Final

2016 Annual Monitoring Report

Wausau Water Supply NPL Site

Wausau, Wisconsin

GHD | 1801 Old Highway 8 Northwest Suite 114 St. Paul Minnesota 55112 USA

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Table of Contents

1. Introduction 1
   - 1.1 History 1
   - 1.2 Monitoring Background 2
   - 1.3 Site Geology 2
   - 1.4 Groundwater Cleanup Standards 3
2. 2016 Annual Monitoring 3
   - 2.1 Additional Monitoring 3
   - 2.2 Water Level Monitoring 4
   - 2.3 Groundwater Sampling 4
   - 2.4 Extraction Well EW1 Sampling 4
3. Operation and Maintenance 4
   - 3.1 Monitoring Well Inspection 4
   - 3.2 City Production Wells 5
   - 3.3 East Bank Source Area Pavement Inspection 6
4. Evaluation of Annual Groundwater Monitoring Data 6
   - 4.1 West Bank 6
   - 4.2 East Bank 8
   - 4.3 EW1 9
   - 4.4 Hydraulic Capture 9
5. Site Groundwater Monitoring Plan 9
   - 5.1 Proposed Groundwater Monitoring Plan Modifications 9
     - 5.1.1 East Bank 10
     - 5.1.2 West Bank 11
   - 5.2 Proposed Abandonment of Monitoring Wells 12

Figure Index

Figure 1.1 Site Location

Figure 1.2 Site Plan

Figure 2.1 Groundwater Elevations and Contours October 24 and 25, 2016

Figure 4.1 Trichloroethene Concentrations in Groundwater (Fall 2016)

Figure 4.2 cis- 1,2- Dichloroethene Concentrations in Groundwater (Fall 2016)

Figure 4.3 Tetrachloroethene Concentrations in Groundwater (Fall 2016)

Figure 4.4 Vinyl chloride Concentrations in Groundwater (Fall 2016)

Table Index

Table 2.1 Groundwater Elevations Fall 2016

Table 2.2 Site Specific VOC List

Table 2.3 Annual Groundwater Sampling Summary – October 2016

Table 3.1 Monitoring Well Inspection

Table 3.2 City Water Supply Well Pumping Averages

Table 4.1 VOC Analytical Results - Annual Groundwater Monitoring Event October 2016

Table 5.1 Current and Proposed Groundwater Monitoring Well Network

Appendix Index

Appendix A October 24-25, 2016 Laboratory Report and Data Quality Validation Memorandum

Appendix B Wausau Chemical Pavement Inspection Report

Appendix C Total Chlorinated VOC Concentration Charts

1. Introduction

GHD Services Inc. (GHD) has prepared this 2016 Annual Monitoring Report for the Wausau Water Supply NPL Site (Site) in Wausau, Wisconsin, on behalf of the Wausau Group of Responsible Parties (Group). This report presents the results of annual groundwater monitoring conducted at the Site in October of 2016.

1.1 History

The Group initiated remedial action at the Site in the early 1990s in accordance with the September 29, 1990, Record of Decision (ROD) and the Consent Decree (CD) entered with the court on January 24, 1991. The final remedial action at the Site consisted of two soil vapor extraction (SVE) systems to address the source areas and groundwater extraction and treatment, utilizing existing municipal production wells (CW3 and CW6) and a remediation well (EW1). The Site location is shown on Figure 1.1 and a Site plan is presented on Figure 1.2.

Source area remediation was accomplished by the installation of SVE systems at Marathon Electric[1] (West Bank) and Wausau Chemical Corporation (East Bank) in January 1994. The SVE system at Marathon Electric operated until April 1996 when the West Bank source remediation was approved as complete. The East Bank SVE system was modified in 1996 and continued to operate. In January 2001 the East Bank SVE system was shut down while evaluation for final closure occurred. The East Bank source remediation was approved as complete in 2007.

The groundwater remediation system consists of two municipal water supply wells (CW3 and CW6) and one extraction well installed at Marathon Electric (EW1). Air strippers, located at the Wausau water treatment plant, treat water from the municipal supply wells. Water from EW1 was treated by air stripping (over riprap on the riverbank) before being discharged to the Wisconsin River.

The pumping rates for the three extraction wells were originally defined in the CD. In the Groundwater Flow Model report (CRA, May 1993), CRA established a range of pumping rates that would maintain capture of the groundwater plume. Subsequently, in an August 4, 1995 letter, the United States Environmental Protection Agency (EPA) approved a pumping configuration range for the three extraction wells. Those pumping rates were:

CW3: 65 hours per week at 1,200 gallons per minute (gpm) to 100 hours per week at 1,100 gpm

CW6: 85 hours to 100 hours per week at 1,400 gpm

EW1: 800 to 900 gpm continuously

EW1 stopped operating in July 2012 due to pump failure. Since EW1 has essentially completed its performance goal, the Group proposed a pilot study to confirm that the groundwater containment network of pumping wells will continue to be effective without the need for pumping at EW1. The EW1 Shutdown Pilot Study Work Plan proposal was submitted to the EPA on September 3, 2013. Via email, dated November 5, 2013, EPA requested that the supplemental data collection for the

[1] Marathon Electric was acquired by Regal Beloit Corporation and is now doing business at the Wausau plant under the Regal name.

Pilot Study start during the 4th quarter of 2013, concurrent with the 2013 annual monitoring event. The Pilot Study was conducted from the 4th quarter of 2013 through the 4th quarter of 2014 and the results were reported to the EPA in March 2015. Although the EPA have not yet provided a final approval of the EW1 shut-down, potential effects of the shut-down have continued to be evaluated through the annual groundwater monitoring conducted in the fall of 2015 and 2016.

From 1985 through 1996, as an interim remedial measure, additional groundwater remediation was provided by a groundwater extraction system operated by Wausau Chemical Corporation (WCC). The extraction system at WCC consisted of a series of shallow wells at the south end of WCC property. Groundwater from this system was treated by air stripping. This remediation was conducted in addition to the requirements of the ROD or the CD and operation ceased in 1996.

From 1993 through 2000 groundwater monitoring was conducted according to the Monitoring Program Plan (CRA, 1994). The Monitoring Program Plan consisted of a complex system of monthly, quarterly, semiannual, and annual monitoring. In June 2000, the Groundwater Monitoring Plan replaced the Monitoring Program Plan as the approved groundwater monitoring program. The Groundwater Monitoring Plan consists of annual monitoring well sampling and quarterly sampling of EW1 (when operating).

The Groundwater Monitoring Plan requires an annual report on the activities occurring the previous calendar year. This report fulfills the requirement for 2016.

1.2 Monitoring Background

Groundwater monitoring at this Site is a combination of hydraulic and water quality monitoring designed to verify that the groundwater extraction wells are containing the contaminant plume and that groundwater quality is improving as a result of past source remedial actions and ongoing volatile organic compound (VOC) removal from the aquifer.

Groundwater remediation at the Wausau Site has been ongoing for over 20 years. Aquifer remediation progress is a slow process but contaminant concentrations have been reduced significantly at the Site. The aquifer has been monitored annually and the data show a downward trend of VOC concentrations in groundwater. Because of the time necessary to achieve groundwater remediation, containment of contaminated groundwater is the primary measurable and achievable short- term objective.

For the purpose of evaluation, groundwater monitoring at Wausau has been divided into two areas, the East Bank and the West Bank of the Wisconsin River, corresponding to the two original source areas. The river forms a natural hydraulic division of the Site. During 2016, two groundwater extraction wells were operated to remove VOC contaminated groundwater. One extraction well is on the West Bank, (CW6) and one is on the East Bank (CW3) (see Figure 1.2).

1.3 Site Geology

The Site is underlain by glacial outwash and alluvial sediments that have filled in the pre- glacial stream valley in which the Wisconsin River now flows. This alluvial aquifer ranges from 0 to 160 feet thick and has an irregular base and lateral boundaries. Relatively impermeable bedrock underlies the aquifer and forms its lateral boundaries within the pre- glacial valley. Six production wells in the

Site area provide drinking water for the City of Wausau. These wells are screened in the glacial outwash and alluvial sand and gravel deposits that underlie and are adjacent to the Wisconsin River.

1.4 Groundwater Cleanup Standards

The Groundwater Monitoring Plan was developed to monitor compliance with cleanup standards for the groundwater at the Site. The groundwater cleanup standards for the Site are the EPA maximum drinking water contaminant levels (MCLs). The MCLs for the primary VOC contaminants of concern at the Site are:

Trichloroethylene (TCE)	5 µg/L
Tetrachloroethylene (PCE)	5 µg/L
cis- 1,2- Dichloroethene (c12DCE)	70 µg/L
Vinyl chloride	2 µg/L

With the exception of vinyl chloride, these standards are the same as the Wisconsin Department of Natural Resources (WDNR) Enforcement Standards (ES). The Wisconsin ES for vinyl chloride is 0.2 µg/L (WDNR Chapter NR 140).

2. 2016 Annual Monitoring

The 2016 annual groundwater monitoring event was conducted on October 24 and 25. Monitoring was conducted in accordance with the Groundwater Monitoring Plan with the following exceptions:

- As reported in the 2000 Annual Monitoring Report, two monitoring wells (WC2 and W51A) are no longer monitored and they were abandoned in 2000.
- Also, as approved by the EPA and WDNR through the 2002 Annual Monitoring Report, the analysis of bis(2- ethylhexyl)phthalate at C4S and W53A was discontinued in 2003.
- Monitoring wells E24 and E24A were abandoned in 2012. Monitoring well E24AR was installed as a replacement.
- Monitoring well E23A was abandoned on September 23, 2014.
- Extraction well EW1 was not operating during 2016, thus, quarterly influent and effluent sampling was not conducted. However, a sample was collected from EW1 during the annual monitoring event.

2.1 Additional Monitoring

At the request of the EPA, additional monitoring was conducted to further assess potential effects related to the shutdown of EW1 and for the evaluation of potential vapor intrusion. These wells were W52A, WSWS, and C7S.

2.2 Water Level Monitoring

Table 2.1 presents the groundwater elevation data measured on October 24 and 25, 2016. Water table contours based on these measurements are presented on Figure 2.1. Field staff measured water levels on the East Bank on October 24 while CW3, the East Bank remediation well, was pumping. West Bank water levels were measured on October 25 while CW6, the West Bank remediation well was operating. As explained above, EW1 was not operating during the 2016 monitoring event. Water levels in the City production wells were measured with the assistance of City staff.

East Bank contours are consistent with flow patterns observed in previous years. The East Bank flow patterns are controlled by the operation of CW3. West Bank contours depict a large cone of influence created by CW6. Under natural conditions, West Bank groundwater would flow generally eastward and discharge to the Wisconsin River. Under pumping conditions however, groundwater flows toward the City supply wells.

2.3 Groundwater Sampling

Groundwater samples were analyzed for the Site specific VOC list (see Table 2.2) by EPA Method 8260. A summary of the groundwater sampling event, including field parameter measurements, is presented in Table 2.3.

Groundwater sampling was conducted according to the Quality Assurance Project Plan, (CRA, February 1994) as amended by a June 11, 1999, letter to the EPA. TestAmerica Laboratories, Inc. analyzed all samples. Laboratory results will be submitted electronically in the Region V Electronic Data Deliverable (EDD) format for inclusion in the Region V EPA database. Copies of the laboratory report and data quality validation memoranda for the 2016 data are presented in Appendix A.

2.4 Extraction Well EW1 Sampling

EW1 did not operate during 2016; thus, influent and post-treatment effluent samples were not collected. However, a sample was collected from EW1 during the annual monitoring event. No VOCs were detected in the EW1 sample.

3. Operation and Maintenance

Operation and maintenance activities reported in this section cover the City production wells, groundwater monitoring wells, and the annual inspection of the paved surfaces near the East Bank source area.

3.1 Monitoring Well Inspection

All Site monitoring wells were inspected during the October 2016 monitoring round. An inspection form was used to document the following well conditions:

- Obscured by brush or other?

- Well ID visible?
- Protective cover and casing condition
- Well cap condition
- Lock condition
- Concrete seal condition
- Locking cover impeded by well riser?
- Ground condition (subsidence)
- Flush mount surface condition
- Flush mount bolt condition

Table 3.1 presents the results of the inspection. The inspection indicated that all wells were in good to satisfactory condition. Well maintenance conducted during 2016 included replacement of flush-mount vaults at GM2S, GM6D, WW4, W53, and W54. Brush clearing was also conducted at R2S, W56, E26, WC5, MW10A, WSWD, and GM4D.

3.2 City Production Wells

Both CW3 and CW6 operated as required in 2016 with minimal shutdowns or repairs. Table 3.2 presents 2016 pumping data for the six City wells. While only CW3 and CW6 are part of the remediation system, data for all City wells are presented, consistent with previous reports. The table shows, by month, the number of hours each well was operated, the number of gallons pumped from each well, and the average pumping rate while the pump was operating.

Recommended pumping rates for CW3 and CW6 were established in an August 4, 1995 letter from EPA. In accordance with the letter, pumping of CW3 was to be maintained between 65 hours per week at 1,200 gallons per minute (gpm) to 100 hours per week at 1,100 gpm. Pumping of CW6 was set at 85 hours per week at 1,400 gpm. CW3 and CW6 generally operate on alternate weekly schedules where CW6 operates on the weekdays and CW3 operates more on the weekends.

During 2016 CW3 operated for an average of 70.7 hours per week with an average pumping rate of 1,334 gpm, exceeding the requirements of 65 hours per week at 1,200 gpm.

CW6 pumped an average of 97.0 hours per week with an average pumping rate of 1,222 gpm. Although well rehabilitation was conducted in late 2015, the well is no longer capable of pumping at a rate of 1,400 gpm. However, the pumping duration of CW6 was increased to an average of 97 hours per week, which is considerably greater than the requirement of 85 hours per week, thus offsetting the decreased pumping rate. The recommended pumping rate and duration would result in a total annual pumping volume of 371,000,000 gallons and the actual gallons pumped during 2016 was approximately 370,000,000 gallons. Thus the pumping requirement for CW6 was essentially met during 2016.

3.3 East Bank Source Area Pavement Inspection

The EPA and WDNR approved final closure of the East Bank source remediation SVE system in September 2007. As described in the Pavement Cover and Building Maintenance Plan, a requirement of the closure was an annual inspection of the paved areas surrounding the Wausau Chemical property. The purpose of the inspection is to monitor the integrity of the paved areas of the property and make recommendations to minimize rainwater infiltration and prevent direct human contact with soils. In August 2009 the entire pavement area was repaved with new asphalt and the street adjacent to the west side of the property, North River Road, was repaved by the City of Wausau. Also, an approximately 2,800 square foot addition, with concrete floor and roof, was added to the south end of the building in 2009- 2010. Inspections conducted during 2016 found the pavement to be in good condition. A copy of the pavement inspection report is presented in Appendix B.

4. Evaluation of Annual Groundwater Monitoring Data

The objectives of the annual groundwater monitoring program are to monitor the containment of the contaminant plume and the long- term improvement in groundwater quality. Table 4.1 presents the laboratory results for monitoring well samples collected in October 2016. VOC concentration maps for the principle Site contaminants (TCE, c12DCE, PCE and vinyl chloride) are presented on Figures 4.1 through 4.4.

The 2016 data indicate that the VOC concentrations were stable or decreasing at most well locations. Of the 24 monitoring wells sampled, 17 wells exhibited lower or stable concentrations compared to 2015.

4.1 West Bank

The primary chlorinated VOC found in the West Bank groundwater is TCE, which was detected at 11 of the 16 West Bank monitoring wells, plus City well CW6.

TCE degradation product, c12DCE, was detected at seven locations, however none of the West Bank concentrations exceeded the c12DCE cleanup standard. Vinyl chloride was not detected in West Bank well samples. Monitoring wells with TCE concentrations greater than the MCL of 5 µg/L included R2D, R4D, W52, W53A, W54, W55, C2S, C4S, and C7S. With the exception of R2D and W55, all of these wells are on Marathon Electric property (see Figure 4.1). The TCE concentration at CW6 (3.3 µg/L) was below the MCL. City wells CW10 and CW11 were not operating during the October sampling event.

North of EW1 the West Bank plume is in the deeper portion of the aquifer. Two wells in the north portion of the West Bank plume exceeded the MCL for TCE. W52 had a TCE concentration of 12 µg/L and the TCE concentration at R2D was 21 µg/L. R2D is a deep aquifer well north of the Marathon property. Elevated TCE concentrations at that location indicate that the plume remnant that was in a stagnation zone between EW1 and CW6 is now migrating north to CW6 since EW1

stopped pumping. Concentrations at W52 have increased since EW1 stopped pumping due to changes in groundwater flow patterns. Groundwater in the W52 area may be near the flow divide between CW6 and CW3, and flow may be to the north to CW6 or eastward to CW3.

The historical data for R2D, R3D, and R4D are presented below. Although total chlorinated VOCs are shown here, TCE comprises 90 to 100 percent of the total concentrations listed. The remaining portion would be c12DCE. This table illustrates the southerly migration of higher concentrations from the R2D area to R3D as groundwater moved toward EW1 during the 1990s and 2000s. When EW1 stopped pumping in 2012, TCE concentrations increased at R2D as the aquifer flow direction changed back to the north toward CW6. The shut- down of EW1 eliminated the groundwater flow divide between CW6 and EW1, which should result in a more effective reduction of VOC concentrations in the R2D/R3D area.

Total Chlorinated VOCs (µg/L)			
Year	**R2D**	**R3D**	**R4D**
1996	1600	2.0	540
1997	720	5.0	65
1998	320	580	55
1999	110	1200	33
2000	45	1800	58
2001	17	1500	13
2002	15	1200	36
2003	10	980	38
2004	11	899	51
2005	7.5	400	56.5
2006	8.2	490	42
2007	9.9	280	1.3
2008	6.5	180	13
2009	7.3	92	22.9
2010	6.2	195.7	25.7
2011	11	203.1	27.6
2012	6.4	20.7	4.9
2013	20	4.8	16.6
March 2014	18.2	73.7	NA
May 2014	19.1	4.7	7.89
August 2014	33.2	2.9	NA
Nov 2014	47.2	2.6	1.8
2015	33.6	1.8	3.27
2016	22.9	2.0	5.97

Monitoring wells south of EW1 are in, or adjacent to, the old landfill, which is the principal West Bank source area. VOC contaminants are more prevalent in the shallower portion of the aquifer near the source area. Monitoring wells south of EW1 that exceeded the MCL for TCE included W53A, W54, C4S, and C7S.

