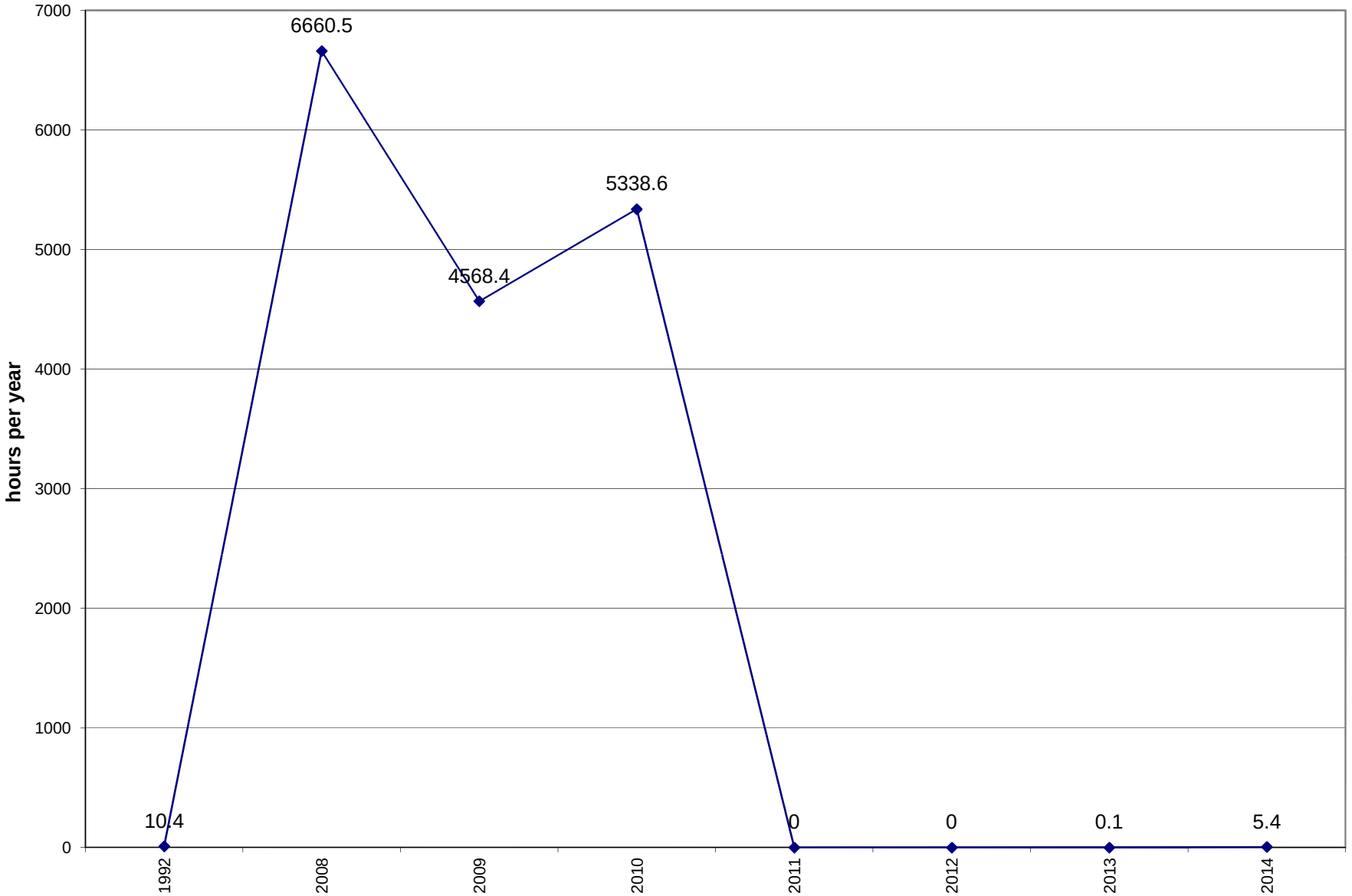
Shallow Dolomite Extraction Wells
2014 Pump Run Times
Arkema Coating Resins
Saukville, Wisconsin



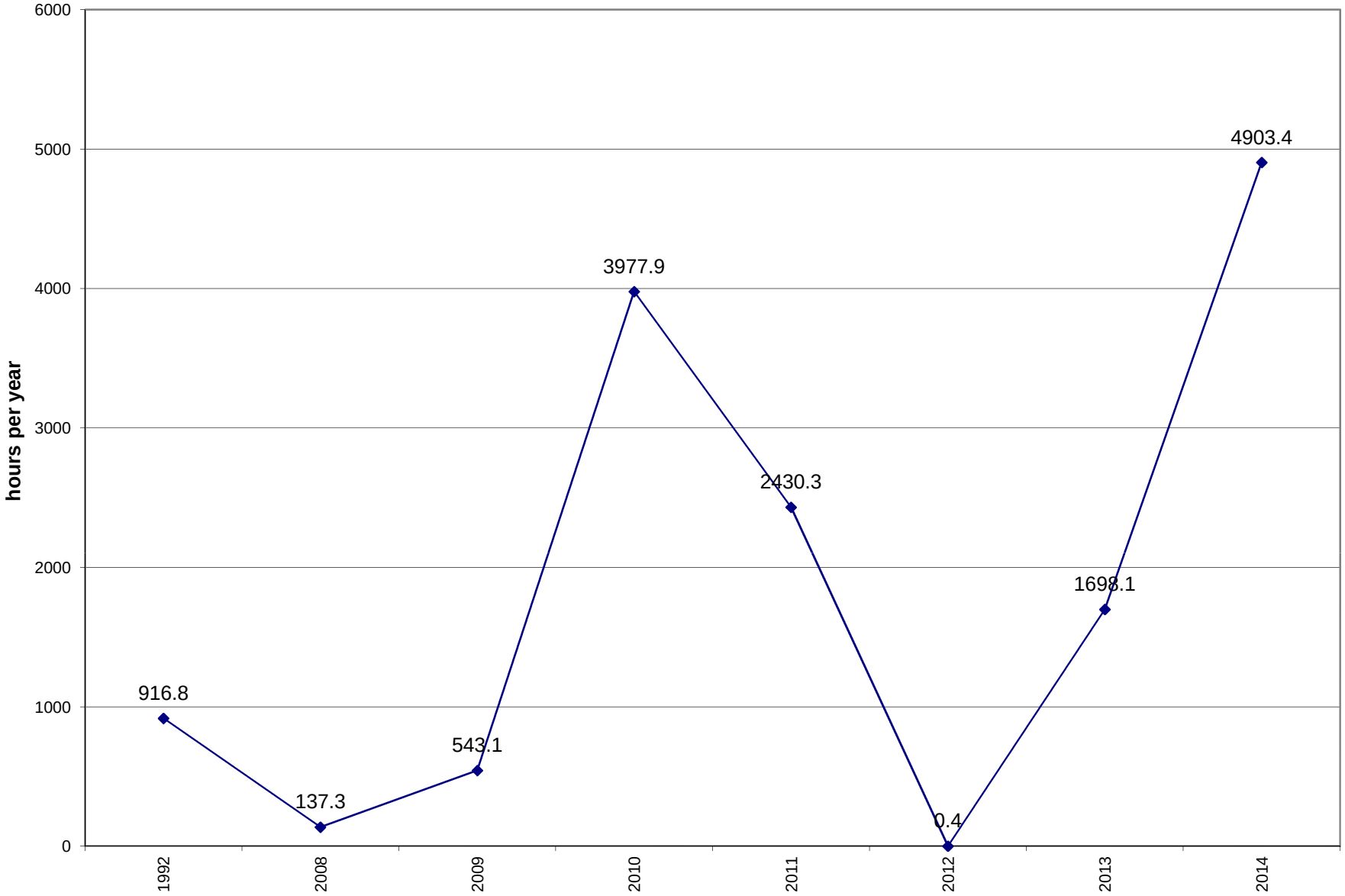
Ranney Collectors
2014 Pump Run Times
Arkema Coating Resins
Saukville, Wisconsin



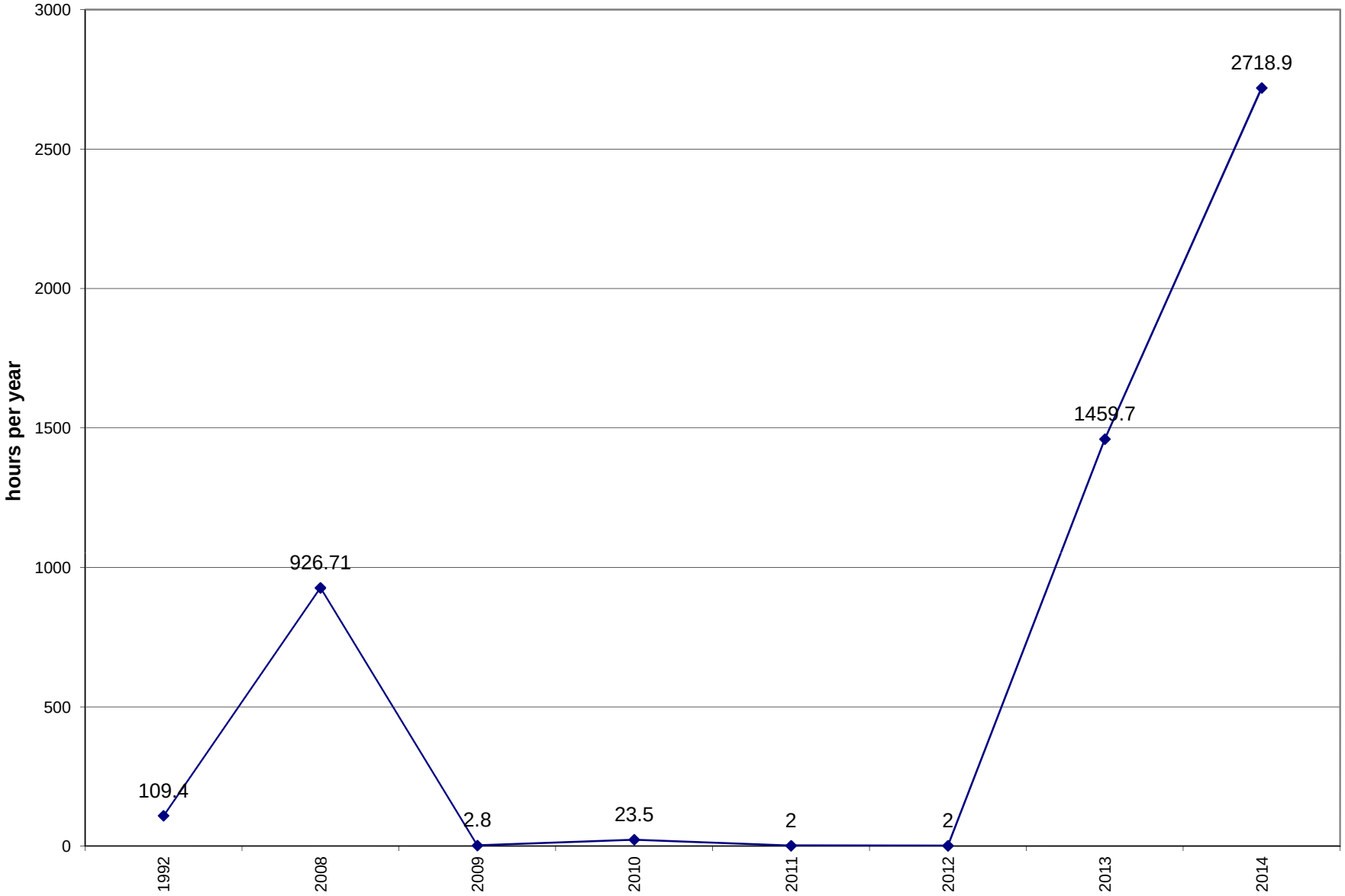
Historical Pump Run Trends
Glacial Drift Well W-31
Arkema Coating Resins
Saukvillle, Wisconsin



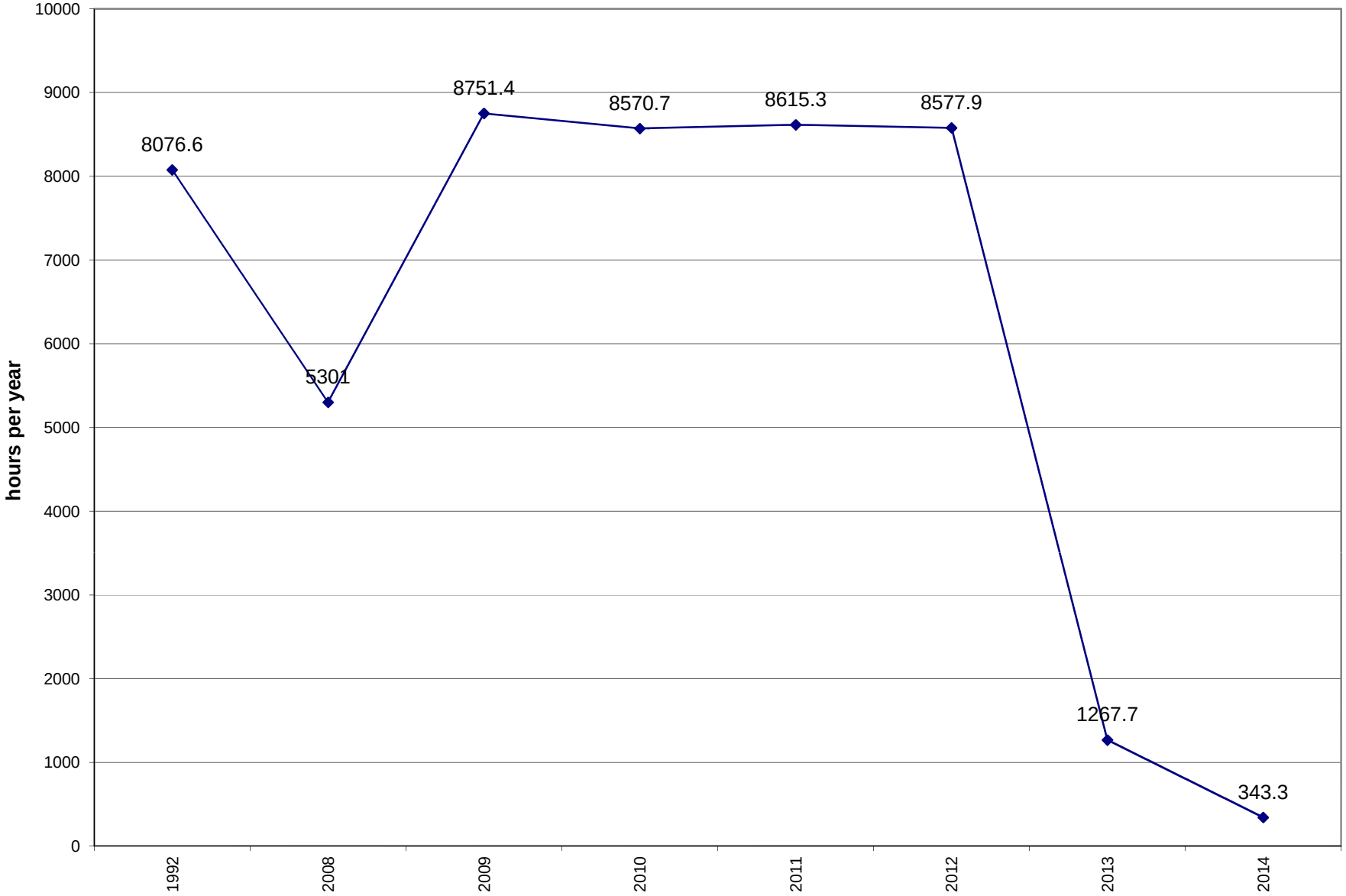
Historical Pump Run Trends
Glacial Drift Well W-32
Arkema Coating Resins
Saukville, Wisconsin



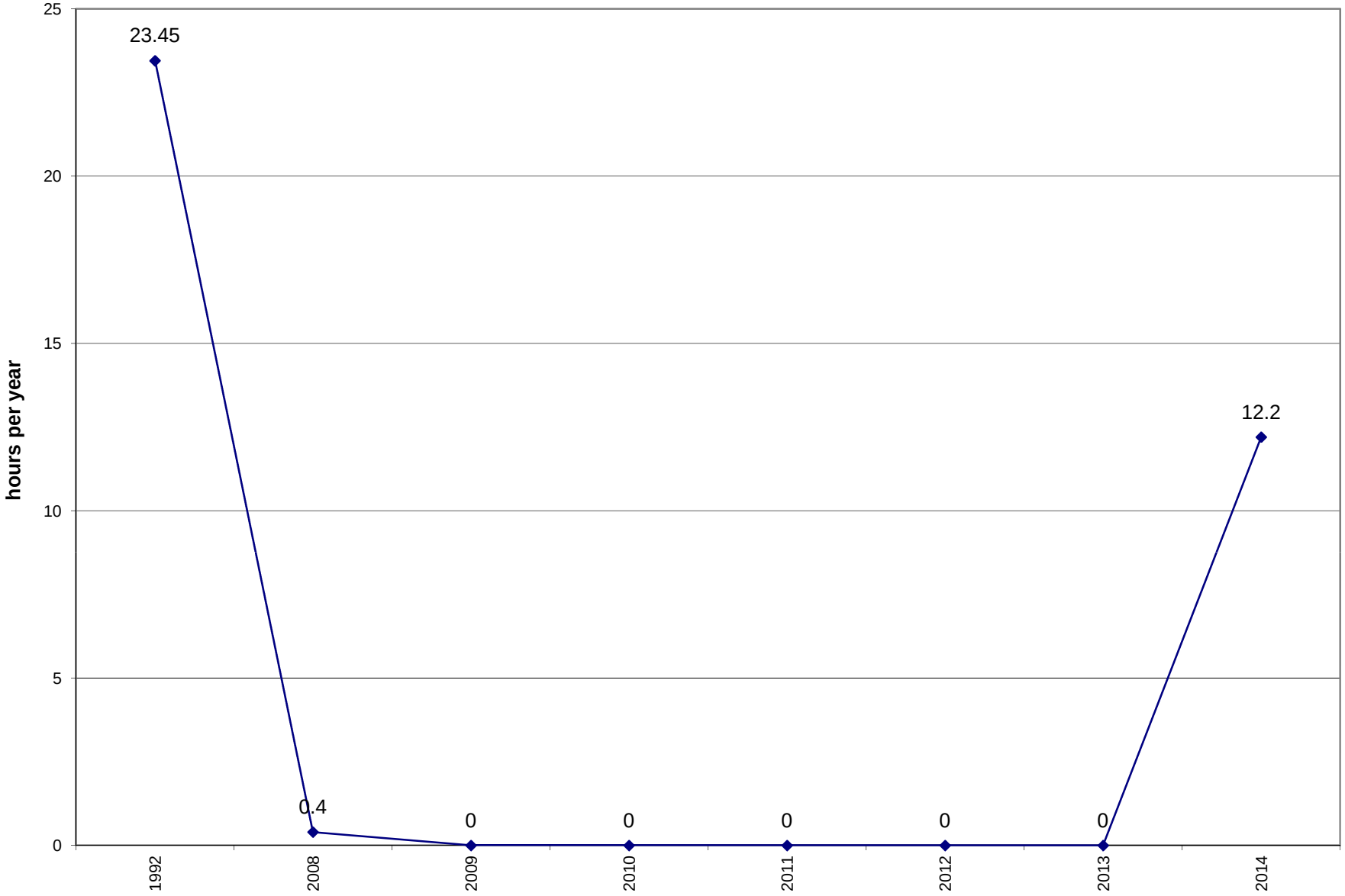
Historical Pump Run Trends
Glacial Drift Well W-33
Arkema Coating Resins
Saukville, Wisconsin



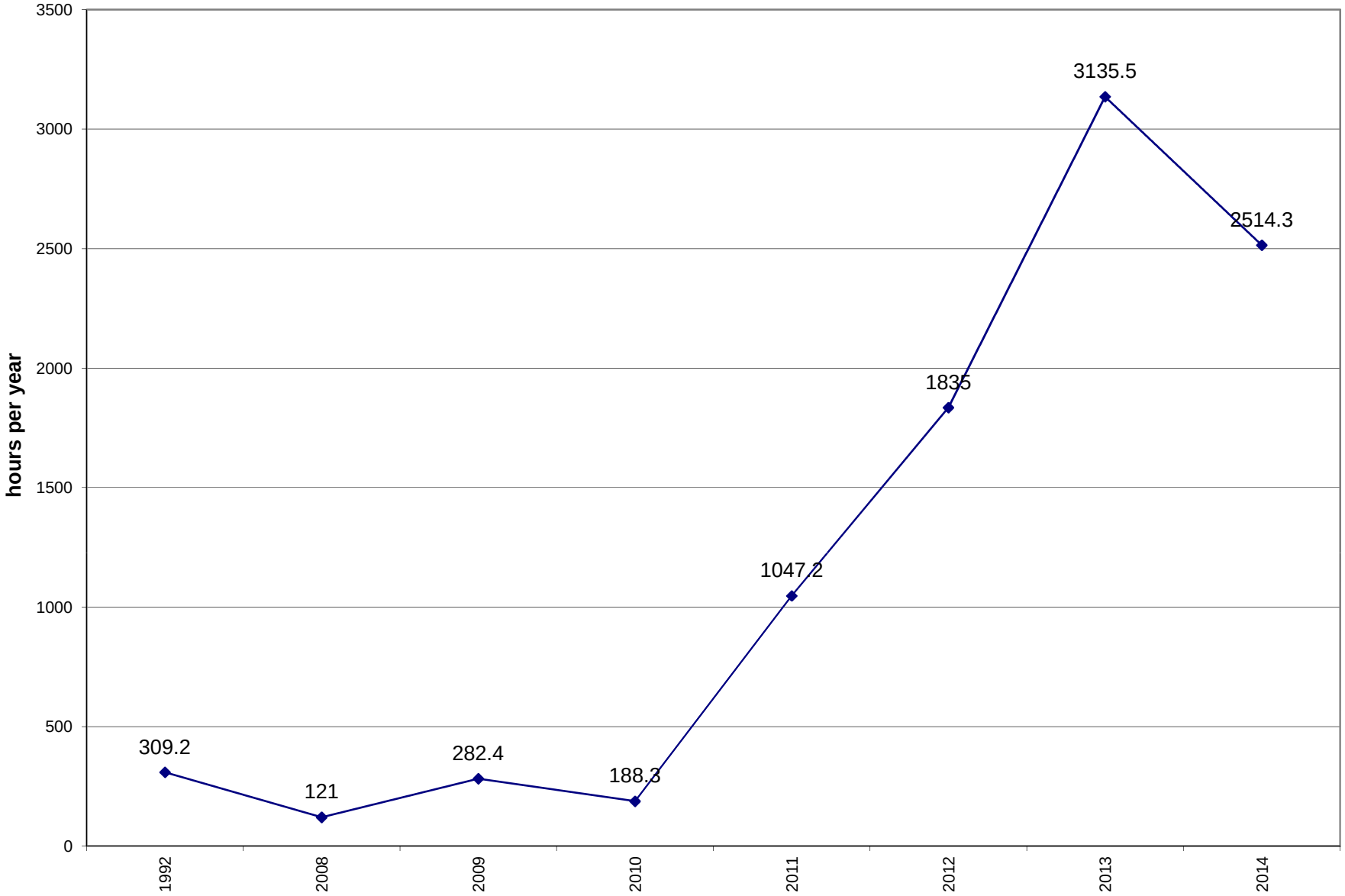
Historical Pump Run Trends
Glacial Drift Well W-34
Arkema Coating Resins
Saukville, Wisconsin



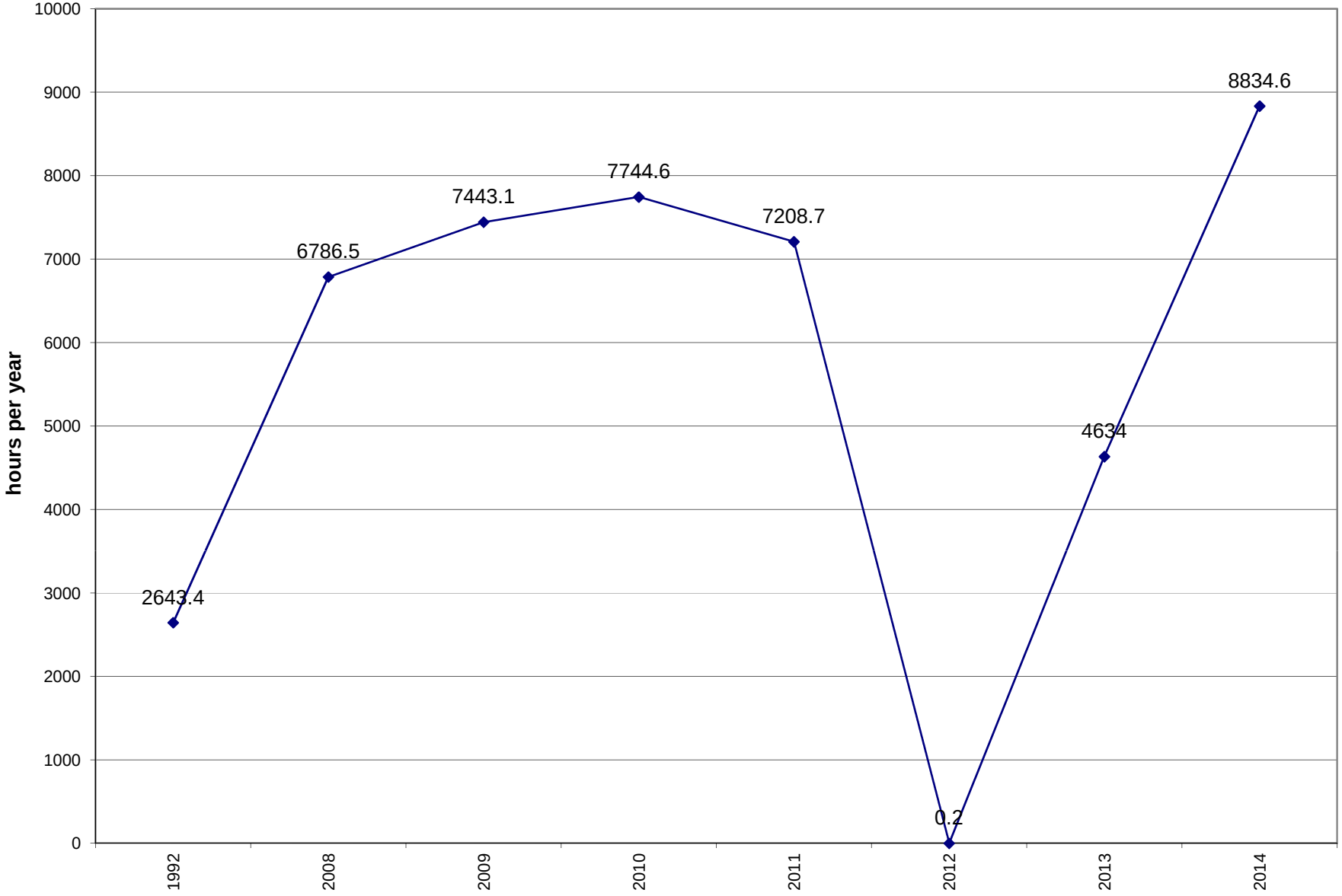
Historical Pump Run Trends
Glacial Drift Well W-35
Arkema Coating Resins
Saukville, Wisconsin



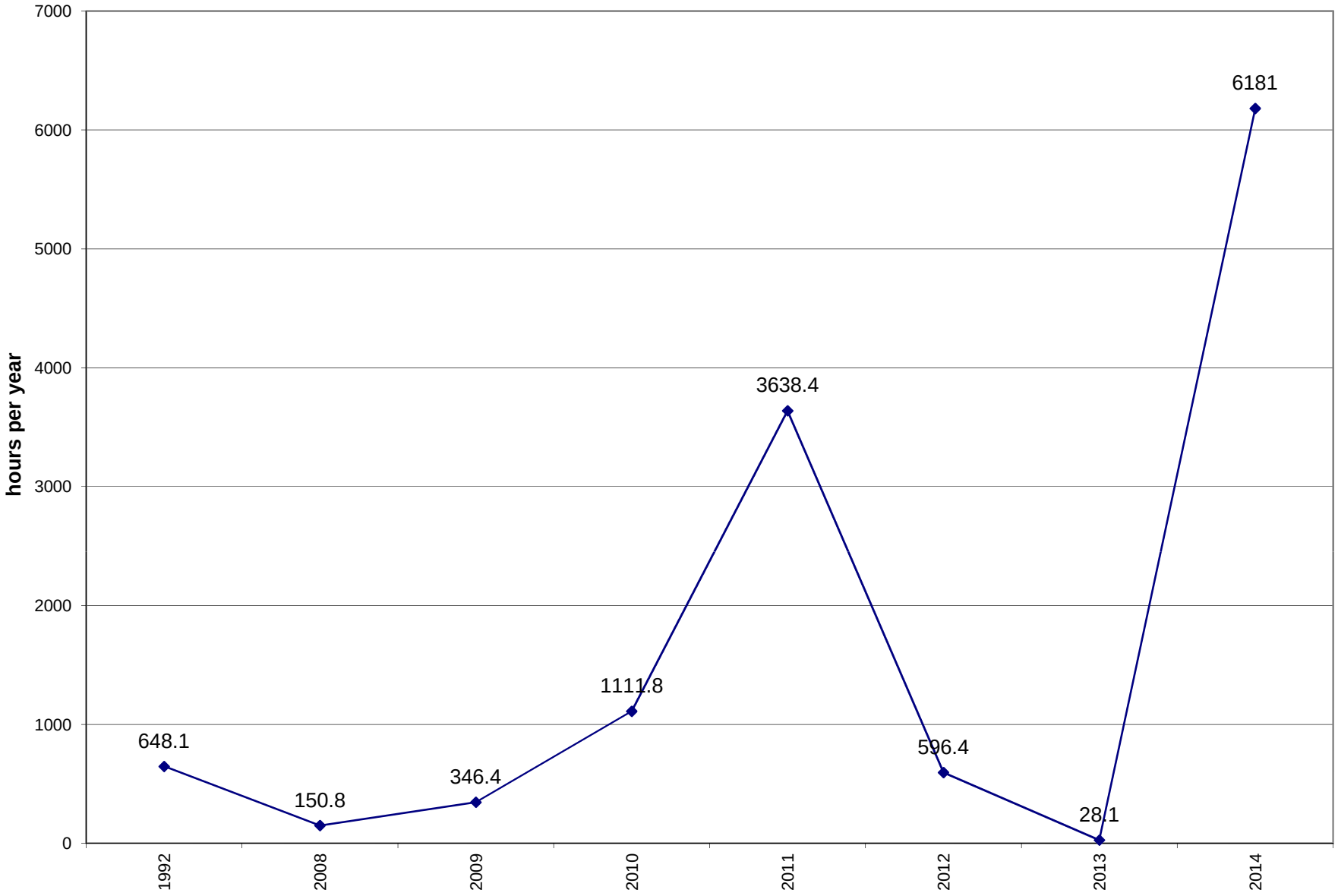
Historical Pump Run Trends
Ranney Collector RC-1
Arkema Coating Resins
Saukville, Wisconsin



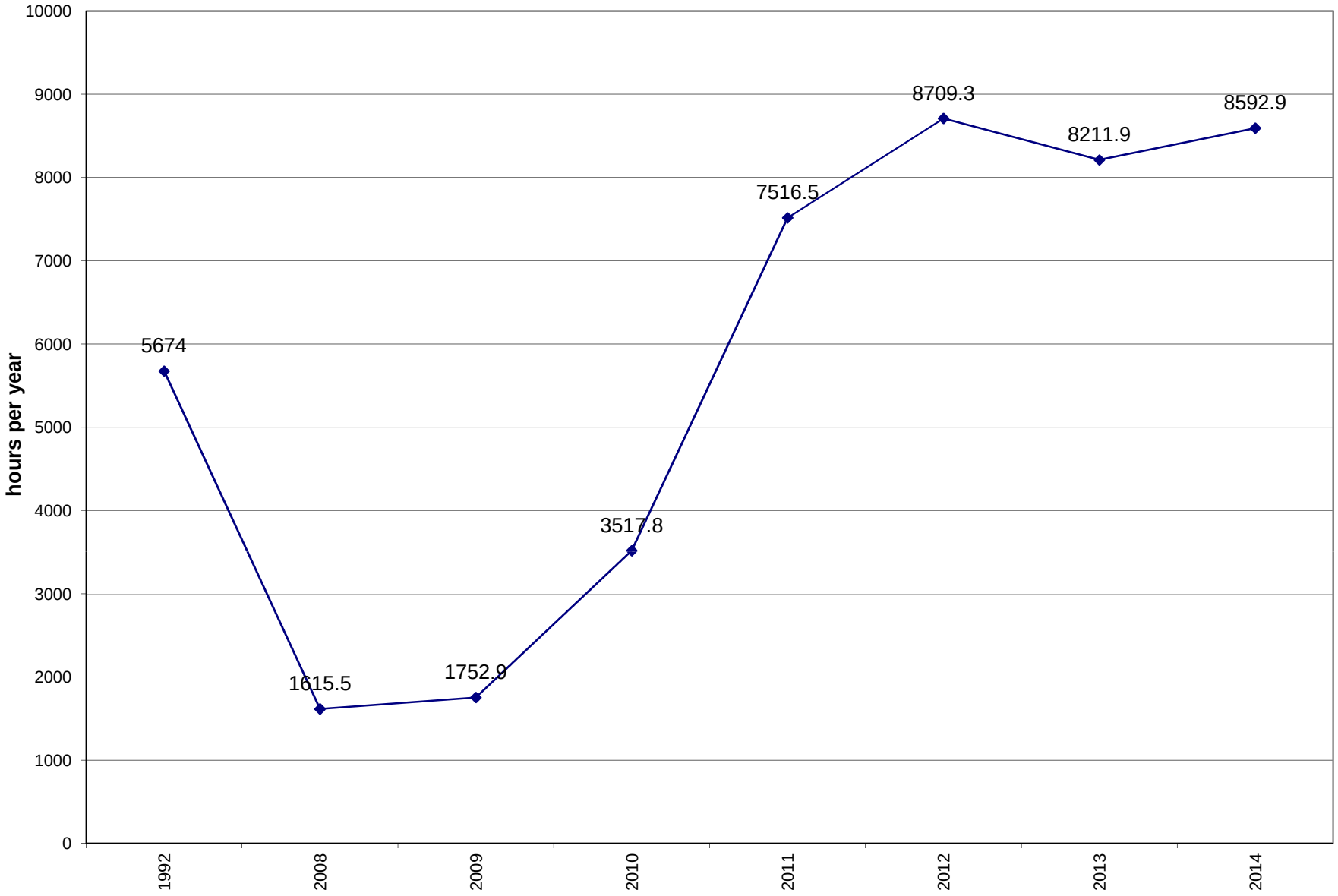
Historical Pump Run Trends
Ranney Collector RC-2
Arkema Coating Resins
Saukville, Wisconsin

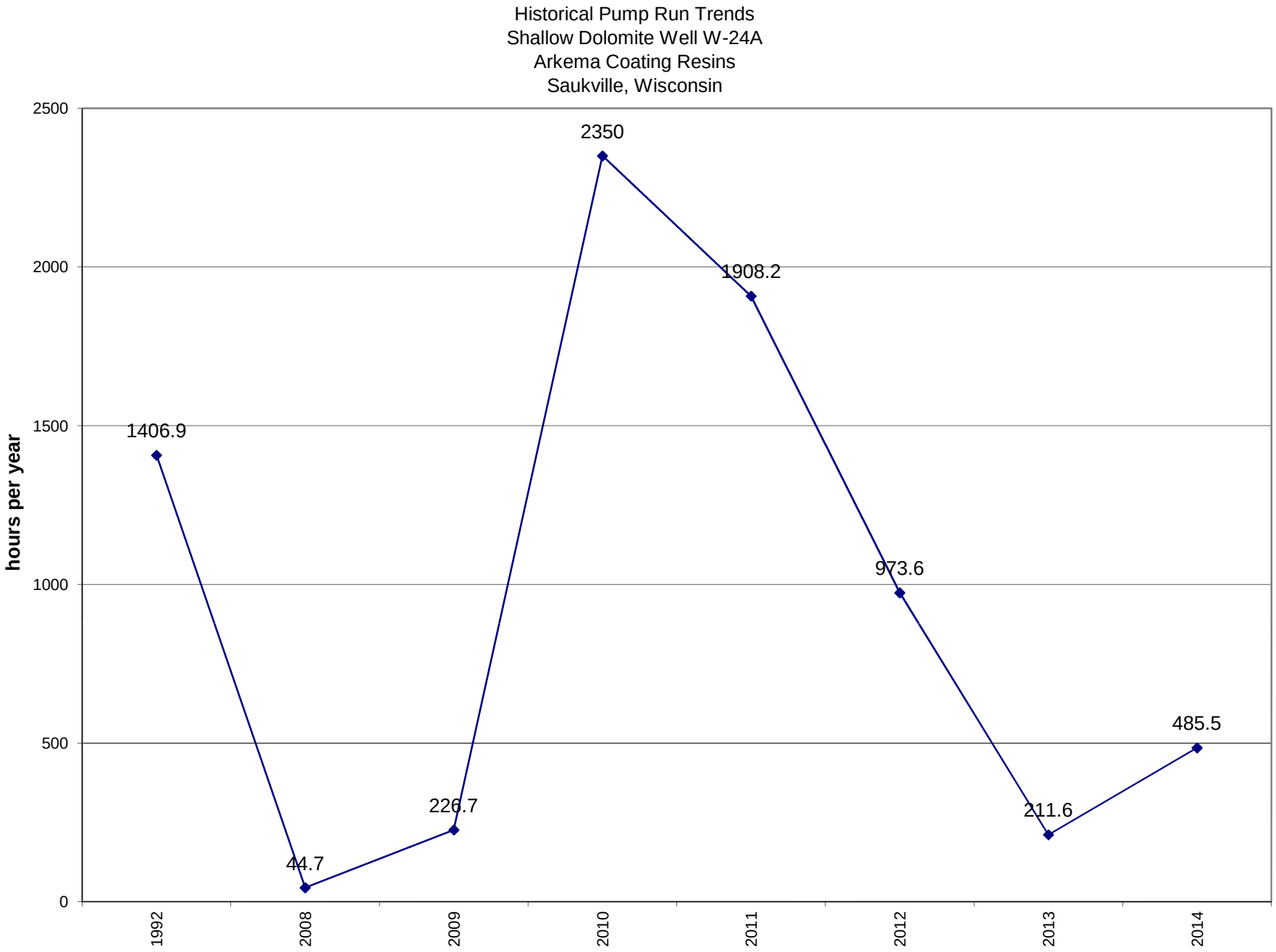


Historical Pump Run Trends
Ranney Collector RC-3
Arkema Coating Resins
Saukville, Wisconsin

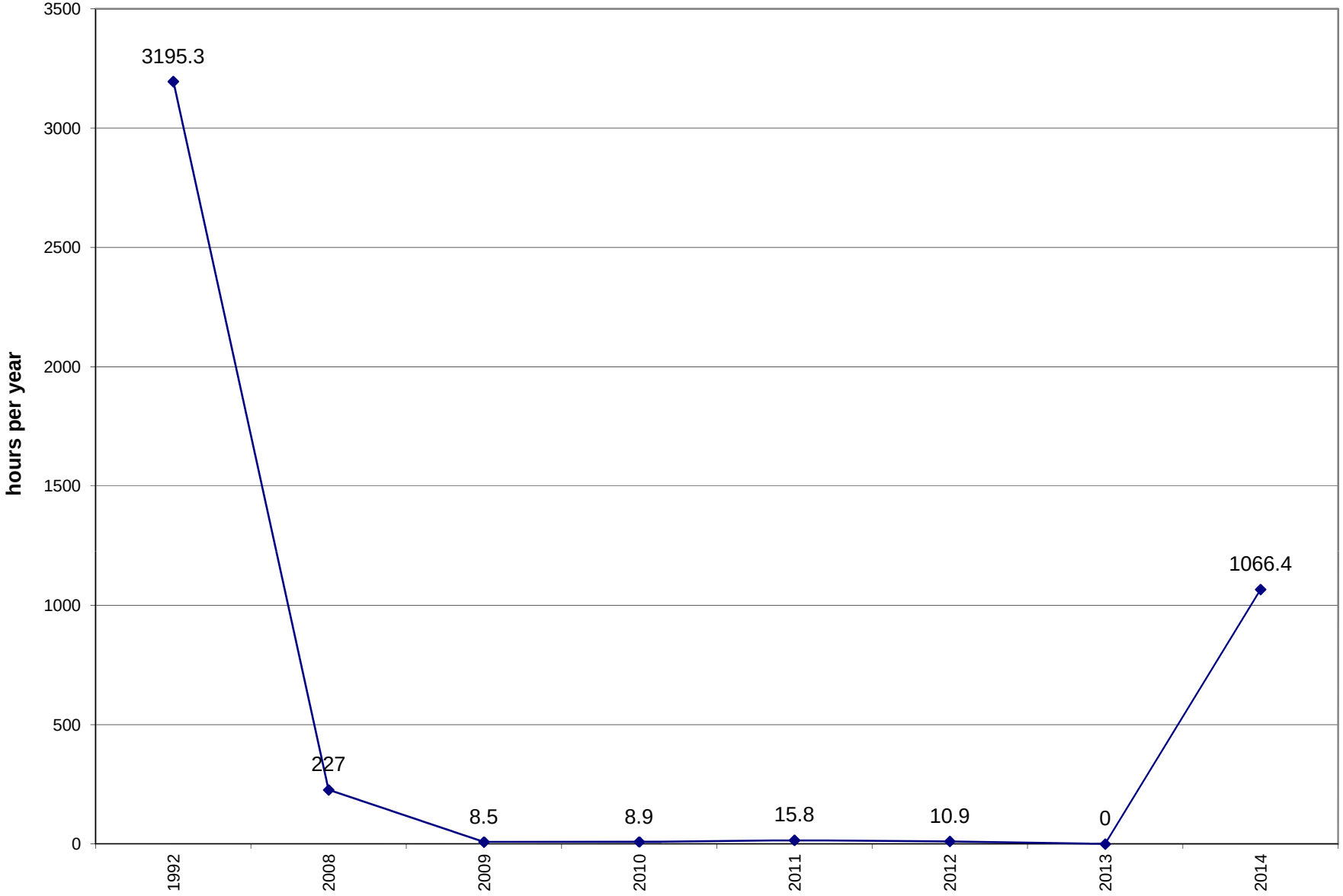


Historical Pump Run Trends
Shallow Dolomite Well W-21A
Arkema Coating Resins
Saukville, Wisconsin

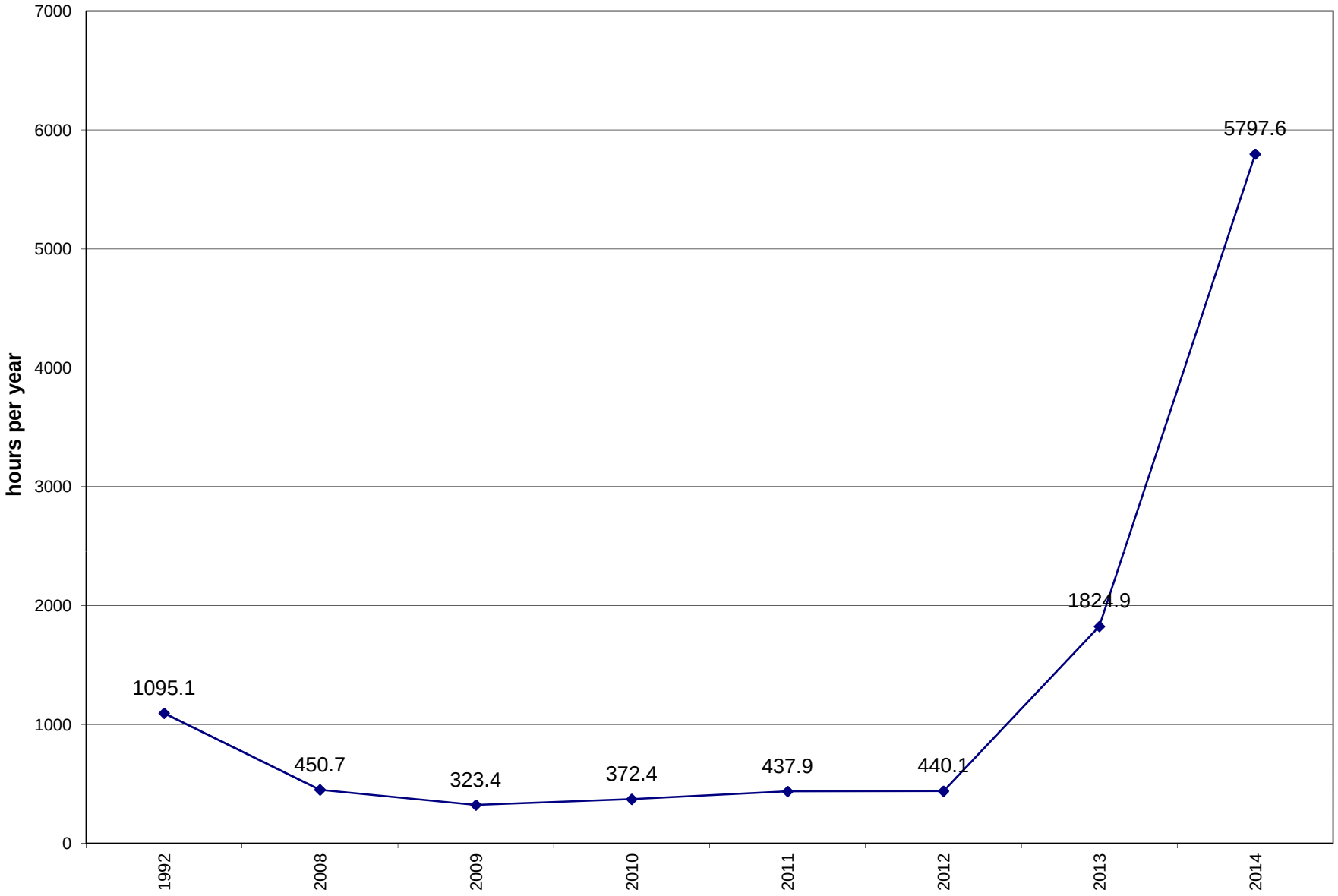



Historical Pump Run Trends
Shallow Dolomite Well W-24A
Arkema Coating Resins
Saukville, Wisconsin
hours per year
2500
2000
1500
1000
500
0
1406.9
44.7
226.7
2350
1908.2
973.6
211.6
485.5
1992
2008
2009
2010
2011
2012
2013
2014

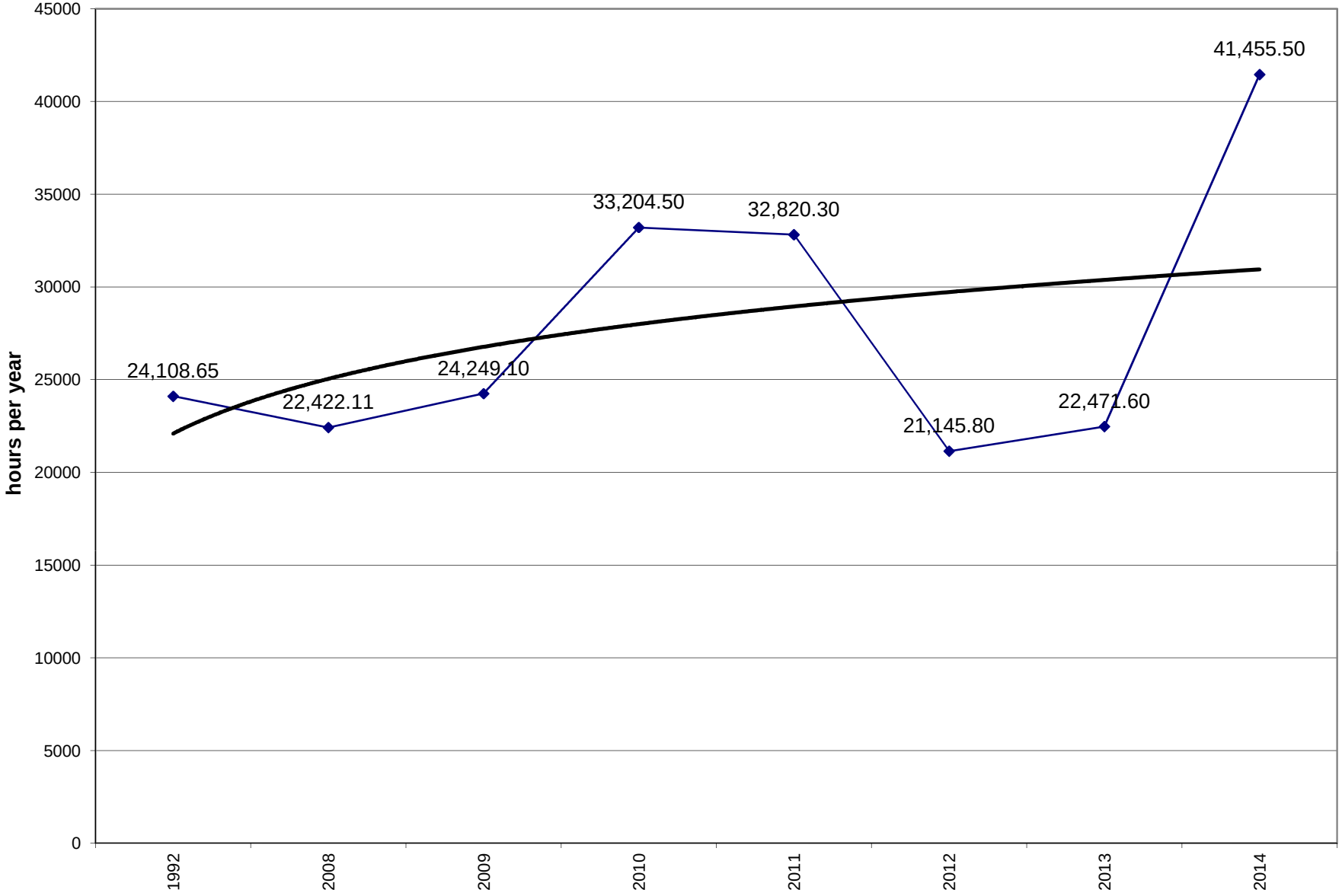
Historical Pump Run Trends
Shallow Dolomite Well W-28
Arkema Coating Resins
Saukville, Wisconsin



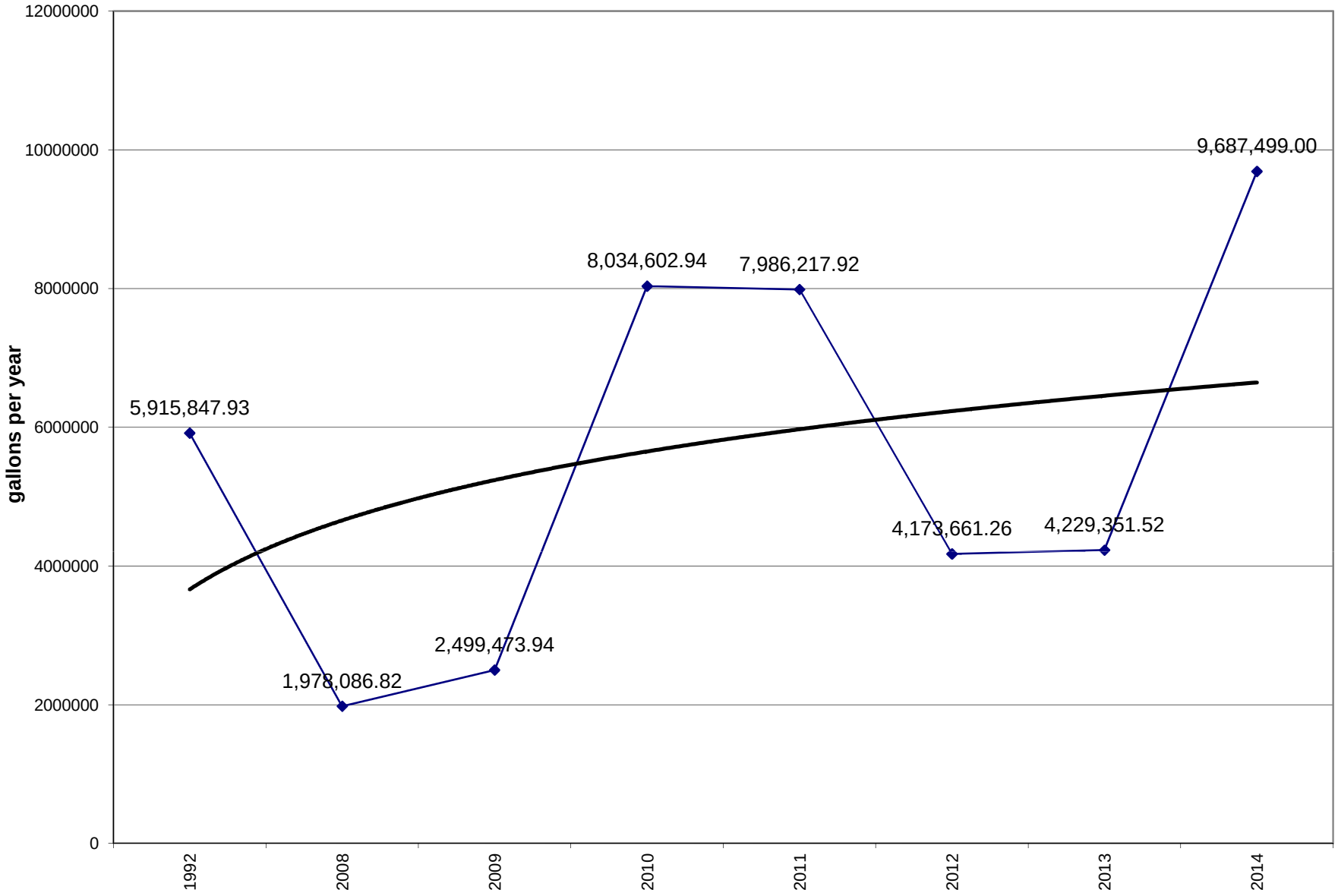
Historical Pump Run Trends
Shallow Dolomite Well W-29
Arkema Coating Resins
Saukville, Wisconsin



Historical Pump Run Trends
Total Pumping
Arkema Coating Resins
Saukville, Wisconsin



Historical Pump Run Trends
Total Pumping
Arkema Coating Resins
Saukville, Wisconsin



APPENDIX C

HYDROGEOLOGIC CALCULATIONS

Hydrogeological Calculations
Fall 2014
Arkema Coating Resins
Saukville, Wisconsin

Horizontal Gradient

Glacial Drift Unit

$$i = \frac{dH}{dL} = \frac{765-740}{780} = 0.032 \quad \text{(eastward)}$$

Shallow and Deep Dolomite Units

$$i = \frac{dH}{dL} = \frac{750-550}{400} = 0.500$$

convergent on W-30

$$i = \frac{dH}{dL} = \frac{750-550}{200} = 1.000$$

Vertical Gradient

Between glacial drift unit and shallow dolomite unit

W-18A/W-22 Fall 2014 Water Level Data

Center D = (772.53-66) + 0.5(40) = 726.53

$$Iv = \frac{WLS - WLD}{WLS - Center\ D}$$

WLS =	767.88	W-18A	0.25	(downward)
WLD =	757.58	W-22		

W-43/W-38 Fall 2014 Water Level Data

Center D = (770.98-49.00) + 0.5(16.8) = 730.38

$$Iv = \frac{WLS - WLD}{WLS - Center\ D}$$

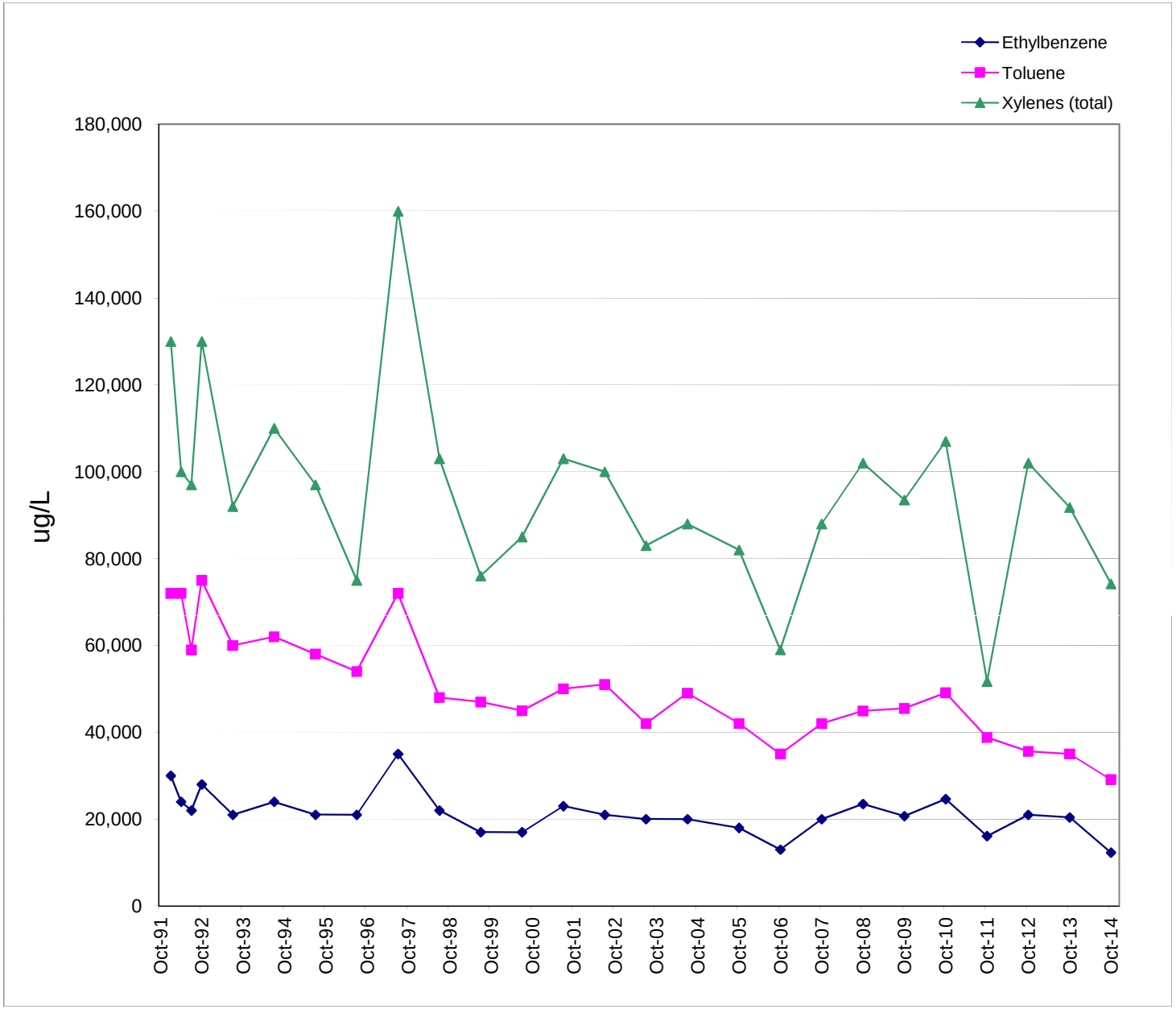
WLS =	764.54	W-43	0.39	(downward)
WLD =	751.32	W-38		