TCE concentrations at W54 increased during 2013 and 2014, but decreased significantly in 2015 and 2016 (see the trend graph in Appendix C). The short term increase in concentration at W54 was probably related to changes in the groundwater flow patterns after EW1 stopped operating; however, concentrations over the last two years appear to be returning to low levels.

The overall areal extent of the West Bank contaminant plume has not changed significantly since EW1 was shutdown. TCE and c12DCE were essentially the only VOCs detected on the West Bank. Figures 4.1 and 4.2 present TCE and c12DCE concentrations, respectively. The contour lines on the figures show the approximate areas of concentrations exceeding the MCL. Charts showing historical total chlorinated VOC concentrations for select West Bank wells are presented in Appendix C.

4.2 East Bank

East Bank VOC data are presented in Table 4.1. While PCE was the original contaminant on the East Bank, the presence of TCE, c12DCE, and vinyl chloride, at concentrations that exceed the PCE concentration in many wells, indicates an active natural biodegradation process. For example, at WC5A, E24AR, and WW6 the c12DCE concentration was higher than the PCE and TCE concentrations combined.

PCE or one of its daughter products was detected at 7 of the 11 East Bank monitoring wells and at City well CW3. Three monitoring wells (WC5A, E22A, and E24AR) had concentrations that exceeded the MCL of at least one VOC. The areal extent of the East Bank contaminant plume remained stable compared to 2015 (see Figures 4.1 through 4.4). Total chlorinated VOC concentrations from 2009 through 2016 for key East Bank wells are shown below:

	Total Chlorinated VOCs (µg/L)							
Well	2009	2010	2011	2012	2013	2014	2015	2016
WC3B	1,460/565.2	1.24	2.26	3.47	0.26	6.31	2.86	0.55
WC5A	12.1	9.86	4.6	1.3	7.3	14.93	12.04	26.1
E24AR	13	20	1.4	3.86	22	222.5	136.8	152.1
E22A	231.9	5.03	3.2	25.41	104.9	12.5	8.03	123
E37A	77.35	7.0	140.19	68.06	4.67	3.73	1.61	1.75
WW6	29.97	46.34	17.6	45.48	45.8	51.9	67.6	8.03
CW3	4.48	4.36	4.03	3.58	2.62	3.03	3.15	3.0

The variable increases and decreases in concentrations at individual monitoring wells have been attributed to higher concentration portions of the plume that are flowing from the source area to CW3 where the East Bank groundwater is extracted and treated. Charts showing historical total chlorinated VOC concentrations for select East Bank wells are presented in Appendix C. Individual VOC concentrations for the shallow wells are presented for PCE, TCE, c12DCE, and vinyl chloride on Figures 4.1 through 4.4.

Monitoring well FVD5 is on the former Wausau Energy property, which has groundwater impacts related to petroleum fuels and is independent of the Wausau NPL site remediation process. FVD5 has always exhibited elevated benzene, ethylbenzene, toluene, and xylene (BTEX) concentrations. The benzene concentration of 19 µg/L exceeded the MCL.

4.3 EW1

EW1 did not operate during 2016, hence, influent and post- treatment effluent samples were not collected. A grab sample was collected from EW1 during the October 2016 monitoring event and no VOCs were detected.

4.4 Hydraulic Capture

Hydraulic capture of the Site contaminant plumes is demonstrated by the water table contours illustrated on Figure 2.1. The water table contours indicate that groundwater flow at the Site was toward the two operating extraction wells (CW3 and CW6). At nested well locations, the water table elevations for shallow and deep wells were similar, indicating horizontal flow and hydraulic containment of the shallow and deeper portions of the aquifer. Additional Monitoring

At the request of the EPA, additional monitoring was conducted to further assess potential effects related to the shutdown of EW1 and for the evaluation of potential vapor intrusion. These wells were W52A, WSWS, and C7S. Laboratory results for these wells are included in Table 4.1. No VOCs were detected at W52A and WSWS. TCE was detected at C7S with a concentration of 14 µg/L.

5. Site Groundwater Monitoring Plan

The current Site groundwater monitoring plan includes an annual monitoring event that is usually conducted in October. This monitoring event includes measurement of water levels at all Site monitoring wells (56 total) and groundwater sampling of 12 East Bank wells and 13 West Bank wells. Samples are also collected from City Wells CW3 and CW6. All groundwater samples are analyzed for the Site specific VOC list by EPA Method 8260. Table 5.1 summarizes the current monitoring plan. During the annual monitoring event, all wells are inspected to document their condition, including: total depth, casing and grout, well ID, well cap, lock, concrete seal, and ground subsidence.

When EW1 was operating, monitoring was conducted quarterly. Pre- treatment and post- treatment water samples were collected and analyzed for Site specific VOCs.

5.1 Proposed Groundwater Monitoring Plan Modifications

Many of the Site monitoring wells are clustered in groups of two or three wells in which only one of the group is monitored for water quality. Numerous years of water level monitoring has shown that there is very little vertical gradient and groundwater flow is mostly horizontal. Thus clustered wells are not necessary for determining groundwater flow patterns. As such, several wells on the East Bank and West Bank are redundant and are proposed for removal from the monitoring plan. These wells are listed below with the justification for their removal from future monitoring events..

5.1.1 East Bank

The East Bank chlorinated VOC plume is situated primarily in the shallow portion of the aquifer. Thus, where wells are clustered, the shallower wells are sampled for VOC analysis and the deeper wells generally do not provide needed data.

Thus, the following East Bank monitoring wells are proposed to be removed from the list of wells that are monitored for water levels only.

East Bank Monitoring Wells to be Removed from Water Level Monitoring List	
Well No.	**Justification**
E22	not sampled because it is clustered with E22A and it is not needed for groundwater elevation data
E26	neither E26 nor E26A are sampled and only E26A is useful for groundwater elevation data
WC3	not sampled because it is clustered with WC3B and it is not needed for groundwater elevation data
WC4	the deeper well of the WC4/WC4A cluster; neither well is sampled for VOC analysis and only WC4A is needed for elevation data
WC5	not sampled because it is clustered with WC5A and it is not needed for groundwater elevation data

The following wells are proposed to be removed from the list of wells that are sampled for laboratory analysis.

East Bank Monitoring Wells to be Removed from Groundwater Sampling List	
Well No.	**Justification**
MW10A	The 10A and 10B cluster monitors the aquifer upgradient from the source. Both wells are sampled for VOC analysis. Only the shallower well, MW10B, is needed for chemical and water level data
IWD	IWD is on an island in the Wisconsin River. VOC concentrations at this well have been decreasing and have not exceeded the Site cleanup standards since 2009 (see Appendix C). In order to sample IWD, a boat must be rented to ferry supplies and personnel to the island. There is no dock or beach on the island to safely unload and disembark. Given these safety concerns and the low VOC concentrations at this location, it should be removed from the monitoring plan. E21, which is adjacent to the river on the East Bank, and is screened at the same depth as IWD, is a good substitute for IWD
E23A	Was abandoned in the fall of 2014 due to new construction on the property at N 2nd Street and Wausau Avenue

East Bank Monitoring Wells to be Removed from Groundwater Sampling List	
Well No.	**Justification**
E24/E24A	Were abandoned in the spring of 2013 due to new construction at the Bridge Community Health Clinic on N. 2nd Street. E24A was replaced by E24AR, which is monitored for VOC analysis and groundwater elevation
FVD5	On the former Wausau Energy property that is being managed under the Wisconsin PECFA program. This well monitors petroleum related impacts from the former fuel storage site. Nearby monitoring wells E22A and E37A are sufficient for monitoring the chlorinated compounds in this area.

Although IWD and the E24 nest have been removed from the sampling list, they were replaced by E21 and E24AR, respectively.

5.1.2 West Bank

The West Bank plume is situated primarily in the shallow portion of the aquifer near the source area, but descends into the deeper aquifer as it migrates to City well CW6. Thus, where wells are clustered, the shallower wells are sampled for VOC analysis near the source and the deeper wells are sampled away from the source area. Thus, the following West Bank monitoring wells are proposed to be removed from the water level monitoring list. (There are no changes proposed for the sampling list for West Bank monitoring wells.)

West Bank Monitoring Wells to be Removed from Water Level Monitoring List	
Well No.	**Justification**
C4D	The deeper well of a cluster with C4S. These wells monitor the aquifer upgradient from the West Bank source. C4S is sampled for VOC analysis, thus C4D is not needed for chemical or water level data.
MW4B	The shallower well of a cluster that is near CW6. Neither well in the cluster is sampled for VOC analysis and only MW4A is needed for groundwater elevation data.
R2S	The shallower well of the R2S/R2D cluster that is approximately midway between the source and CW6. R2S was sampled for VOC analysis in 2015 and VOCs were not detected. R2S is not on the regular sampling list and is not needed for water level data. R2D would continue to be sampled for VOC analysis and monitored for groundwater elevation.
R3S	The shallow well in a cluster with R3D and W50. R3S is a dry well that does not provide chemical or elevation data.
W50	A mid- aquifer well clustered with R3D and R3S. Typically, it is not used for VOC sampling and it is not needed for elevation data. No VOCs were detected in the 2015 sample from W50.
W52A	The shallow well clustered with W52. W52A was sampled in 2016 and no VOCs were detected. It is not on the regular sampling list and is not needed for elevation data.

West Bank Monitoring Wells to be Removed from Water Level Monitoring List	
Well No.	**Justification**
W53	A deep well in the source area clustered with W53A. It is not used for VOC sampling and it is not needed for elevation data
W55A	The shallow well clustered with W55, near CW6. W55A was sampled in 2015 and no VOCs were detected. It is not on the regular sampling list and is not needed for elevation data.
WSWS	Adjacent to the Wisconsin River and the shallow well clustered with WSWD, WSWS was sampled in 2016 and no VOCs were detected. It is not on the regular sampling list and is not needed for elevation data.

The removal of these 17 wells from the monitoring plan does not reduce the areal coverage of VOC plume monitoring or groundwater elevation monitoring.

Assuming that permanent shut down of EW1 will be approved, monitoring will no longer be conducted at that location.

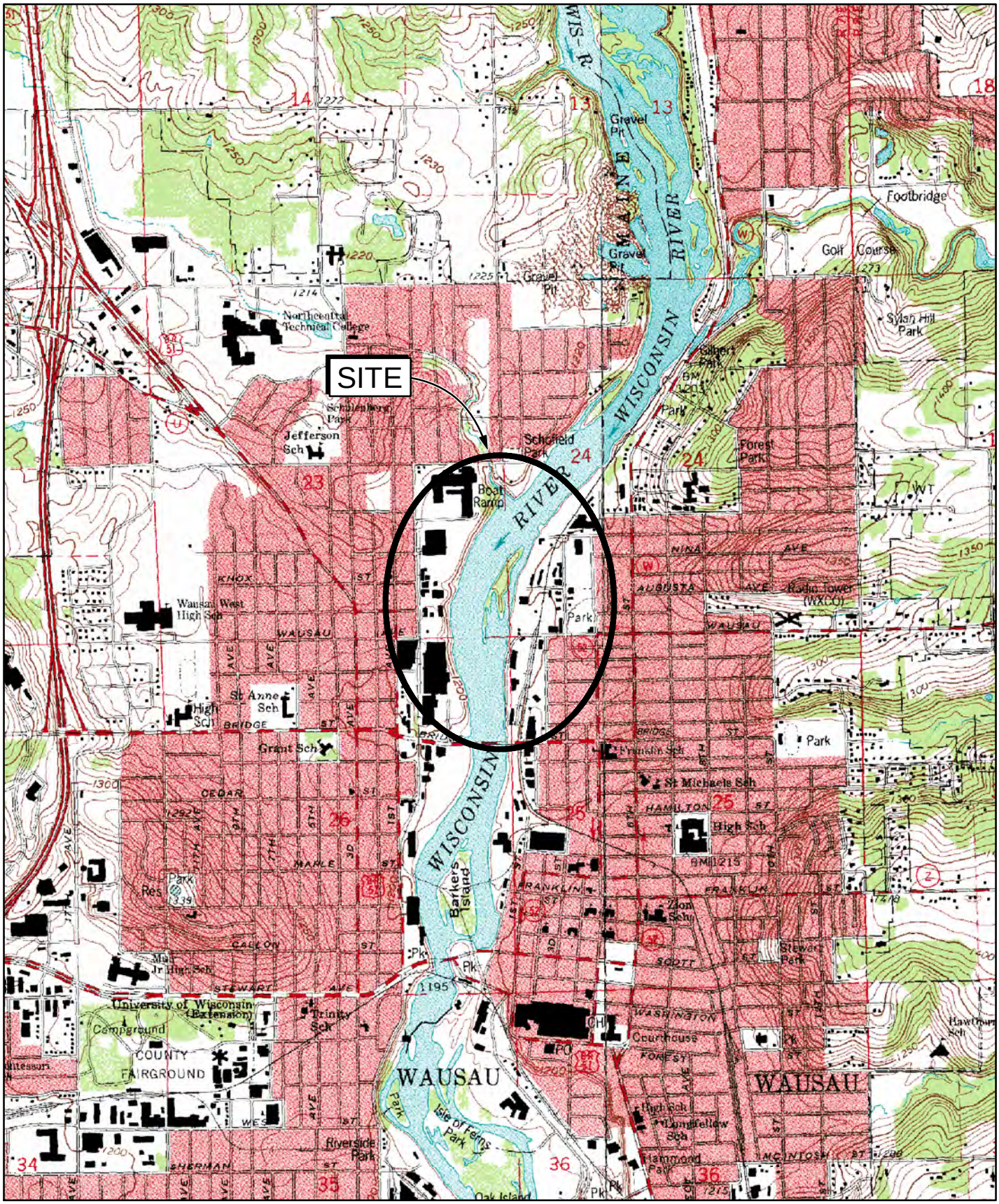
A revised monitoring plan, based on the modifications proposed herein, is summarized in Table 5.1.

5.2 Proposed Abandonment of Monitoring Wells

Since the monitoring wells listed above are no longer needed to monitor aquifer conditions, they should be properly sealed and abandoned. Upon approval of the proposed monitoring plan, a work plan for the abandonment of these wells will be submitted to EPA and WDNR for approval.

EW1 and its associated treatment and discharge structures should also be sealed and properly dismantled.

FVD5 would not be abandoned because it may be useful for the continued monitoring of the Wausau Energy site.



Source: USGS 7.5 Minute Quads - Wausau East; Wausau West

0 1,000 2,000 ft

N

GHD

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN
2016 ANNUAL MONITORING REPORT

003978-00

Mar 9, 2017

SITE LOCATION

FIGURE 1.1

GIS File: I:\GIS\Projects\6-chars\00----\0039--\003978\003978-REPORTS\003978-00(038)\003978-00(038)GIS-SP001.mxd

LEGEND

- MONITORING WELL
- EXTRACTION WELL
- CITY PRODUCTION WELL
- INDUSTRIAL WELL

CW11
GM4D
CW9OBS R
CW10
CW9
CW7
GM2S
MW4B
MW4A
W57
MW7
CW6
MW3A
W56
W55
W55A
MW1A
R2D
R2S
R1D
W50
R3S
R3D
W52A
W52
MARATHON ELECTRIC MFG.
C2S
R4D
EW1
C7S
W54
W53A
W53
WSWS
WSWD
C3S
C6S
C4S
C4D
OLD LANDFILL LIMITS
IWD
E21
WILSON HURD TEST WELL
WW4
CW3
GM6D
WW6
WAUSAU CHEMICAL COMPANY
E26A
E26
E22A
E22
E37A
FVD5
E28A
WC5
WC5A
WC4
WC4A
WC3B
WC3
E24AR
WATER TREATMENT PLANT
MW10A
MW10B
WC7A

WISCONSIN RIVER

E CAMPUS DR
STONE ST
PLUM DR
MORTENSON DR
TIERNEY RD
BUGBEE AV
W BOS CREEK DR
E BOS CREEK DR
GEMINI PL
MARTEN ST
BECHER DR
MCCARTHY BLVD
BRISBANE CT
W CROCKER ST
LUCILLE ST
N1ST AV
CHERRY ST
LENARD ST
E BOS CREEK DR
BURNS ST
BURDICK AV
PEARSON ST
BECHER DR
GEMINI PL
BURNS ST
CLAYTON ST
BROKEN ARROW RD
BOS CREEK
EAST CHERRY ST
E RANDOLPH ST
ELDRED ST
STROWBRIDGE ST
N2ND AV
N1ST AV
CHERRY ST
KNOX ST
N 5TH ST
N 3RD ST
GOWEN ST
DEVOE ST
AUGUSTA AV
BIRCH ST
N 7TH ST
ORCHARD ST
PARCHER ST
GILBERT ST
BROWN ST
WINTON ST
N 6TH ST
NINA AV
TURNER ST
UNION AV
E UNION AV
JOZIK ST
WAUSAU AV
E WAUSAU AV
MOBILE AV
CENTER ST
PARK AV
NORTON ST
RIVER DR
N 2ND ST
LINCOLN AV
HUMBOLDT AV
QUAW ST
N3RD AV
BRIDGE ST
E BRIDGE ST
CHICAGO AV

Source: Marathon County

0 500 ft

N

GHD

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN
2016 ANNUAL MONITORING REPORT

SITE PLAN

003978-00
Mar 9, 2017

FIGURE 1.2

GIS File: I:\GIS\Projects\6-chars\00----\0039--\003978\003978-REPORTS\003978-00(038)\003978-00(038)GIS-SP002.mxd

LEGEND

- MONITORING WELL
- EXTRACTION WELL
- CITY PRODUCTION WELL
- INDUSTRIAL WELL
- 1187.19 GROUNDWATER ELEVATION
- GROUNDWATER CONTOUR
- APPROXIMATE EXTENT OF CONTAMINANT PLUME IN GROUNDWATER