APPENDIX D

INDIVIDUAL CONTAMINANT TRENDS: 1992-2014

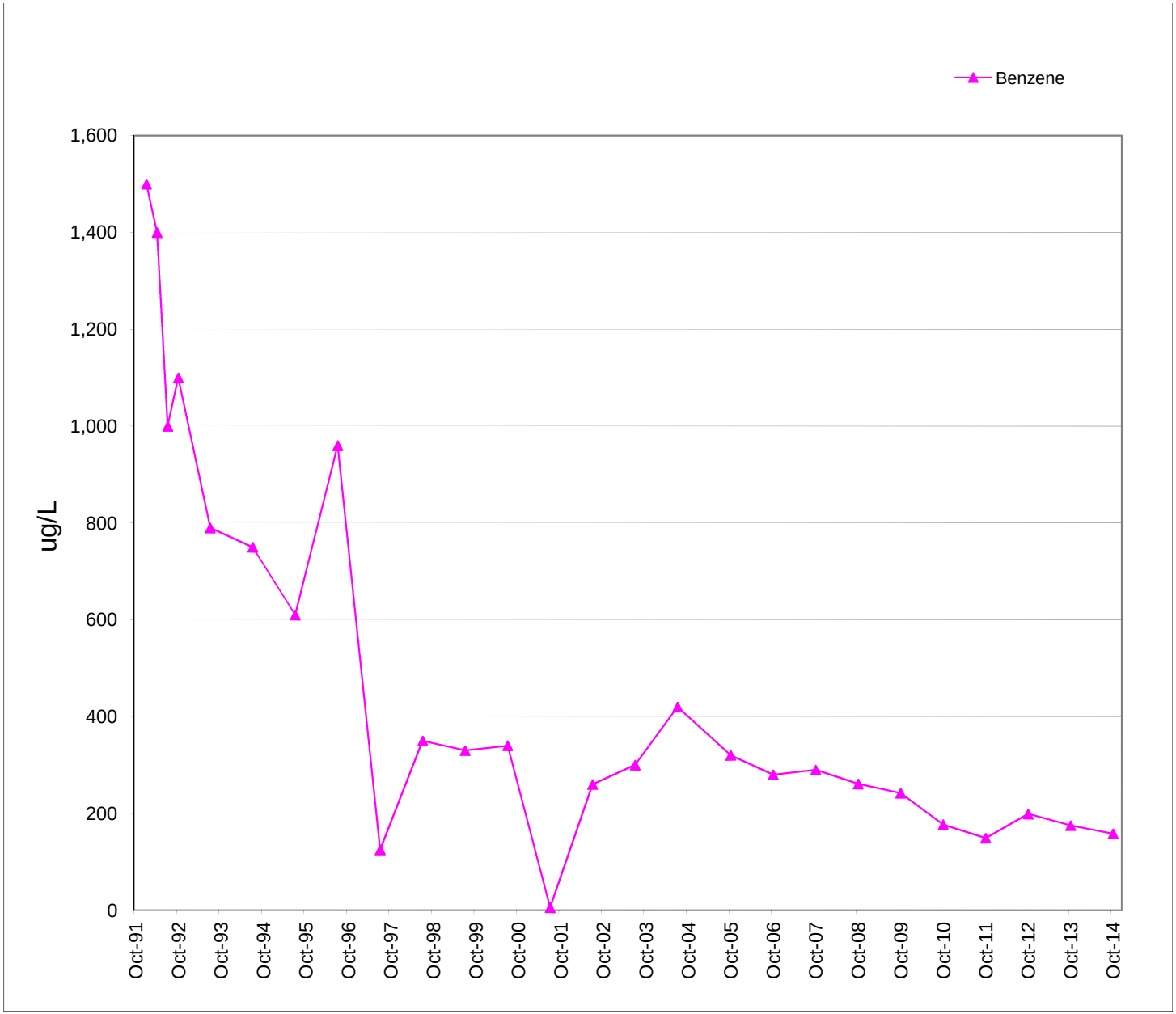
W-06A VOC

Remediation Progress - Glacial Drift



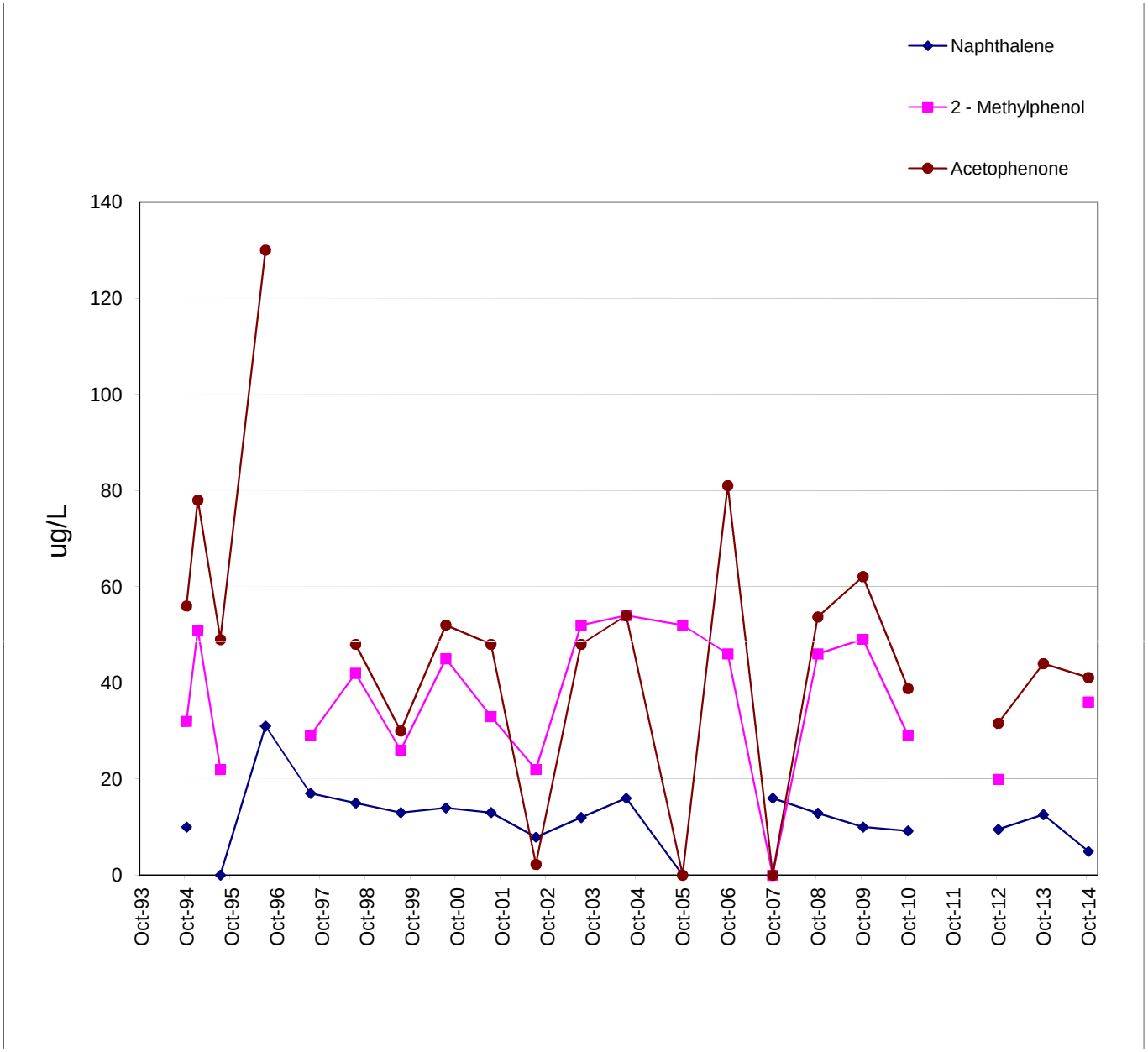
W-06A VOC

Remediation Progress - Glacial Drift



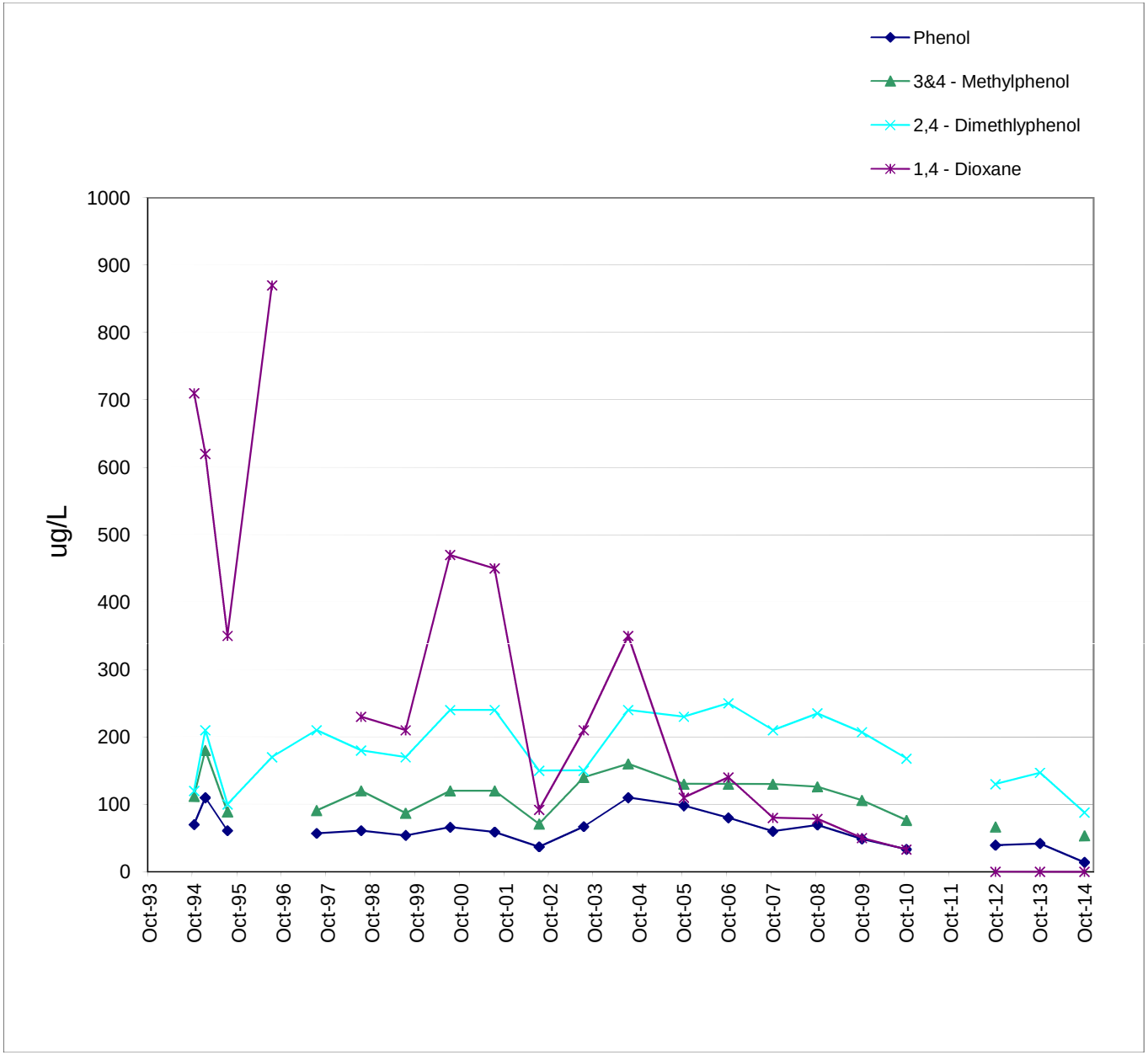
W-06A SVOC

Remediation Progress - Glacial Drift



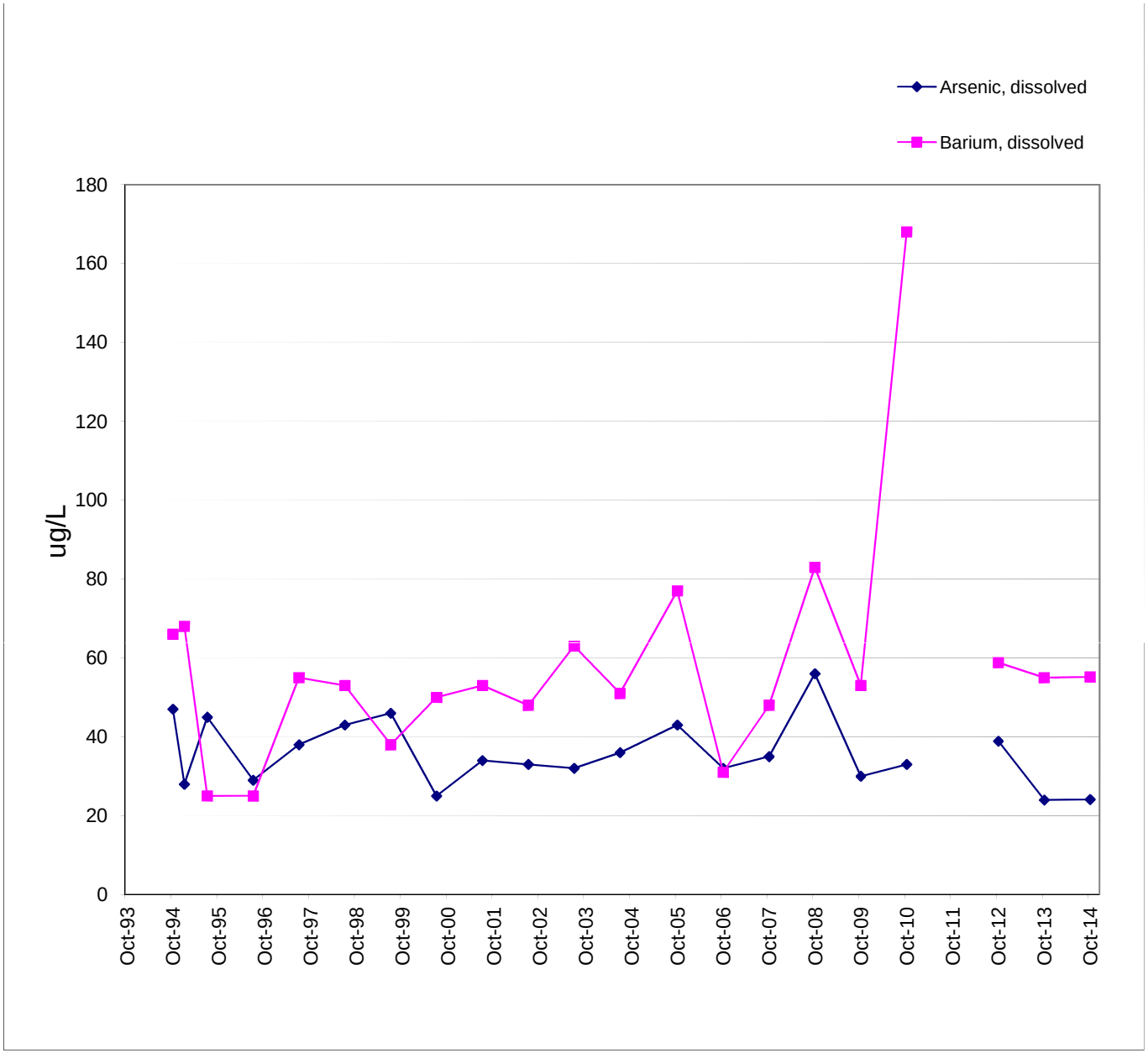
W-06A SVOC

Remediation Progress - Glacial Drift



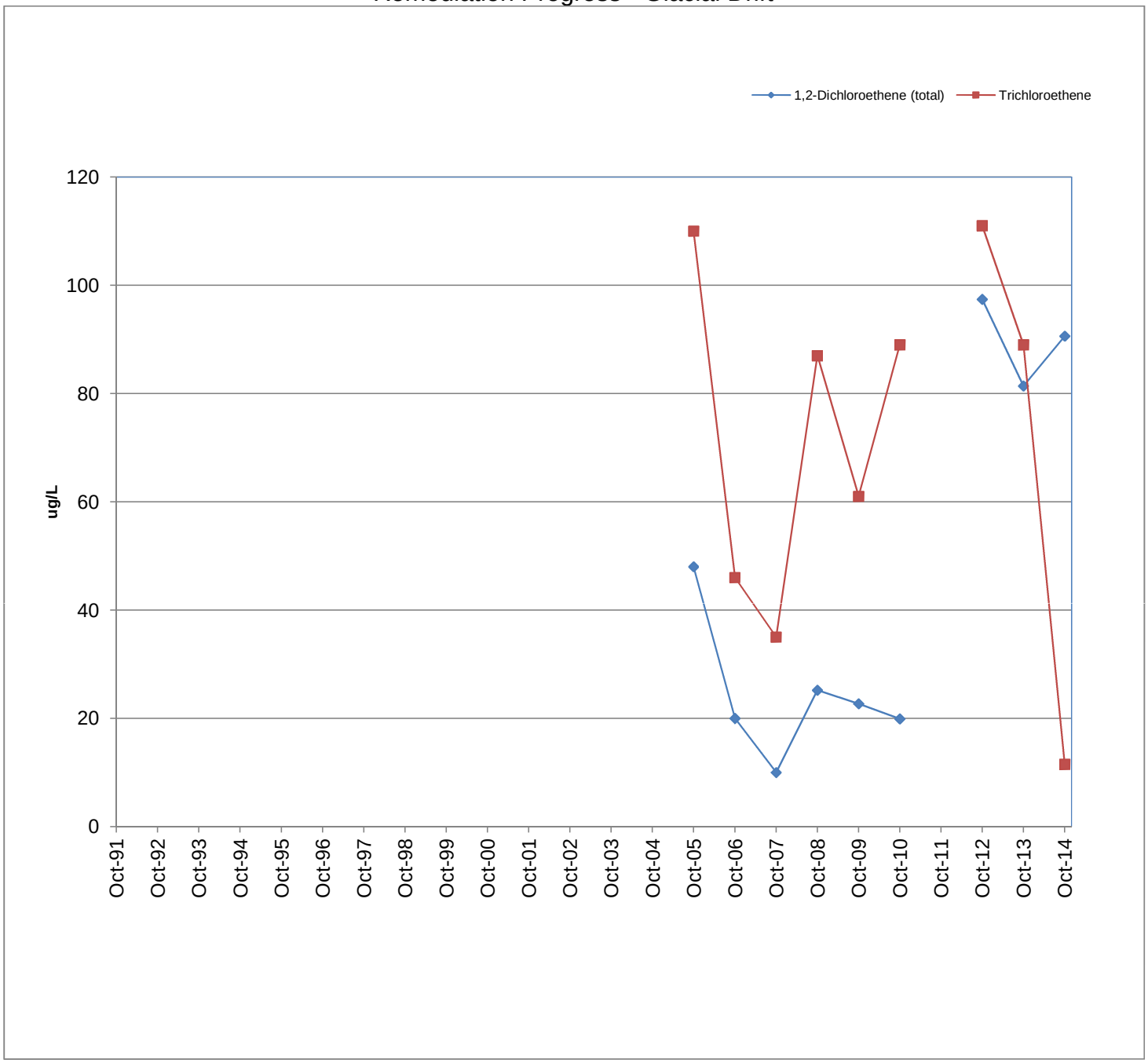
W-06A Metals

Remediation Progress - Glacial Drift



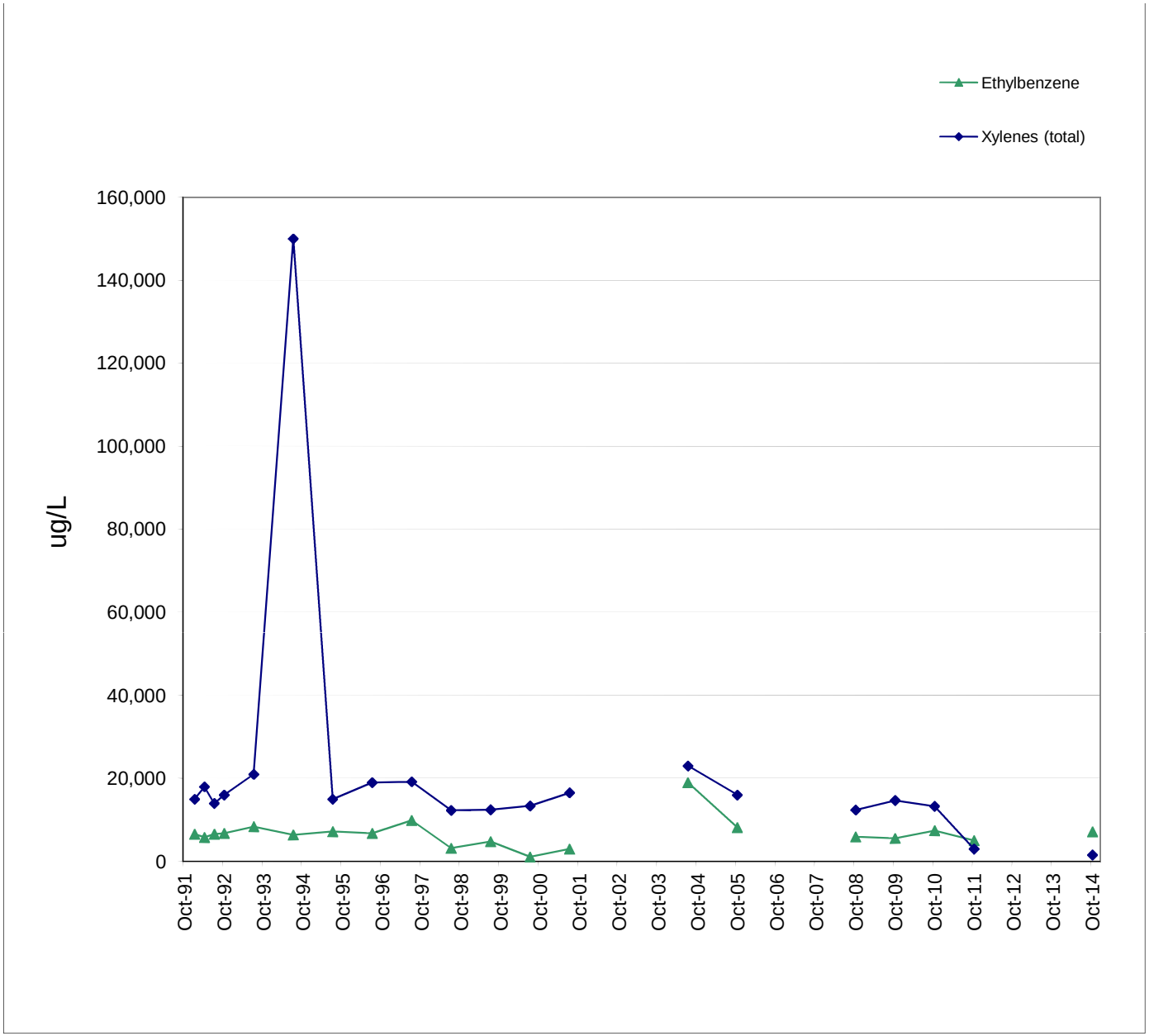
W-19A VOC

Remediation Progress - Glacial Drift



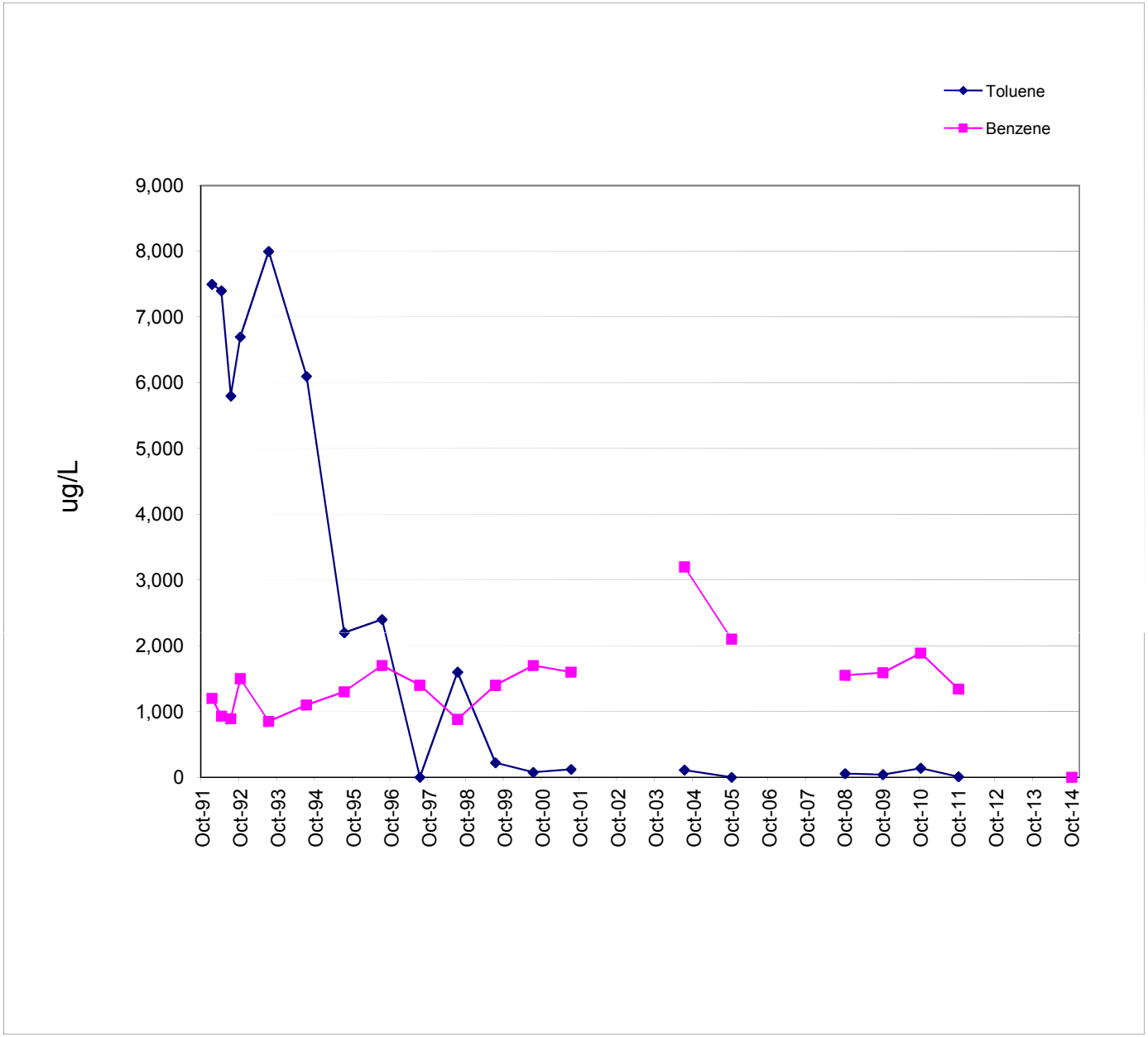
W-21A VOC

Remediation Progress - Shallow Dolomite



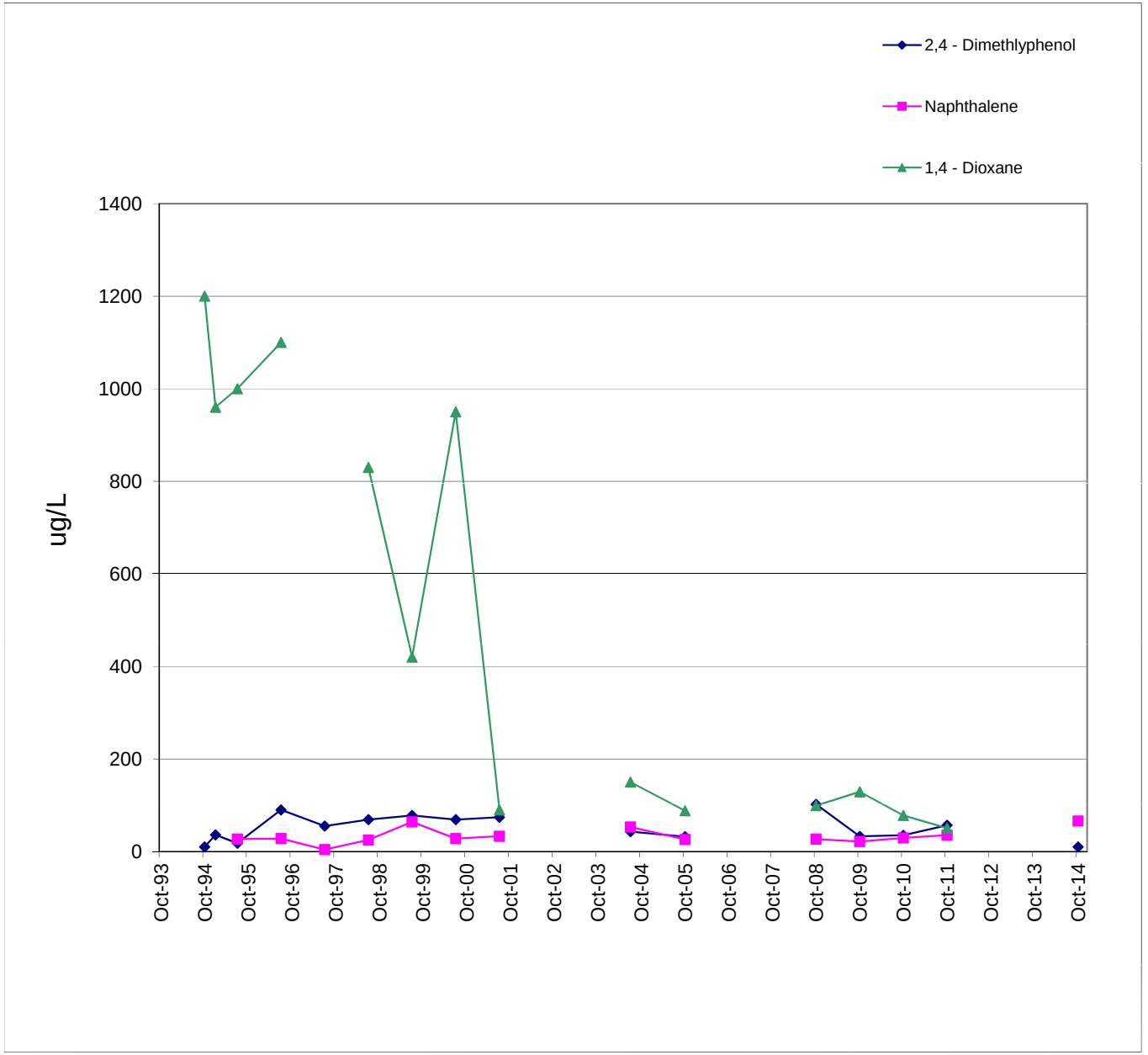
W-21A VOC

Remediation Progress - Shallow Dolomite



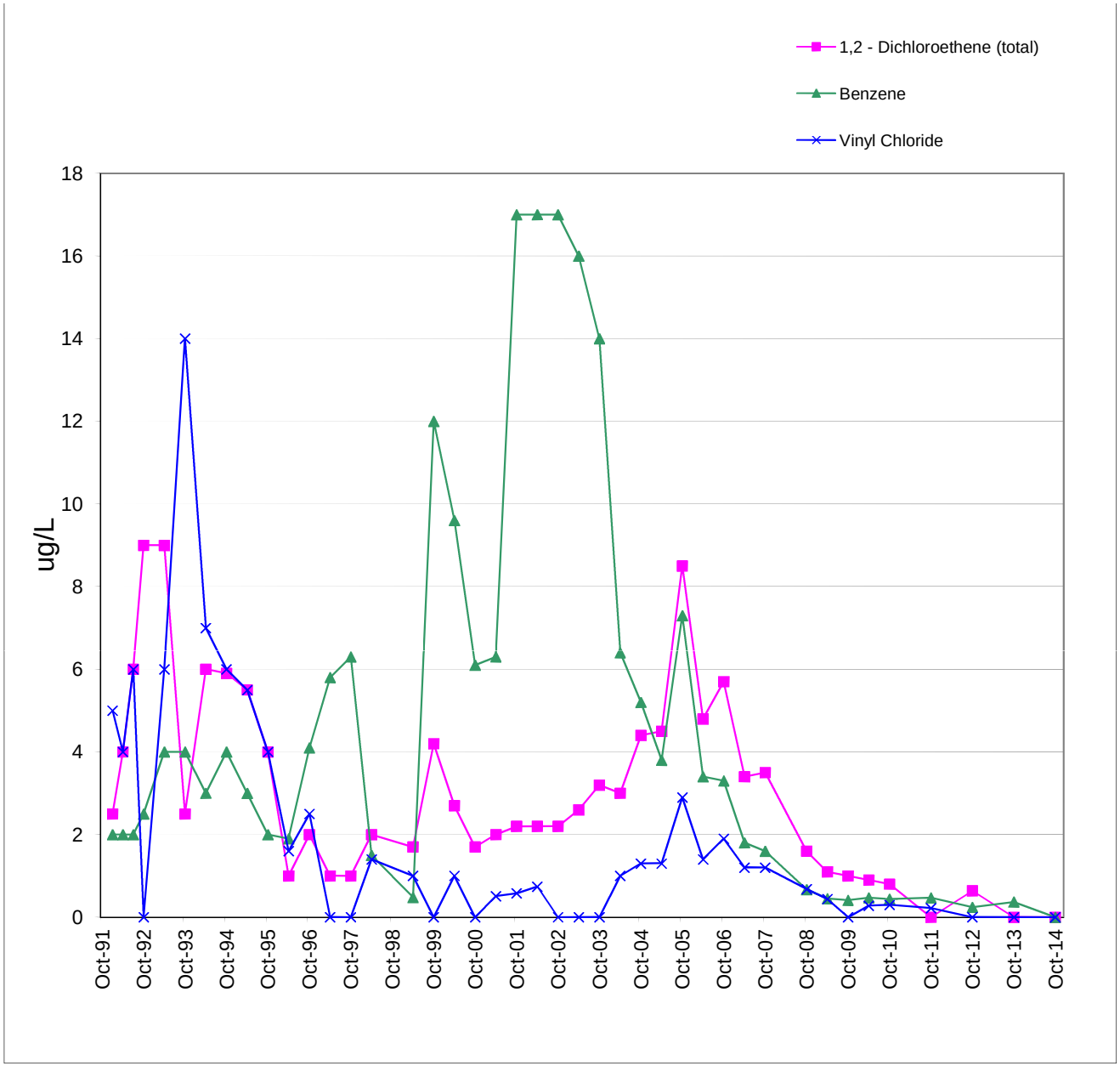
W-21A SVOC

Remediation Progress - Shallow Dolomite



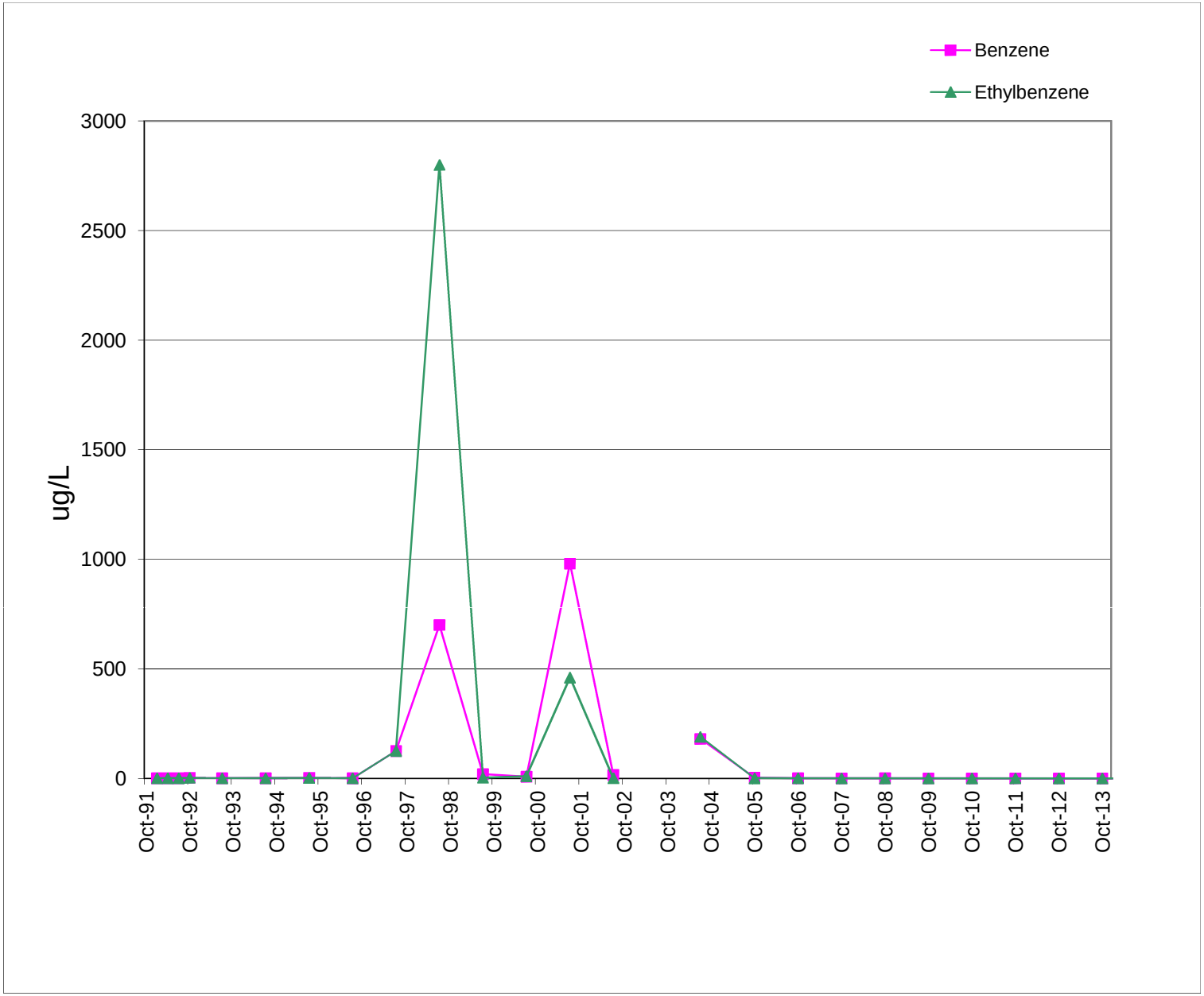
W-23 VOC

Perimeter - Shallow Dolomite



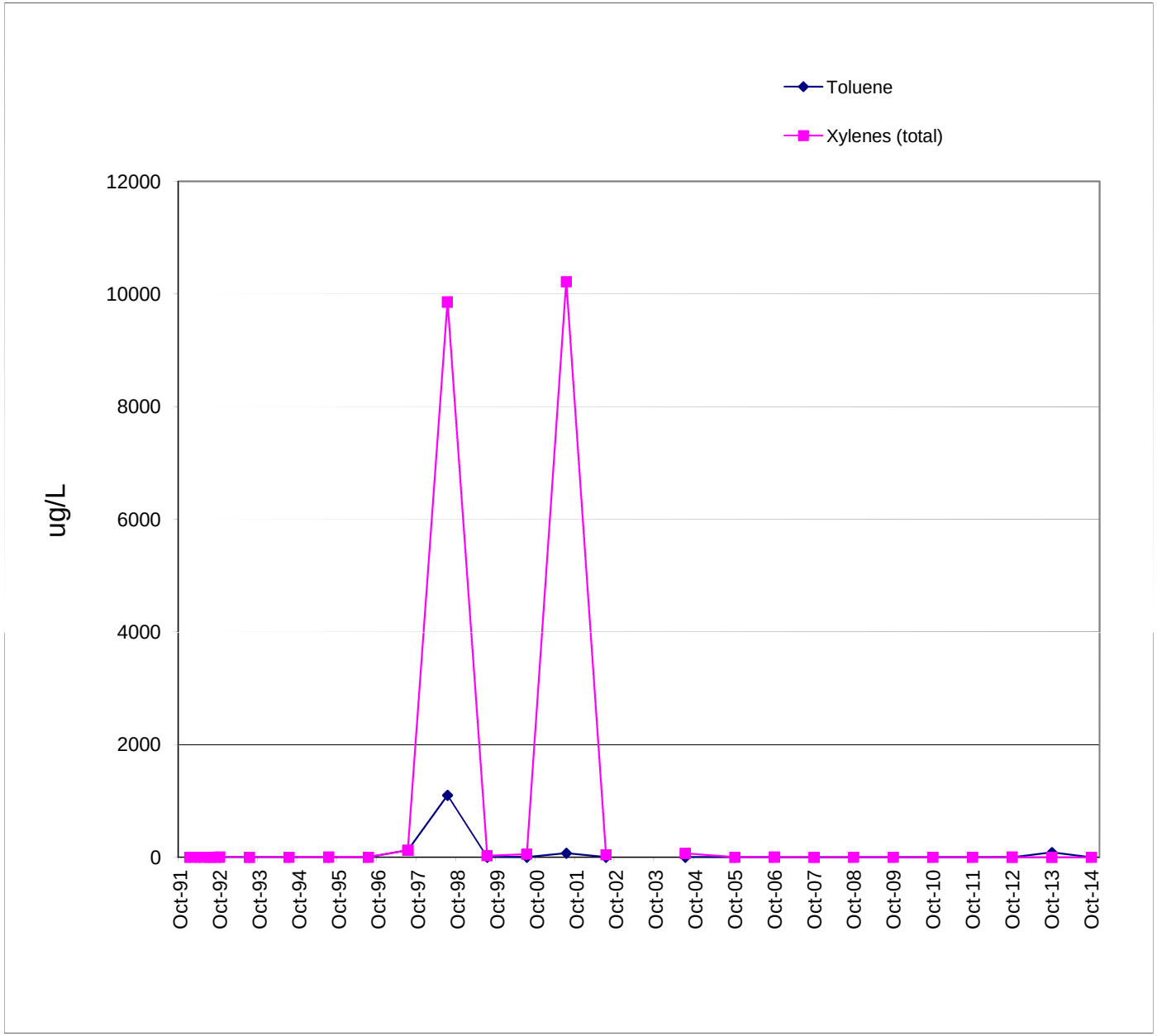
W-24A VOC

Remediation Progress - Shallow Dolomite



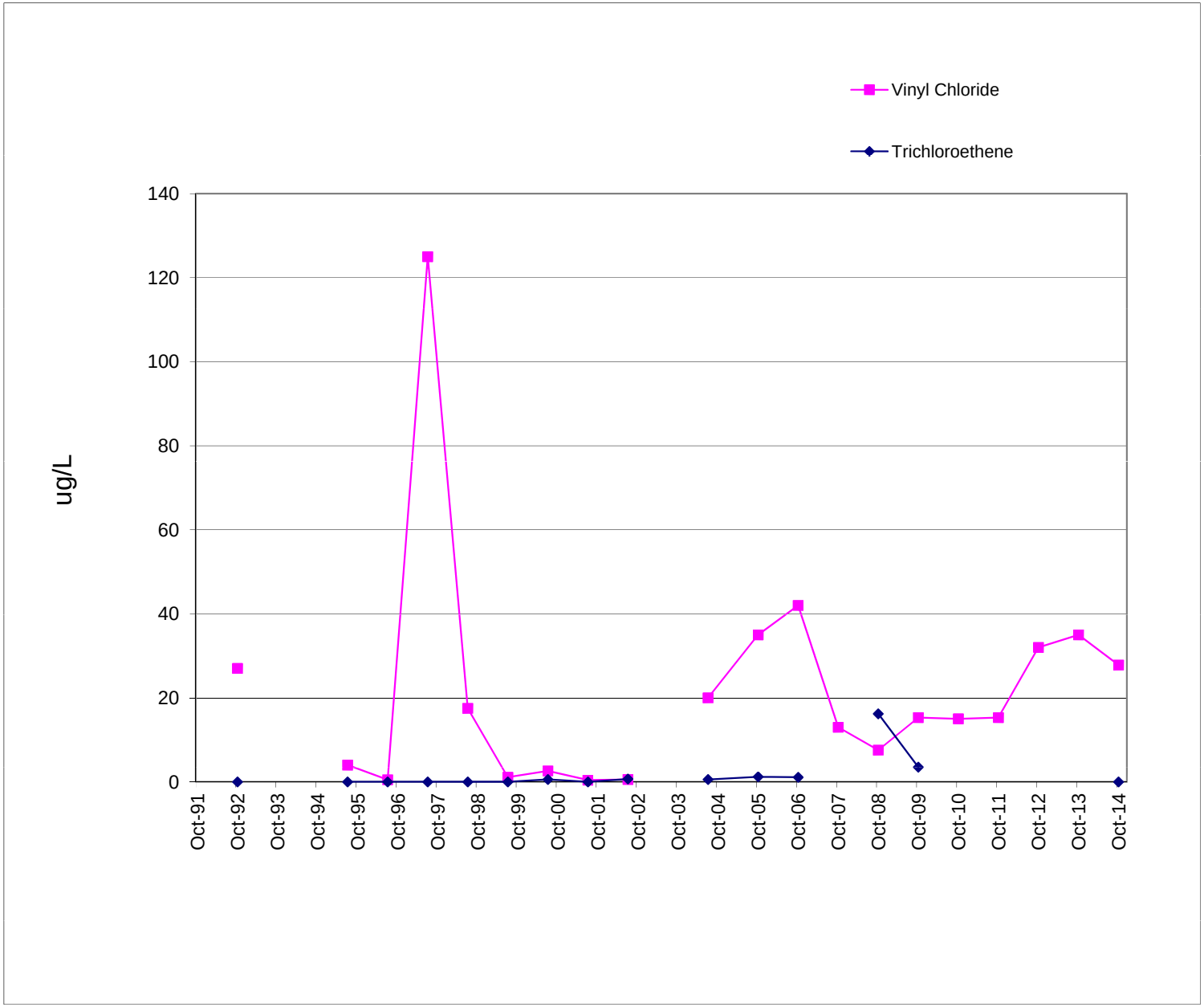
W-24A VOC

Remediation Progress - Shallow Dolomite



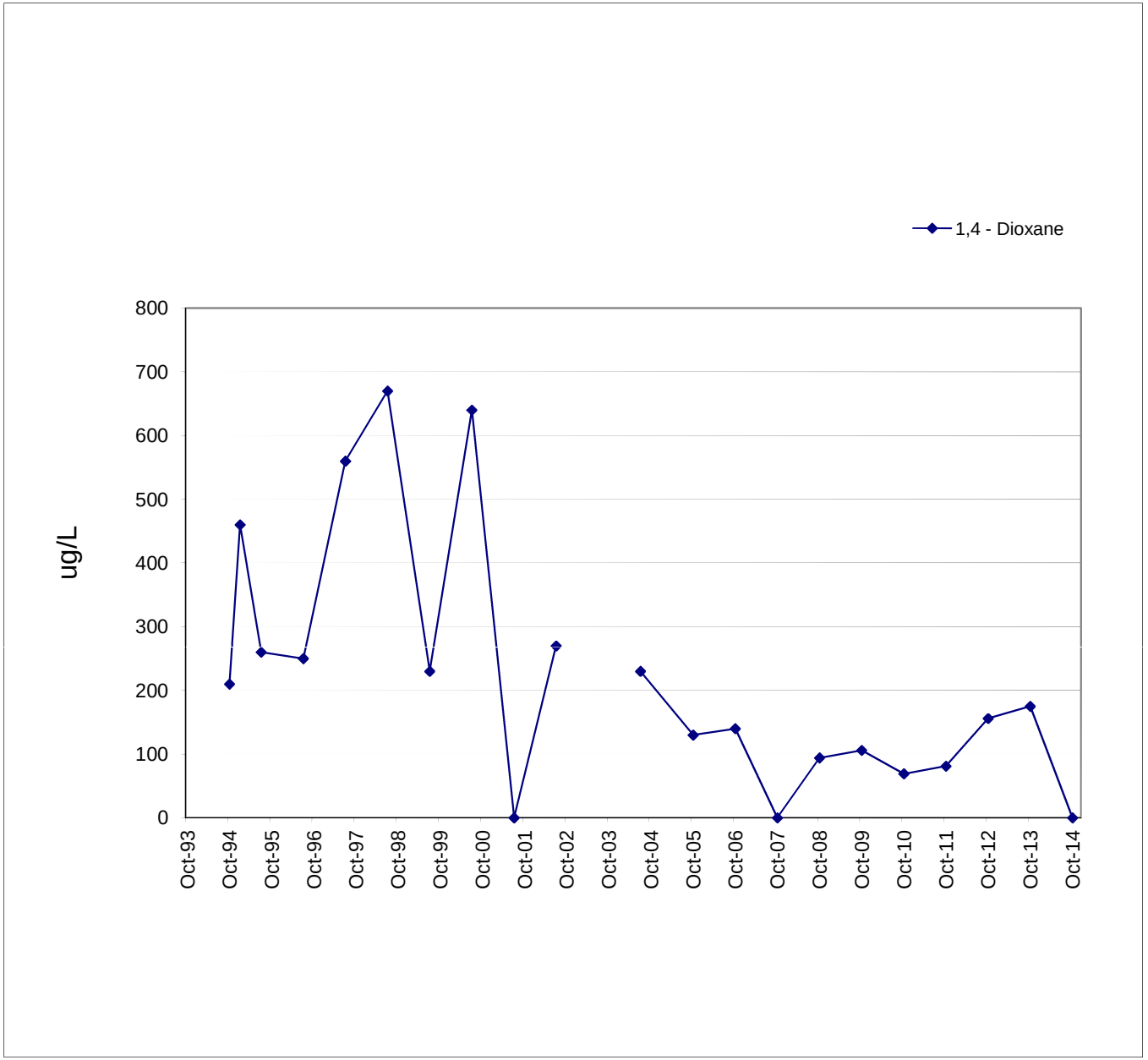
W-24A VOC

Remediation Progress - Shallow Dolomite



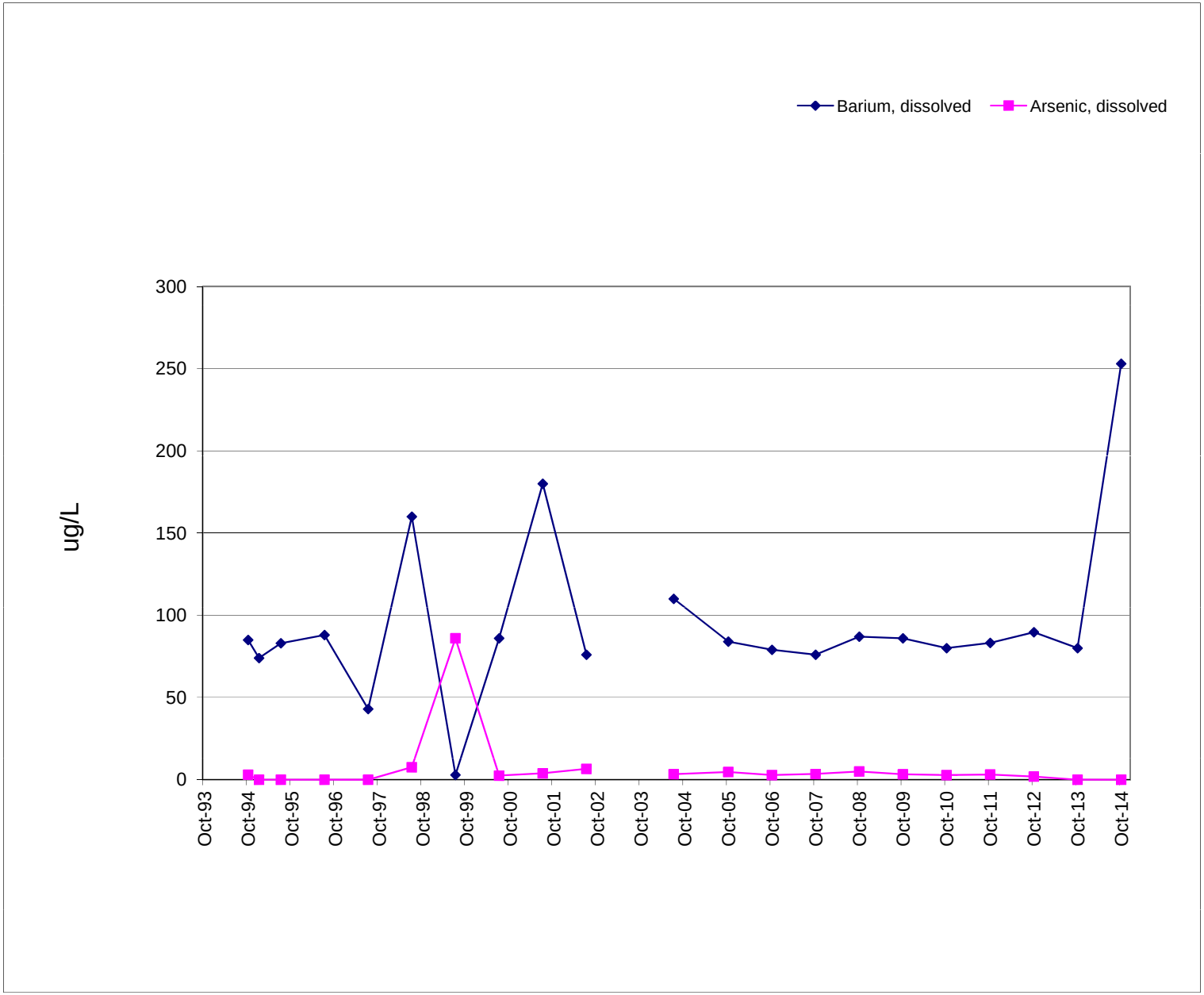
W-24 SVOC

Remediation Progress - Shallow Dolomite



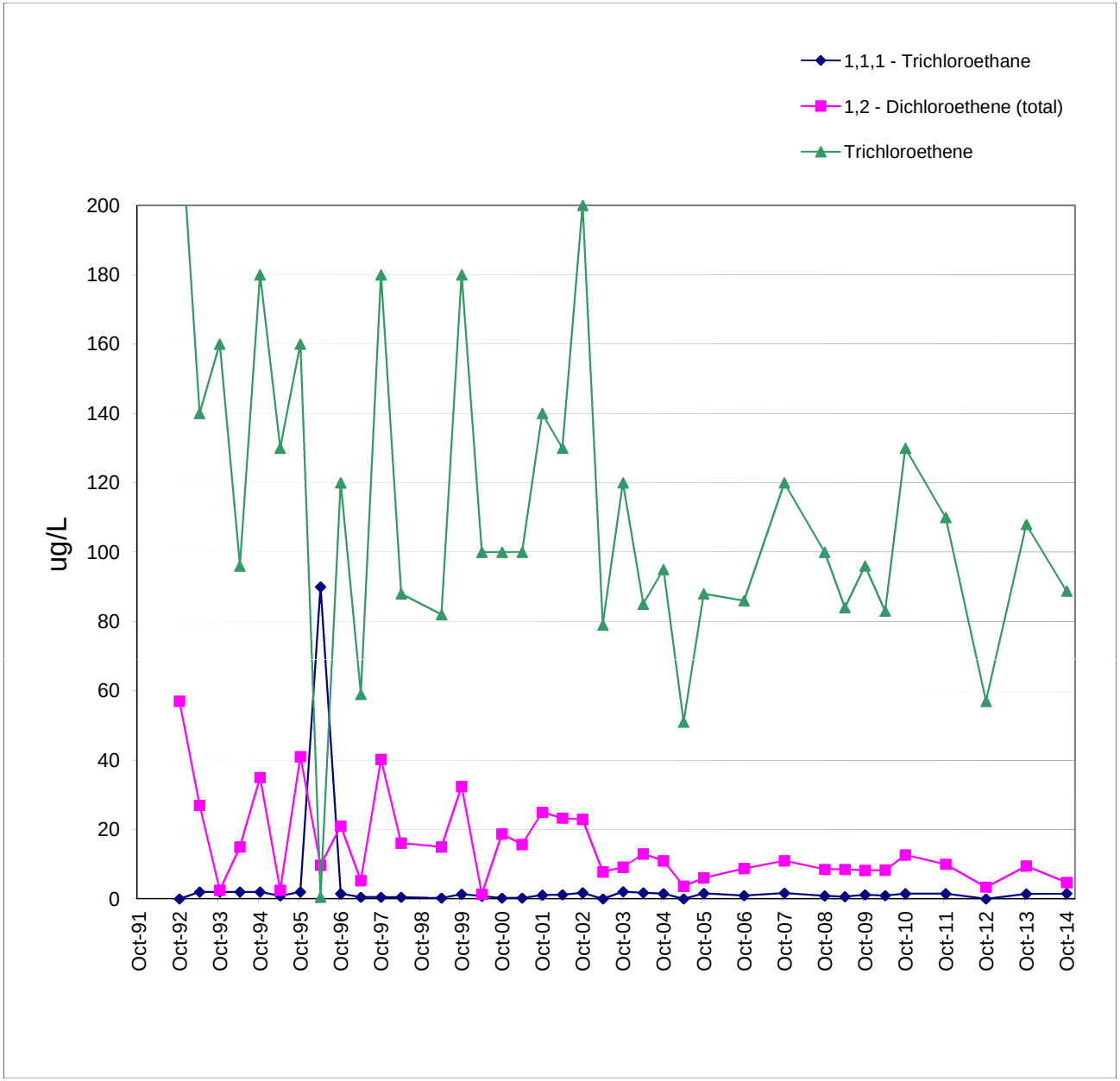
W-24 Metals

Remediation Progress - Shallow Dolomite



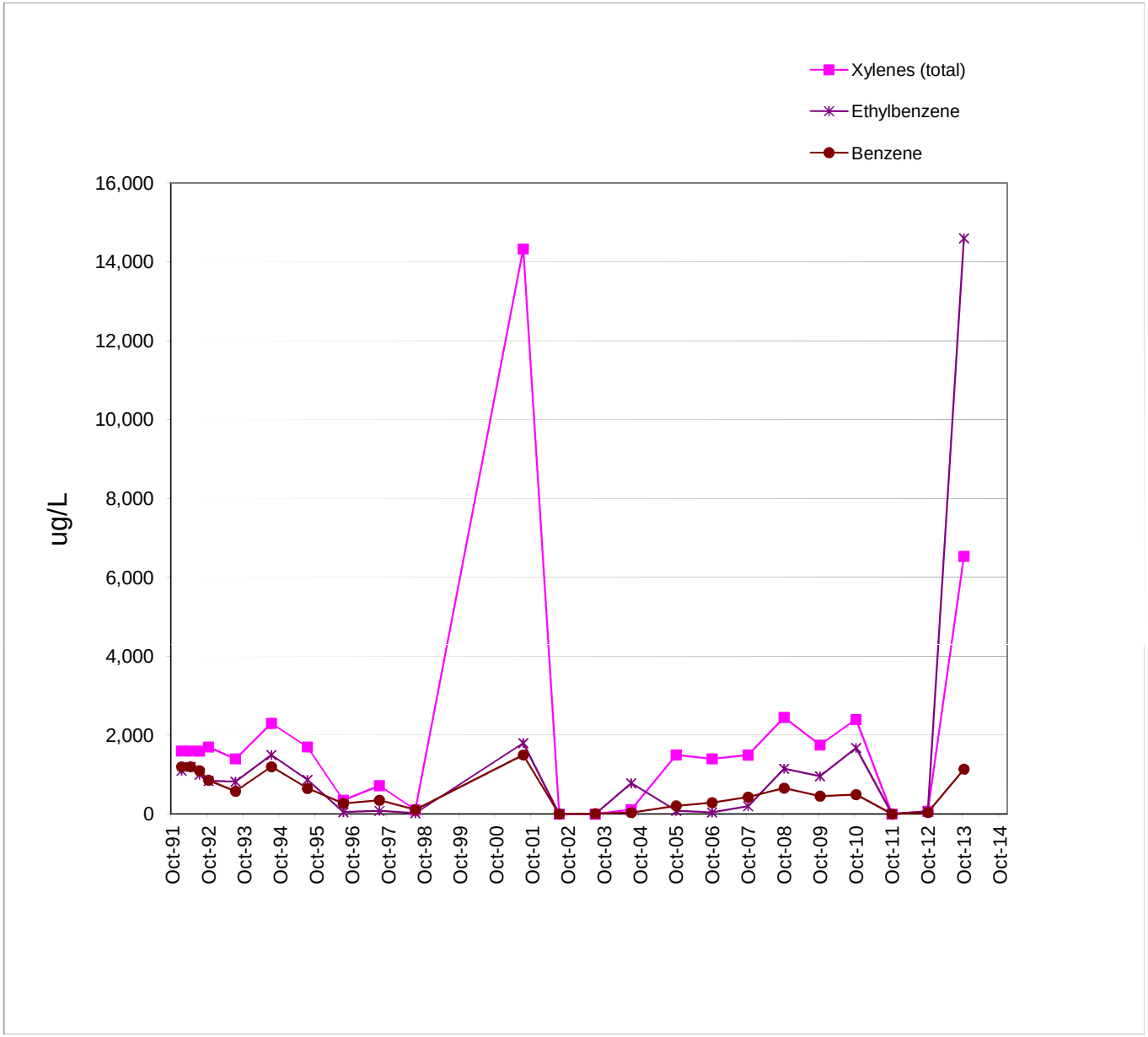
W-27 VOC

Perimeter - Glacial Drift



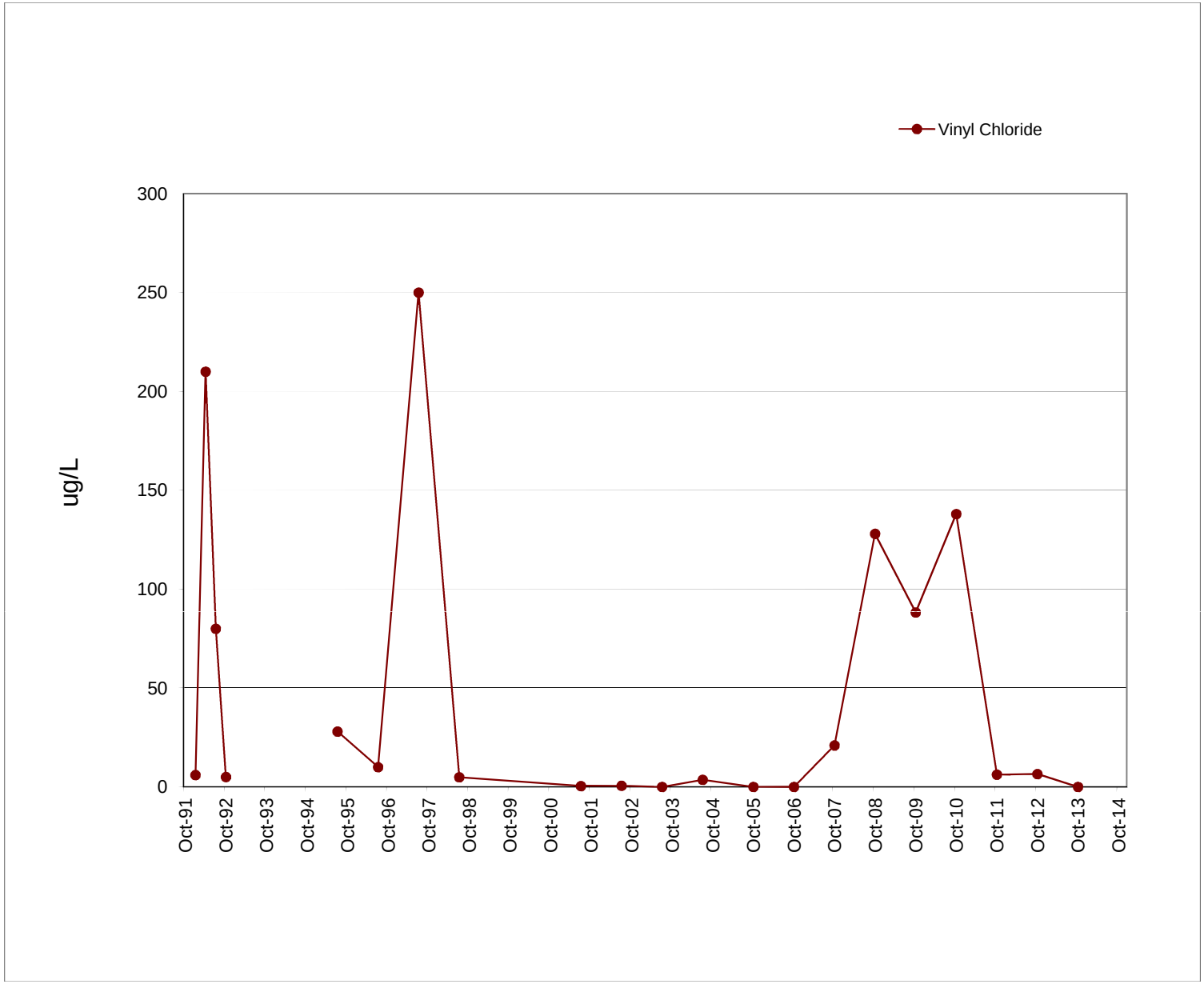
W-29 VOC

Remediation Progress - Shallow Dolomite



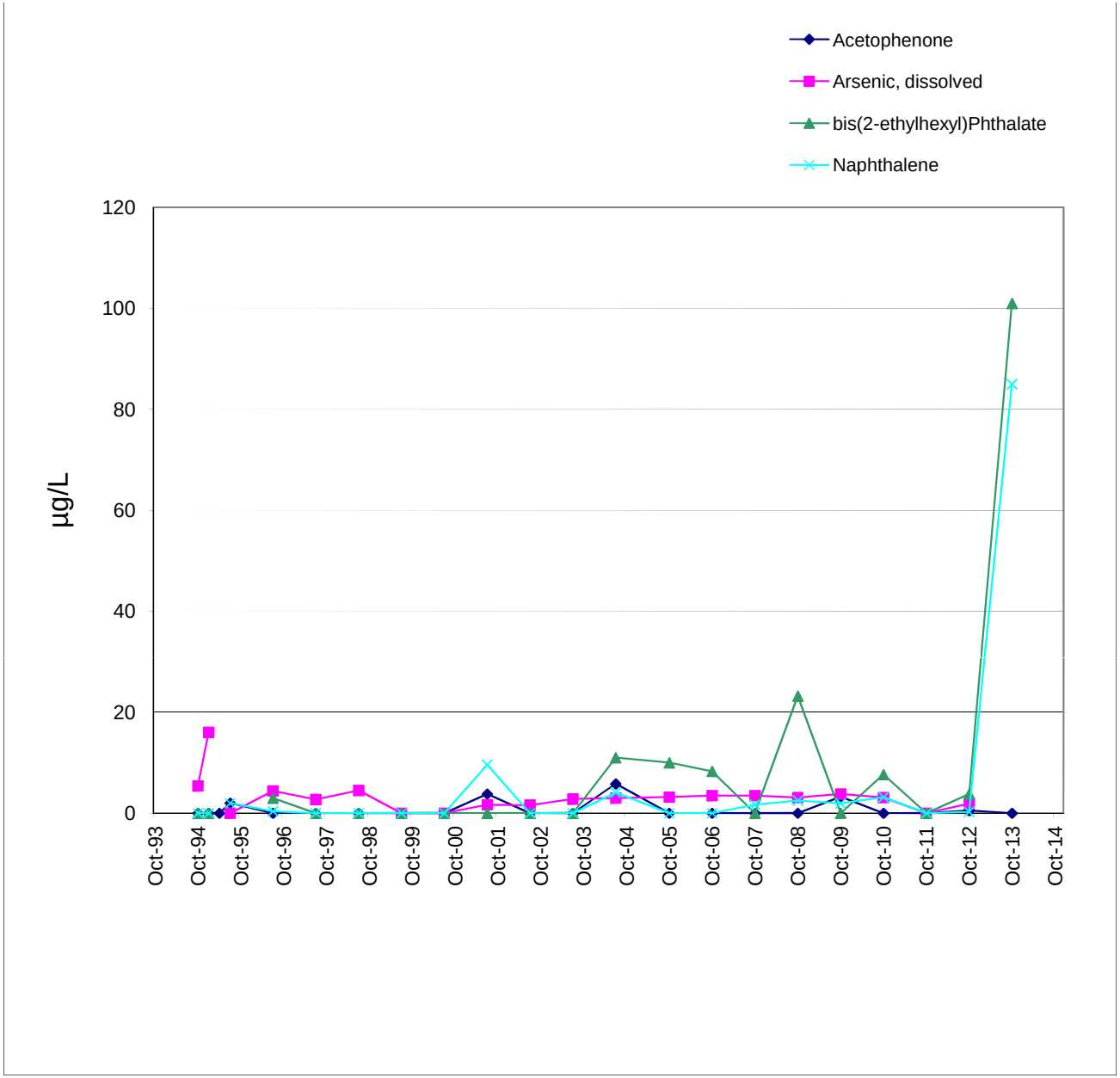
W-29 VOC

Remediation Progress - Shallow Dolomite



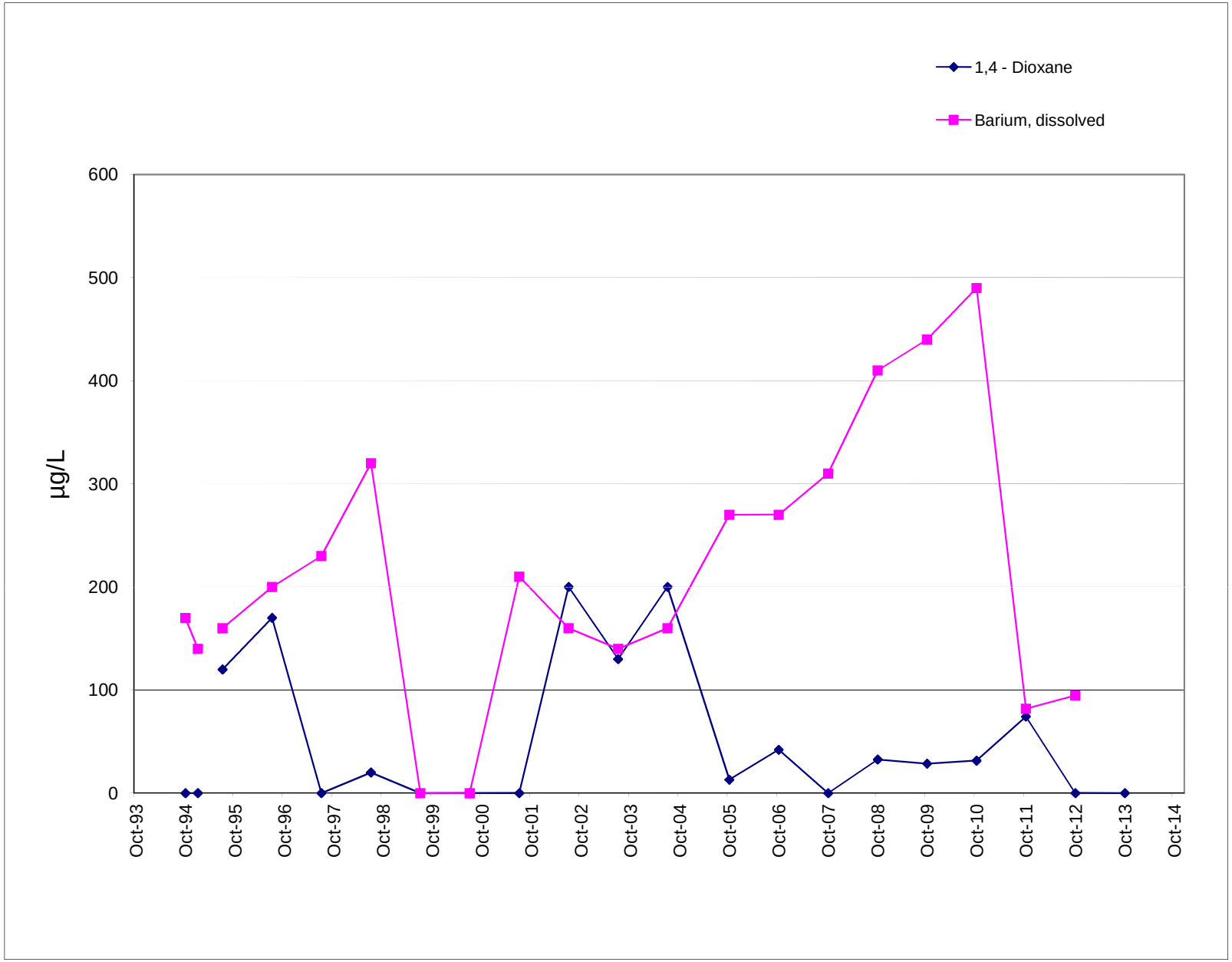