CW11 1192.51
GM4D 1187.07
CW10 1187.49
CW9 1188.16
CW9OBS R 1186.31
CW7 1187.14
GM2S 1187.43
MW4B 1185.87
MW4A 1185.86
W57 1186.24
MW7 1184.39
CW6 1160.33
MW3A 1186.88
1184
1185
1186
1187
1188
W56 1187.19
W55 1186.54
W55A NA
MW1A 1187.09
BOS CREEK
R2D 1187.35
R2S 1187.66
R1D 1187.92
W50 1187.66
R3S DRY
R3D 1187.51
W52A 1187.80
W52 1187.56
WISCONSIN RIVER
ELEVATION ~1188.3
MARATHON ELECTRIC MFG
C2S 1187.72
R4D 1187.71
EW1 1187.54
C7S 1187.72
W54 1187.67
W53A 1189.02
W53 1187.55
WSWS 1187.48
WSWD 1187.65
C3S 1187.30
IWD NA
WILSON HURD TEST WELL 1186.98
C6S 1187.95
C4D 1187.48
C4S 1187.57
OLD LANDFILL LIMITS
E21 1186.52
WW4 1185.01
CW3 1146.15
GM6D 1184.75
WW6 1184.87
WAUSAU CHEMICAL COMPANY
E26 1186.06
E22A 1185.85
E22 1185.82
E37A 1185.74
E26A 1186.12
FVD5 1185.89
E28A 1186.52
WC5 1186.12
WC5A 1186.16
WC4 1186.44
WC4A 1186.51
WC3B 1186.45
WC3 1186.40
E24AR 1186.19
WATER TREATMENT PLANT
MW10A 1186.33
MW10B 1186.31
WC7A 1186.47

Source: Marathon County

0 500 ft

N

GHD

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN
2016 ANNUAL MONITORING REPORT

003978-00
Mar 20, 2017

GROUNDWATER CONTOURS - OCTOBER 25, 2016

FIGURE 2.1

GIS File: I:\GIS\Projects\6-chars\00----\0039--\003978\003978-REPORTS\003978-00(038)\003978-00(038)GIS-SP003.mxd

LEGEND

- MONITORING WELL
- EXTRACTION WELL
- CITY PRODUCTION WELL
- INDUSTRIAL WELL
- APPROXIMATE AREA EXCEEDING ENFORCEMENT STANDARD (5 µg/L)
- SITE BOUNDARY

MW4B MW4A GM2S W57 MW7 CW6 3.3 MW3A W56 <0.26 W55 7.4 W55A MW1A <0.26 (<0.26) R2D 21 R2S R1D W50 R3S R3D 2.0 W52A <0.26 W52 12 C2S 5.1 R4D 5.4 EW1 <0.26 C7S 14 W54 13 W53A 34 W53 WSWS <0.26 WSWD 1.2 C3S C6S C4D C4S 5.5 IWD E21 <0.26 (<0.26) WW4 <0.26 CW3 0.82J GM6D WW6 0.53J E22A 3.0J E26 E26A E22 E37A 0.27J FVD5 <3.2 E28A WC5 WC5A 1.9 WC4 WC4A WC3B <0.26 (<0.26) WC3 E24AR 5.8J MW10A <0.26 MW10B <0.26 WC7A

WISCONSIN RIVER

MARATHON ELECTRIC A

MARATHON ELECTRIC B

OLD LANDFILL LIMITS

WILSON HURD TEST WELL

WAUSAU CHEMICAL

BOS CREEK

W RANDOLPH ST E RANDOLPH ST CLAYTON ST ELDRED ST STROWBRIDGE ST KNOX ST UNION AV WAUSAU AV NORTON ST QUAW ST E BRIDGE ST BRIDGE ST MORTENSON DR E BOS CREEK DR BURK AV PEARSON ST GEMINI PL W CROCKER ST BECHER DR BURNS ST BROKEN ARROW RD EAST CHERRY ST CHERRY ST N 2ND AV N 1ST AV N RIVER DR DEVOE ST E UNION AV N 5TH ST N 3RD ST GOWEN ST BROWN ST WINTON ST NINA AV N 6TH ST TURNER ST AUGUSTA PARCHER ST GILBERT ST MOBILE AV PARK AV LINCOLN AV HUMBOLDT AV CHICAGO AV E WAUSAU AV N 2ND ST

Source: Marathon County

0 200 400 ft

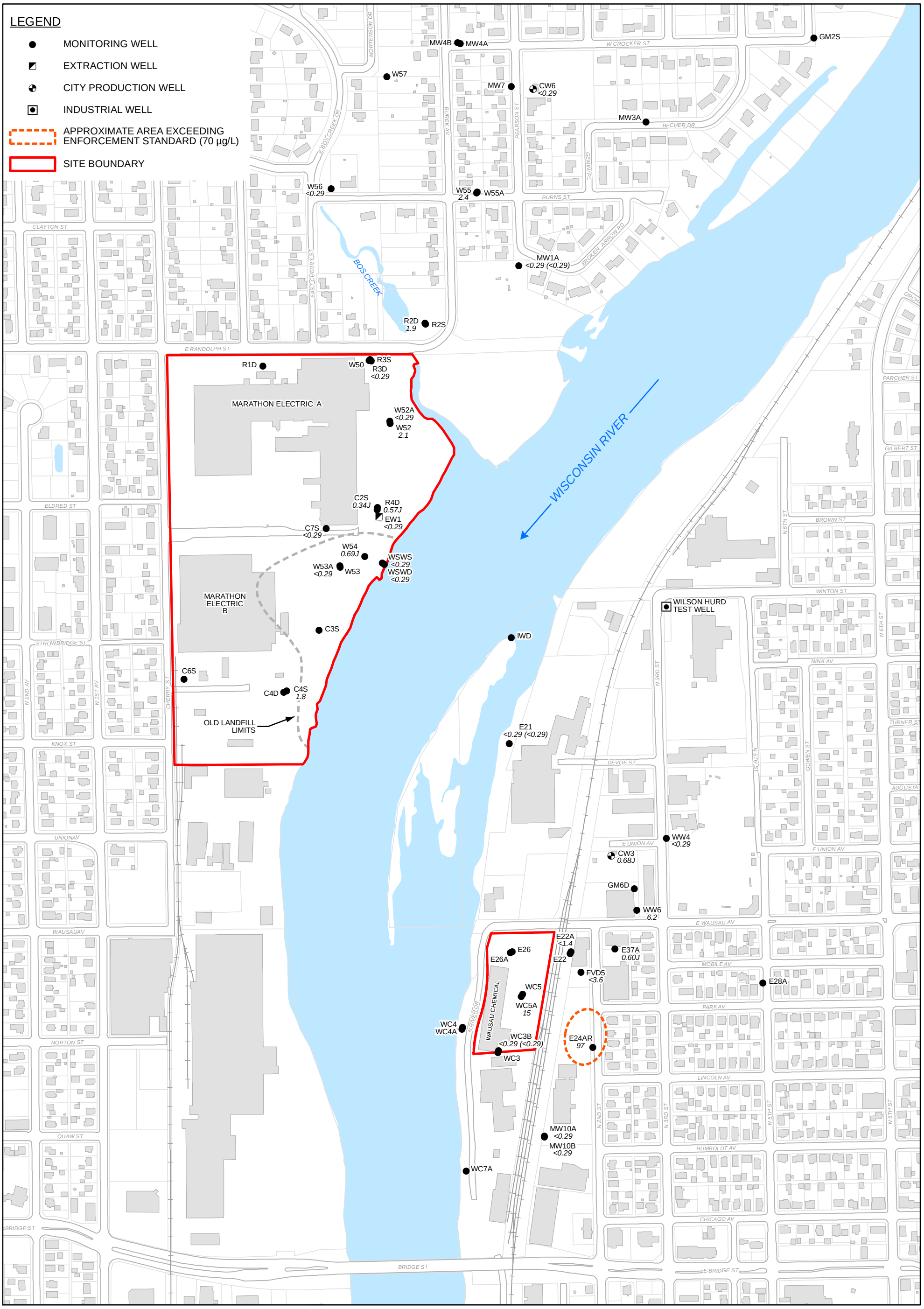
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN
2016 ANNUAL MONITORING REPORT

TRICHLOROETHENE CONCENTRATIONS OCTOBER 2016

003978-00
Mar 10, 2017

FIGURE 4.1

GIS File: I:\GIS\Projects\6-chars\00----\0039--\003978\003978-REPORTS\003978-00(038)\003978-00(038)GIS-SP004.mxd



Source: Marathon County

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN
2016 ANNUAL MONITORING REPORT

CIS-1,2-DICHLOROETHENE CONCENTRATIONS OCTOBER 2016

003978-00

Mar 10, 2017

FIGURE 4.2

GIS File: I:\GIS\Projects\6-chars\00----\0039--\003978\003978-REPORTS\003978-00(038)\003978-00(038)GIS-SP005.mxd

LEGEND

- MONITORING WELL
- EXTRACTION WELL
- CITY PRODUCTION WELL
- INDUSTRIAL WELL
- APPROXIMATE AREA EXCEEDING ENFORCEMENT STANDARD (5 µg/L)
- SITE BOUNDARY

MW4B MW4A GM2S W57 MW7 CW6 <0.27 MW3A W56 <0.27 W55 <0.27 W55A MW1A <0.27 (<0.27) R2D <0.27 R2S R1D W50 R3S R3D <0.27 W52A <0.27 W52 <0.27 C2S <0.27 R4D <0.27 EW1 <0.27 C7S <0.27 W54 <0.27 W53A <0.27 W53 WSWS <0.27 WSWD <0.27 C3S C6S C4D C4S <0.27 IWD E21 <0.27 (<0.27) WW4 <0.27 CW3 1.5 GM6D WW6 <0.27 E22A 120 E26 E26A E22 E37A 0.88J FVD5 <3.4 E28A WC5 WC5A 2.9 WC4 WC4A WC3B 0.55J (<0.27) WC3 E24AR 42 MW10A <0.27 MW10B 0.33J WC7A

MARATHON ELECTRIC A
MARATHON ELECTRIC B
OLD LANDFILL LIMITS
WILSON HURD TEST WELL
WISCONSIN RIVER
BOS CREEK
WAUSAU CHEMICAL

MORTENSON DR, E BOS CREEK DR, BUREK AV, W CROCKER ST, PEARSON ST, GEMINI PL, BECHER DR, BURNS ST, BROKEN ARROW RD, CLAYTON ST, EAST CHERRY ST, E RANDOLPH ST, ELDRED ST, STROWBRIDGE ST, N 2ND AV, N 1ST AV, CHERRY ST, KNOX ST, UNION AV, WAUSAU AV, NORTON ST, QUAW ST, BRIDGE ST, E BRIDGE ST, N 5TH ST, BROWN ST, WINTON ST, N 6TH ST, NINA AV, N 3RD ST, DEVOE ST, E UNION AV, GOWEN ST, AUGUSTA, TURNER ST, E WAUSAU AV, MOBILE AV, PARK AV, LINCOLN AV, N 2ND ST, HUMBOLDT AV, CHICAGO AV, PARCHER ST, GILBERT ST, ORCHARD

Source: Marathon County

0 200 400 ft

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN
2016 ANNUAL MONITORING REPORT

TETRACHLOROETHENE CONCENTRATIONS OCTOBER 2016

003978-00
Mar 10, 2017

FIGURE 4.3

GIS File: I:\GIS\Projects\6-chars\00----\0039--\003978\003978-REPORTS\003978-00(038)\003978-00(038)GIS-SP006.mxd

LEGEND

- MONITORING WELL
- EXTRACTION WELL
- CITY PRODUCTION WELL
- INDUSTRIAL WELL
- APPROXIMATE AREA EXCEEDING ENFORCEMENT STANDARD (0.2 µg/L)
- SITE BOUNDARY

MW4B MW4A GM2S W57 MW7 CW6 <0.32 MW3A W56 <0.32 W55 <0.32 W55A MW1A <0.32 (<0.32) R2D <0.32 R2S R1D W50 R3S R3D <0.32 MARATHON ELECTRIC A W52A <0.32 W52 <0.32 C2S <0.32 R4D <0.32 EW1 <0.32 C7S <0.32 W54 <0.32 W53A <0.32 W53 WSWS <0.32 WSWD <0.32 MARATHON ELECTRIC B C3S C6S C4D C4S <0.32 OLD LANDFILL LIMITS IWD E21 <0.32 (<0.32) WILSON HURD TEST WELL WW4 <0.32 CW3 <0.32 GM6D WW6 1.3J E22A <1.6 E26 E26A E22 E37A <0.32 FVD5 <3.9 E28A WC5 WC5A 6.3 WC4 WC4A WC3B <0.32 (<0.32) WC3 E24AR 7.3 MW10A <0.32 MW10B <0.32 WC7A

E BOS CREEK DR MORTENSON DR BURER AV PEARSON ST GEMINI PL W CROCKER ST BECHER DR BURNS ST BROKEN ARROW RD BOS CREEK EAST CHERRY ST CLAYTON ST E RANDOLPH ST ELDRED ST STROWBRIDGE ST KNOX ST UNION AV WAUSAU AV N 2ND AV N 1ST AV CHERRY ST WISCONSIN RIVER N 5TH ST BROWN ST WINTON ST N 6TH ST NINA AV N 3RD ST DEVOE ST E UNION AV GOWEN ST AUGUSTA TURNER ST PARCHER ST GILBERT ST E WAUSAU AV MOBILE AV PARK AV LINCOLN AV HUMBOLDT AV CHICAGO AV E BRIDGE ST BRIDGE ST NORTON ST QUAW ST WAUSAU CHEMICAL N RIVER DR

Source: Marathon County

0 200 400 ft

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN
2016 ANNUAL MONITORING REPORT

VINYL CHLORIDE CONCENTRATIONS OCTOBER 2016

003978-00
Mar 10, 2017

FIGURE 4.4

GIS File: I:\GIS\Projects\6-chars\00----\0039--\003978\003978-REPORTS\003978-00(038)\003978-00(038)GIS-SP007.mxd

Table 2.1

Groundwater Elevations - 2016
Wausau Water Supply NPL Site
Wausau, Wisconsin

	Reference Elevation	Water Level (ft BTOC)	Water Table Elevation (ft AMSL)
East Bank		**10/24/2016**	**10/24/2016**
CW3*	1202.15	56.00	1146.15
E21	1197.51	10.99	1186.52
E22	1195.47	9.65	1185.82
E22A	1195.88	10.03	1185.85
E24AR	1209.33	23.14	1186.19
E26	1199.02	12.96	1186.06
E26A	1199.13	13.01	1186.12
E28A	1211.60	25.08	1186.52
E37A	1197.84	12.10	1185.74
FVD5	1198.89	13.00	1185.89
GM6D	1198.57	13.82	1184.75
W. HURD	1200.23	13.25	1186.98
IWD	1192.10	NA	NA
MW10A	1210.67	24.34	1186.33
MW10B	1210.37	24.06	1186.31
WC3	1198.26	11.86	1186.40
WC3B	1196.11	9.66	1186.45
WC4	1196.74	10.30	1186.44
WC4A	1196.57	10.06	1186.51
WC5	1196.62	10.50	1186.12
WC5A	1196.66	10.50	1186.16
WC7	1196.77	10.30	1186.47
WW4	1200.34	15.33	1185.01
WW6	1200.53	15.66	1184.87
West Bank		**10/25/2016**	**10/25/2016**
EW1	1218.04	30.50	1187.54
CW6*	1220.33	60.00	1160.33
CW7	1224.14	37.00	1187.14
CW9	1226.16	38.00	1188.16
CW9 OBS R	1224.51	38.20	1186.31
CW10	1218.49	31.00	1187.49
CW11	1216.51	24.00	1192.51
C2S	1219.05	31.33	1187.72
C3S	1220.58	33.28	1187.30

Table 2.1

Groundwater Elevations - 2016
Wausau Water Supply NPL Site
Wausau, Wisconsin

	Reference Elevation	Water Level (ft BTOC)	Water Table Elevation (ft AMSL)
West Bank cont'd.			
C4S	1216.70	29.13	1187.57
C4D	1216.16	28.68	1187.48
C6S	1221.58	33.63	1187.95
C7S	1220.87	33.15	1187.72
GM2S	1211.78	24.35	1187.43
GM4D	1216.35	29.28	1187.07
MW1A	1215.69	28.60	1187.09
MW3A	1220.87	33.99	1186.88
MW4A	1215.48	29.62	1185.86
MW4B	1215.10	29.23	1185.87
MW7	1218.53	34.14	1184.39
R1D	1222.24	34.32	1187.92
R2S	1209.70	22.04	1187.66
R2D	1209.42	22.07	1187.35
R3S	1215.17	Dry	Dry
R3D	1215.42	27.91	1187.51
R4D	1218.90	31.19	1187.71
W50	1215.54	27.88	1187.66
W52	1219.16	31.60	1187.56
W52A	1218.95	31.15	1187.80
W53	1216.67	29.12	1187.55
W53A	1216.90	27.88	1189.02
W54	1216.08	28.41	1187.67
W55	1217.04	30.50	1186.54
W55A	1217.31	NA	NA
W56	1200.01	12.82	1187.19
W57	1201.76	15.52	1186.24
WSWS	1193.04	5.56	1187.48
WSWD	1193.02	5.37	1187.65

Notes:

ft BTOC - Feet below top of casing
ft AMSL - Feet above mean sea level
* - Well was pumping
NA - Not Applicable

Table 2.2

Site Specific VOC List
Wausau Water Supply NPL Site
Wausau, Wisconsin

Acetone
Benzene
Carbon tetrachloride
Chloroform
1,1-Dichloroethene
cis-1,2-Dichloroethene
Ethylbenzene
Methylene chloride
Tetrachloroethene
Toluene
1,1,2-Trichloroethane
Trichloroethene
Vinyl chloride
Xylenes

Table 2.3

Groundwater Sampling Summary - October 2016
Wausau Water Supply NPL Site
Wausau, Wisconsin