W-29 SVOC and Arsenic

Remediation Progress - Shallow Dolomite



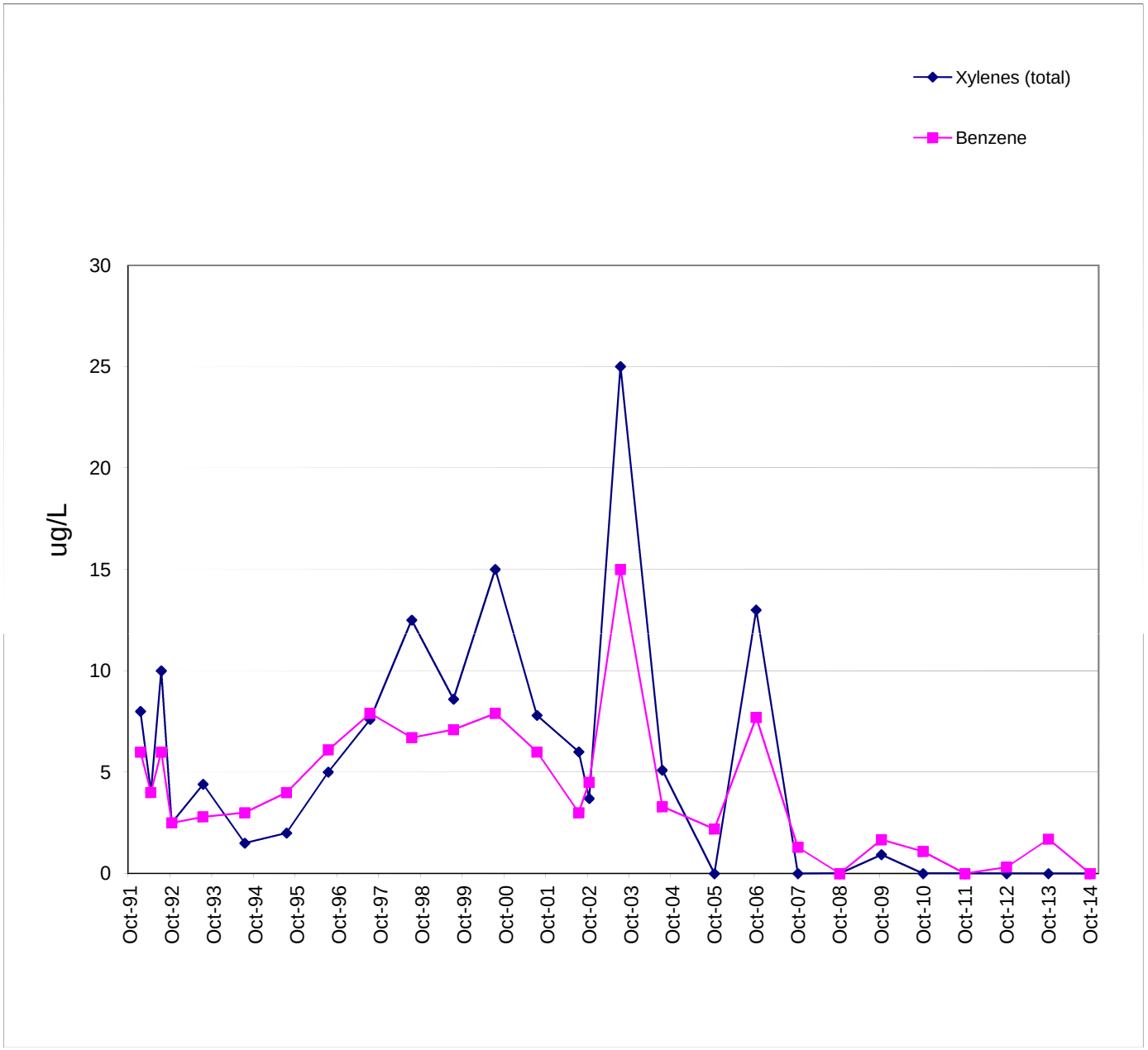
W-29 SVOC and Barium

Remediation Progress - Shallow Dolomite



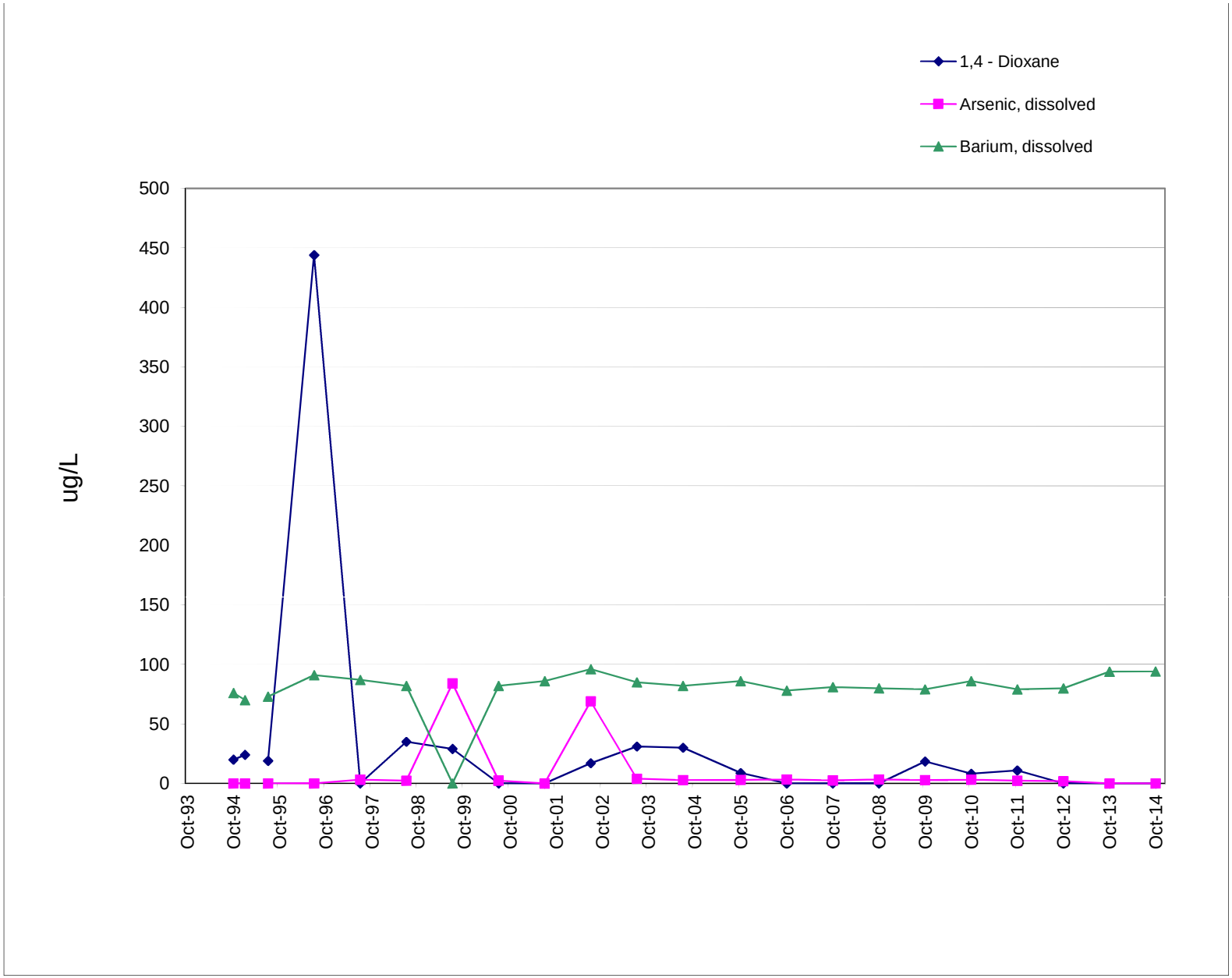
W-30 VOC

Remediation Progress - Deep Dolomite



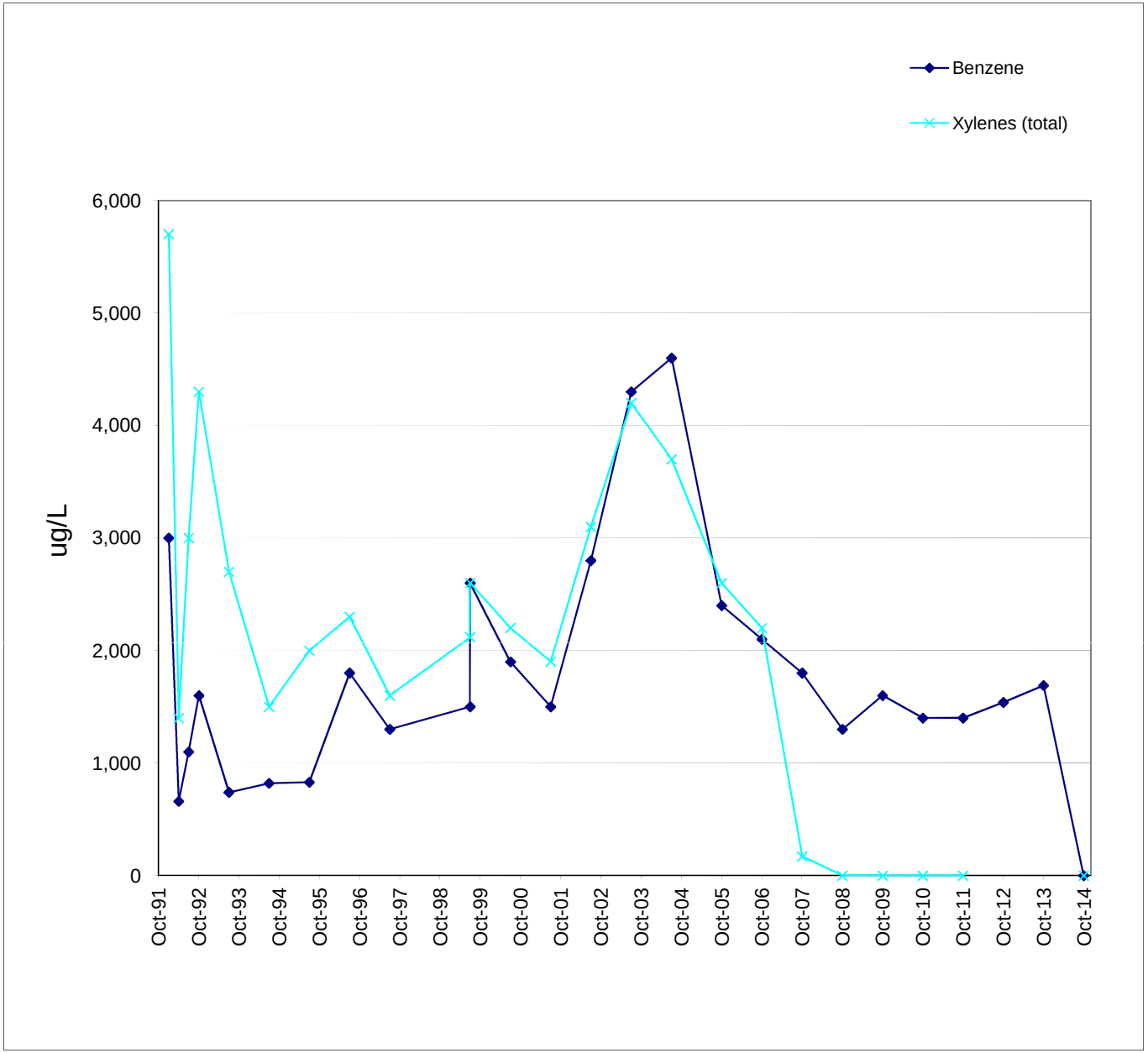
W-30 SVOC and Metals

Remediation Progress - Deep Dolomite



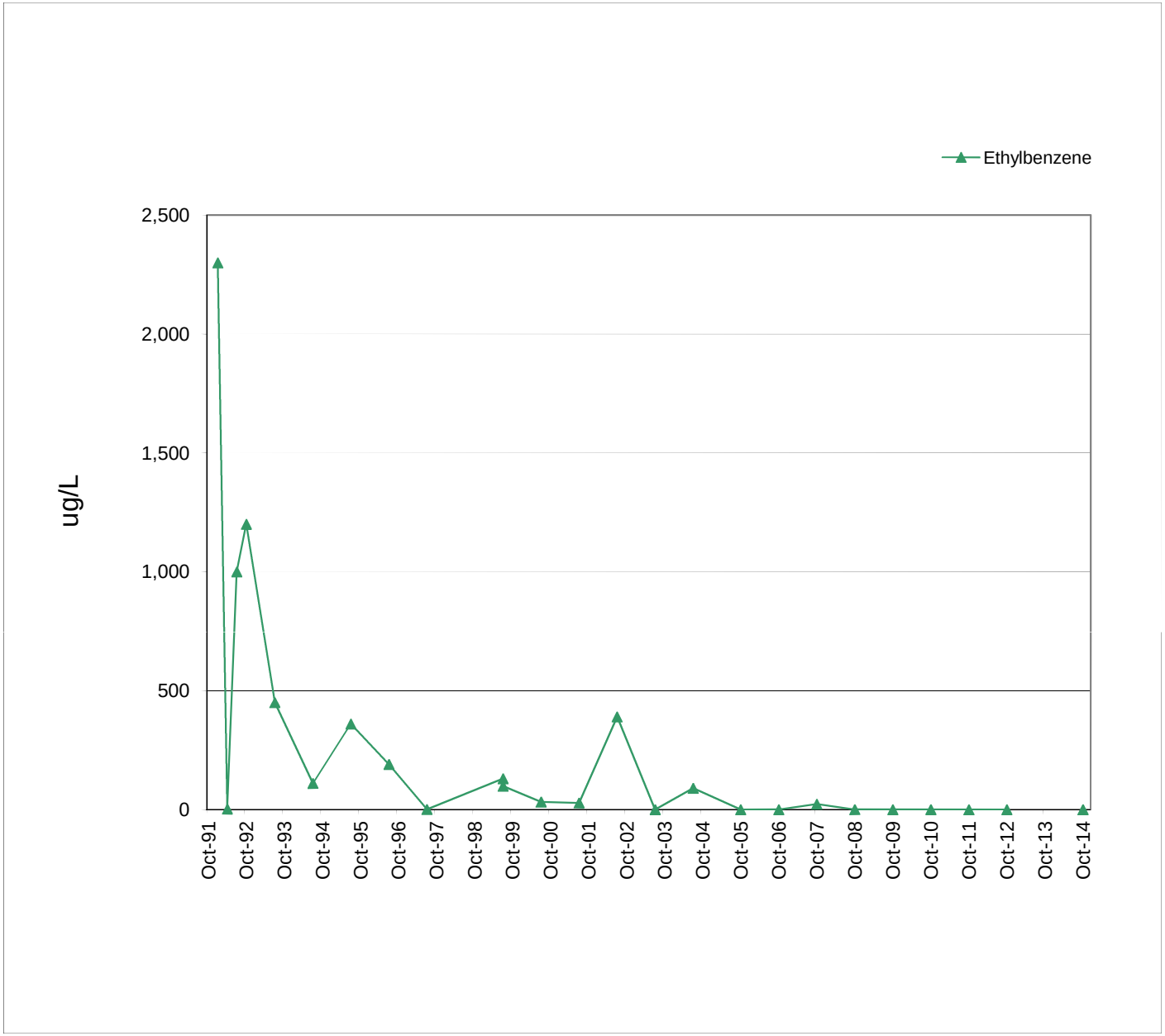
W-38 VOC

Remediation Progress - Shallow Dolomite



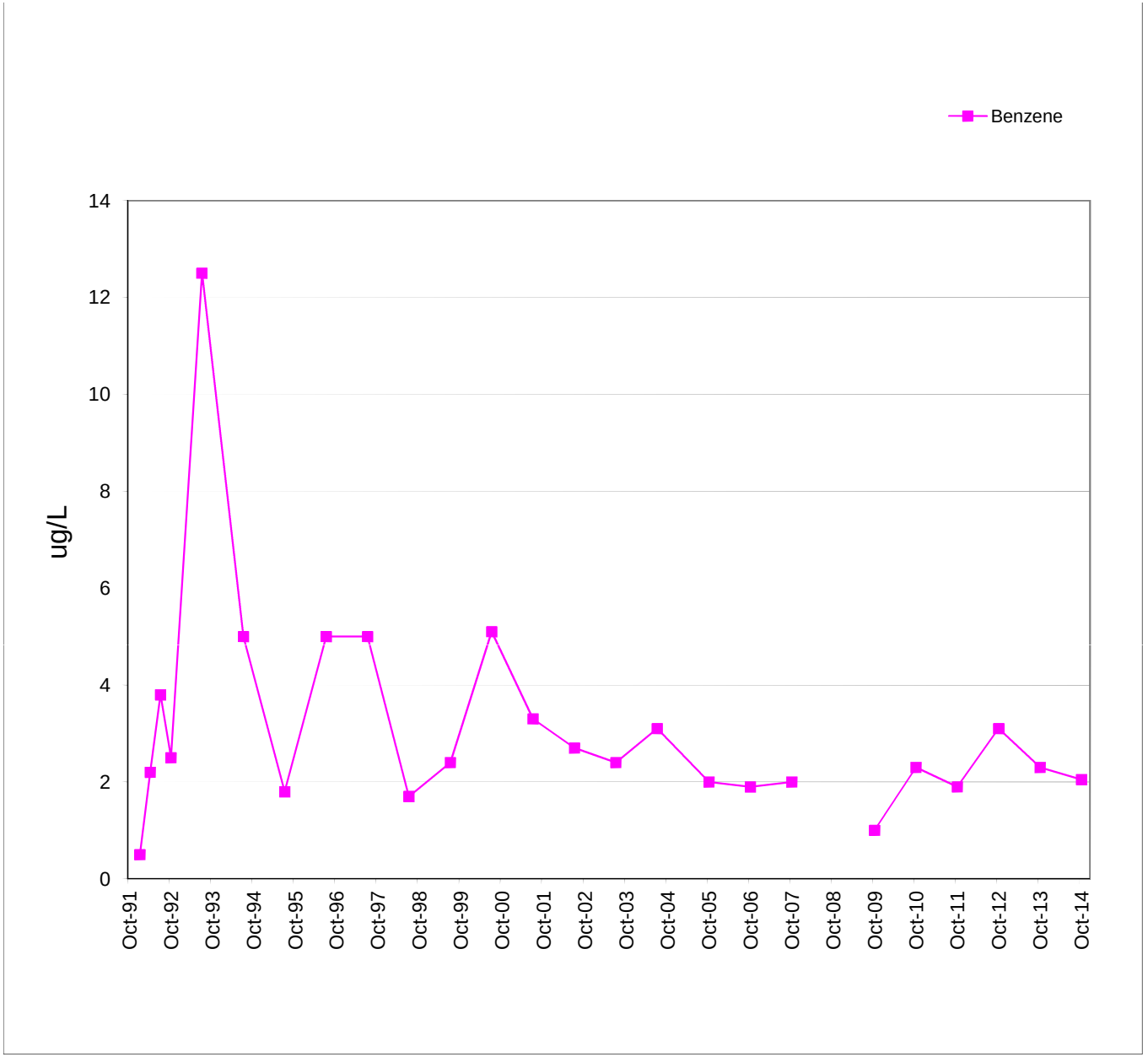
W-38 VOC

Remediation Progress - Shallow Dolomite



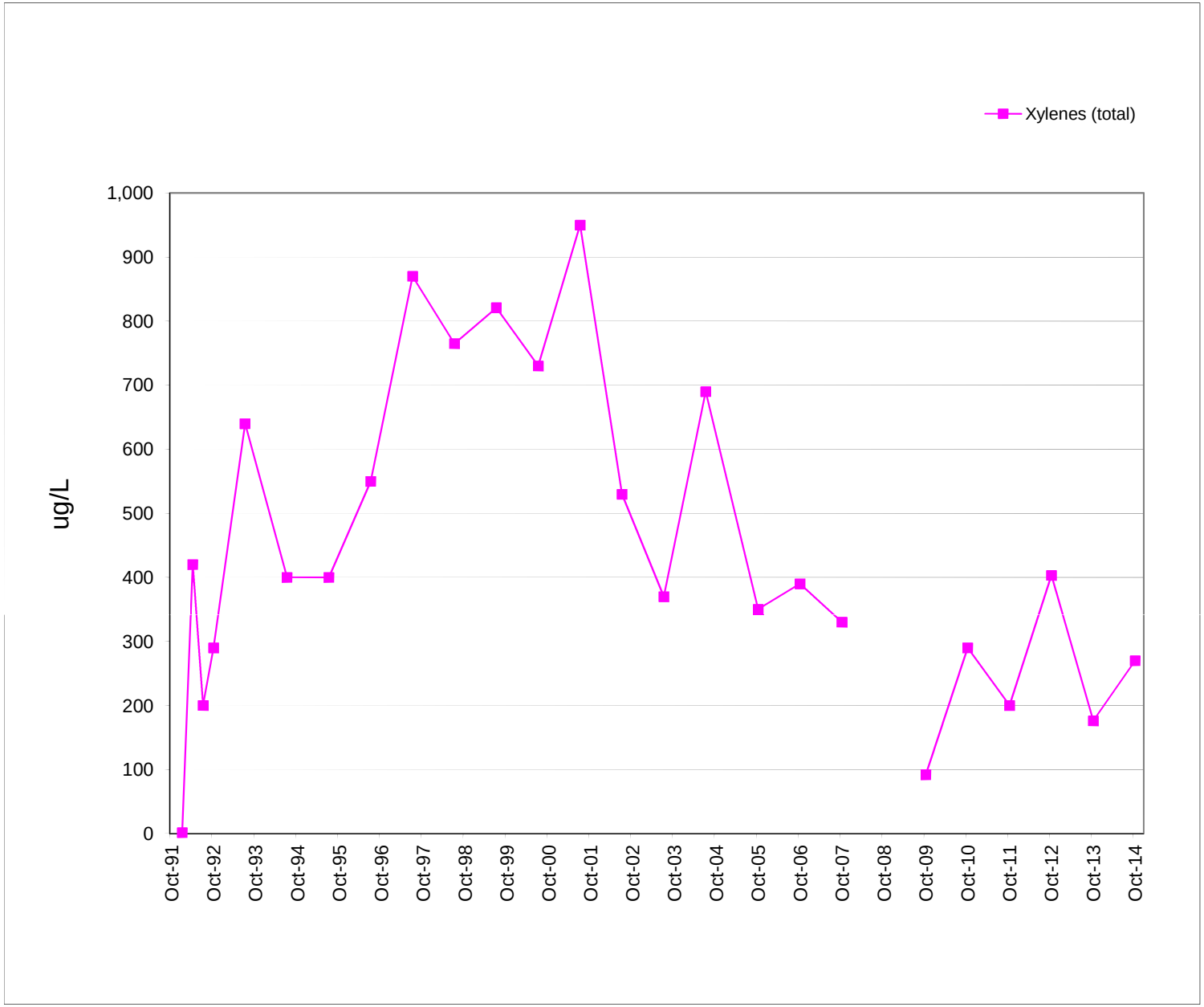
W-41 VOC

Remediation Progress - Glacial Drift



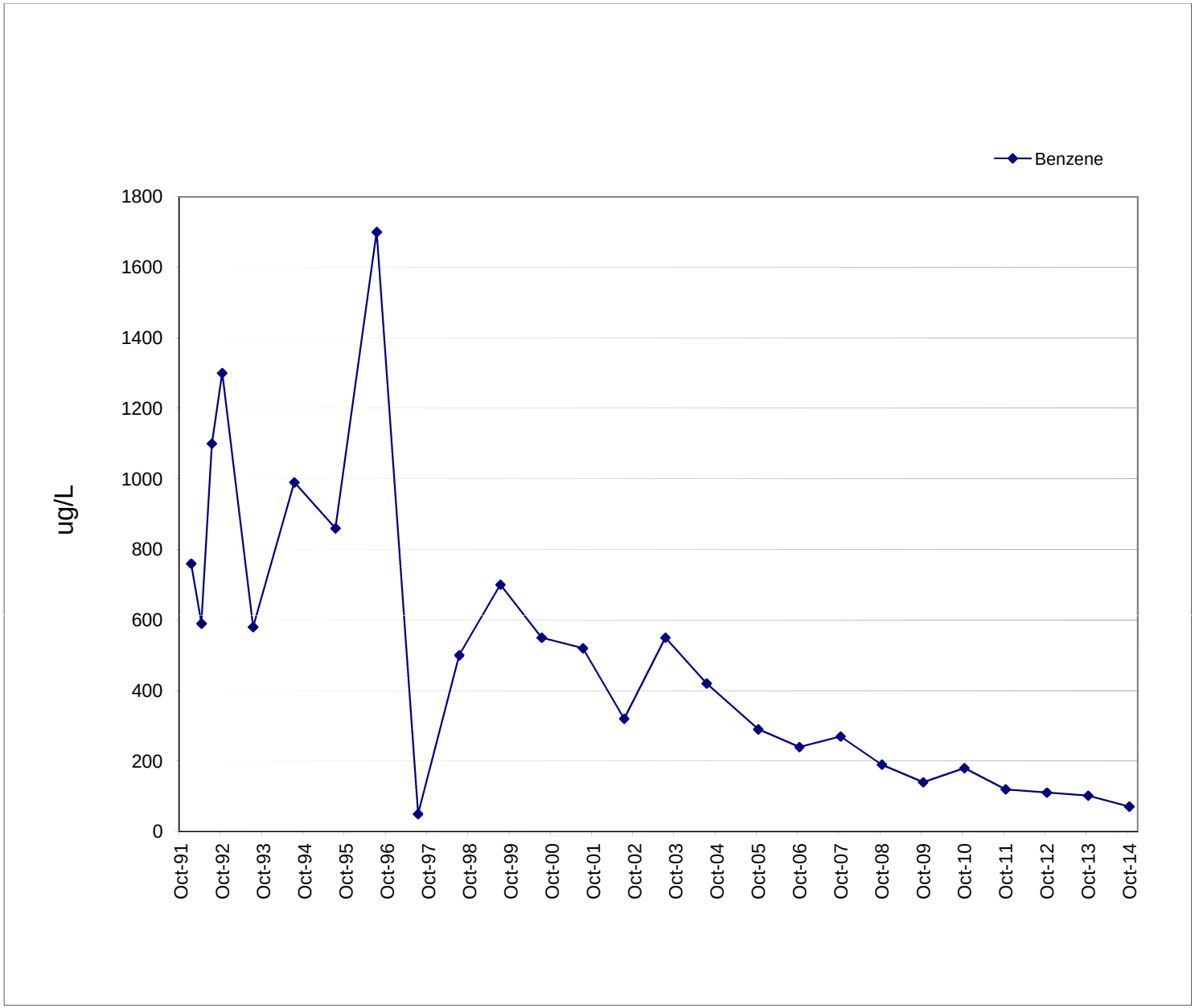
W-41 VOC

Remediation Progress - Glacial Drift



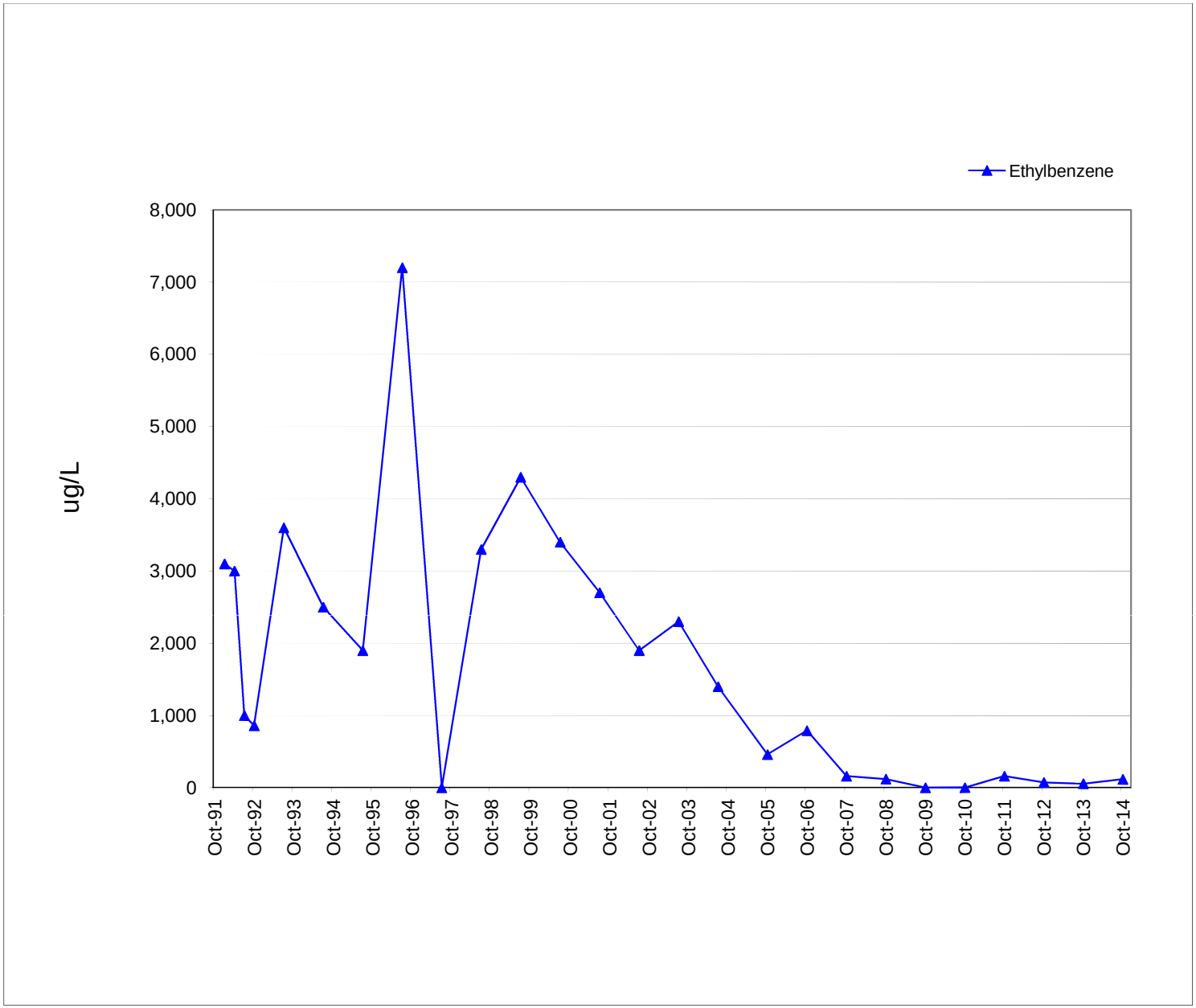
W-42 VOC

Remediation Progress - Glacial Drift



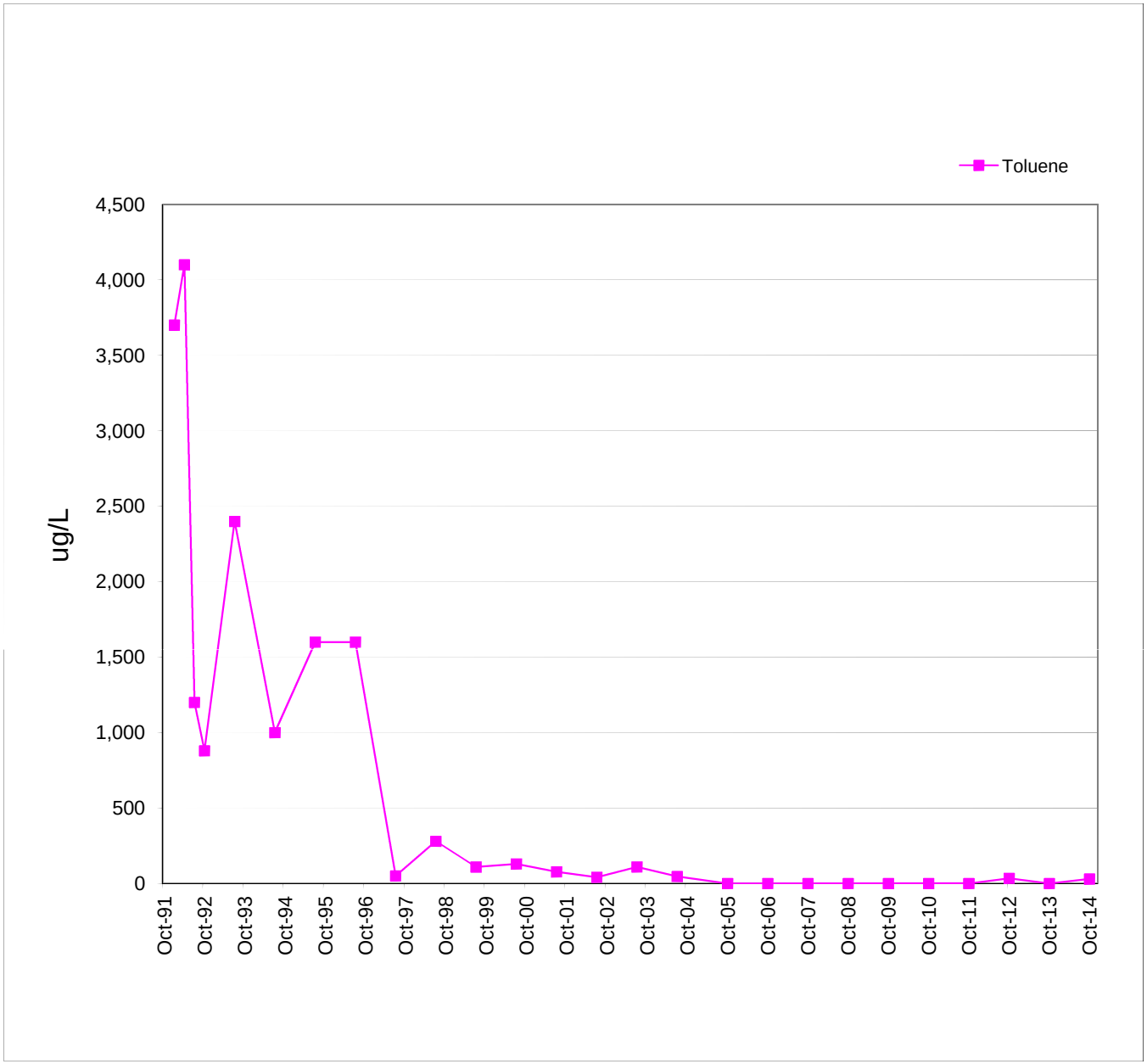
W-42 VOC