Well	Date	pH	Conductivity (us)	Temperature (ºC)	Water Clarity	Gallons Removed	Sample ID Number	QA/QC
East Bank								
CW3	10/24/2016	NA	NA	NA	NA	NA	W-161024-RA-17	
E21	10/24/2016	7.39	710	10.3	Clear	60.0	W-161024-RA-08	
							W-161024-RA-09	Duplicate
							W-161024-RA-07	Rinsate
E22A	10/24/2016			NA			W-161024-RA-03	
E24AR	10/24/2016	6.72	624	12.5	Clear	6.0	W-161024-RA-04	
E37A	10/24/2016	6.70	353	6.7	Clear	6.0	W-161024-RA-15	
FVD 5	10/24/2016	6.23	276	14.7	Clear	6.0	W-161024-RA-16	
MW-10B	10/24/2016	6.99	262	12.3	Clear	9.0	W-161024-RA-01	
MW-10A	10/24/2016	7.21	171	12.2	Clear	30.0	W-161024-RA-02	
WC3B	10/24/2016	7.73	NA	13.1	Clear	6.0	W-161024-RA-11	
							W-161024-RA-12	Duplicate
WC5A	10/24/2016	7.95	NA	13.1	Clear	6.0	W-161024-RA-13	
							W-161024-RA-14	Field Blank
WW4	10/24/2016	6.80	2430	10.8	Clear	12.0	W-161024-RA-05	
WW6	10/24/2016	7.03	908	10.8	Clear	12.0	W-161024-RA-06	

Table 2.3

Groundwater Sampling Summary - October 2016
Wausau Water Supply NPL Site
Wausau, Wisconsin

Well	Date	pH	Conductivity (us)	Temperature (ºC)	Water Clarity	Gallons Removed	Sample ID Number	QA/QC
West Bank								
C2S	10/25/2016	6.21	749	13.8	Clear	8.0	W-161025-RA-35	
C4S	10/25/2016	7.11	561	9.8	Clear	3.0	W-161025-RA-23	
C7S	10/25/2016	5.91	1381	13.2	Clear	6.0	W-161025-RA-34	
CW6	10/25/2016	6.72	280	9.6	Clear	Grab	W-161025-RA-20	MS/MSD
EW1	10/25/2016	9.05	267	13.3	Clear	Grab	W-161025-RA-28	
MW-1A	10/25/2016	8.44	167	11.1	Clear	8.0	W-161025-RA-26	
							W-161025-RA-27	Duplicate
R2D	10/25/2016	7.14	561	9.8	Clear	60.0	W-161025-RA-22	
R3D	10/25/2016	7.95	1680	9.8	Clear	60.0	W-161025-RA-31	
R4D	10/24/2016	6.78	1358	15.3	Clear	6.0	W-161024-RA-18	
W52	10/24/2016	7.15	435	11.7	Clear	6.0	W-161024-RA-10	MS/MSD
W52A	10/25/2016	7.09	496	13.2	Clear	6.0	W-161025-RA-29	
W53A	10/24/2016	6.60	1175	12.7	Clear	6.0	W-161024-RA-18	
W54	10/25/2016	8.00	3100	12.3	Clear	45.0	W-161025-RA-30	
W55	10/25/2016	7.04	169	11.3	Clear	6.0	W-161025-RA-25	
							W-161025-RA-24	Field Blank
W56	10/25/2016	7.10	2770	9.8	Clear	30.0	W-161025-RA-21	
WSWD	10/25/2016	7.68	511	24.9	Clear	6.0	W-161025-RA-33	
WSWS	10/25/2016	7.65	413	24.9	Clear	6.0	W-161025-RA-32	

Notes:

NM - Not Measured. Meter was not working.

Table 3.1

2016 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	CW3	E21	E22	E22A	E24AR	E26
Difficult to find? Brush need cutting?	City pump house	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	NA	Yes	No	Yes	No	Yes
Protop and Casing Condition	NA	Good	Good	Good	Good	Good
Surface seal visible? Concrete Condition? (Soil/sod covered?)	NA	No, sod covered	Yes, concrete in good condition	Yes, concrete in good condition	Yes, concrete in good condition	No, sod covered
Well Cap Condition (inner/outer)	NA	Good	Good	Good	Good	Good
Does well riser inhibit the protop from being closed and locked?	NA	No	No	No	No	No
Lock Condition	NA	Good	Good	Good	Fair	Good
Ground subsidence?	NA	None	None	None	None	Soil - good
Flush Mount? Potential for ponded water?	NA	Above grade	Flush - No	Flush - No	Flush - No	Above grade
Flush Mount in impervious surface? (surface type)	NA	NA	Soil	Soil	Concrete pad in turf	NA
Flush Mount water tight?	NA	NA	Yes	Yes	Yes	NA
Notes			Cleaned and repaired			

Table 3.1

2016 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	E26A	E28A	E37A	FVD5	GM6D	W. HURD
Difficult to find? Brush need cutting?	No/No	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	Yes	No	Yes	Yes	Yes	Yes
Protop and Casing Condition	Fair	Fair	Good	Good	Good	Good
Surface seal visible? Concrete Condition? (Soil/sod covered?)	No, sod covered	Yes, concrete surface - good	Yes, concrete good	No, protop in gravel.	Yes, concrete surface seal in asphalt	No, sod
Well Cap Condition (inner/outer)	Good	Good	Good	Good	Good	Good
Does well riser inhibit the protop from being closed and locked?	No	No	No	No	No	No
Lock Condition	Fair	Fair	Fair	Good	Good	Fair
Ground subsidence?	Soil - good	No subsidence	No subsidence	None. New gravel.	None	None
Flush Mount? Potential for ponded water?	Above grade	Flush - No	Flush - No	Above grade	Flush - No	Above grade, no
Flush Mount in impervious surface? (surface type)	NA	Concrete sidewalk	Concrete	NA	New concrete vault in asphalt	NA
Flush Mount water tight?	NA	Yes	Yes	NA	Yes	NA
Notes		Bolts replaced				

Table 3.1

2016 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	IWD	MW10A	MW10B	WC3	WC3B	WC4
Difficult to find? Brush need cutting?	NA	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	NA	Yes	Yes	No	No	Yes
Protop and Casing Condition	NA	Fair -rust	Good	Good	Good	Good
Surface seal visible? Concrete Condition? (Soil/sod covered?)	NA	No, covered with vegetation	No, covered with vegetation	No, sod	Yes, concrete good	No, sod
Well Cap Condition (inner/outer)	NA	Fair, rust	Fair, difficult to remove	Good	Good	Good
Does well riser inhibit the protop from being closed and locked?	NA	No	No	No	No	No
Lock Condition	NA	Good	Fair	Good	Good	Good
Ground subsidence?	NA	None	None	None	None	None
Flush Mount? Potential for ponded water?	NA	Above grade	Above grade	Above grade	Flush - No	Above grade
Flush Mount in impervious surface? (surface type)	NA	NA	NA	-	Yes - Concrete	NA
Flush Mount water tight?	NA	NA	NA	-	Yes	NA
Notes						

Table 3.1

2016 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	WC4A	WC5	WC5A	WC7	WW4	WW6
Difficult to find? Brush need cutting?	No/No	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	Yes	Yes	Yes	No, painted over	No	Yes
Protop and Casing Condition	Good	Good	Good	Good	Good	Good
Surface seal visible? Concrete Condition? (Soil/sod covered?)	No, sod	No, gravel and soil	No, gravel and soil	No, soil and grass	New concrete pad	Yes, asphalt - good condition
Well Cap Condition (inner/outer)	Good	Good	Good	Good	Good	Good
Does well riser inhibit the protop from being closed and locked?	No	No	No	No	No	No
Lock Condition	Good	Good	Good	Good	Good	Good
Ground subsidence?	None	None	None	None	None	None
Flush Mount? Potential for ponded water?	Above grade	Above grade	Above grade	Above grade	Flush - No	Above grade
Flush Mount in impervious surface? (surface type)	NA	NA	NA	NA	New concrete pad in sod	NA
Flush Mount water tight?	NA	NA	NA	NA	No	NA
Notes						

Table 3.1

2016 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	EW1	CW6	CW9 OBS R	C2S	C3S	C4S
Difficult to find? Brush need cutting?	Pump house	City pump house	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	No	Yes	USGS label	Yes	Yes	Yes
Protop and Casing Condition	Good	NA	Good	Fair	Fair	Fair
Surface seal visible? Concrete Condition? (Soil/sod covered?)	NA	NA	No, sod	No, tall grass	No, sod	No, sod
Well Cap Condition (inner/outer)	NA	NA	Good	Fair	Fair	Fair
Does well riser inhibit the protop from being closed and locked?	NA	NA	Yes	No	No	No
Lock Condition	NA	NA	Good	Fair	Fair	Fair
Ground subsidence?	None	NA	None	None	None	None
Flush Mount? Potential for ponded water?	NA	NA	Above grade	Above grade	Above grade	Above grade
Flush Mount in impervious surface? (surface type)	NA	NA	NA	NA	NA	NA
Flush Mount water tight?	NA	NA	NA	NA	NA	NA
Notes						

Table 3.1

2016 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	C4D	C6S	C7S	GM2S	GM4D	MW1A
Difficult to find? Brush need cutting?	No/No	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	Yes	Yes	Yes	Yes	Yes	No
Protop and Casing Condition	Fair	Fair	Fair	Good	Good	Good
Surface seal visible? Concrete Condition? (Soil/sod covered?)	Yes, concrete - good	No, sod	Yes, concrete - good	New concrete pad	No, sod and leaf litter	No, gravel
Well Cap Condition (inner/outer)	Fair	Fair	Fair	Good	Fair	Good
Does well riser inhibit the protop from being closed and locked?	No	No	No	No	No	No
Lock Condition	Fair	Good	Fair	Good	Good	Good
Ground subsidence?	None	None	None	None	None	None
Flush Mount? Potential for ponded water?	Above grade	Above grade	Above grade	New vault installed	Above grade	Above grade
Flush Mount in impervious surface? (surface type)	NA	NA	NA	Concrete pad in sod	NA	NA
Flush Mount water tight?	NA	NA	NA	Yes	NA	NA
Notes						

Table 3.1

2016 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	MW3A	MW4A	MW4B	MW7	R1D	R2S
Difficult to find? Brush need cutting?	No/No	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	Yes	Yes	Yes	Yes	Yes	Yes
Protop and Casing Condition	Good	Good	Good	Good	Good	Good
Surface seal visible? Concrete Condition? (Soil/sod covered?)	Yes, concrete - good	Yes, concrete - good	Yes, concrete - good	Yes, concrete - good	No, sod	No, leaf litter
Well Cap Condition (inner/outer)	Good	Good	Good	Good	Fair, rust	Good
Does well riser inhibit the protop from being closed and locked?	No	No	No	No	No	No
Lock Condition	Good	Good	Good	Good	Good	Good
Ground subsidence?	None	None	None	None	None	None
Flush Mount? Potential for ponded water?	Flush - No	Flush - No	Flush - No	Flush - No	Above grade	Above grade
Flush Mount in impervious surface? (surface type)	Soil, grass	Soil, grass	Soil, grass	Grass boulevard	NA	NA
Flush Mount water tight?	Yes	Yes	Yes	Yes	NA	NA
Notes						

Table 3.1

2016 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	R2D	R3S	R3D	R4D	W50	W52
Difficult to find? Brush need cutting?	No/No	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	Yes	Yes	Yes	Yes	Yes	Yes
Protop and Casing Condition	Good	Good	Good	Fair	Fair	Fair
Surface seal visible? Concrete Condition? (Soil/sod covered?)	No, leaf litter	No, sod	No, sod	No, sod and leaf litter	No, sod	No, soil
Well Cap Condition (inner/outer)	Good	Fair	Fair	Fair	Fair	Fair
Does well riser inhibit the protop from being closed and locked?	No	No	No	No	No	No
Lock Condition	Good	Good	Good	Fair	Fair	Fair
Ground subsidence?	None	None	None	None	None	None
Flush Mount? Potential for ponded water?	Above grade	Above grade	Above grade	Above grade	Above grade	Above grade
Flush Mount in impervious surface? (surface type)	NA	NA	NA	NA	NA	NA
Flush Mount water tight?	NA	NA	NA	NA	NA	NA
Notes						

Table 3.1

2016 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	W52A	W53	W53A	W54	W55	W55A
Difficult to find? Brush need cutting?	No/No	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	Yes	No	No	Yes	No	No
Protop and Casing Condition	Fair	Fair	Good	Good	Fair	Fair
Surface seal visible? Concrete Condition? (Soil/sod covered?)	No, soil and grass	New concrete pad	Yes, concrete - fair	Yes, concrete -good	No - sod	No - sod
Well Cap Condition (inner/outer)	Fair	Good	Good	Good	Good	Poor, bolt stuck
Does well riser inhibit the protop from being closed and locked?	No	No	No	No	No	No
Lock Condition	Fair	Good	Good	Good	Good	NA
Ground subsidence?	None	None	None	None	None	None
Flush Mount? Potential for ponded water?	Above grade	Flush - No	Flush - No	Flush - No	Flush - No	Flush - No
Flush Mount in impervious surface? (surface type)	NA	Yes, new vault	Concrete	Concrete	Soil, grass	Soil, grass
Flush Mount water tight?	NA	Yes, new vault	Yes	Yes	Yes	Yes
Notes			Bolts replaced	Cover repaired, bolts replaced		To be repaired

Table 3.1

2016 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	W56	W57	WSWS	WSWD
Difficult to find? Brush need cutting?	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	Yes	No	Yes	Yes
Protop and Casing Condition	Good	Fair	Good	Good
Surface seal visible? Concrete Condition? (Soil/sod covered?)	No - sod and leaf litter	No, sod	No - sod and leaf litter	No - sod and leaf litter
Well Cap Condition (inner/outer)	Good	Fair	Good	Good
Does well riser inhibit the protop from being closed and locked?	No	No	No	No
Lock Condition	Good	Good	Fair	Fair
Ground subsidence?	None	None	None	None
Flush Mount? Potential for ponded water?	Above grade	Flush - No	Above grade	Above grade
Flush Mount in impervious surface? (surface type)	NA	Soil, grass	NA	NA
Flush Mount water tight?	NA	Yes	NA	NA
Notes				

Table 3.2

2016 City Well Pumping Summary
Wausau Water Supply NPL Site
Wausau, Wisconsin

		Well #3	Well #6	Well #7	Well #9	Well #10	Well #11
January	Hours	350.7	389.7	243.3	5.8	73.1	96.7
	Gallons	27.709	28.920	23.796	0.28	14.774	16.766
	gpm	1317	1237	1630	805	3368	2890
February	Hours	284.2	402.6	189	105.9	92	104.3
	Gallons	22.626	28.852	18.58	5.355	18.507	19.888
	gpm	1327	1194	1638	843	3353	3178
March	Hours	285.6	452	207.3	38	92.8	121.5
	Gallons	22.544	31.372	20.103	1.935	18.793	21.509
	gpm	1316	1157	1616	849	3375	2950
April	Hours	319	396	168.3	78.9	95.7	87.4
	Gallons	24.146	28.83	16.149	3.893	17.323	17.224
	gpm	1262	1213	1599	822	3017	3285
May	Hours	277	456	256	168	162	146
	Gallons	21.068	33.488	23.845	8.089	31.292	25.381
	gpm	1268	1224	1552	802	3219	2897
June	Hours	278.2	435.2	240.9	191.7	220.5	240.5
	Gallons	21.675	32.241	21.535	8.991	41.549	41.921
	gpm	1299	1235	1490	782	3141	2905
July	Hours	346.6	388.6	275.1	224.4	163.6	183.3
	Gallons	29.281	30.506	25.093	10.66	31.787	31.951
	gpm	1408	1308	1520	792	3238	2905
August	Hours	282.5	457.4	241.6	156.4	177.1	260.8
	Gallons	23.639	34.706	21.287	7.382	33.255	45.522
	gpm	1395	1265	1468	787	3130	2909
September	Hours	296.9	420.1	195.6	120.9	123.8	133.2
	Gallons	24.462	30.553	16.761	5.805	24.45	23.162
	gpm	1373	1212	1428	800	3292	2898
October	Hours	341	401.7	171.9	129.2	115.2	80.8
	Gallons	28.142	29.042	14.931	6.258	23.198	14.142
	gpm	1375	1205	1448	807	3356	2917
November	Hours	286.8	430.6	124.5	91.3	101.6	93.6
	Gallons	22.93	31.284	10.744	4.406	19.938	16.352
	gpm	1333	1211	1438	804	3271	2912
December	Hours	326.8	416.3	115.5	143.5	100.9	104.9
	Gallons	25.842	30.315	9.855	6.987	20.378	18.312
	gpm	1318	1214	1422	811	3366	2909
Average hrs/week:		70.7	97.0	46.7	28.0	29.2	31.8
Average gpm:		1334	1222	1528	803	3241	2945

Notes:

Hours - Total hours pumped per month
Gallons - Millions of gallons pumped per month
gpm - Gallons per minute

Table 4.1

Groundwater Sampling Analytical Results - October 2016
Wausau Water Supply NPL Site
Wausau, Wisconsin

Location ID:			MW10B	MW10A	E21	E21	E22A	E24AR	E37A
Sample Name:			W-161024-RA-01	W-161024-RA-02	W-161024-RA-08	W-161024-RA-09	W-161024-RA-03	W-161024-RA-04	W-161024-RA-15
Sample Date:			10/24/2016	10/24/2016	10/24/2016	10/24/2016 duplicate	10/24/2016	10/24/2016	10/24/2016
	Cleanup Standard or MCL	Unit							
Volatile Organic Compounds									
1,1,2-Trichloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
1,1-Dichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Acetone		µg/L	10 U	10 U	10 U	10 U	50 U	60 U	10 U
Benzene	5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Carbon tetrachloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Chloroform (Trichloromethane)		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
cis-1,2-Dichloroethene	70	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	97	0.60 J
Ethylbenzene	700	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Methylene chloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Tetrachloroethene	5	µg/L	0.33 J	1.0 U	1.0 U	1.0 U	120	42	0.88 J
Toluene	1000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Trichloroethene	5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	3.0 J	5.8 J	0.27 J
Vinyl chloride	2	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	7.3	1.0 U
Xylenes (total)	10,000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U

Table 4.1

Groundwater Sampling Analytical Results - October 2016
Wausau Water Supply NPL Site
Wausau, Wisconsin

Location ID:			WW4	WW6	WC3B	WC3B	WC5A	FVD5	CW3
Sample Name:			W-161024-RA-05	W-161024-RA-06	W-161024-RA-11	W-161024-RA-12	W-161024-RA-14	W-161024-RA-16	W-161024-RA-17
Sample Date:			10/24/2016	10/24/2016	10/24/2016	10/24/2016 duplicate	10/24/2016	10/24/2016	10/24/2016
	Cleanup Standard or MCL	Unit							
Volatile Organic Compounds									
1,1,2-Trichloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U	1.0 U
1,1-Dichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U	1.0 U
Acetone		µg/L	10 U	10 U	10 U	10 U	10 U	130 U	10 U
Benzene	5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	19	1.0 U
Carbon tetrachloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U	1.0 U
Chloroform (Trichloromethane)		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U	1.0 U
cis-1,2-Dichloroethene	70	µg/L	1.0 U	6.2	1.0 U	1.0 U	15	13 U	0.68 J
Ethylbenzene	700	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	270	1.0 U
Methylene chloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U	1.0 U
Tetrachloroethene	5	µg/L	1.0 U	1.0 U	0.55 J	1.0 U	2.9	13 U	1.5
Toluene	1000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	14	1.0 U
Trichloroethene	5	µg/L	1.0 U	0.53 J	1.0 U	1.0 U	1.9	13 U	0.82 J
Vinyl chloride	2	µg/L	1.0 U	1.3 J	1.0 U	1.0 U	6.3	13 U	1.0 U
Xylenes (total)	10,000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	720	1.0 U

Table 4.1

Groundwater Sampling Analytical Results - October 2016
Wausau Water Supply NPL Site
Wausau, Wisconsin

Location ID:			W52	W52A	W53A	W54	W55	W56	R2D
Sample Name:			W-161024-RA-10	W-161025-RA-29	W-161024-RA-18	W-161025-RA-30	W-161025-RA-25	W-161025-RA-21	W-161025-RA-22
Sample Date:			10/24/2016	10/25/2016	10/24/2016	10/25/2016	10/25/2016	10/25/2016	10/25/2016
	Cleanup Standard or MCL	Unit							
Volatile Organic Compounds									
1,1,2-Trichloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone		µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	µg/L	2.1	1.0 U	1.0 U	0.69 J	2.4	1.0 U	1.9
Ethylbenzene	700	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	µg/L	12	1.0 U	34	13.0	7.4	1.0 U	21
Vinyl chloride	2	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	10,000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 4.1

Groundwater Sampling Analytical Results - October 2016
Wausau Water Supply NPL Site
Wausau, Wisconsin

Location ID:			R3D	R4D	MW1A	MW1A	WSWS	WSWD	C2S
Sample Name:			W-161025-RA-31	W-161024-RA-19	W-161025-RA-26	W-161025-RA-27	W-161025-RA-32	W-161025-RA-33	W-161025-RA-35
Sample Date:			10/25/2016	10/24/2016	10/25/2016	10/25/2016 duplicate	10/25/2016	10/25/2016	10/25/2016
	Cleanup Standard or MCL	Unit							
Volatile Organic Compounds									
1,1,2-Trichloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone		µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	µg/L	1.0 U	0.57 J	1.0 U	1.0 U	1.0 U	1.0 U	0.34 J
Ethylbenzene	700	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	µg/L	2.0	5.4	1.0 U	1.0 U	1.0 U	1.2	5.1
Vinyl chloride	2	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	10,000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 4.1

Groundwater Sampling Analytical Results - October 2016
Wausau Water Supply NPL Site
Wausau, Wisconsin

Location ID:			C4S	C7S	CW6	EW1	Trip Blank
Sample Name:			W-161025-RA-23	W-161025-RA-34	W-161025-RA-20	W-161025-RA-28	TRIP BLANK
Sample Date:			10/25/2016	10/25/2016	10/25/2016	10/25/2016	10/25/2016
	Cleanup Standard or MCL	Unit					
Volatile Organic Compounds							
1,1,2-Trichloroethane		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone		µg/L	10 U	10 U	10 U	10 U	9.8 J
Benzene	5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)		µg/L	0.64 J	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	µg/L	1.8	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	700	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride		µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	µg/L	5.5	14	3.3	1.0 U	1.0 U
Vinyl chloride	2	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	10,000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Notes:

U - Not detected at the associated reporting limit
J - Estimated concentration
Shaded cells indicate concentration exceeded the Site Cleanup Standard

Table 5.1

Current and Proposed Groundwater Monitoring Plan
Wausau Water Supply NPL Site
Wausau, Wisconsin

Current Monitoring Plan

Monitoring Event	VOC Sample Locations		Laboratory Analysis	Groundwater Elevations
	East Bank	West Bank		
Annual - October	CW3, E24A, E24B, MW10A, MW10B, WW4, FVD5, E22A, E37A, WC3B, WW6, WC5A,	EW1, CW6, W53A, W54, R4D, C2S, R3D, C4S, W52, W56, R2D, WSWD, W55, MW1A	VOC (8260)	All Monitoring Wells, City Wells, and EW1(63 wells total)

Proposed Monitoring Plan

Monitoring Event	VOC Sample Locations		Laboratory Analysis	Groundwater Elevations
	East Bank	West Bank		
Annual - October	CW3, E24AR, MW10B, WW4, E22A, WC3B, WW6, WC5A, E21, E37A	EW1, CW6, W53A, W54, R4D, C2S, R3D, C4S, W52, W56, R2D, WSWD, W55, MW1A	VOC (8260)	E21, E22A, E24AR, E26A, E28A, E37A, FVD5, GM6D, W.HURD, MW10B, WC3B, WC4A, WC5A, WC7, WW4, WW6, C2S, C3S, C4S, C6S, C7S, GM2S, GM4D, MW1A, MW3A, MW4A, MW7, R1D, R2D, R3D, R4D, W52, W53A, W54, W55, W56, W57, WSWD, CW9-OBS City Wells CW3, CW6, CW9, CW10, CW11 (44 wells total)

Appendix A
Laboratory Report and Data Quality Validation Memorandum

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
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TestAmerica Job ID: 240-71354-1
Client Project/Site: 3978, Wausau

For:
GHD Services Inc.
1801 Old Highway 8 NW
Suite 114
St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson

Denise D Heckler

Authorized for release by:
11/7/2016 10:38:30 AM

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Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Method Summary 5
Sample Summary 6
Detection Summary 7
Client Sample Results 11
Surrogate Summary 47
QC Sample Results 49
QC Association Summary 57
Lab Chronicle 59
Certification Summary 65
Chain of Custody 66
Receipt Checklists 70

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	RPD of the LCS and LCSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 240-71354-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative
240-71354-1

Comments
No additional comments.

Receipt
The samples were received on 10/27/2016 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0º C.

GC/MS VOA
Method(s) 8260B: The following samples was diluted to bring the concentration of target analytes within the calibration range: W-161024-RA-03 (240-71354-3) and W-161024-RA-04 (240-71354-4). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The following sample was diluted to bring the concentration of target analytes within the calibration range: W-161024-RA-16 (240-71354-16). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The continuing calibration verification (CCV) associated with batch 180-193040 recovered high for Carbon tetrachloride The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 8260B: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 193151 recovered outside control limits for the following analytes: Trichloroethene and Vinyl chloride.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Sample Summary

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-71354-1	W-161024-RA-01	Water	10/24/16 13:20	10/27/16 09:30
240-71354-2	W-161024-RA-02	Water	10/24/16 13:30	10/27/16 09:30
240-71354-3	W-161024-RA-03	Water	10/24/16 15:00	10/27/16 09:30
240-71354-4	W-161024-RA-04	Water	10/24/16 15:19	10/27/16 09:30
240-71354-5	W-161024-RA-05	Water	10/24/16 15:45	10/27/16 09:30
240-71354-6	W-161024-RA-06	Water	10/24/16 16:20	10/27/16 09:30
240-71354-7	W-161024-RA-07	Water	10/24/16 16:30	10/27/16 09:30
240-71354-8	W-161024-RA-08	Water	10/24/16 17:40	10/27/16 09:30
240-71354-9	W-161024-RA-09	Water	10/24/16 17:40	10/27/16 09:30
240-71354-10	W-161024-RA-10	Water	10/24/16 17:00	10/27/16 09:30
240-71354-11	W-161024-RA-11	Water	10/24/16 13:00	10/27/16 09:30
240-71354-12	W-161024-RA-12	Water	10/24/16 13:00	10/27/16 09:30
240-71354-13	W-161024-RA-13	Water	10/24/16 13:40	10/27/16 09:30
240-71354-14	W-161024-RA-14	Water	10/24/16 13:45	10/27/16 09:30
240-71354-15	W-161024-RA-15	Water	10/24/16 15:00	10/27/16 09:30
240-71354-16	W-161024-RA-16	Water	10/24/16 15:20	10/27/16 09:30
240-71354-17	W-161024-RA-17	Water	10/24/16 12:20	10/27/16 09:30
240-71354-18	W-161024-RA-18	Water	10/24/16 16:00	10/27/16 09:30
240-71354-19	W-161024-RA-19	Water	10/24/16 16:30	10/27/16 09:30
240-71354-20	W-161025-RA-20	Water	10/25/16 07:40	10/27/16 09:30
240-71354-21	W-161025-RA-21	Water	10/25/16 10:55	10/27/16 09:30
240-71354-22	W-161025-RA-22	Water	10/25/16 10:47	10/27/16 09:30
240-71354-23	W-161025-RA-23	Water	10/25/16 11:20	10/27/16 09:30
240-71354-24	W-161025-RA-24	Water	10/25/16 08:00	10/27/16 09:30
240-71354-25	W-161025-RA-25	Water	10/25/16 08:30	10/27/16 09:30
240-71354-26	W-161025-RA-26	Water	10/25/16 10:50	10/27/16 09:30
240-71354-27	W-161025-RA-27	Water	10/25/16 10:50	10/27/16 09:30
240-71354-28	W-161025-RA-28	Water	10/25/16 11:20	10/27/16 09:30
240-71354-29	W-161025-RA-29	Water	10/25/16 12:40	10/27/16 09:30
240-71354-30	W-161025-RA-30	Water	10/25/16 13:15	10/27/16 09:30
240-71354-31	W-161025-RA-31	Water	10/25/16 14:20	10/27/16 09:30
240-71354-32	W-161025-RA-32	Water	10/25/16 15:25	10/27/16 09:30
240-71354-33	W-161025-RA-33	Water	10/25/16 15:35	10/27/16 09:30
240-71354-34	W-161025-RA-34	Water	10/25/16 13:30	10/27/16 09:30
240-71354-35	W-161025-RA-35	Water	10/25/16 14:30	10/27/16 09:30
240-71354-36	TRIP BLANK	Water	10/25/16 00:00	10/27/16 09:30

Detection Summary

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-01 — Lab Sample ID: 240-71354-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.33	J	1.0	0.27	ug/L	1		8260B	Total/NA

Client Sample ID: W-161024-RA-02 — Lab Sample ID: 240-71354-2

No Detections.

Client Sample ID: W-161024-RA-03 — Lab Sample ID: 240-71354-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	120		5.0	1.3	ug/L	5		8260B	Total/NA
Trichloroethene	3.0	J	5.0	1.3	ug/L	5		8260B	Total/NA

Client Sample ID: W-161024-RA-04 — Lab Sample ID: 240-71354-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	97		6.0	1.7	ug/L	6		8260B	Total/NA
Tetrachloroethene	42		6.0	1.6	ug/L	6		8260B	Total/NA
Trichloroethene	5.8	J	6.0	1.5	ug/L	6		8260B	Total/NA
Vinyl chloride	7.3		6.0	1.9	ug/L	6		8260B	Total/NA

Client Sample ID: W-161024-RA-05 — Lab Sample ID: 240-71354-5

No Detections.

Client Sample ID: W-161024-RA-06 — Lab Sample ID: 240-71354-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	6.2		1.0	0.29	ug/L	1		8260B	Total/NA
Trichloroethene	0.53	J	1.0	0.26	ug/L	1		8260B	Total/NA
Vinyl chloride	1.3	*	1.0	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: W-161024-RA-07 — Lab Sample ID: 240-71354-7

No Detections.

Client Sample ID: W-161024-RA-08 — Lab Sample ID: 240-71354-8

No Detections.

Client Sample ID: W-161024-RA-09 — Lab Sample ID: 240-71354-9

No Detections.

Client Sample ID: W-161024-RA-10 — Lab Sample ID: 240-71354-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	2.1		1.0	0.29	ug/L	1		8260B	Total/NA
Trichloroethene	12		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161024-RA-11 — Lab Sample ID: 240-71354-11

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample ID: W-161024-RA-11 (Continued) — Lab Sample ID: 240-71354-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.55	J *	1.0	0.27	ug/L	1		8260B	Total/NA

Client Sample ID: W-161024-RA-12 — Lab Sample ID: 240-71354-12

No Detections.

Client Sample ID: W-161024-RA-13 — Lab Sample ID: 240-71354-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.6	J	10	2.5	ug/L	1		8260B	Total/NA

Client Sample ID: W-161024-RA-14 — Lab Sample ID: 240-71354-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.6	J	10	2.5	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	15		1.0	0.29	ug/L	1		8260B	Total/NA
Tetrachloroethene	2.9		1.0	0.27	ug/L	1		8260B	Total/NA
Trichloroethene	1.9		1.0	0.26	ug/L	1		8260B	Total/NA
Vinyl chloride	6.3		1.0	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: W-161024-RA-15 — Lab Sample ID: 240-71354-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.1	J	10	2.5	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.60	J	1.0	0.29	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.88	J	1.0	0.27	ug/L	1		8260B	Total/NA
Trichloroethene	0.27	J	1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161024-RA-16 — Lab Sample ID: 240-71354-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	19		13	3.2	ug/L	12.5		8260B	Total/NA
Ethylbenzene	270		13	3.4	ug/L	12.5		8260B	Total/NA
Toluene	14		13	3.5	ug/L	12.5		8260B	Total/NA
Xylenes, Total	720		13	6.1	ug/L	12.5		8260B	Total/NA

Client Sample ID: W-161024-RA-17 — Lab Sample ID: 240-71354-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.68	J	1.0	0.29	ug/L	1		8260B	Total/NA
Tetrachloroethene	1.5		1.0	0.27	ug/L	1		8260B	Total/NA
Trichloroethene	0.82	J	1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161024-RA-18 — Lab Sample ID: 240-71354-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.8	J	10	2.5	ug/L	1		8260B	Total/NA
Trichloroethene	34		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161024-RA-19 — Lab Sample ID: 240-71354-19

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-161024-RA-19 (Continued) — Lab Sample ID: 240-71354-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.57	J	1.0	0.29	ug/L	1		8260B	Total/NA
Trichloroethene	5.4		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-20 — Lab Sample ID: 240-71354-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	3.3		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-21 — Lab Sample ID: 240-71354-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.5	J	10	2.5	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-22 — Lab Sample ID: 240-71354-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.9		1.0	0.29	ug/L	1		8260B	Total/NA
Trichloroethene	21		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-23 — Lab Sample ID: 240-71354-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.0	J	10	2.5	ug/L	1		8260B	Total/NA
Chloroform	0.64	J	1.0	0.27	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.8		1.0	0.29	ug/L	1		8260B	Total/NA
Trichloroethene	5.5		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-24 — Lab Sample ID: 240-71354-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	7.8	J	10	2.5	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-25 — Lab Sample ID: 240-71354-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.6	J	10	2.5	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	2.4		1.0	0.29	ug/L	1		8260B	Total/NA
Trichloroethene	7.4		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-26 — Lab Sample ID: 240-71354-26

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.5	J	10	2.5	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-27 — Lab Sample ID: 240-71354-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.5	J	10	2.5	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-28 — Lab Sample ID: 240-71354-28

No Detections.

Client Sample ID: W-161025-RA-29 — Lab Sample ID: 240-71354-29

No Detections.

Client Sample ID: W-161025-RA-30 — Lab Sample ID: 240-71354-30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.3	J	10	2.5	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.69	J	1.0	0.29	ug/L	1		8260B	Total/NA
Trichloroethene	13		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-31 — Lab Sample ID: 240-71354-31

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.7	J	10	2.5	ug/L	1		8260B	Total/NA
Trichloroethene	2.0		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-32 — Lab Sample ID: 240-71354-32

No Detections.