Remediation Progress - Glacial Drift



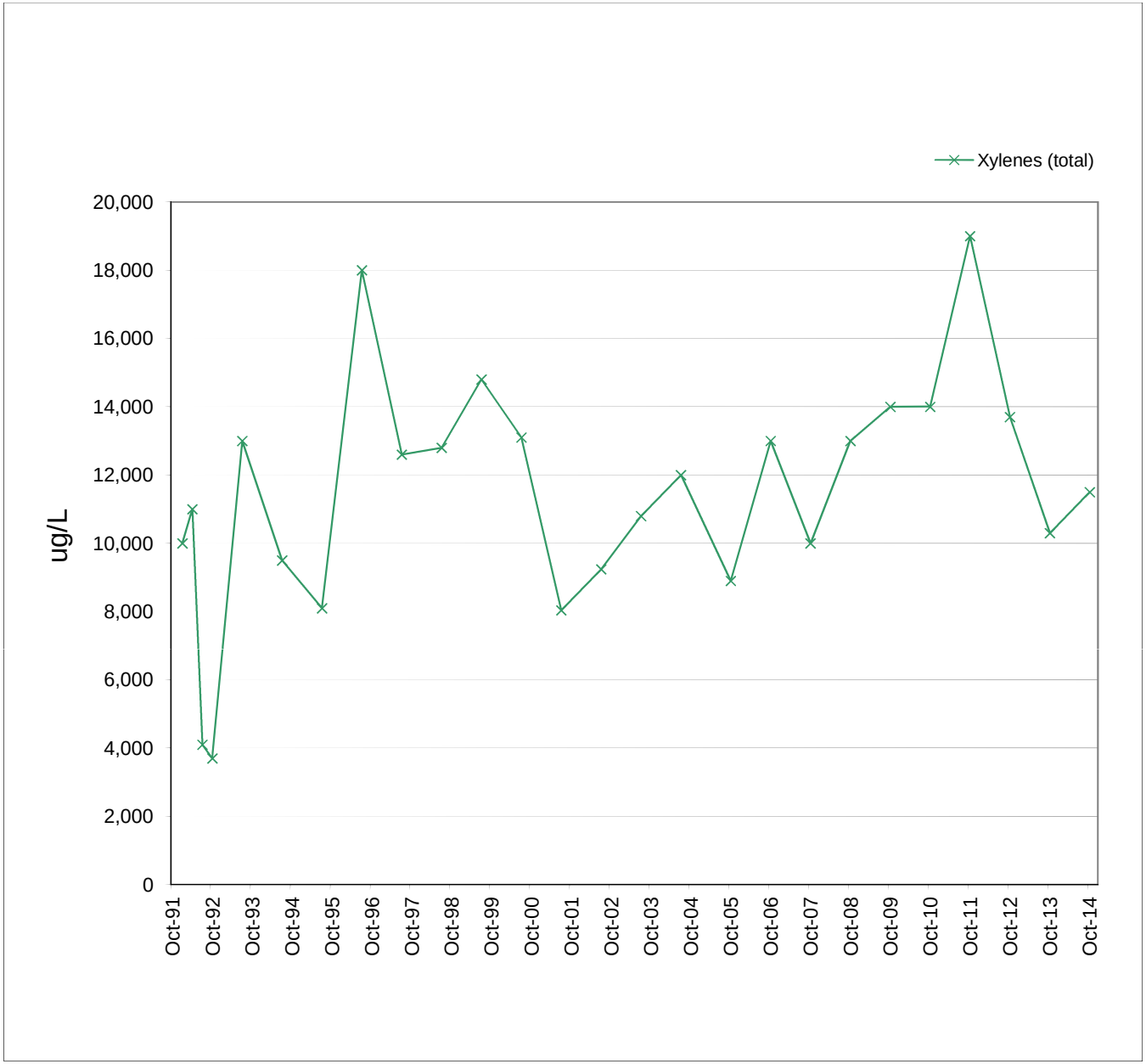
W-42 VOC

Remediation Progress - Glacial Drift



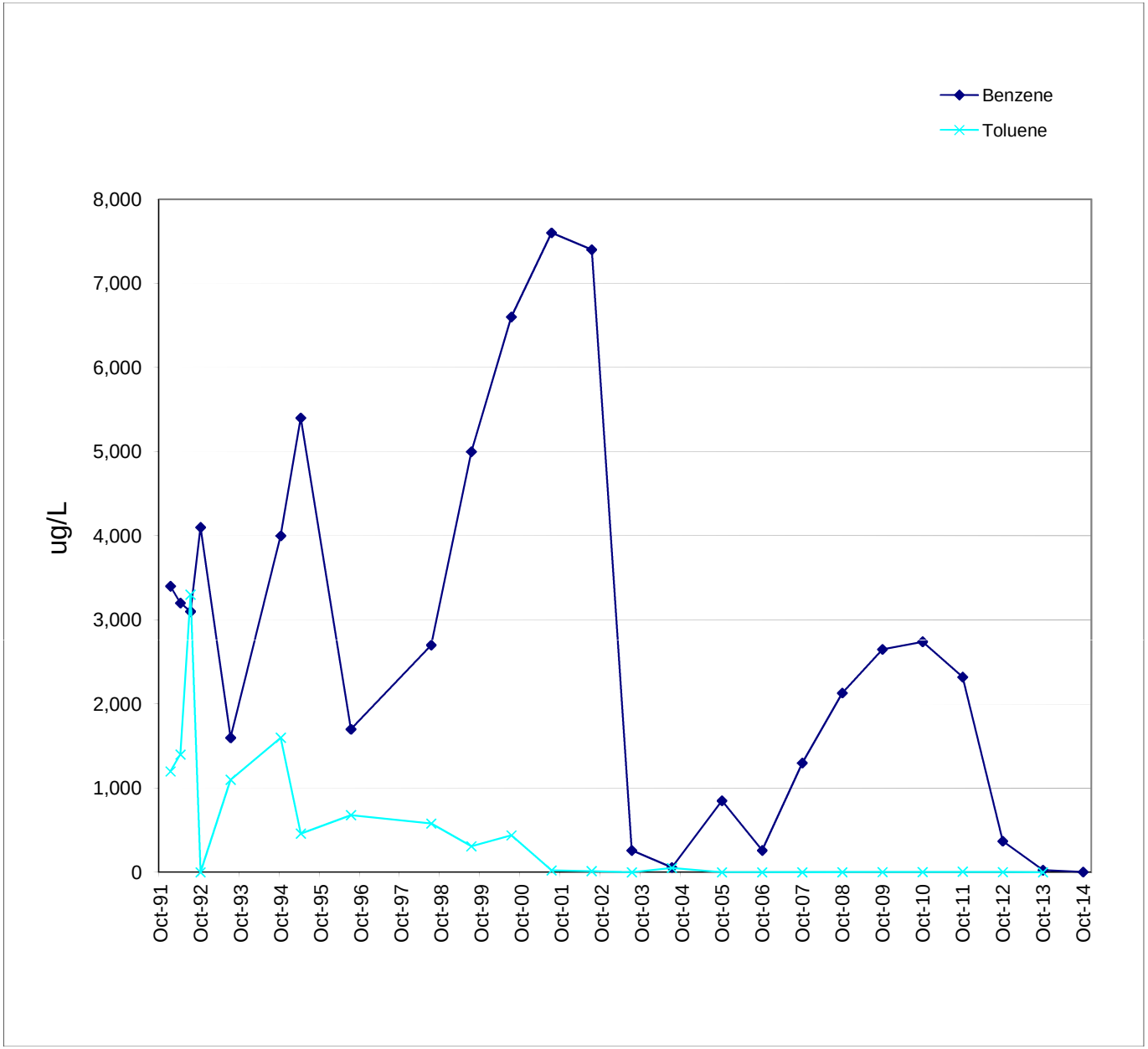
W-42 VOC

Remediation Progress - Glacial Drift



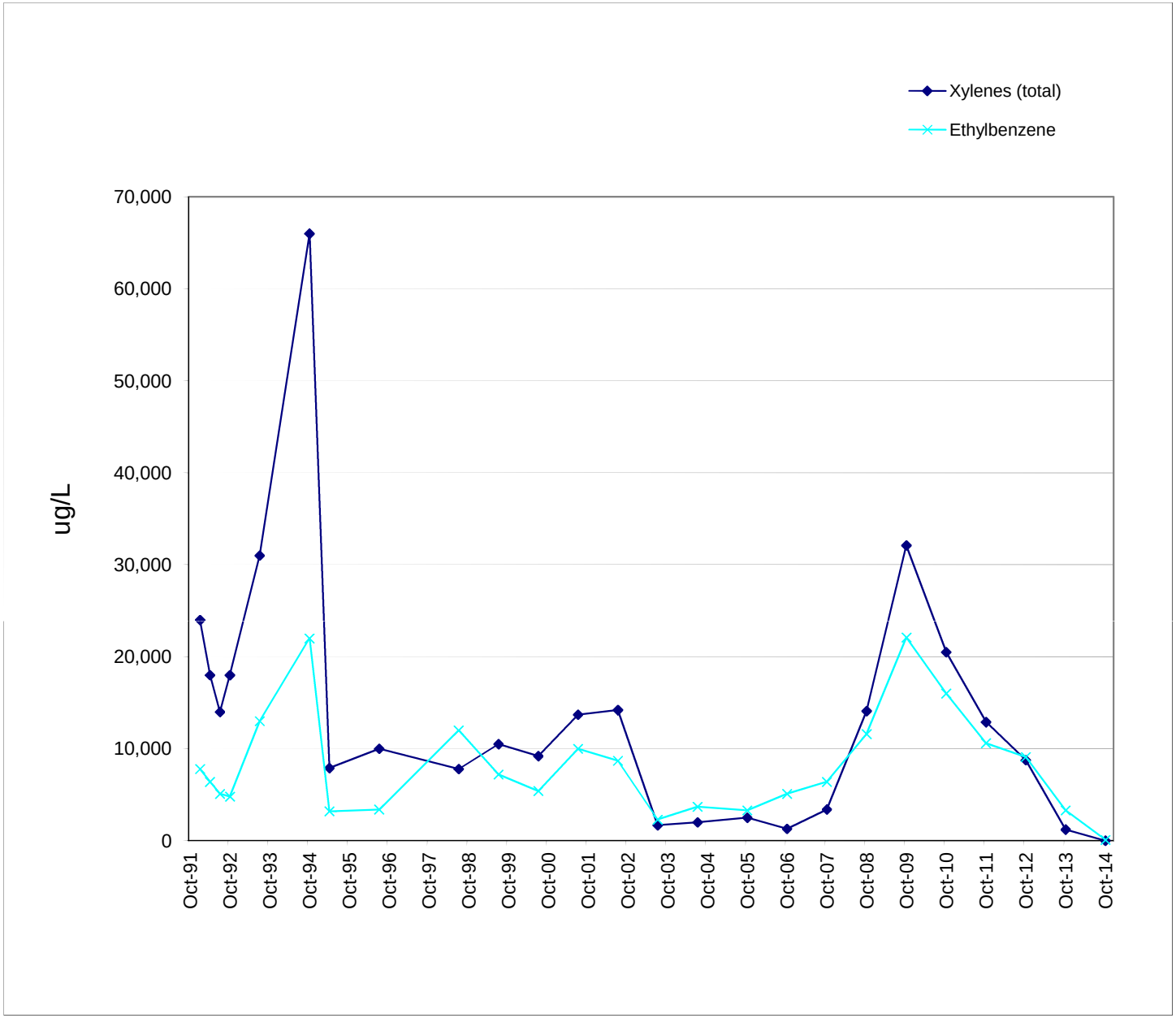
W-43 VOC

Remediation Progress - Glacial Drift



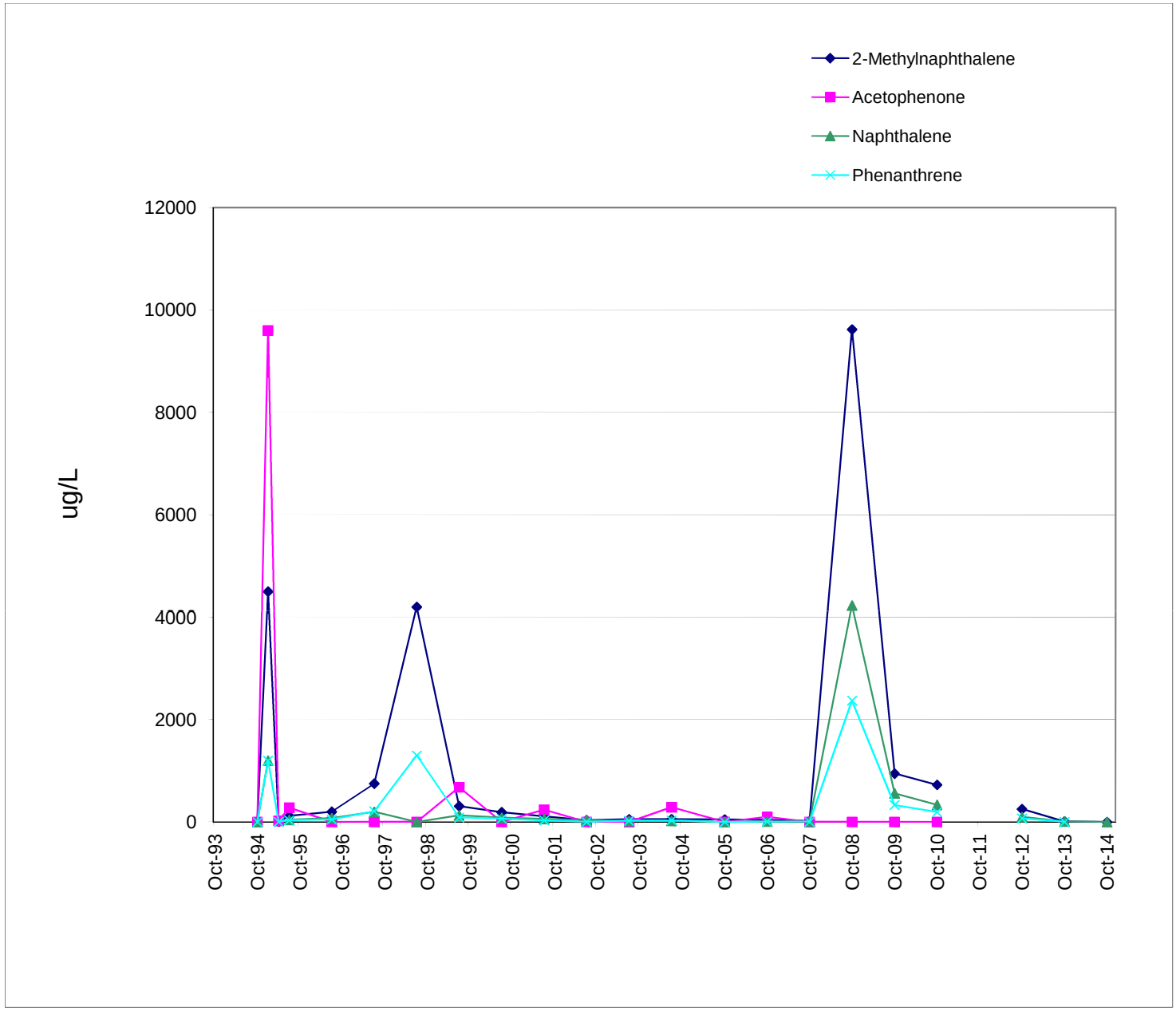
W-43 VOC

Remediation Progress - Glacial Drift



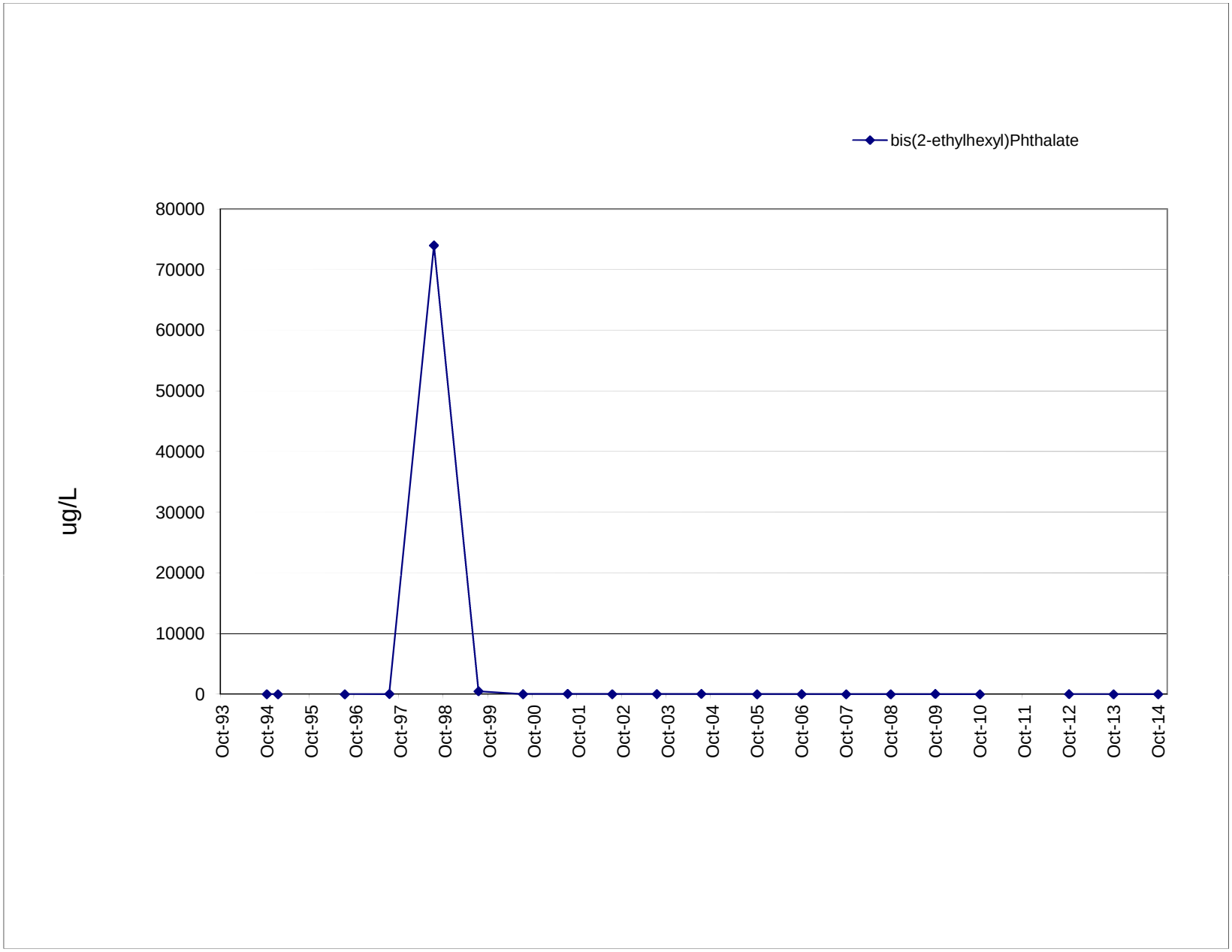
W-43 SVOC

Remediation Progress - Glacial Drift



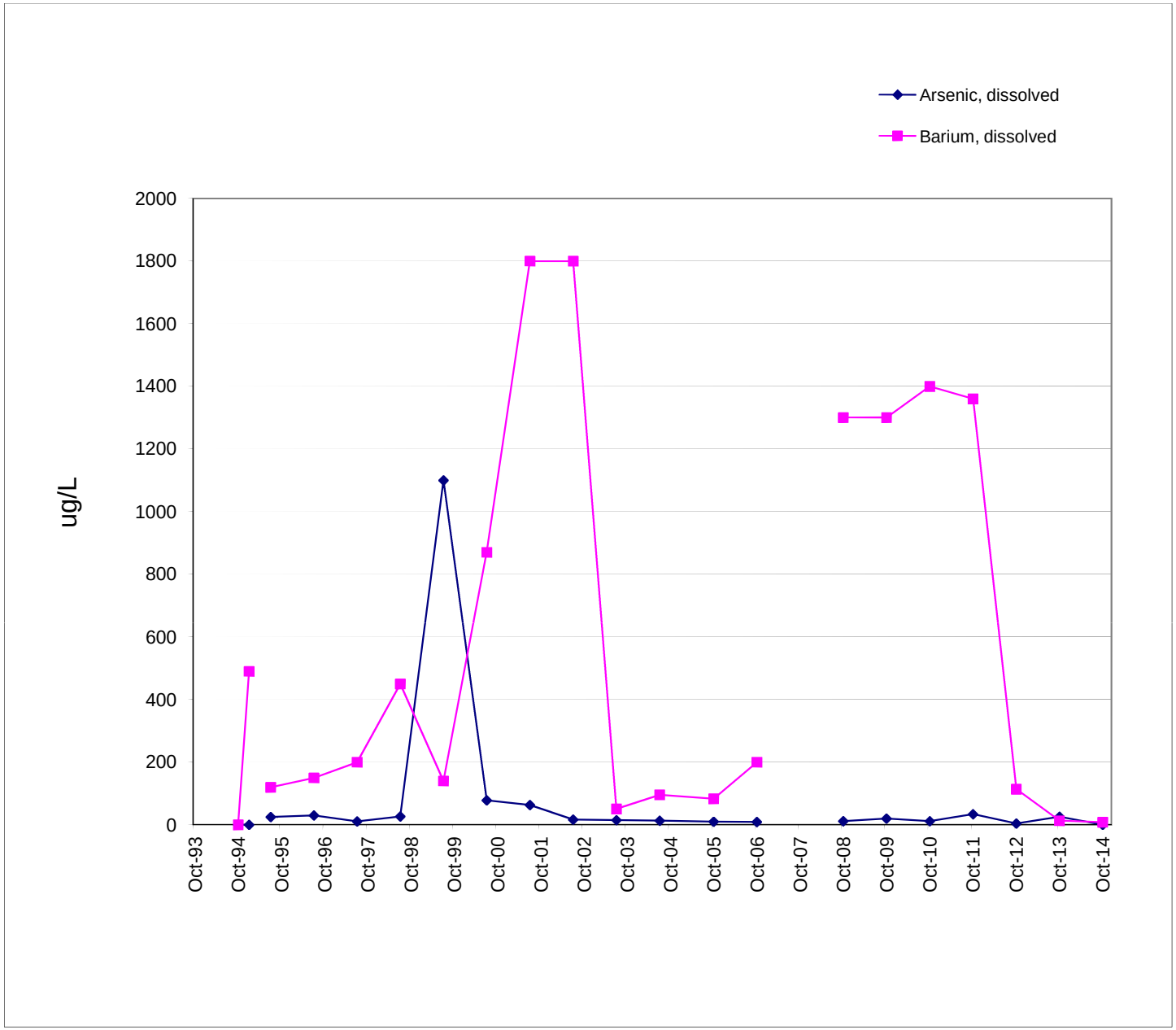
W-43 SVOC

Remediation Progress - Glacial Drift



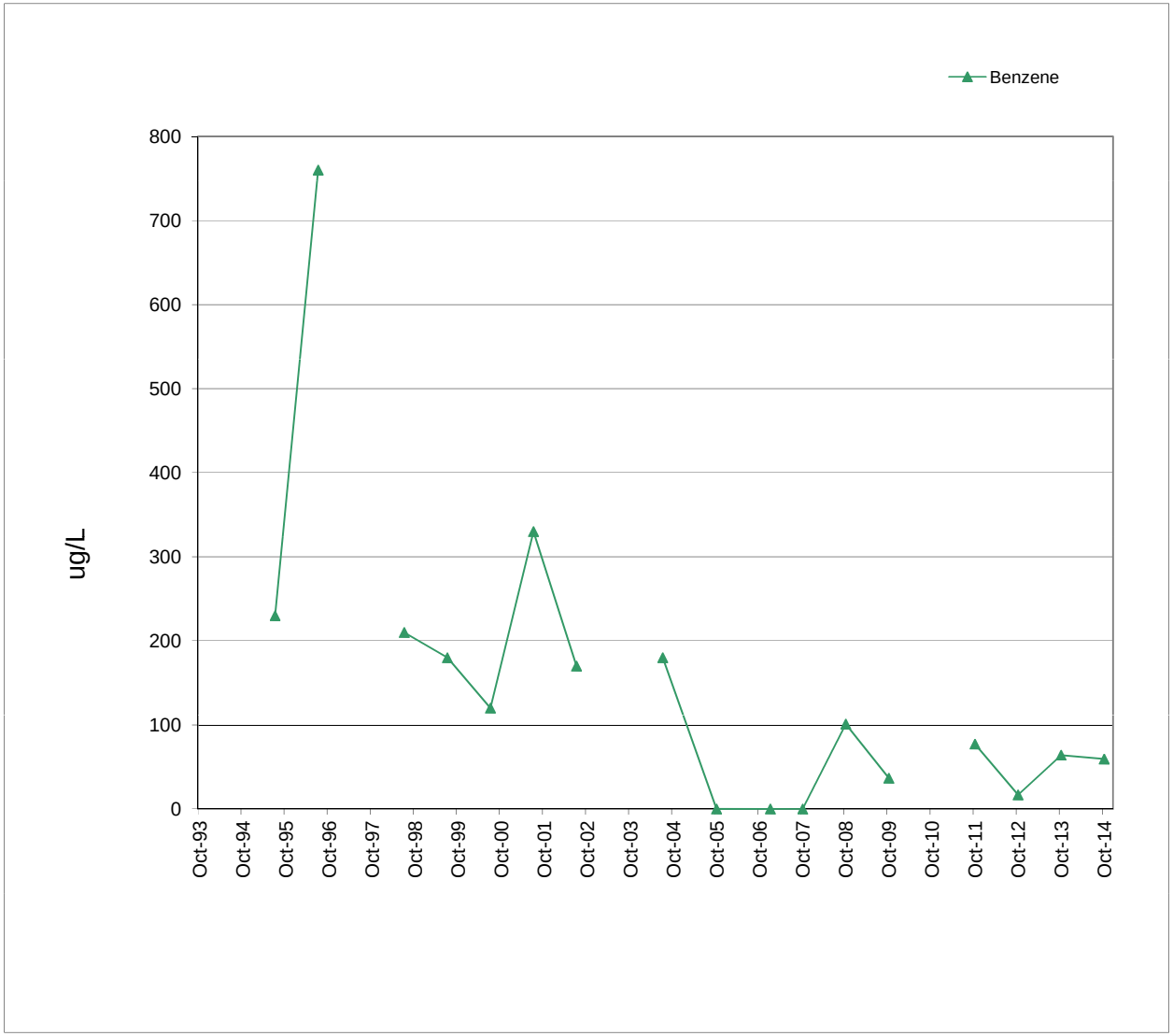
W-43 Metals

Remediation Progress - Glacial Drift



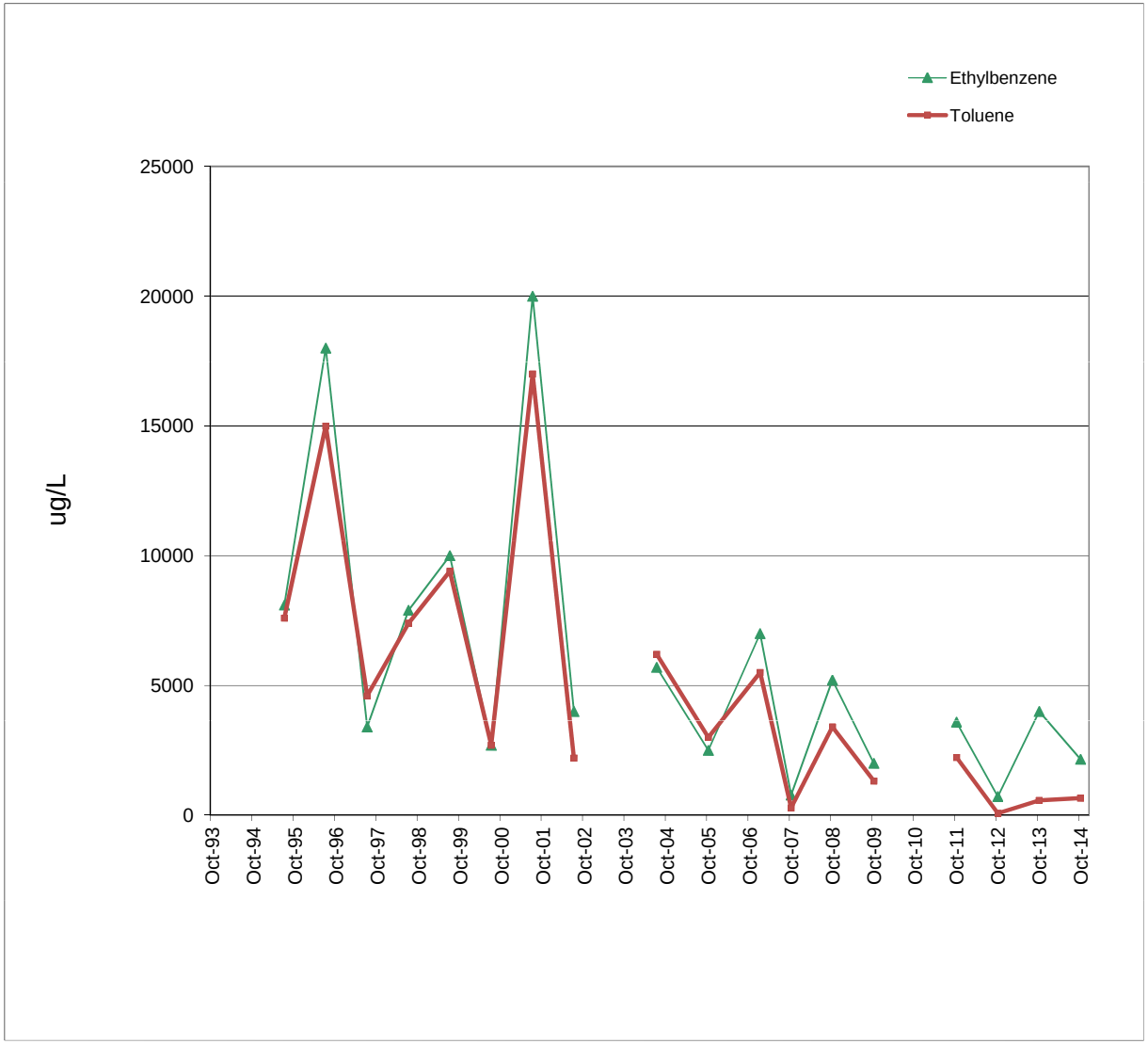
W-47 VOC

Remediation Progress - Glacial Drift



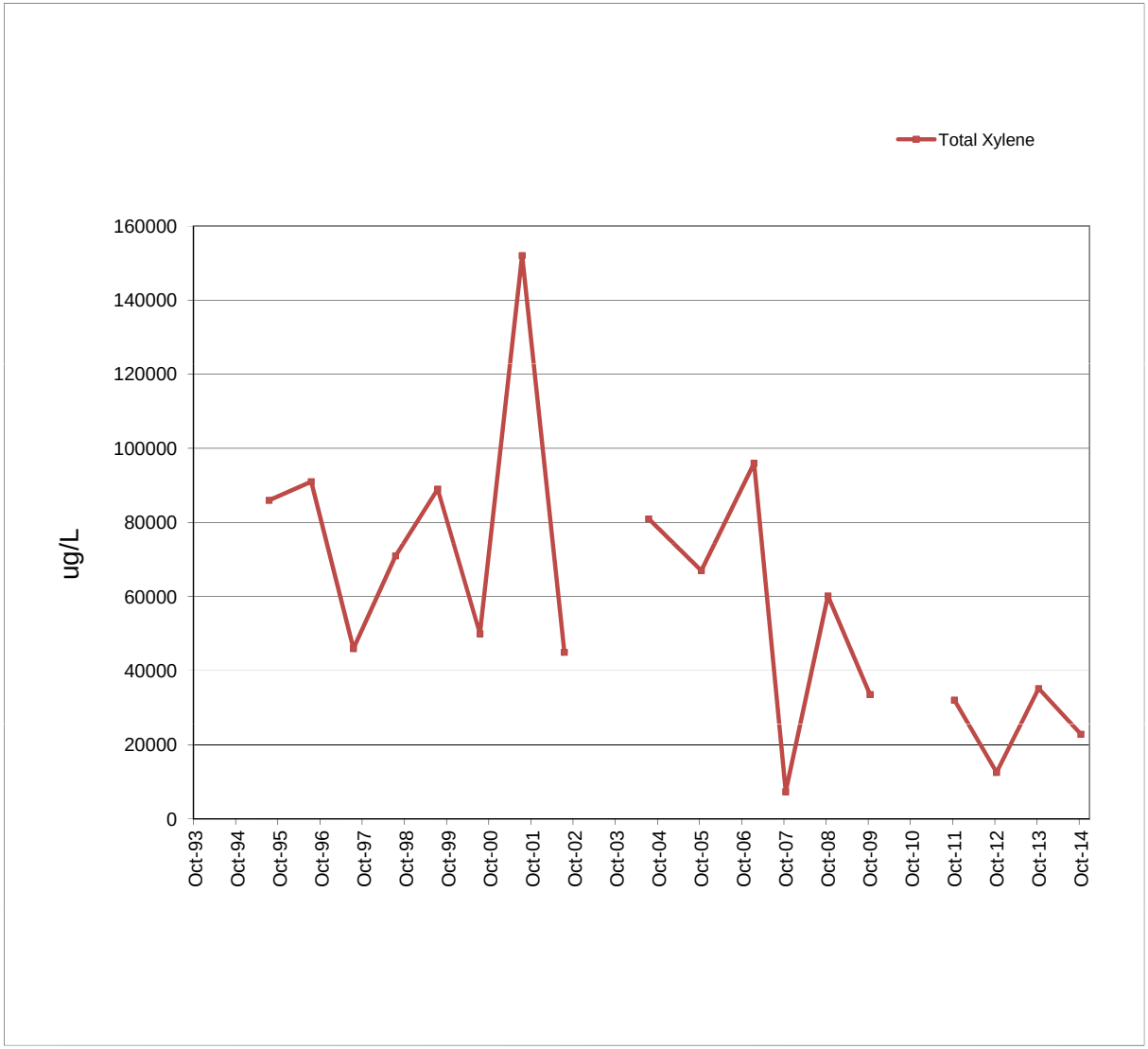
W-47 VOC

Remediation Progress - Glacial Drift