Client Sample ID: W-161025-RA-33 — Lab Sample ID: 240-71354-33

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	1.2		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-34 — Lab Sample ID: 240-71354-34

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	14		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: W-161025-RA-35 — Lab Sample ID: 240-71354-35

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.34	J	1.0	0.29	ug/L	1		8260B	Total/NA
Trichloroethene	5.1		1.0	0.26	ug/L	1		8260B	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 240-71354-36

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	9.8	J	10	2.5	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-01
Date Collected: 10/24/16 13:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 14:45	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 14:45	1
Acetone	10	U	10	2.5	ug/L			11/02/16 14:45	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 14:45	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 14:45	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 14:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 14:45	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 14:45	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 14:45	1
Tetrachloroethene	**0.33**	**J**	1.0	0.27	ug/L			11/02/16 14:45	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 14:45	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 14:45	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 14:45	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 14:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*72 - 134*		*11/02/16 14:45*	*1*
4-Bromofluorobenzene (Surr)	*92*		*72 - 120*		*11/02/16 14:45*	*1*
Toluene-d8 (Surr)	*90*		*80 - 120*		*11/02/16 14:45*	*1*
Dibromofluoromethane (Surr)	*90*		*77 - 127*		*11/02/16 14:45*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-02
Date Collected: 10/24/16 13:30
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 15:14	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 15:14	1
Acetone	10	U	10	2.5	ug/L			11/02/16 15:14	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 15:14	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 15:14	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 15:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 15:14	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 15:14	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 15:14	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 15:14	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 15:14	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 15:14	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 15:14	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 15:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*72 - 134*		*11/02/16 15:14*	*1*
4-Bromofluorobenzene (Surr)	*92*		*72 - 120*		*11/02/16 15:14*	*1*
Toluene-d8 (Surr)	*87*		*80 - 120*		*11/02/16 15:14*	*1*
Dibromofluoromethane (Surr)	*84*		*77 - 127*		*11/02/16 15:14*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-03
Date Collected: 10/24/16 15:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	5.0	U	5.0	1.7	ug/L			11/02/16 12:55	5
1,1-Dichloroethene	5.0	U	5.0	1.4	ug/L			11/02/16 12:55	5
Acetone	50	U	50	13	ug/L			11/02/16 12:55	5
Benzene	5.0	U	5.0	1.3	ug/L			11/02/16 12:55	5
Carbon tetrachloride	5.0	U	5.0	1.2	ug/L			11/02/16 12:55	5
Chloroform	5.0	U	5.0	1.4	ug/L			11/02/16 12:55	5
cis-1,2-Dichloroethene	5.0	U	5.0	1.4	ug/L			11/02/16 12:55	5
Ethylbenzene	5.0	U	5.0	1.4	ug/L			11/02/16 12:55	5
Methylene Chloride	5.0	U	5.0	1.8	ug/L			11/02/16 12:55	5
Tetrachloroethene	**120**		5.0	1.3	ug/L			11/02/16 12:55	5
Toluene	5.0	U	5.0	1.4	ug/L			11/02/16 12:55	5
Trichloroethene	**3.0**	**J**	5.0	1.3	ug/L			11/02/16 12:55	5
Vinyl chloride	5.0	U	5.0	1.6	ug/L			11/02/16 12:55	5
Xylenes, Total	5.0	U	5.0	2.4	ug/L			11/02/16 12:55	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*72 - 134*		*11/02/16 12:55*	*5*
4-Bromofluorobenzene (Surr)	*99*		*72 - 120*		*11/02/16 12:55*	*5*
Toluene-d8 (Surr)	*97*		*80 - 120*		*11/02/16 12:55*	*5*
Dibromofluoromethane (Surr)	*85*		*77 - 127*		*11/02/16 12:55*	*5*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-04
Date Collected: 10/24/16 15:19
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	6.0	U	6.0	2.1	ug/L			11/02/16 13:22	6
1,1-Dichloroethene	6.0	U	6.0	1.7	ug/L			11/02/16 13:22	6
Acetone	60	U	60	15	ug/L			11/02/16 13:22	6
Benzene	6.0	U	6.0	1.5	ug/L			11/02/16 13:22	6
Carbon tetrachloride	6.0	U	6.0	1.5	ug/L			11/02/16 13:22	6
Chloroform	6.0	U	6.0	1.6	ug/L			11/02/16 13:22	6
cis-1,2-Dichloroethene	**97**		6.0	1.7	ug/L			11/02/16 13:22	6
Ethylbenzene	6.0	U	6.0	1.6	ug/L			11/02/16 13:22	6
Methylene Chloride	6.0	U	6.0	2.2	ug/L			11/02/16 13:22	6
Tetrachloroethene	**42**		6.0	1.6	ug/L			11/02/16 13:22	6
Toluene	6.0	U	6.0	1.7	ug/L			11/02/16 13:22	6
Trichloroethene	**5.8**	**J**	6.0	1.5	ug/L			11/02/16 13:22	6
Vinyl chloride	**7.3**		6.0	1.9	ug/L			11/02/16 13:22	6
Xylenes, Total	6.0	U	6.0	2.9	ug/L			11/02/16 13:22	6

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*72 - 134*		*11/02/16 13:22*	*6*
4-Bromofluorobenzene (Surr)	*93*		*72 - 120*		*11/02/16 13:22*	*6*
Toluene-d8 (Surr)	*90*		*80 - 120*		*11/02/16 13:22*	*6*
Dibromofluoromethane (Surr)	*88*		*77 - 127*		*11/02/16 13:22*	*6*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-05
Date Collected: 10/24/16 15:45
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/03/16 11:16	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 11:16	1
Acetone	10	U	10	2.5	ug/L			11/03/16 11:16	1
Benzene	1.0	U	1.0	0.26	ug/L			11/03/16 11:16	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/03/16 11:16	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/03/16 11:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 11:16	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/03/16 11:16	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/03/16 11:16	1
Tetrachloroethene	1.0	U *	1.0	0.27	ug/L			11/03/16 11:16	1
Toluene	1.0	U	1.0	0.28	ug/L			11/03/16 11:16	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/03/16 11:16	1
Vinyl chloride	1.0	U *	1.0	0.32	ug/L			11/03/16 11:16	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/03/16 11:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*72 - 134*		*11/03/16 11:16*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 120*		*11/03/16 11:16*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*11/03/16 11:16*	*1*
Dibromofluoromethane (Surr)	*91*		*77 - 127*		*11/03/16 11:16*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-06
Date Collected: 10/24/16 16:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/03/16 11:43	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 11:43	1
Acetone	10	U	10	2.5	ug/L			11/03/16 11:43	1
Benzene	1.0	U	1.0	0.26	ug/L			11/03/16 11:43	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/03/16 11:43	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/03/16 11:43	1
cis-1,2-Dichloroethene	**6.2**		1.0	0.29	ug/L			11/03/16 11:43	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/03/16 11:43	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/03/16 11:43	1
Tetrachloroethene	1.0	U *	1.0	0.27	ug/L			11/03/16 11:43	1
Toluene	1.0	U	1.0	0.28	ug/L			11/03/16 11:43	1
Trichloroethene	**0.53**	**J**	1.0	0.26	ug/L			11/03/16 11:43	1
Vinyl chloride	**1.3**	*****	1.0	0.32	ug/L			11/03/16 11:43	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/03/16 11:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*72 - 134*		*11/03/16 11:43*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 120*		*11/03/16 11:43*	*1*
Toluene-d8 (Surr)	*87*		*80 - 120*		*11/03/16 11:43*	*1*
Dibromofluoromethane (Surr)	*85*		*77 - 127*		*11/03/16 11:43*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-07
Date Collected: 10/24/16 16:30
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/03/16 12:11	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 12:11	1
Acetone	10	U	10	2.5	ug/L			11/03/16 12:11	1
Benzene	1.0	U	1.0	0.26	ug/L			11/03/16 12:11	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/03/16 12:11	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/03/16 12:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 12:11	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/03/16 12:11	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/03/16 12:11	1
Tetrachloroethene	1.0	U *	1.0	0.27	ug/L			11/03/16 12:11	1
Toluene	1.0	U	1.0	0.28	ug/L			11/03/16 12:11	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/03/16 12:11	1
Vinyl chloride	1.0	U *	1.0	0.32	ug/L			11/03/16 12:11	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/03/16 12:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*72 - 134*		*11/03/16 12:11*	*1*
4-Bromofluorobenzene (Surr)	*91*		*72 - 120*		*11/03/16 12:11*	*1*
Toluene-d8 (Surr)	*85*		*80 - 120*		*11/03/16 12:11*	*1*
Dibromofluoromethane (Surr)	*84*		*77 - 127*		*11/03/16 12:11*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-08
Date Collected: 10/24/16 17:40
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/03/16 12:38	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 12:38	1
Acetone	10	U	10	2.5	ug/L			11/03/16 12:38	1
Benzene	1.0	U	1.0	0.26	ug/L			11/03/16 12:38	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/03/16 12:38	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/03/16 12:38	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 12:38	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/03/16 12:38	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/03/16 12:38	1
Tetrachloroethene	1.0	U *	1.0	0.27	ug/L			11/03/16 12:38	1
Toluene	1.0	U	1.0	0.28	ug/L			11/03/16 12:38	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/03/16 12:38	1
Vinyl chloride	1.0	U *	1.0	0.32	ug/L			11/03/16 12:38	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/03/16 12:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*		*11/03/16 12:38*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 120*		*11/03/16 12:38*	*1*
Toluene-d8 (Surr)	*91*		*80 - 120*		*11/03/16 12:38*	*1*
Dibromofluoromethane (Surr)	*93*		*77 - 127*		*11/03/16 12:38*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-09
Date Collected: 10/24/16 17:40
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/03/16 13:06	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 13:06	1
Acetone	10	U	10	2.5	ug/L			11/03/16 13:06	1
Benzene	1.0	U	1.0	0.26	ug/L			11/03/16 13:06	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/03/16 13:06	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/03/16 13:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 13:06	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/03/16 13:06	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/03/16 13:06	1
Tetrachloroethene	1.0	U *	1.0	0.27	ug/L			11/03/16 13:06	1
Toluene	1.0	U	1.0	0.28	ug/L			11/03/16 13:06	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/03/16 13:06	1
Vinyl chloride	1.0	U *	1.0	0.32	ug/L			11/03/16 13:06	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/03/16 13:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*72 - 134*		*11/03/16 13:06*	*1*
4-Bromofluorobenzene (Surr)	*98*		*72 - 120*		*11/03/16 13:06*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*11/03/16 13:06*	*1*
Dibromofluoromethane (Surr)	*90*		*77 - 127*		*11/03/16 13:06*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-10
Date Collected: 10/24/16 17:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 11:05	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 11:05	1
Acetone	10	U	10	2.5	ug/L			11/02/16 11:05	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 11:05	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 11:05	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 11:05	1
cis-1,2-Dichloroethene	**2.1**		1.0	0.29	ug/L			11/02/16 11:05	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 11:05	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 11:05	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 11:05	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 11:05	1
Trichloroethene	**12**		1.0	0.26	ug/L			11/02/16 11:05	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 11:05	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 11:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*72 - 134*		*11/02/16 11:05*	*1*
4-Bromofluorobenzene (Surr)	*96*		*72 - 120*		*11/02/16 11:05*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*11/02/16 11:05*	*1*
Dibromofluoromethane (Surr)	*87*		*77 - 127*		*11/02/16 11:05*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-11
Date Collected: 10/24/16 13:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/03/16 13:34	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 13:34	1
Acetone	10	U	10	2.5	ug/L			11/03/16 13:34	1
Benzene	1.0	U	1.0	0.26	ug/L			11/03/16 13:34	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/03/16 13:34	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/03/16 13:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 13:34	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/03/16 13:34	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/03/16 13:34	1
Tetrachloroethene	**0.55**	**J ***	1.0	0.27	ug/L			11/03/16 13:34	1
Toluene	1.0	U	1.0	0.28	ug/L			11/03/16 13:34	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/03/16 13:34	1
Vinyl chloride	1.0	U *	1.0	0.32	ug/L			11/03/16 13:34	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/03/16 13:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*72 - 134*		*11/03/16 13:34*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 120*		*11/03/16 13:34*	*1*
Toluene-d8 (Surr)	*88*		*80 - 120*		*11/03/16 13:34*	*1*
Dibromofluoromethane (Surr)	*87*		*77 - 127*		*11/03/16 13:34*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-12
Date Collected: 10/24/16 13:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-12
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/03/16 14:01	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 14:01	1
Acetone	10	U	10	2.5	ug/L			11/03/16 14:01	1
Benzene	1.0	U	1.0	0.26	ug/L			11/03/16 14:01	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/03/16 14:01	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/03/16 14:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 14:01	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/03/16 14:01	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/03/16 14:01	1
Tetrachloroethene	1.0	U *	1.0	0.27	ug/L			11/03/16 14:01	1
Toluene	1.0	U	1.0	0.28	ug/L			11/03/16 14:01	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/03/16 14:01	1
Vinyl chloride	1.0	U *	1.0	0.32	ug/L			11/03/16 14:01	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/03/16 14:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*72 - 134*		*11/03/16 14:01*	*1*
4-Bromofluorobenzene (Surr)	*92*		*72 - 120*		*11/03/16 14:01*	*1*
Toluene-d8 (Surr)	*87*		*80 - 120*		*11/03/16 14:01*	*1*
Dibromofluoromethane (Surr)	*89*		*77 - 127*		*11/03/16 14:01*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-13
Date Collected: 10/24/16 13:40
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 20:22	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 20:22	1
Acetone	**2.6**	**J**	10	2.5	ug/L			11/02/16 20:22	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 20:22	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 20:22	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 20:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 20:22	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 20:22	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 20:22	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 20:22	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 20:22	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 20:22	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 20:22	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 20:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*72 - 134*		*11/02/16 20:22*	*1*
4-Bromofluorobenzene (Surr)	*98*		*72 - 120*		*11/02/16 20:22*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*11/02/16 20:22*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 127*		*11/02/16 20:22*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-14
Date Collected: 10/24/16 13:45
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 20:46	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 20:46	1
Acetone	**2.6**	**J**	10	2.5	ug/L			11/02/16 20:46	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 20:46	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 20:46	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 20:46	1
cis-1,2-Dichloroethene	**15**		1.0	0.29	ug/L			11/02/16 20:46	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 20:46	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 20:46	1
Tetrachloroethene	**2.9**		1.0	0.27	ug/L			11/02/16 20:46	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 20:46	1
Trichloroethene	**1.9**		1.0	0.26	ug/L			11/02/16 20:46	1
Vinyl chloride	**6.3**		1.0	0.32	ug/L			11/02/16 20:46	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 20:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*72 - 134*		*11/02/16 20:46*	*1*
4-Bromofluorobenzene (Surr)	*99*		*72 - 120*		*11/02/16 20:46*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*11/02/16 20:46*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 127*		*11/02/16 20:46*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-15
Date Collected: 10/24/16 15:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-15
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 21:10	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 21:10	1
Acetone	**3.1**	**J**	10	2.5	ug/L			11/02/16 21:10	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 21:10	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 21:10	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 21:10	1
cis-1,2-Dichloroethene	**0.60**	**J**	1.0	0.29	ug/L			11/02/16 21:10	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 21:10	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 21:10	1
Tetrachloroethene	**0.88**	**J**	1.0	0.27	ug/L			11/02/16 21:10	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 21:10	1
Trichloroethene	**0.27**	**J**	1.0	0.26	ug/L			11/02/16 21:10	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 21:10	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 21:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*72 - 134*		*11/02/16 21:10*	*1*
4-Bromofluorobenzene (Surr)	*99*		*72 - 120*		*11/02/16 21:10*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*11/02/16 21:10*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 127*		*11/02/16 21:10*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-16
Date Collected: 10/24/16 15:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-16
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	13	U	13	4.4	ug/L			11/02/16 15:21	12.5
1,1-Dichloroethene	13	U	13	3.6	ug/L			11/02/16 15:21	12.5
Acetone	130	U	130	31	ug/L			11/02/16 15:21	12.5
Benzene	**19**		13	3.2	ug/L			11/02/16 15:21	12.5
Carbon tetrachloride	13	U	13	3.0	ug/L			11/02/16 15:21	12.5
Chloroform	13	U	13	3.4	ug/L			11/02/16 15:21	12.5
cis-1,2-Dichloroethene	13	U	13	3.6	ug/L			11/02/16 15:21	12.5
Ethylbenzene	**270**		13	3.4	ug/L			11/02/16 15:21	12.5
Methylene Chloride	13	U	13	4.5	ug/L			11/02/16 15:21	12.5
Tetrachloroethene	13	U	13	3.4	ug/L			11/02/16 15:21	12.5
Toluene	**14**		13	3.5	ug/L			11/02/16 15:21	12.5
Trichloroethene	13	U	13	3.2	ug/L			11/02/16 15:21	12.5
Vinyl chloride	13	U	13	3.9	ug/L			11/02/16 15:21	12.5
Xylenes, Total	**720**		13	6.1	ug/L			11/02/16 15:21	12.5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*72 - 134*		*11/02/16 15:21*	*12.5*
4-Bromofluorobenzene (Surr)	*107*		*72 - 120*		*11/02/16 15:21*	*12.5*
Toluene-d8 (Surr)	*107*		*80 - 120*		*11/02/16 15:21*	*12.5*
Dibromofluoromethane (Surr)	*98*		*77 - 127*		*11/02/16 15:21*	*12.5*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-17
Date Collected: 10/24/16 12:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-17
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 11:15	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 11:15	1
Acetone	10	U	10	2.5	ug/L			11/02/16 11:15	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 11:15	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 11:15	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 11:15	1
cis-1,2-Dichloroethene	**0.68**	**J**	1.0	0.29	ug/L			11/02/16 11:15	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 11:15	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 11:15	1
Tetrachloroethene	**1.5**		1.0	0.27	ug/L			11/02/16 11:15	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 11:15	1
Trichloroethene	**0.82**	**J**	1.0	0.26	ug/L			11/02/16 11:15	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 11:15	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 11:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*72 - 134*		*11/02/16 11:15*	*1*
4-Bromofluorobenzene (Surr)	*98*		*72 - 120*		*11/02/16 11:15*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*11/02/16 11:15*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 127*		*11/02/16 11:15*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-18
Date Collected: 10/24/16 16:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-18
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 15:45	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 15:45	1
Acetone	**3.8**	**J**	10	2.5	ug/L			11/02/16 15:45	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 15:45	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 15:45	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 15:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 15:45	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 15:45	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 15:45	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 15:45	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 15:45	1
Trichloroethene	**34**		1.0	0.26	ug/L			11/02/16 15:45	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 15:45	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*72 - 134*		*11/02/16 15:45*	*1*
4-Bromofluorobenzene (Surr)	*101*		*72 - 120*		*11/02/16 15:45*	*1*
Toluene-d8 (Surr)	*107*		*80 - 120*		*11/02/16 15:45*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 127*		*11/02/16 15:45*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-19
Date Collected: 10/24/16 16:30
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-19
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 16:10	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 16:10	1
Acetone	10	U	10	2.5	ug/L			11/02/16 16:10	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 16:10	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 16:10	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 16:10	1
cis-1,2-Dichloroethene	**0.57**	**J**	1.0	0.29	ug/L			11/02/16 16:10	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 16:10	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 16:10	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 16:10	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 16:10	1
Trichloroethene	**5.4**		1.0	0.26	ug/L			11/02/16 16:10	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 16:10	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*72 - 134*		*11/02/16 16:10*	*1*
4-Bromofluorobenzene (Surr)	*96*		*72 - 120*		*11/02/16 16:10*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*11/02/16 16:10*	*1*
Dibromofluoromethane (Surr)	*106*		*77 - 127*		*11/02/16 16:10*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-20
Date Collected: 10/25/16 07:40
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-20
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 11:30	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 11:30	1
Acetone	10	U	10	2.5	ug/L			11/02/16 11:30	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 11:30	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 11:30	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 11:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 11:30	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 11:30	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 11:30	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 11:30	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 11:30	1
Trichloroethene	**3.3**		1.0	0.26	ug/L			11/02/16 11:30	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 11:30	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 11:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*72 - 134*		*11/02/16 11:30*	*1*
4-Bromofluorobenzene (Surr)	*106*		*72 - 120*		*11/02/16 11:30*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*11/02/16 11:30*	*1*
Dibromofluoromethane (Surr)	*96*		*77 - 127*		*11/02/16 11:30*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-21
Date Collected: 10/25/16 10:55
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-21
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 13:56	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 13:56	1
Acetone	**4.5**	**J**	10	2.5	ug/L			11/02/16 13:56	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 13:56	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 13:56	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 13:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 13:56	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 13:56	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 13:56	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 13:56	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 13:56	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 13:56	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 13:56	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 13:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*72 - 134*		*11/02/16 13:56*	*1*
4-Bromofluorobenzene (Surr)	*102*		*72 - 120*		*11/02/16 13:56*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*11/02/16 13:56*	*1*
Dibromofluoromethane (Surr)	*96*		*77 - 127*		*11/02/16 13:56*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-22
Date Collected: 10/25/16 10:47
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-22
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 14:20	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 14:20	1
Acetone	10	U	10	2.5	ug/L			11/02/16 14:20	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 14:20	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 14:20	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 14:20	1
cis-1,2-Dichloroethene	**1.9**		1.0	0.29	ug/L			11/02/16 14:20	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 14:20	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 14:20	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 14:20	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 14:20	1
Trichloroethene	**21**		1.0	0.26	ug/L			11/02/16 14:20	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 14:20	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 14:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*72 - 134*		*11/02/16 14:20*	*1*
4-Bromofluorobenzene (Surr)	*100*		*72 - 120*		*11/02/16 14:20*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*11/02/16 14:20*	*1*
Dibromofluoromethane (Surr)	*95*		*77 - 127*		*11/02/16 14:20*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-23
Date Collected: 10/25/16 11:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-23
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 14:44	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 14:44	1
Acetone	**3.0**	**J**	10	2.5	ug/L			11/02/16 14:44	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 14:44	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 14:44	1
Chloroform	**0.64**	**J**	1.0	0.27	ug/L			11/02/16 14:44	1
cis-1,2-Dichloroethene	**1.8**		1.0	0.29	ug/L			11/02/16 14:44	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 14:44	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 14:44	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 14:44	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 14:44	1
Trichloroethene	**5.5**		1.0	0.26	ug/L			11/02/16 14:44	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 14:44	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 14:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*		*11/02/16 14:44*	*1*
4-Bromofluorobenzene (Surr)	*99*		*72 - 120*		*11/02/16 14:44*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*11/02/16 14:44*	*1*
Dibromofluoromethane (Surr)	*94*		*77 - 127*		*11/02/16 14:44*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-24
Date Collected: 10/25/16 08:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-24
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 15:08	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 15:08	1
Acetone	7.8	J	10	2.5	ug/L			11/02/16 15:08	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 15:08	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 15:08	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 15:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 15:08	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 15:08	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 15:08	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 15:08	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 15:08	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 15:08	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 15:08	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*72 - 134*		*11/02/16 15:08*	*1*
4-Bromofluorobenzene (Surr)	*99*		*72 - 120*		*11/02/16 15:08*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*11/02/16 15:08*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 127*		*11/02/16 15:08*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-25
Date Collected: 10/25/16 08:30
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-25
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 15:32	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 15:32	1
Acetone	**2.6**	**J**	10	2.5	ug/L			11/02/16 15:32	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 15:32	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 15:32	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 15:32	1
cis-1,2-Dichloroethene	**2.4**		1.0	0.29	ug/L			11/02/16 15:32	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 15:32	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 15:32	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 15:32	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 15:32	1
Trichloroethene	**7.4**		1.0	0.26	ug/L			11/02/16 15:32	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 15:32	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 15:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*		*11/02/16 15:32*	*1*
4-Bromofluorobenzene (Surr)	*96*		*72 - 120*		*11/02/16 15:32*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*11/02/16 15:32*	*1*
Dibromofluoromethane (Surr)	*94*		*77 - 127*		*11/02/16 15:32*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-26
Date Collected: 10/25/16 10:50
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-26
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 15:56	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 15:56	1
Acetone	**2.5**	**J**	10	2.5	ug/L			11/02/16 15:56	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 15:56	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 15:56	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 15:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 15:56	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 15:56	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 15:56	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 15:56	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 15:56	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 15:56	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 15:56	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 15:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*72 - 134*		*11/02/16 15:56*	*1*
4-Bromofluorobenzene (Surr)	*100*		*72 - 120*		*11/02/16 15:56*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*11/02/16 15:56*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 127*		*11/02/16 15:56*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-27
Date Collected: 10/25/16 10:50
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-27
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 16:20	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 16:20	1
Acetone	**3.5**	**J**	10	2.5	ug/L			11/02/16 16:20	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 16:20	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 16:20	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 16:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 16:20	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 16:20	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 16:20	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 16:20	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 16:20	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 16:20	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 16:20	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*72 - 134*		*11/02/16 16:20*	*1*
4-Bromofluorobenzene (Surr)	*100*		*72 - 120*		*11/02/16 16:20*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*11/02/16 16:20*	*1*
Dibromofluoromethane (Surr)	*96*		*77 - 127*		*11/02/16 16:20*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-28
Date Collected: 10/25/16 11:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-28
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 16:44	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 16:44	1
Acetone	10	U	10	2.5	ug/L			11/02/16 16:44	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 16:44	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 16:44	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 16:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 16:44	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 16:44	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 16:44	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 16:44	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 16:44	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 16:44	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 16:44	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*72 - 134*		*11/02/16 16:44*	*1*
4-Bromofluorobenzene (Surr)	*101*		*72 - 120*		*11/02/16 16:44*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*11/02/16 16:44*	*1*
Dibromofluoromethane (Surr)	*97*		*77 - 127*		*11/02/16 16:44*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-29
Date Collected: 10/25/16 12:40
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-29
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 17:09	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 17:09	1
Acetone	10	U	10	2.5	ug/L			11/02/16 17:09	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 17:09	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 17:09	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 17:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 17:09	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 17:09	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 17:09	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 17:09	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 17:09	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 17:09	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 17:09	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 17:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*72 - 134*		*11/02/16 17:09*	*1*
4-Bromofluorobenzene (Surr)	*99*		*72 - 120*		*11/02/16 17:09*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*11/02/16 17:09*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 127*		*11/02/16 17:09*	*1*

Client Sample ID: W-161025-RA-30

Date Collected: 10/25/16 13:15
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-30

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 17:33	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 17:33	1
Acetone	**3.3**	**J**	10	2.5	ug/L			11/02/16 17:33	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 17:33	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 17:33	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 17:33	1
cis-1,2-Dichloroethene	**0.69**	**J**	1.0	0.29	ug/L			11/02/16 17:33	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 17:33	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 17:33	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 17:33	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 17:33	1
Trichloroethene	**13**		1.0	0.26	ug/L			11/02/16 17:33	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 17:33	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*72 - 134*		*11/02/16 17:33*	*1*
4-Bromofluorobenzene (Surr)	*97*		*72 - 120*		*11/02/16 17:33*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*11/02/16 17:33*	*1*
Dibromofluoromethane (Surr)	*98*		*77 - 127*		*11/02/16 17:33*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-31
Date Collected: 10/25/16 14:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-31
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 17:57	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 17:57	1
Acetone	**3.7**	**J**	10	2.5	ug/L			11/02/16 17:57	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 17:57	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 17:57	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 17:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 17:57	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 17:57	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 17:57	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 17:57	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 17:57	1
Trichloroethene	**2.0**		1.0	0.26	ug/L			11/02/16 17:57	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 17:57	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 17:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*72 - 134*		*11/02/16 17:57*	*1*
4-Bromofluorobenzene (Surr)	*101*		*72 - 120*		*11/02/16 17:57*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*11/02/16 17:57*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 127*		*11/02/16 17:57*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-32
Date Collected: 10/25/16 15:25
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-32
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 18:45	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 18:45	1
Acetone	10	U	10	2.5	ug/L			11/02/16 18:45	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 18:45	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 18:45	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 18:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 18:45	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 18:45	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 18:45	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 18:45	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 18:45	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 18:45	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 18:45	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*		*11/02/16 18:45*	*1*
4-Bromofluorobenzene (Surr)	*100*		*72 - 120*		*11/02/16 18:45*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*11/02/16 18:45*	*1*
Dibromofluoromethane (Surr)	*96*		*77 - 127*		*11/02/16 18:45*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-33
Date Collected: 10/25/16 15:35
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-33
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 19:09	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 19:09	1
Acetone	10	U	10	2.5	ug/L			11/02/16 19:09	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 19:09	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 19:09	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 19:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 19:09	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 19:09	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 19:09	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 19:09	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 19:09	1
Trichloroethene	**1.2**		1.0	0.26	ug/L			11/02/16 19:09	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 19:09	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*72 - 134*		*11/02/16 19:09*	*1*
4-Bromofluorobenzene (Surr)	*104*		*72 - 120*		*11/02/16 19:09*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*11/02/16 19:09*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 127*		*11/02/16 19:09*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-34
Date Collected: 10/25/16 13:30
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-34
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 19:33	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 19:33	1
Acetone	10	U	10	2.5	ug/L			11/02/16 19:33	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 19:33	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 19:33	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 19:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 19:33	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 19:33	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 19:33	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 19:33	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 19:33	1
Trichloroethene	**14**		1.0	0.26	ug/L			11/02/16 19:33	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 19:33	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*72 - 134*		*11/02/16 19:33*	*1*
4-Bromofluorobenzene (Surr)	*100*		*72 - 120*		*11/02/16 19:33*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*11/02/16 19:33*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 127*		*11/02/16 19:33*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-35
Date Collected: 10/25/16 14:30
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-35
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 19:58	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 19:58	1
Acetone	10	U	10	2.5	ug/L			11/02/16 19:58	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 19:58	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 19:58	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 19:58	1
cis-1,2-Dichloroethene	**0.34**	**J**	1.0	0.29	ug/L			11/02/16 19:58	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 19:58	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 19:58	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 19:58	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 19:58	1
Trichloroethene	**5.1**		1.0	0.26	ug/L			11/02/16 19:58	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 19:58	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 19:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*72 - 134*		*11/02/16 19:58*	*1*
4-Bromofluorobenzene (Surr)	*99*		*72 - 120*		*11/02/16 19:58*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*11/02/16 19:58*	*1*
Dibromofluoromethane (Surr)	*96*		*77 - 127*		*11/02/16 19:58*	*1*

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: TRIP BLANK
Date Collected: 10/25/16 00:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-36
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 11:54	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 11:54	1
Acetone	**9.8**	**J**	10	2.5	ug/L			11/02/16 11:54	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 11:54	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 11:54	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 11:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 11:54	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 11:54	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 11:54	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 11:54	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 11:54	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 11:54	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 11:54	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 11:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*72 - 134*		*11/02/16 11:54*	*1*
4-Bromofluorobenzene (Surr)	*99*		*72 - 120*		*11/02/16 11:54*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*11/02/16 11:54*	*1*
Dibromofluoromethane (Surr)	*97*		*77 - 127*		*11/02/16 11:54*	*1*

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(72-134)	(72-120)	(80-120)	(77-127)
240-71354-1	W-161024-RA-01	91	92	90	90
240-71354-2	W-161024-RA-02	93	92	87	84
240-71354-3	W-161024-RA-03	93	99	97	85
240-71354-4	W-161024-RA-04	92	93	90	88
240-71354-5	W-161024-RA-05	93	94	94	91
240-71354-6	W-161024-RA-06	89	94	87	85
240-71354-7	W-161024-RA-07	86	91	85	84
240-71354-8	W-161024-RA-08	97	93	91	93
240-71354-9	W-161024-RA-09	95	98	94	90
240-71354-10	W-161024-RA-10	91	96	93	87
240-71354-10 MS	W-161024-RA-10	83	89	86	85
240-71354-10 MSD	W-161024-RA-10	83	92	85	85
240-71354-11	W-161024-RA-11	93	94	88	87
240-71354-12	W-161024-RA-12	93	92	87	89
240-71354-13	W-161024-RA-13	100	98	95	101
240-71354-14	W-161024-RA-14	100	99	100	99
240-71354-15	W-161024-RA-15	101	99	93	100
240-71354-16	W-161024-RA-16	100	107	107	98
240-71354-17	W-161024-RA-17	100	98	104	104
240-71354-17 MS	W-161024-RA-17	97	100	104	102
240-71354-18	W-161024-RA-18	101	101	107	100
240-71354-19	W-161024-RA-19	102	96	101	106
240-71354-20	W-161025-RA-20	102	106	99	96
240-71354-20 MS	W-161025-RA-20	88	93	105	93
240-71354-20 MSD	W-161025-RA-20	90	101	107	95
240-71354-21	W-161025-RA-21	95	102	99	96
240-71354-22	W-161025-RA-22	98	100	101	95
240-71354-23	W-161025-RA-23	97	99	98	94
240-71354-24	W-161025-RA-24	103	99	93	100
240-71354-25	W-161025-RA-25	97	96	97	94
240-71354-26	W-161025-RA-26	100	100	97	99
240-71354-27	W-161025-RA-27	96	100	99	96
240-71354-28	W-161025-RA-28	100	101	99	97
240-71354-29	W-161025-RA-29	98	99	96	101
240-71354-30	W-161025-RA-30	98	97	96	98
240-71354-31	W-161025-RA-31	99	101	101	99
240-71354-32	W-161025-RA-32	97	100	98	96
240-71354-33	W-161025-RA-33	99	104	102	99
240-71354-34	W-161025-RA-34	101	100	99	99
240-71354-35	W-161025-RA-35	94	99	101	96
240-71354-36	TRIP BLANK	96	99	97	97
LCS 180-193034/9	Lab Control Sample	93	98	104	93
LCS 180-193040/7	Lab Control Sample	103	104	105	105
LCS 180-193065/4	Lab Control Sample	101	108	103	100
LCS 180-193151/4	Lab Control Sample	89	97	89	85
LCSD 180-193151/5	Lab Control Sample Dup	97	101	98	96
MB 180-193034/6	Method Blank	94	96	98	92
MB 180-193040/4	Method Blank	100	97	105	105
MB 180-193065/8	Method Blank	88	93	97	89

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		12DCE	BFB	TOL	DBFM				
Lab Sample ID	Client Sample ID	(72-134)	(72-120)	(80-120)	(77-127)				
MB 180-193151/8	Method Blank	96	100	97	91				

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-193034/6
Matrix: Water
Analysis Batch: 193034

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 10:56	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 10:56	1
Acetone	10	U	10	2.5	ug/L			11/02/16 10:56	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 10:56	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 10:56	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 10:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 10:56	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 10:56	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 10:56	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 10:56	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 10:56	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 10:56	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 10:56	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 10:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*72 - 134*		*11/02/16 10:56*	*1*
4-Bromofluorobenzene (Surr)	*96*		*72 - 120*		*11/02/16 10:56*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*11/02/16 10:56*	*1*
Dibromofluoromethane (Surr)	*92*		*77 - 127*		*11/02/16 10:56*	*1*

Lab Sample ID: LCS 180-193034/9
Matrix: Water
Analysis Batch: 193034

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	10.0	10.3		ug/L		103	77 - 127
1,1-Dichloroethene	10.0	10.6		ug/L		106	71 - 122
Acetone	20.0	18.1		ug/L		90	10 - 150
Benzene	10.0	10.2		ug/L		102	80 - 121
Carbon tetrachloride	10.0	10.1		ug/L		101	59 - 145
Chloroform	10.0	9.87		ug/L		99	78 - 122
cis-1,2-Dichloroethene	10.0	9.92		ug/L		99	80 - 120
Ethylbenzene	10.0	10.5		ug/L		105	80 - 123
m-Xylene & p-Xylene	10.0	11.0		ug/L		110	80 - 124
Methylene Chloride	10.0	10.0		ug/L		100	71 - 129
o-Xylene	10.0	10.7		ug/L		107	80 - 123
Tetrachloroethene	10.0	10.9		ug/L		109	80 - 122
Toluene	10.0	11.0		ug/L		110	80 - 125
Trichloroethene	10.0	10.3		ug/L		103	79 - 120
Vinyl chloride	10.0	10.4		ug/L		104	61 - 138

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*93*		*72 - 134*
4-Bromofluorobenzene (Surr)	*98*		*72 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*
Dibromofluoromethane (Surr)	*93*		*77 - 127*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-71354-20 MS
Matrix: Water
Analysis Batch: 193034

Client Sample ID: W-161025-RA-20
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	1.0	U	10.0	10.3		ug/L		103	77 - 127
1,1-Dichloroethene	1.0	U	10.0	10.1		ug/L		101	71 - 122
Acetone	10	U	20.0	16.7		ug/L		84	10 - 150
Benzene	1.0	U	10.0	10.2		ug/L		102	80 - 121
Carbon tetrachloride	1.0	U	10.0	9.89		ug/L		99	59 - 145
Chloroform	1.0	U	10.0	9.39		ug/L		94	78 - 122
cis-1,2-Dichloroethene	1.0	U	10.0	9.65		ug/L		97	80 - 120
Ethylbenzene	1.0	U	10.0	10.6		ug/L		106	80 - 123
m-Xylene & p-Xylene	1.0	U	10.0	10.6		ug/L		106	80 - 124
Methylene Chloride	1.0	U	10.0	9.70		ug/L		97	71 - 129
o-Xylene	1.0	U	10.0	10.8		ug/L		108	80 - 123
Tetrachloroethene	1.0	U	10.0	10.6		ug/L		106	80 - 122
Toluene	1.0	U	10.0	10.8		ug/L		108	80 - 125
Trichloroethene	3.3		10.0	12.8		ug/L		95	79 - 120
Vinyl chloride	1.0	U	10.0	9.82		ug/L		98	61 - 138

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*72 - 134*
4-Bromofluorobenzene (Surr)	*93*		*72 - 120*
Toluene-d8 (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*93*		*77 - 127*