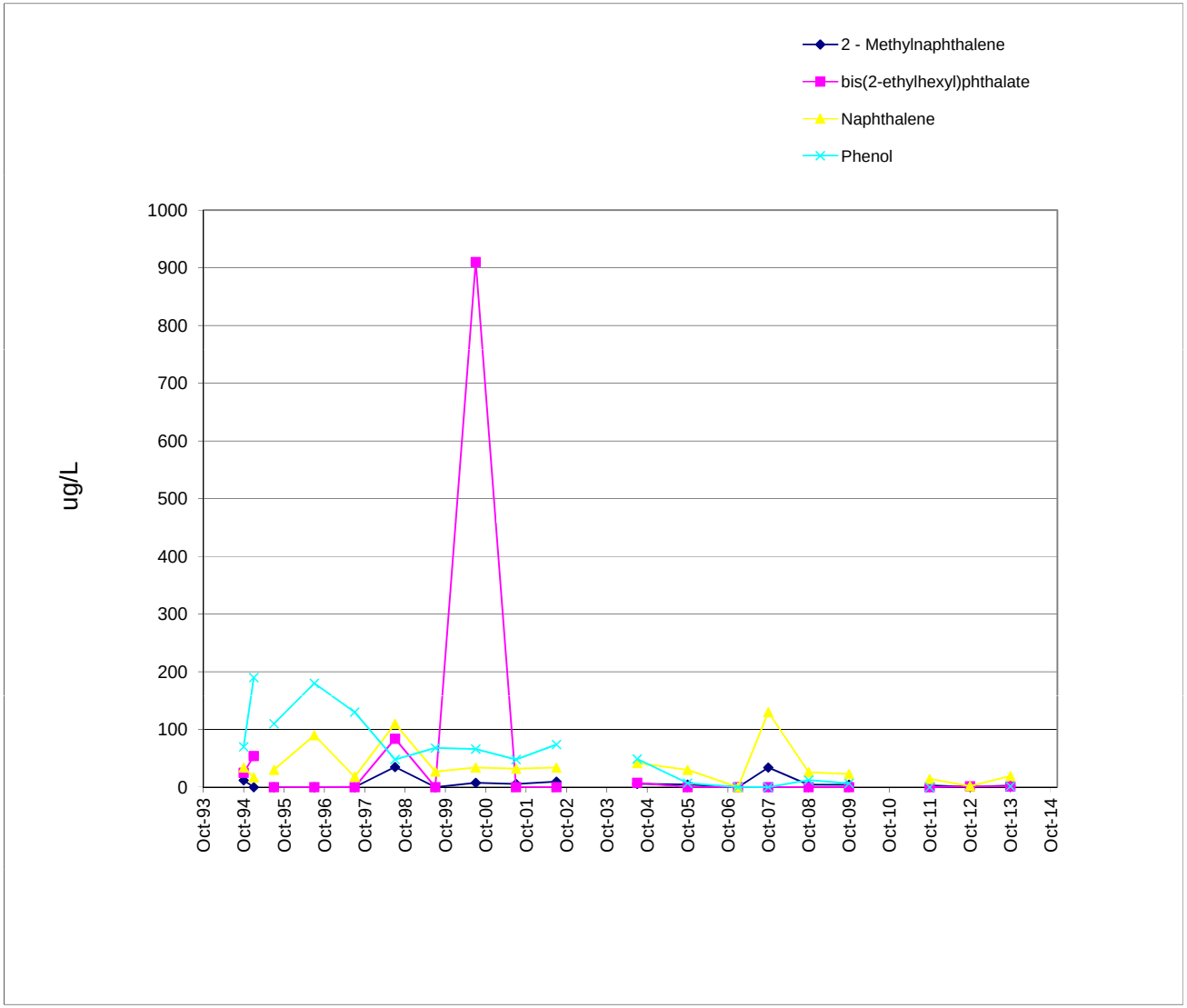
W-47 VOC

Remediation Progress - Glacial Drift



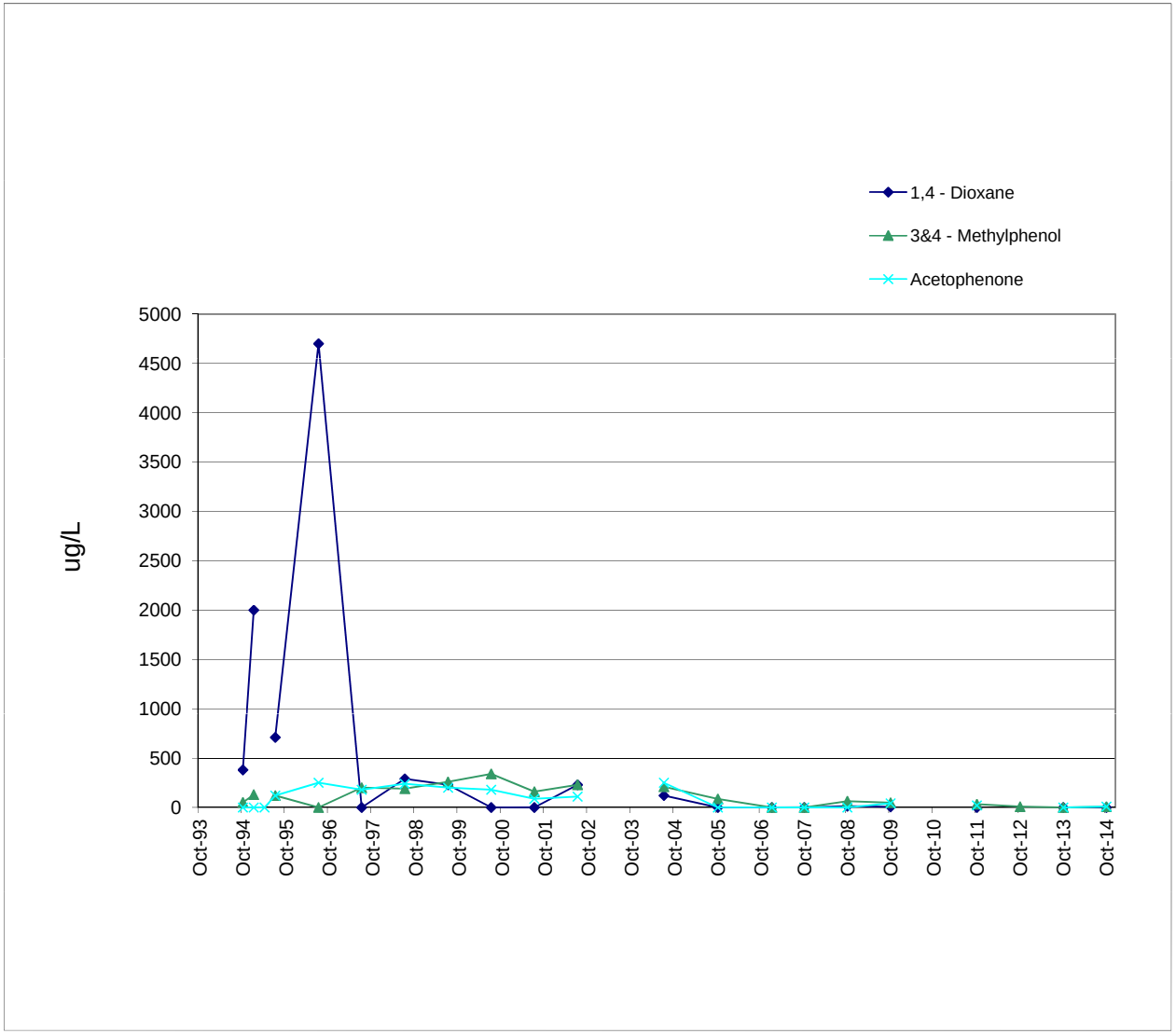
W-47 SVOC

Remediation Progress - Glacial Drift



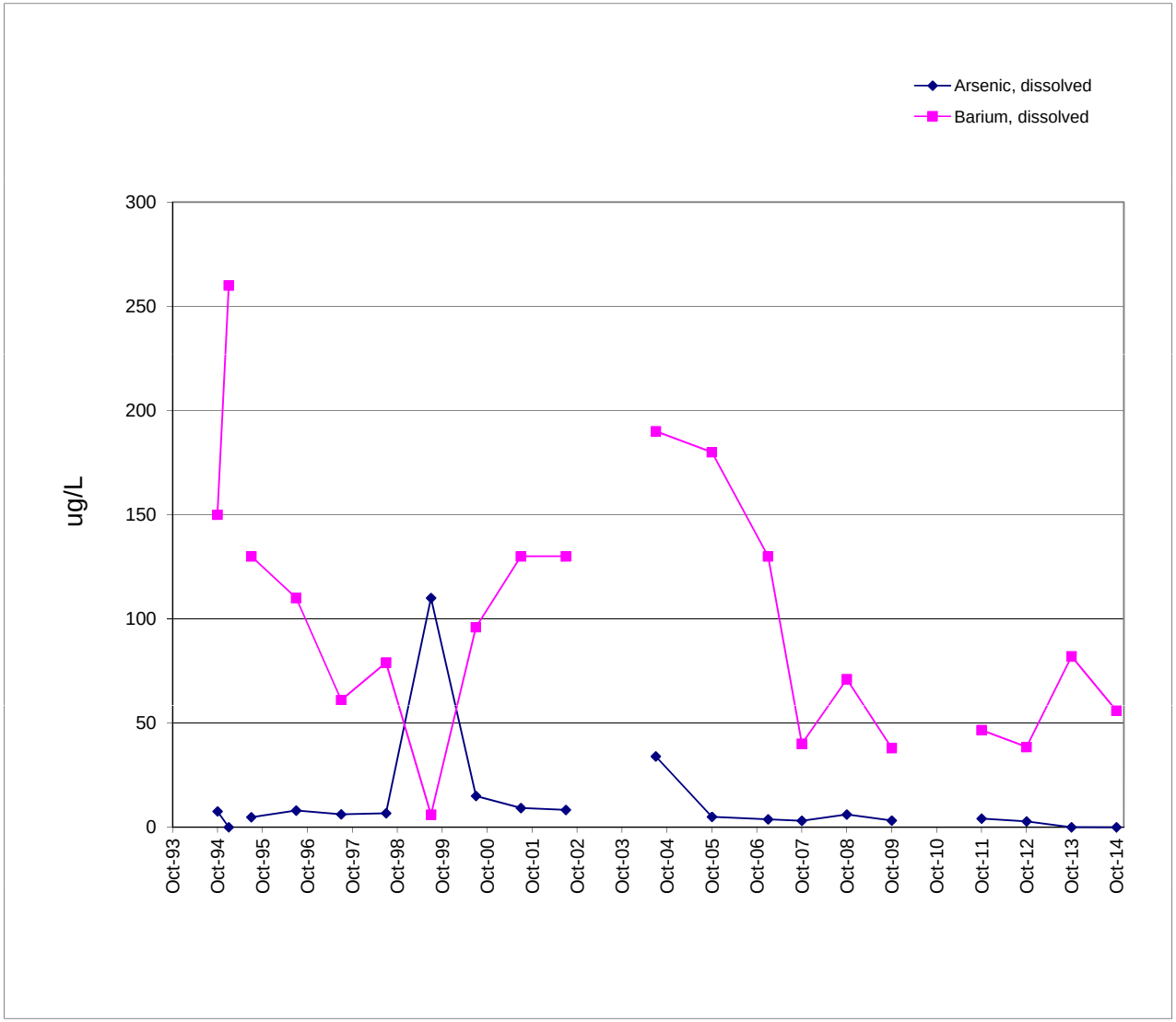
W-47 SVOC

Remediation Progress - Glacial Drift



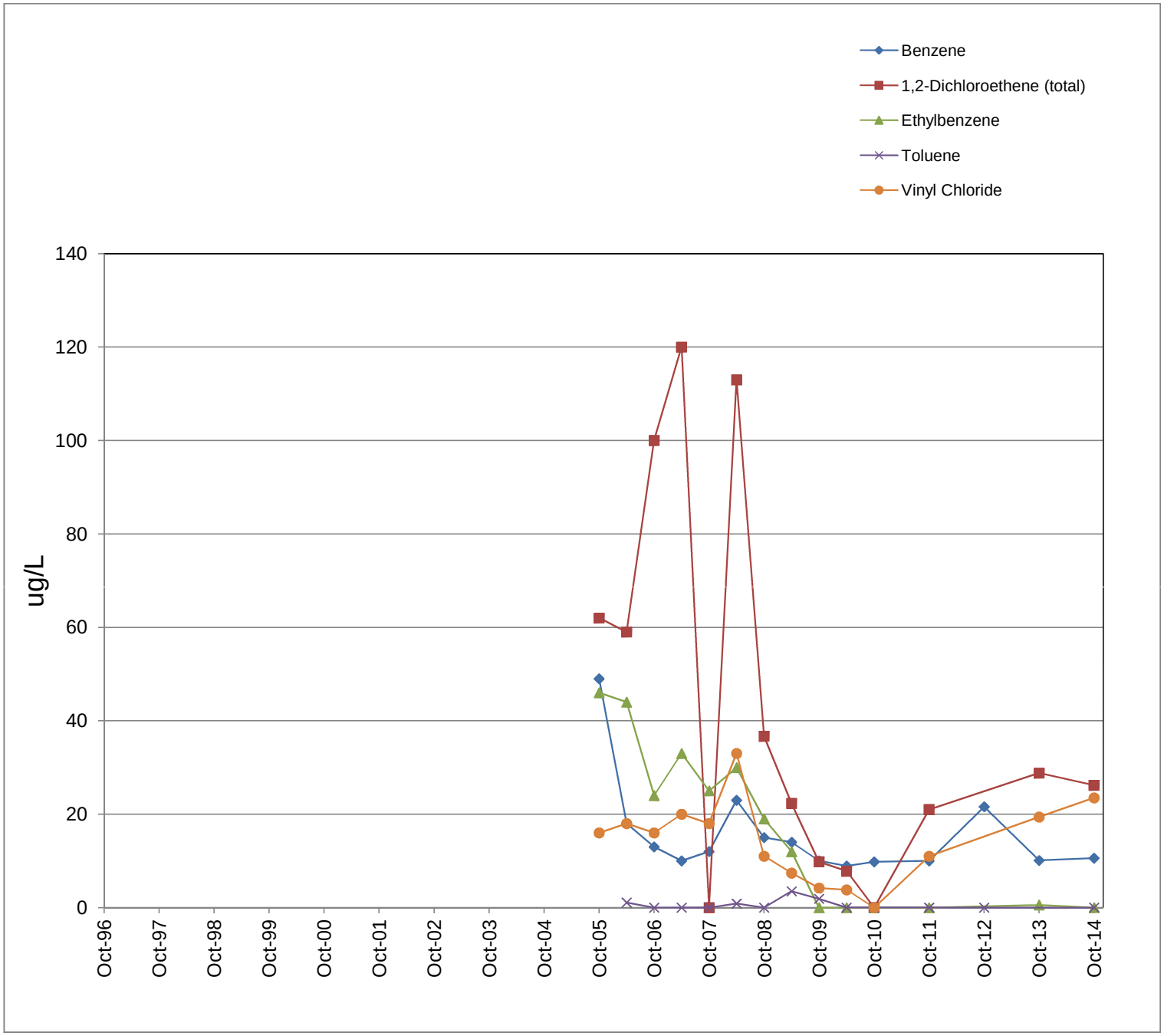
W-47 Metals

Remediation Progress - Glacial Drift



W-52 VOC

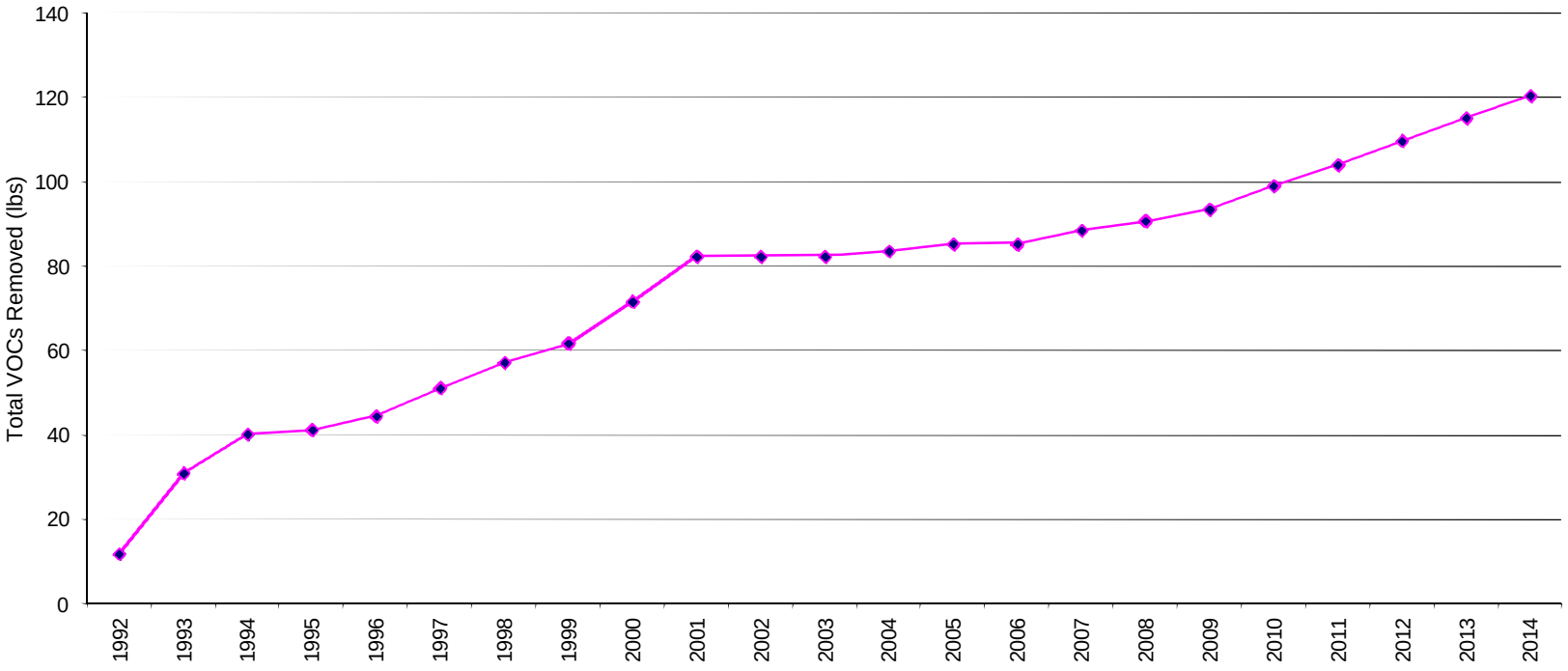
Perimeter - Glacial Drift



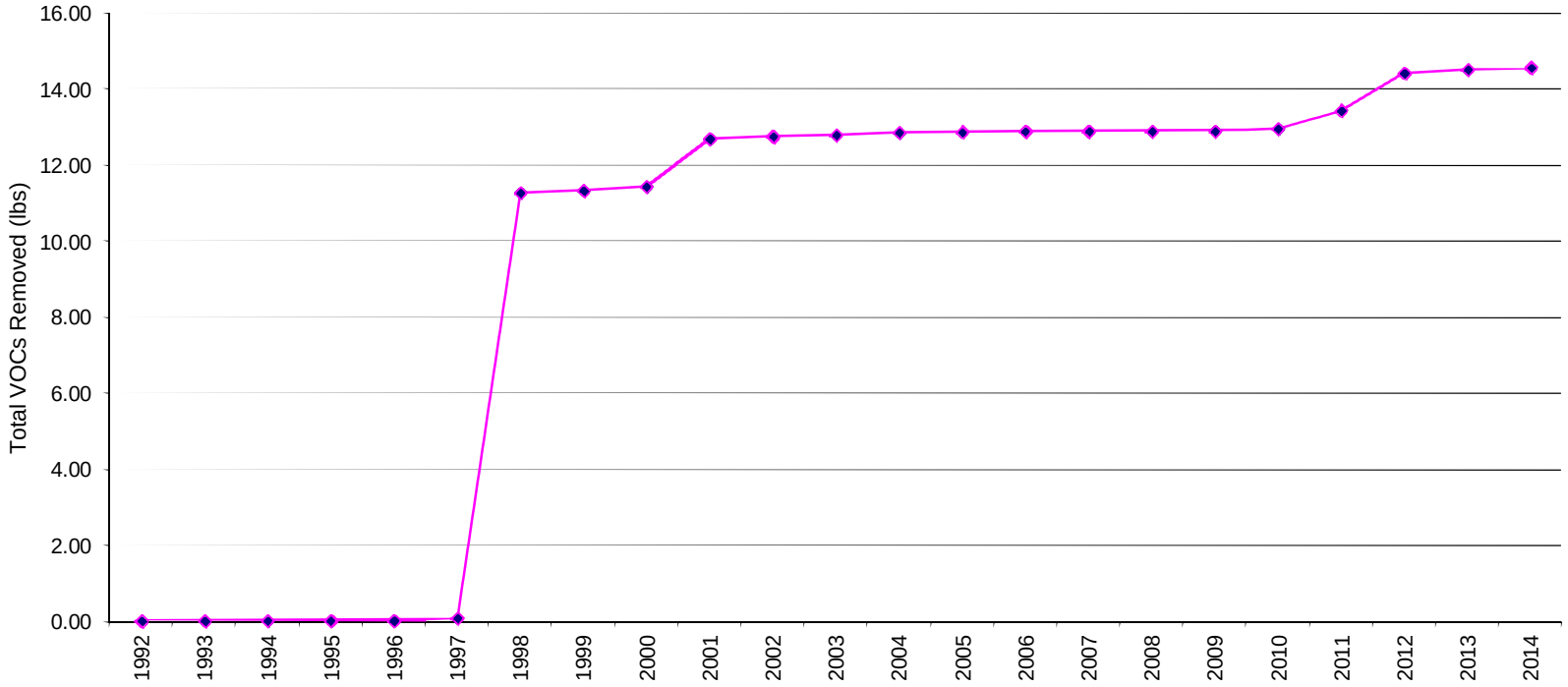
APPENDIX E

CUMULATIVE VOC MASS REMOVAL ESTIMATES

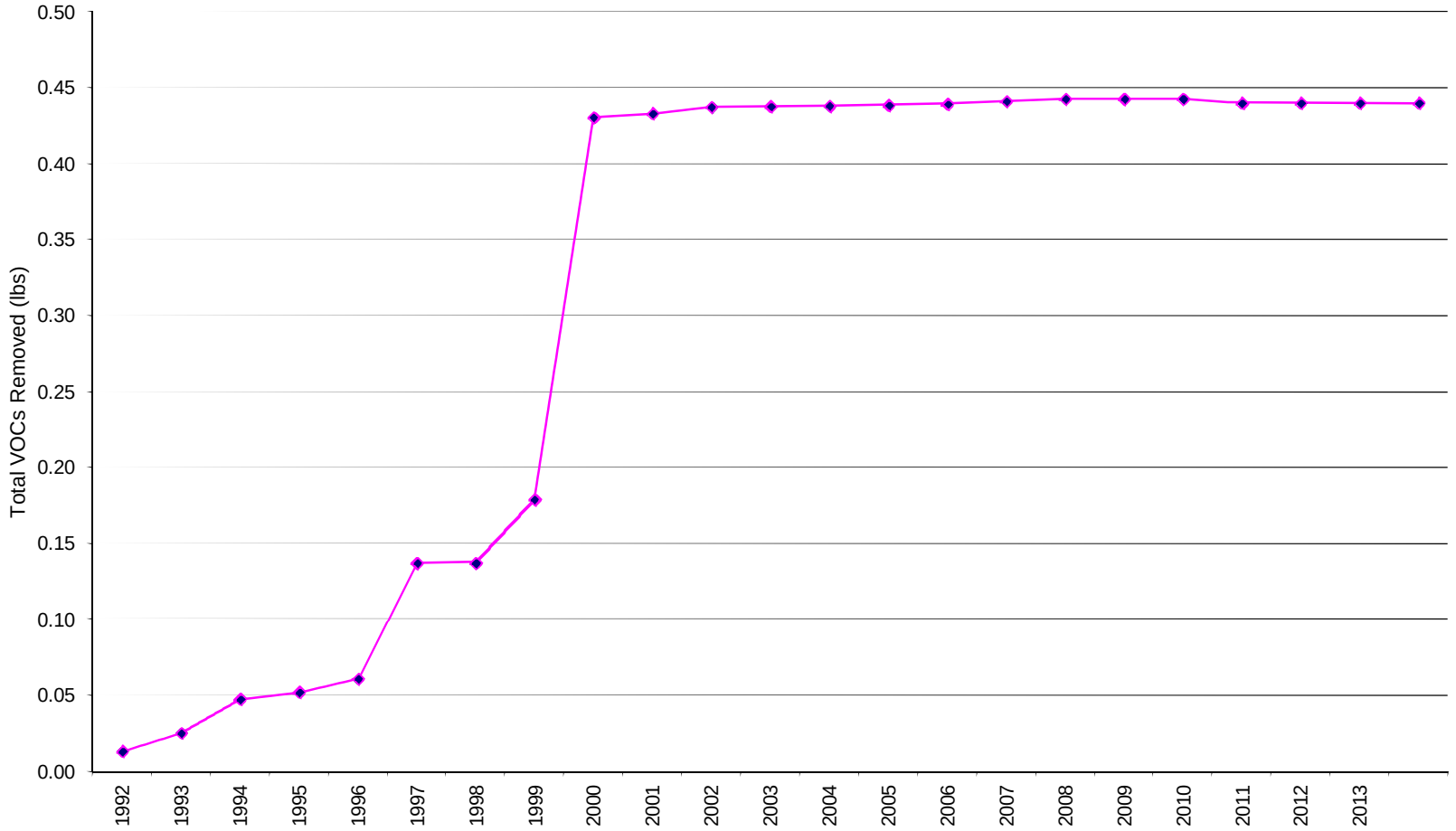
Cumulative Total VOC Removal
Shallow Dolomite Remediation Progress Well W-21A
Cook Composites and Polymers Co.
Saukville, Wisconsin



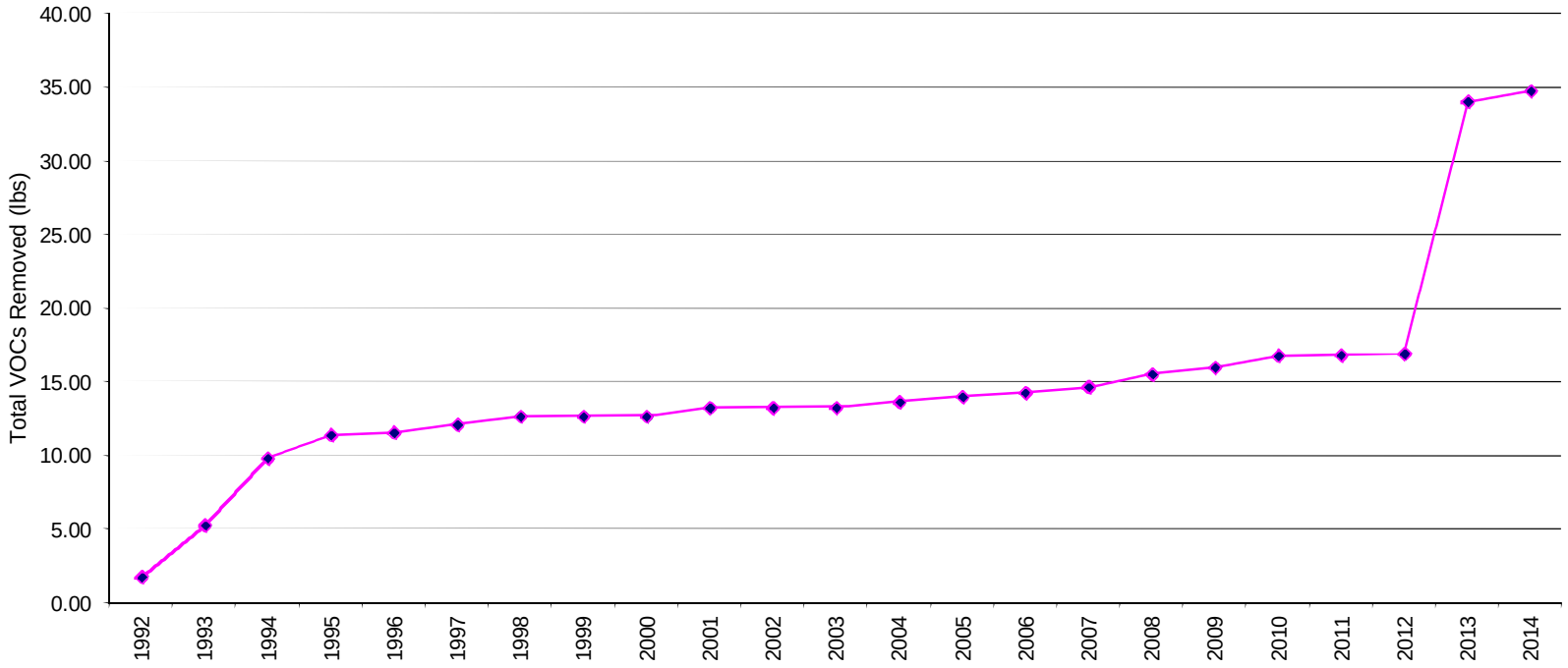
Cumulative Total VOC Removal
Shallow Dolomite Remediation Progress Well W-24A
Cook Composites and Polymers Co.
Saukville, Wisconsin



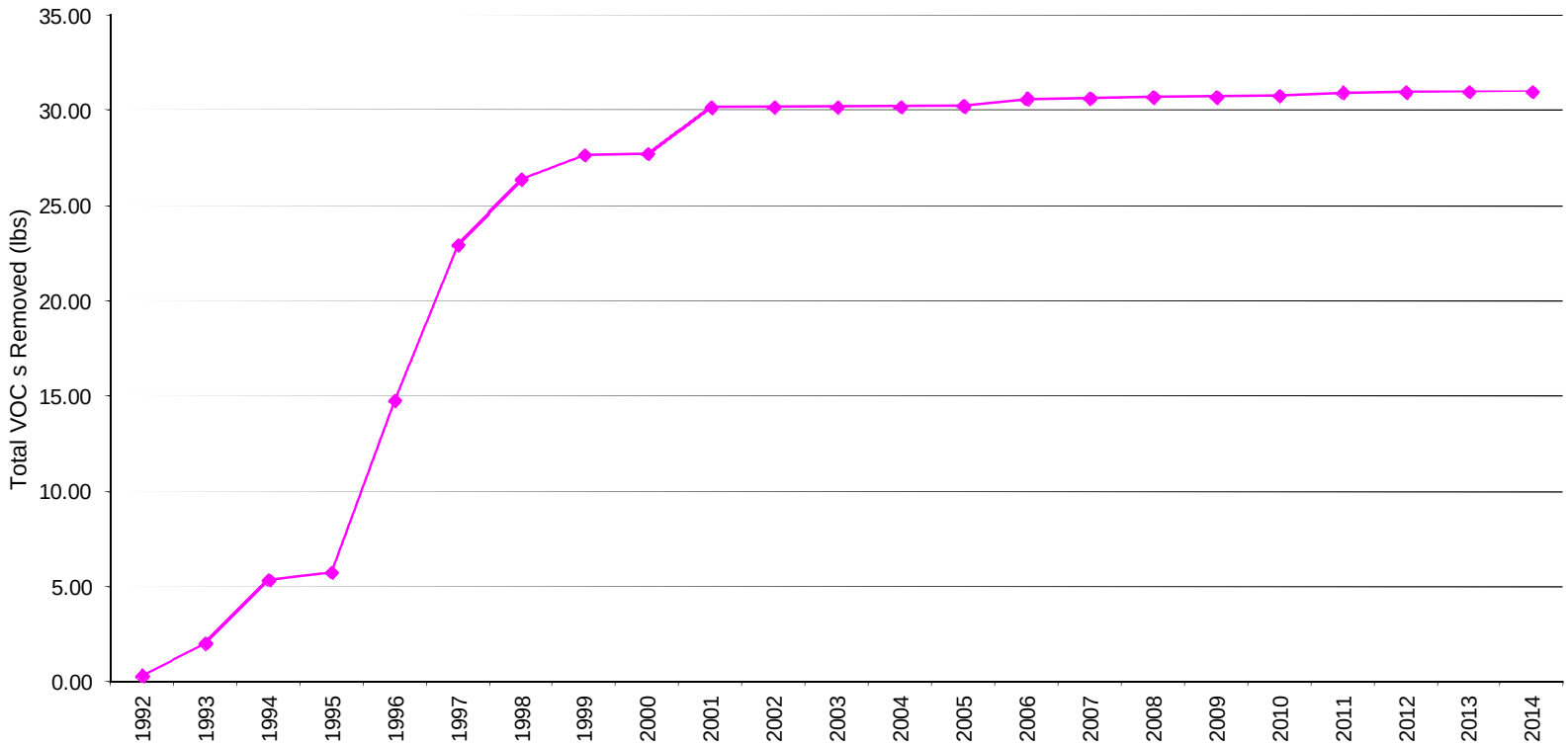
Cumulative Total VOC Removal
Shallow Dolomite Remediation Progress Well W-28
Cook Composites and Polymers Co.
Saukville, Wisconsin



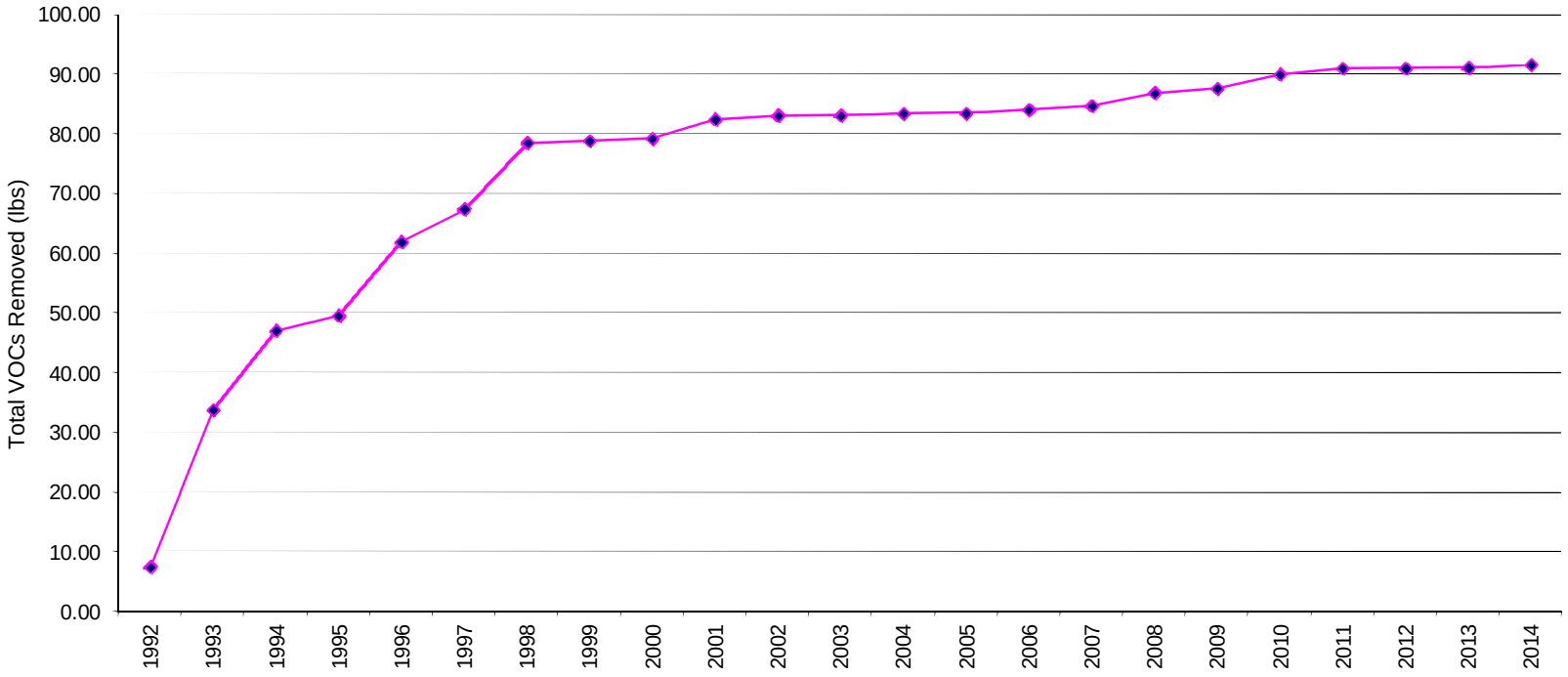
Cumulative Total VOC Removal
Shallow Dolomite Remediation Progress Well W-29
Cook Composites and Polymers Co.
Saukville, Wisconsin



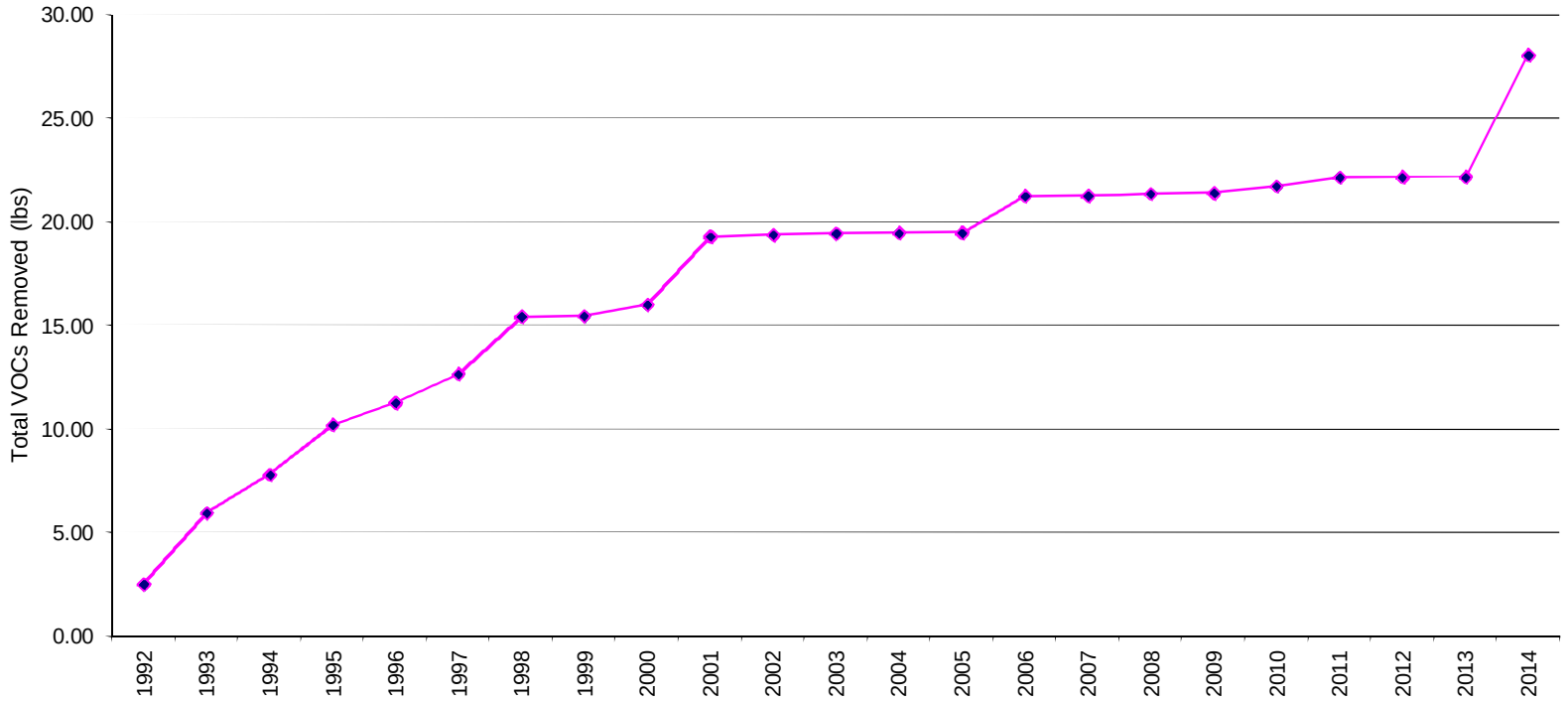
Cumulative Total VOC Removal
Glacial Ranney Collector RC-1
Cook Composites and Polymers Co.
Saukville, Wisconsin



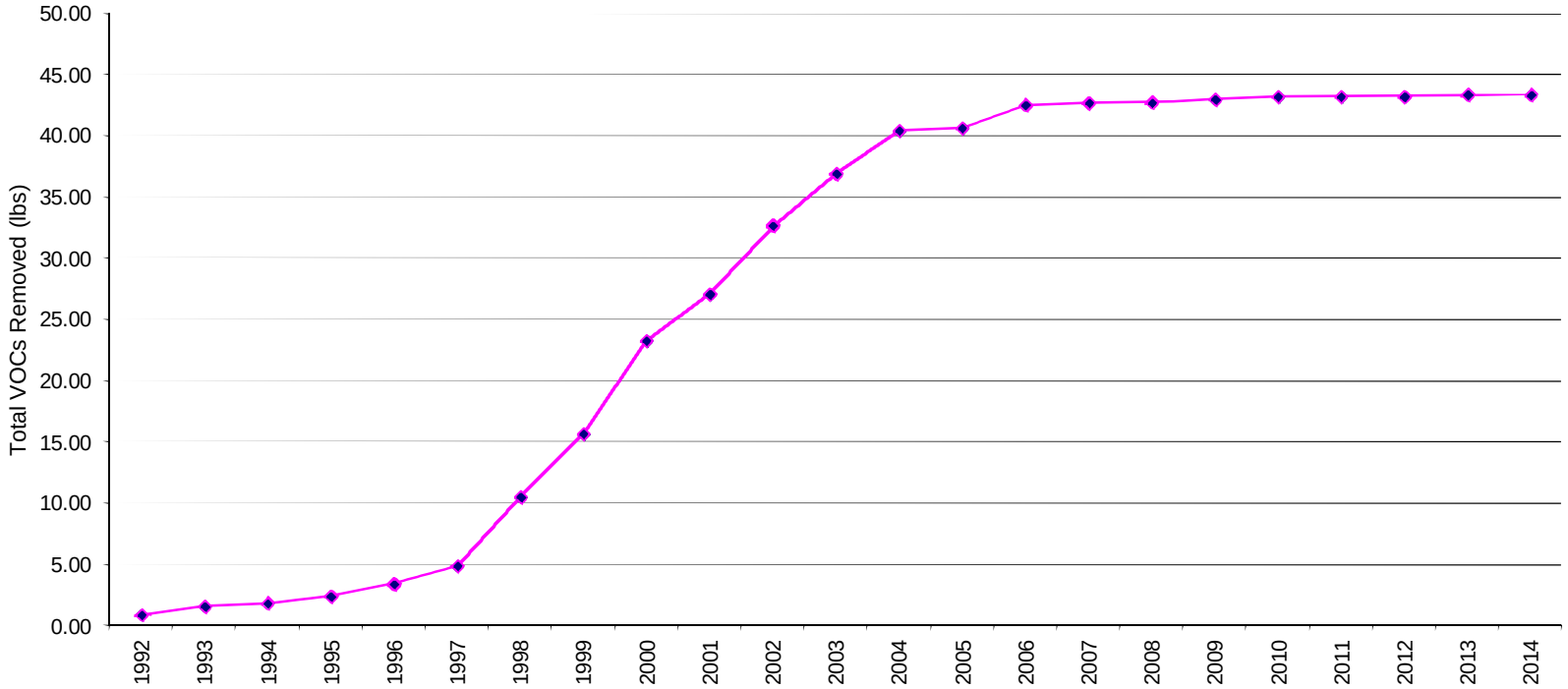
Cumulative Total VOC Removal
Glacial Ranney Collector RC-2
Cook Composites and Polymers Co.
Saukville, Wisconsin



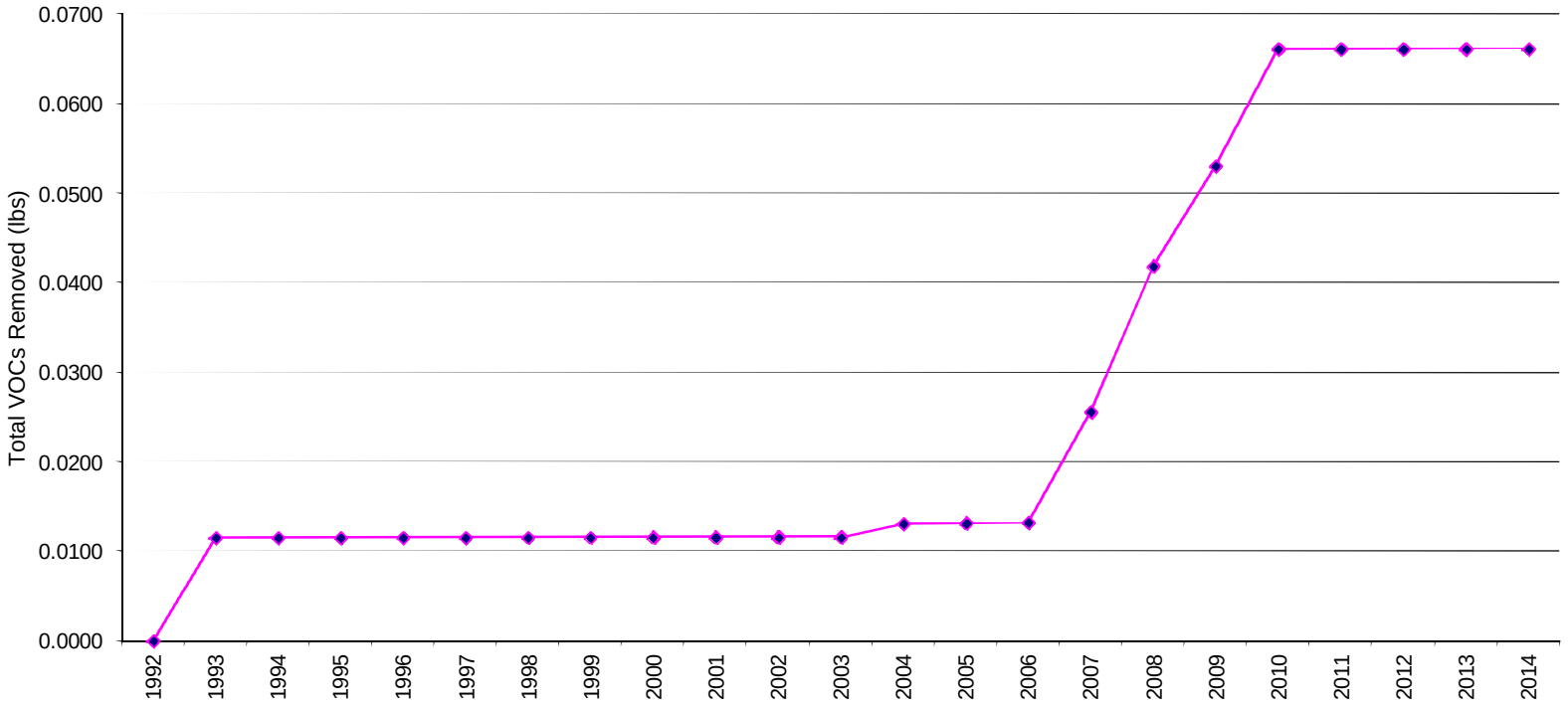
Cumulative Total VOC Removal
Glacial Ranney Collector RC-3
Cook Compoites and Polymers Co.
Saukville, Wisconsin



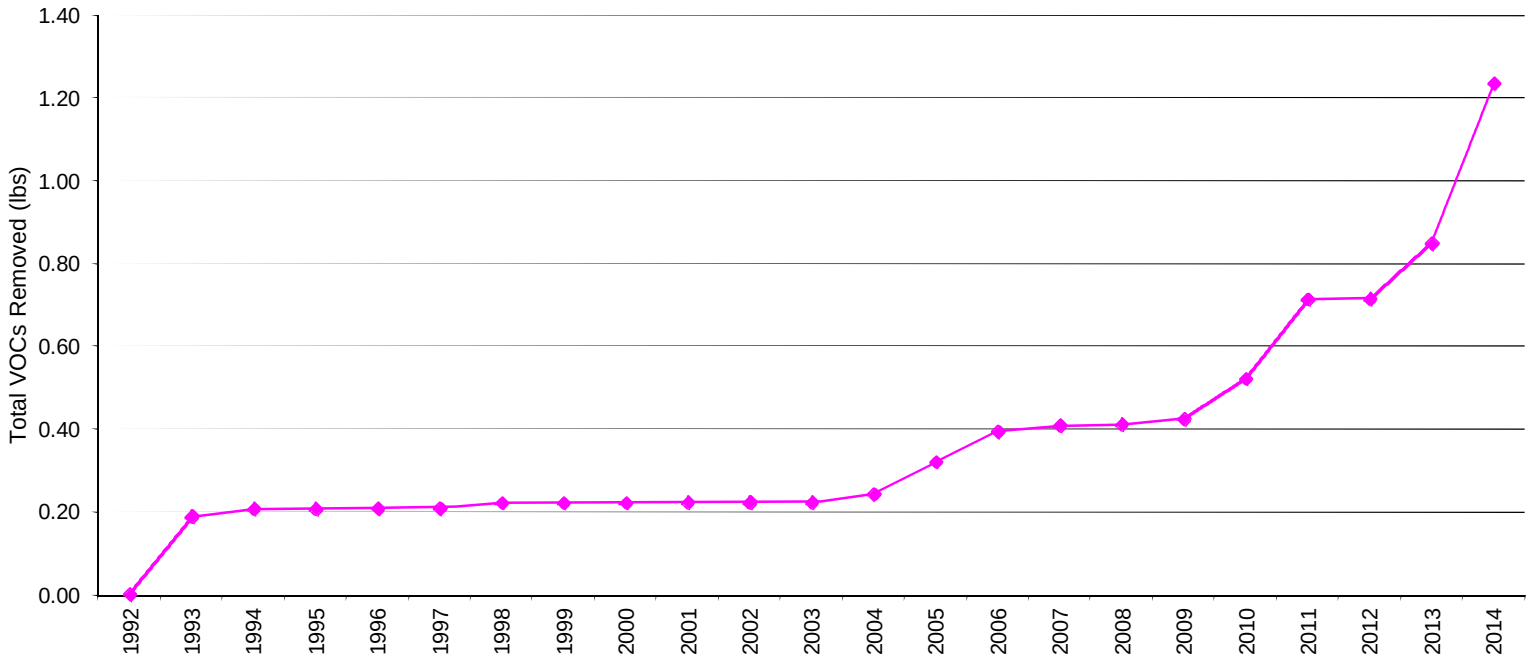
Cumulative Total VOC Removal
Deep Dolomite Well W-30
Cook Composites and Polymers Co.
Saukville, Wisconsin



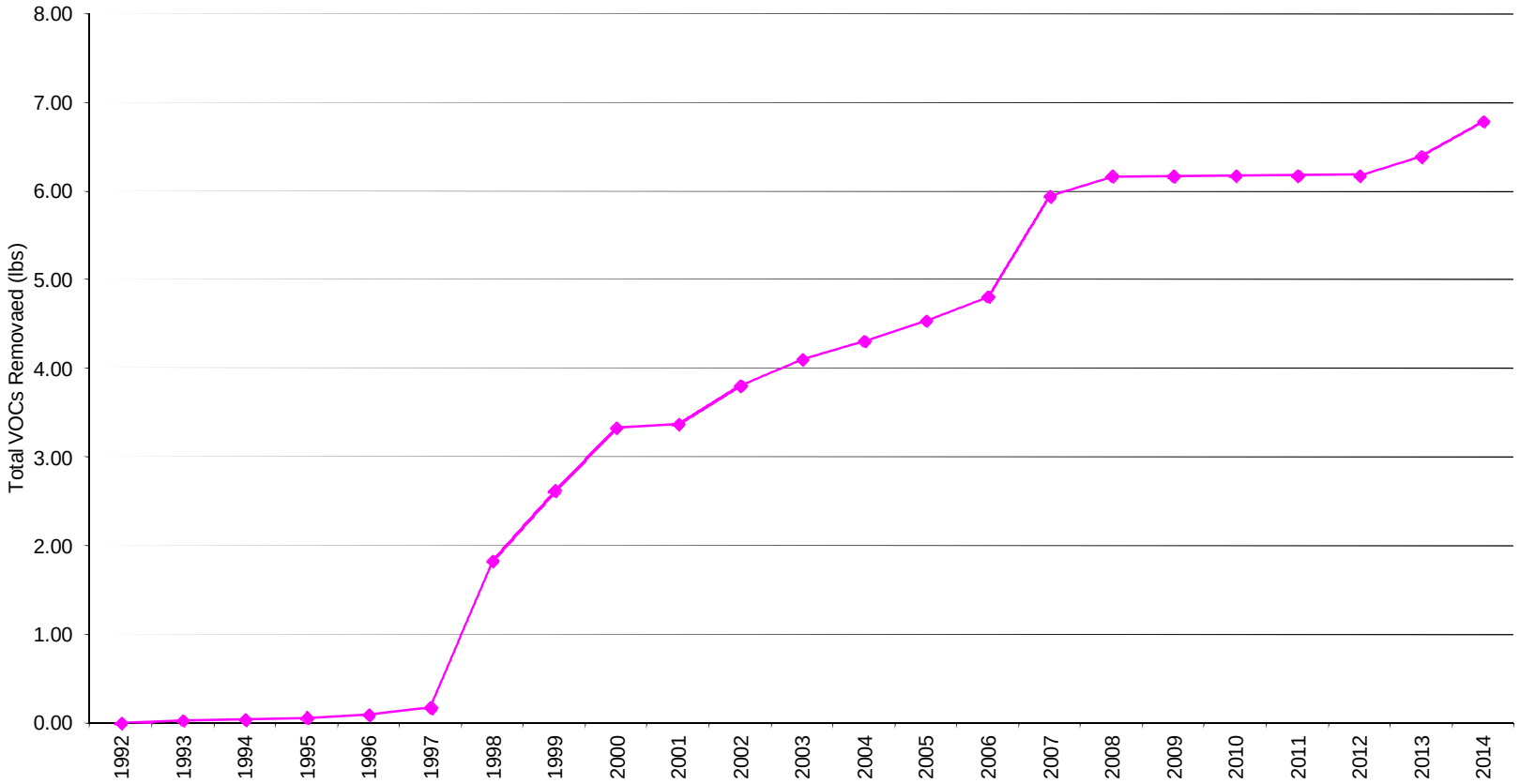
Cumulative Total VOC Removal
Glacial Extraction Well W-31
Cook Composites and Polymers Co.
Saukville, Wisconsin



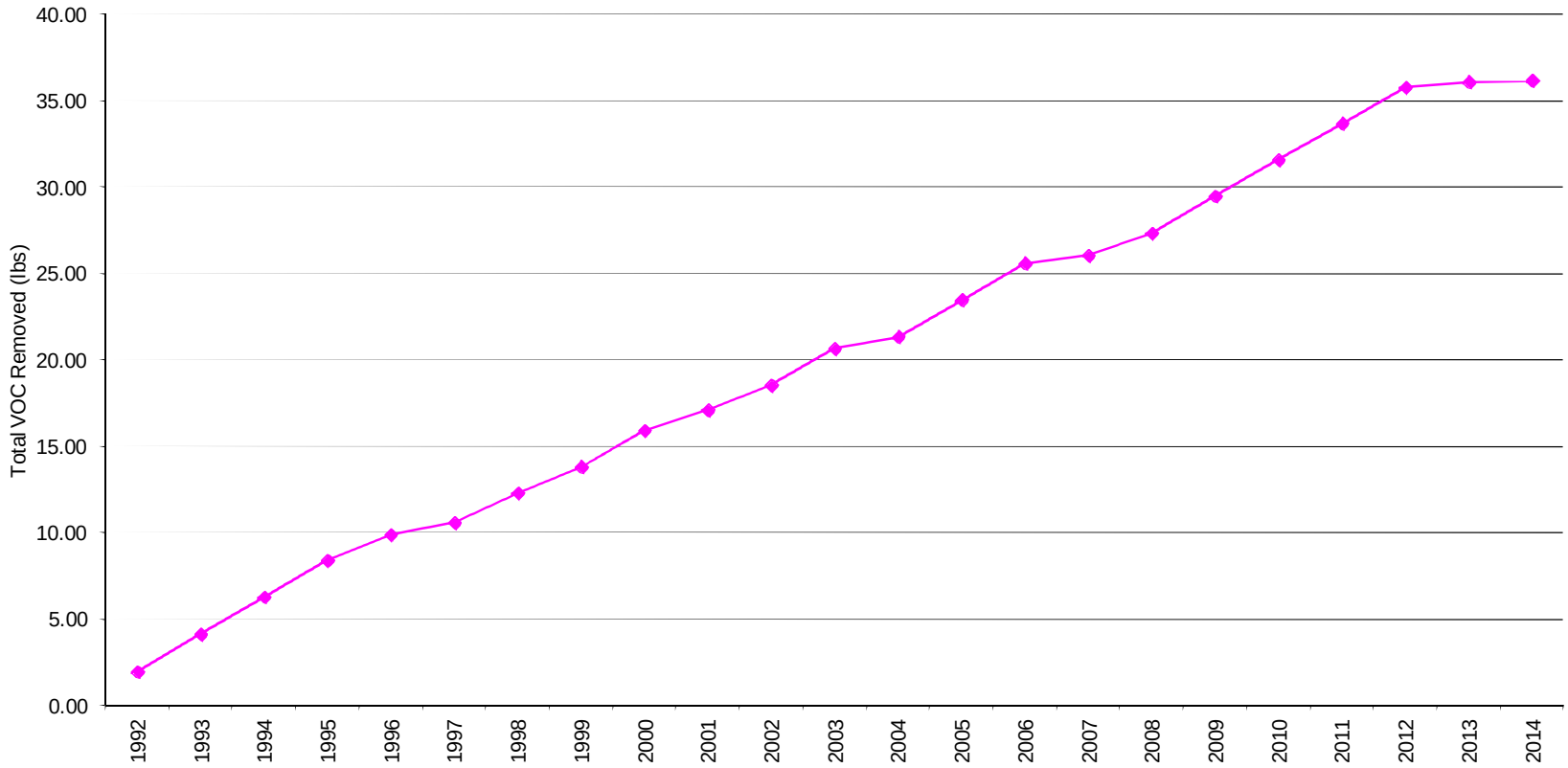
Cumulative Total VOC Removal
Glacial Extraction Well W-32
Cook Composites and Polymers Co.
Saukville, Wisconsin



Cumulative Total VOC Removal
Glacial Extraction Well W-33
Cook Composites and Polymers Co.

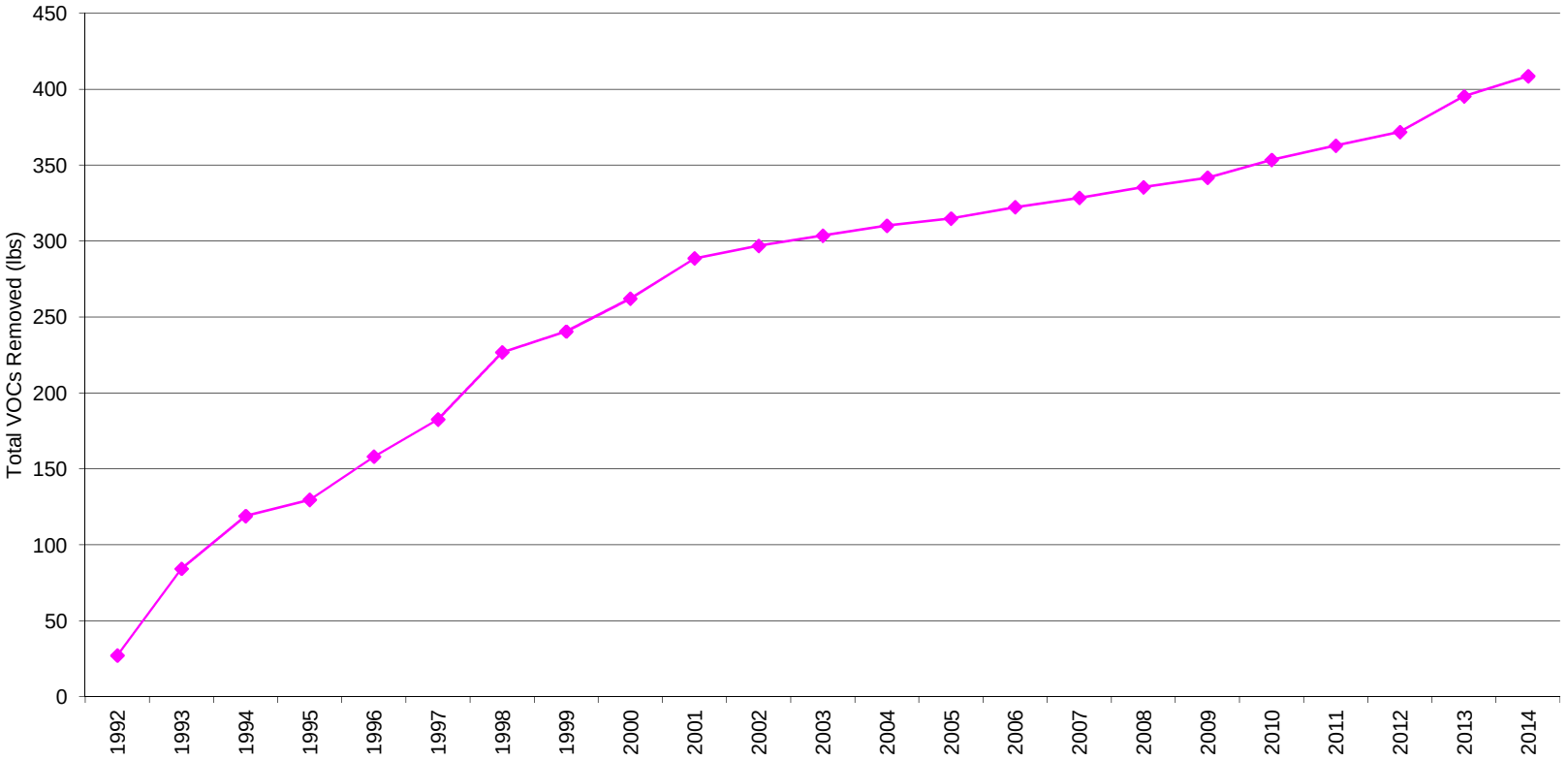


Cumulative Total VOC Removal
Glacial Extraction Well W-34
Cook Composites and Polymers Co.
Saukville, Wisconsin



Cumulative Total VOC Removal
Glacial Extraction Well W-35
Cook Composites and Polymers Co.
Saukville, Wisconsin

Cumulative Total VOC Removal
All Glacial, Shallow and Deep Dolomite Wells
Cook Composites and Polymers Co.
Saukville, Wisconsin



Endpoint Solutions
6871 South Lovers Lane
Franklin, Wisconsin 53132
Phone: 414-427-1200
Fax: 414-427-1259
www.endpointcorporation.com