Lab Sample ID: 240-71354-20 MSD
Matrix: Water
Analysis Batch: 193034

Client Sample ID: W-161025-RA-20
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloroethane	1.0	U	10.0	10.4		ug/L		104	77 - 127	1	35
1,1-Dichloroethene	1.0	U	10.0	10.6		ug/L		106	71 - 122	5	35
Acetone	10	U	20.0	18.0		ug/L		90	10 - 150	7	35
Benzene	1.0	U	10.0	10.4		ug/L		104	80 - 121	2	32
Carbon tetrachloride	1.0	U	10.0	9.77		ug/L		98	59 - 145	1	35
Chloroform	1.0	U	10.0	9.77		ug/L		98	78 - 122	4	35
cis-1,2-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	80 - 120	5	35
Ethylbenzene	1.0	U	10.0	10.9		ug/L		109	80 - 123	3	33
m-Xylene & p-Xylene	1.0	U	10.0	10.9		ug/L		109	80 - 124	2	32
Methylene Chloride	1.0	U	10.0	10.1		ug/L		101	71 - 129	4	35
o-Xylene	1.0	U	10.0	10.8		ug/L		108	80 - 123	0	33
Tetrachloroethene	1.0	U	10.0	11.2		ug/L		112	80 - 122	6	35
Toluene	1.0	U	10.0	11.0		ug/L		110	80 - 125	2	35
Trichloroethene	3.3		10.0	12.9		ug/L		96	79 - 120	1	35
Vinyl chloride	1.0	U	10.0	9.93		ug/L		99	61 - 138	1	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*90*		*72 - 134*
4-Bromofluorobenzene (Surr)	*101*		*72 - 120*
Toluene-d8 (Surr)	*107*		*80 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-71354-20 MSD
Matrix: Water
Analysis Batch: 193034

Client Sample ID: W-161025-RA-20
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	*95*		*77 - 127*

Lab Sample ID: MB 180-193040/4
Matrix: Water
Analysis Batch: 193040

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 10:40	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 10:40	1
Acetone	10	U	10	2.5	ug/L			11/02/16 10:40	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 10:40	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 10:40	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 10:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 10:40	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 10:40	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 10:40	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 10:40	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 10:40	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 10:40	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 10:40	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 10:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*100*		*72 - 134*		*11/02/16 10:40*	*1*
4-Bromofluorobenzene (Surr)	*97*		*72 - 120*		*11/02/16 10:40*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*11/02/16 10:40*	*1*
Dibromofluoromethane (Surr)	*105*		*77 - 127*		*11/02/16 10:40*	*1*

Lab Sample ID: LCS 180-193040/7
Matrix: Water
Analysis Batch: 193040

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	10.0	10.2		ug/L		102	77 - 127
1,1-Dichloroethene	10.0	9.48		ug/L		95	71 - 122
Acetone	20.0	24.4		ug/L		122	10 - 150
Benzene	10.0	10.2		ug/L		102	80 - 121
Carbon tetrachloride	10.0	10.9		ug/L		109	59 - 145
Chloroform	10.0	9.78		ug/L		98	78 - 122
cis-1,2-Dichloroethene	10.0	9.77		ug/L		98	80 - 120
Ethylbenzene	10.0	10.2		ug/L		102	80 - 123
m-Xylene & p-Xylene	10.0	10.4		ug/L		104	80 - 124
Methylene Chloride	10.0	9.87		ug/L		99	71 - 129
o-Xylene	10.0	10.2		ug/L		102	80 - 123
Tetrachloroethene	10.0	9.82		ug/L		98	80 - 122
Toluene	10.0	10.5		ug/L		105	80 - 125
Trichloroethene	10.0	10.0		ug/L		100	79 - 120
Vinyl chloride	10.0	10.3		ug/L		103	61 - 138

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*103*		*72 - 134*
4-Bromofluorobenzene (Surr)	*104*		*72 - 120*
Toluene-d8 (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*77 - 127*

Lab Sample ID: 240-71354-17 MS
Matrix: Water
Analysis Batch: 193040

Client Sample ID: W-161024-RA-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	1.0	U	10.0	9.72		ug/L		97	77 - 127
1,1-Dichloroethene	1.0	U	10.0	9.55		ug/L		96	71 - 122
Acetone	10	U	20.0	23.1		ug/L		115	10 - 150
Benzene	1.0	U	10.0	9.75		ug/L		98	80 - 121
Carbon tetrachloride	1.0	U	10.0	10.9		ug/L		109	59 - 145
Chloroform	1.0	U	10.0	9.75		ug/L		97	78 - 122
cis-1,2-Dichloroethene	0.68	J	10.0	10.2		ug/L		95	80 - 120
Ethylbenzene	1.0	U	10.0	10.3		ug/L		103	80 - 123
m-Xylene & p-Xylene	1.0	U	10.0	10.4		ug/L		104	80 - 124
Methylene Chloride	1.0	U	10.0	9.76		ug/L		98	71 - 129
o-Xylene	1.0	U	10.0	10.4		ug/L		104	80 - 123
Tetrachloroethene	1.5		10.0	11.0		ug/L		95	80 - 122
Toluene	1.0	U	10.0	10.2		ug/L		102	80 - 125
Trichloroethene	0.82	J	10.0	10.5		ug/L		97	79 - 120
Vinyl chloride	1.0	U	10.0	10.3		ug/L		103	61 - 138

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*
4-Bromofluorobenzene (Surr)	*100*		*72 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*77 - 127*

Lab Sample ID: MB 180-193065/8
Matrix: Water
Analysis Batch: 193065

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/02/16 10:38	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 10:38	1
Acetone	10	U	10	2.5	ug/L			11/02/16 10:38	1
Benzene	1.0	U	1.0	0.26	ug/L			11/02/16 10:38	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/02/16 10:38	1
Chloroform	1.0	U	1.0	0.27	ug/L			11/02/16 10:38	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/02/16 10:38	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/02/16 10:38	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/02/16 10:38	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/02/16 10:38	1
Toluene	1.0	U	1.0	0.28	ug/L			11/02/16 10:38	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/02/16 10:38	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/02/16 10:38	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/02/16 10:38	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-193065/8
Matrix: Water
Analysis Batch: 193065

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		72 - 134		11/02/16 10:38	1
4-Bromofluorobenzene (Surr)	93		72 - 120		11/02/16 10:38	1
Toluene-d8 (Surr)	97		80 - 120		11/02/16 10:38	1
Dibromofluoromethane (Surr)	89		77 - 127		11/02/16 10:38	1

Lab Sample ID: LCS 180-193065/4
Matrix: Water
Analysis Batch: 193065

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	10.0	11.1		ug/L		111	77 - 127
1,1-Dichloroethene	10.0	9.71		ug/L		97	71 - 122
Acetone	20.0	17.5		ug/L		87	10 - 150
Benzene	10.0	11.3		ug/L		113	80 - 121
Carbon tetrachloride	10.0	9.30		ug/L		93	59 - 145
Chloroform	10.0	11.0		ug/L		110	78 - 122
cis-1,2-Dichloroethene	10.0	11.0		ug/L		110	80 - 120
Ethylbenzene	10.0	10.9		ug/L		109	80 - 123
m-Xylene & p-Xylene	10.0	10.6		ug/L		106	80 - 124
Methylene Chloride	10.0	11.5		ug/L		115	71 - 129
o-Xylene	10.0	10.9		ug/L		109	80 - 123
Tetrachloroethene	10.0	11.0		ug/L		110	80 - 122
Toluene	10.0	11.6		ug/L		116	80 - 125
Trichloroethene	10.0	10.5		ug/L		105	79 - 120
Vinyl chloride	10.0	8.46		ug/L		85	61 - 138

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		72 - 134
4-Bromofluorobenzene (Surr)	108		72 - 120
Toluene-d8 (Surr)	103		80 - 120
Dibromofluoromethane (Surr)	100		77 - 127

Lab Sample ID: 240-71354-10 MS
Matrix: Water
Analysis Batch: 193065

Client Sample ID: W-161024-RA-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	1.0	U	10.0	9.32		ug/L		93	77 - 127
1,1-Dichloroethene	1.0	U	10.0	9.81		ug/L		98	71 - 122
Acetone	10	U	20.0	13.1		ug/L		66	10 - 150
Benzene	1.0	U	10.0	10.2		ug/L		102	80 - 121
Carbon tetrachloride	1.0	U	10.0	8.50		ug/L		85	59 - 145
Chloroform	1.0	U	10.0	9.51		ug/L		95	78 - 122
cis-1,2-Dichloroethene	2.1		10.0	11.9		ug/L		98	80 - 120
Ethylbenzene	1.0	U	10.0	9.69		ug/L		97	80 - 123
m-Xylene & p-Xylene	1.0	U	10.0	10.0		ug/L		100	80 - 124
Methylene Chloride	1.0	U	10.0	9.64		ug/L		96	71 - 129
o-Xylene	1.0	U	10.0	9.87		ug/L		99	80 - 123

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-71354-10 MS
Matrix: Water
Analysis Batch: 193065

Client Sample ID: W-161024-RA-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrachloroethene	1.0	U	10.0	10.4		ug/L		104	80 - 122
Toluene	1.0	U	10.0	9.97		ug/L		100	80 - 125
Trichloroethene	12		10.0	21.4		ug/L		89	79 - 120
Vinyl chloride	1.0	U	10.0	7.92		ug/L		79	61 - 138

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*83*		*72 - 134*
4-Bromofluorobenzene (Surr)	*89*		*72 - 120*
Toluene-d8 (Surr)	*86*		*80 - 120*
Dibromofluoromethane (Surr)	*85*		*77 - 127*

Lab Sample ID: 240-71354-10 MSD
Matrix: Water
Analysis Batch: 193065

Client Sample ID: W-161024-RA-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloroethane	1.0	U	10.0	9.25		ug/L		93	77 - 127	1	35
1,1-Dichloroethene	1.0	U	10.0	9.49		ug/L		95	71 - 122	3	35
Acetone	10	U	20.0	11.9		ug/L		60	10 - 150	10	35
Benzene	1.0	U	10.0	10.3		ug/L		103	80 - 121	1	32
Carbon tetrachloride	1.0	U	10.0	8.56		ug/L		86	59 - 145	1	35
Chloroform	1.0	U	10.0	9.88		ug/L		99	78 - 122	4	35
cis-1,2-Dichloroethene	2.1		10.0	12.1		ug/L		100	80 - 120	1	35
Ethylbenzene	1.0	U	10.0	9.92		ug/L		99	80 - 123	2	33
m-Xylene & p-Xylene	1.0	U	10.0	10.1		ug/L		101	80 - 124	1	32
Methylene Chloride	1.0	U	10.0	9.64		ug/L		96	71 - 129	0	35
o-Xylene	1.0	U	10.0	9.93		ug/L		99	80 - 123	1	33
Tetrachloroethene	1.0	U	10.0	10.5		ug/L		105	80 - 122	1	35
Toluene	1.0	U	10.0	10.1		ug/L		101	80 - 125	1	35
Trichloroethene	12		10.0	20.8		ug/L		83	79 - 120	3	35
Vinyl chloride	1.0	U	10.0	7.74		ug/L		77	61 - 138	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*83*		*72 - 134*
4-Bromofluorobenzene (Surr)	*92*		*72 - 120*
Toluene-d8 (Surr)	*85*		*80 - 120*
Dibromofluoromethane (Surr)	*85*		*77 - 127*

Lab Sample ID: MB 180-193151/8
Matrix: Water
Analysis Batch: 193151

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.35	ug/L			11/03/16 10:48	1
1,1-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 10:48	1
Acetone	10	U	10	2.5	ug/L			11/03/16 10:48	1
Benzene	1.0	U	1.0	0.26	ug/L			11/03/16 10:48	1
Carbon tetrachloride	1.0	U	1.0	0.24	ug/L			11/03/16 10:48	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-193151/8
Matrix: Water
Analysis Batch: 193151

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	1.0	U	1.0	0.27	ug/L			11/03/16 10:48	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/03/16 10:48	1
Ethylbenzene	1.0	U	1.0	0.27	ug/L			11/03/16 10:48	1
Methylene Chloride	1.0	U	1.0	0.36	ug/L			11/03/16 10:48	1
Tetrachloroethene	1.0	U	1.0	0.27	ug/L			11/03/16 10:48	1
Toluene	1.0	U	1.0	0.28	ug/L			11/03/16 10:48	1
Trichloroethene	1.0	U	1.0	0.26	ug/L			11/03/16 10:48	1
Vinyl chloride	1.0	U	1.0	0.32	ug/L			11/03/16 10:48	1
Xylenes, Total	1.0	U	1.0	0.48	ug/L			11/03/16 10:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*72 - 134*		*11/03/16 10:48*	*1*
4-Bromofluorobenzene (Surr)	*100*		*72 - 120*		*11/03/16 10:48*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*11/03/16 10:48*	*1*
Dibromofluoromethane (Surr)	*91*		*77 - 127*		*11/03/16 10:48*	*1*

Lab Sample ID: LCS 180-193151/4
Matrix: Water
Analysis Batch: 193151

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloroethane	10.0	9.35		ug/L		93	77 - 127
1,1-Dichloroethene	10.0	8.88		ug/L		89	71 - 122
Acetone	20.0	14.3		ug/L		71	10 - 150
Benzene	10.0	9.70		ug/L		97	80 - 121
Carbon tetrachloride	10.0	8.54		ug/L		85	59 - 145
Chloroform	10.0	9.43		ug/L		94	78 - 122
cis-1,2-Dichloroethene	10.0	9.28		ug/L		93	80 - 120
Ethylbenzene	10.0	9.35		ug/L		94	80 - 123
m-Xylene & p-Xylene	10.0	9.70		ug/L		97	80 - 124
Methylene Chloride	10.0	9.41		ug/L		94	71 - 129
o-Xylene	10.0	9.62		ug/L		96	80 - 123
Tetrachloroethene	10.0	9.83		ug/L		98	80 - 122
Toluene	10.0	9.86		ug/L		99	80 - 125
Trichloroethene	10.0	9.21		ug/L		92	79 - 120
Vinyl chloride	10.0	8.12		ug/L		81	61 - 138

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*89*		*72 - 134*
4-Bromofluorobenzene (Surr)	*97*		*72 - 120*
Toluene-d8 (Surr)	*89*		*80 - 120*
Dibromofluoromethane (Surr)	*85*		*77 - 127*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 180-193151/5
Matrix: Water
Analysis Batch: 193151

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloroethane			10.0	10.7		ug/L		107	77 - 127	13	17
1,1-Dichloroethene			10.0	10.5		ug/L		105	71 - 122	17	18
Acetone			20.0	15.2		ug/L		76	10 - 150	6	35
Benzene			10.0	11.2		ug/L		112	80 - 121	14	15
Carbon tetrachloride			10.0	10.1		ug/L		101	59 - 145	16	19
Chloroform			10.0	10.6		ug/L		106	78 - 122	12	15
cis-1,2-Dichloroethene			10.0	10.9		ug/L		109	80 - 120	16	17
Ethylbenzene			10.0	10.6		ug/L		106	80 - 123	12	15
m-Xylene & p-Xylene			10.0	10.8		ug/L		108	80 - 124	11	17
Methylene Chloride			10.0	10.7		ug/L		107	71 - 129	13	19
o-Xylene			10.0	10.8		ug/L		108	80 - 123	11	15
Tetrachloroethene			10.0	11.6	*	ug/L		116	80 - 122	17	15
Toluene			10.0	11.2		ug/L		112	80 - 125	13	15
Trichloroethene			10.0	10.8		ug/L		108	79 - 120	15	15
Vinyl chloride			10.0	9.74	*	ug/L		97	61 - 138	18	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*
4-Bromofluorobenzene (Surr)	*101*		*72 - 120*
Toluene-d8 (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*96*		*77 - 127*

GC/MS VOA

Analysis Batch: 193034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-71354-13	W-161024-RA-13	Total/NA	Water	8260B	
240-71354-14	W-161024-RA-14	Total/NA	Water	8260B	
240-71354-15	W-161024-RA-15	Total/NA	Water	8260B	
240-71354-20	W-161025-RA-20	Total/NA	Water	8260B	
240-71354-21	W-161025-RA-21	Total/NA	Water	8260B	
240-71354-22	W-161025-RA-22	Total/NA	Water	8260B	
240-71354-23	W-161025-RA-23	Total/NA	Water	8260B	
240-71354-24	W-161025-RA-24	Total/NA	Water	8260B	
240-71354-25	W-161025-RA-25	Total/NA	Water	8260B	
240-71354-26	W-161025-RA-26	Total/NA	Water	8260B	
240-71354-27	W-161025-RA-27	Total/NA	Water	8260B	
240-71354-28	W-161025-RA-28	Total/NA	Water	8260B	
240-71354-29	W-161025-RA-29	Total/NA	Water	8260B	
240-71354-30	W-161025-RA-30	Total/NA	Water	8260B	
240-71354-31	W-161025-RA-31	Total/NA	Water	8260B	
240-71354-32	W-161025-RA-32	Total/NA	Water	8260B	
240-71354-33	W-161025-RA-33	Total/NA	Water	8260B	
240-71354-34	W-161025-RA-34	Total/NA	Water	8260B	
240-71354-35	W-161025-RA-35	Total/NA	Water	8260B	
240-71354-36	TRIP BLANK	Total/NA	Water	8260B	
MB 180-193034/6	Method Blank	Total/NA	Water	8260B	
LCS 180-193034/9	Lab Control Sample	Total/NA	Water	8260B	
240-71354-20 MS	W-161025-RA-20	Total/NA	Water	8260B	
240-71354-20 MSD	W-161025-RA-20	Total/NA	Water	8260B	

Analysis Batch: 193040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-71354-16	W-161024-RA-16	Total/NA	Water	8260B	
240-71354-17	W-161024-RA-17	Total/NA	Water	8260B	
240-71354-18	W-161024-RA-18	Total/NA	Water	8260B	
240-71354-19	W-161024-RA-19	Total/NA	Water	8260B	
MB 180-193040/4	Method Blank	Total/NA	Water	8260B	
LCS 180-193040/7	Lab Control Sample	Total/NA	Water	8260B	
240-71354-17 MS	W-161024-RA-17	Total/NA	Water	8260B	

Analysis Batch: 193065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-71354-1	W-161024-RA-01	Total/NA	Water	8260B	
240-71354-2	W-161024-RA-02	Total/NA	Water	8260B	
240-71354-3	W-161024-RA-03	Total/NA	Water	8260B	
240-71354-4	W-161024-RA-04	Total/NA	Water	8260B	
240-71354-10	W-161024-RA-10	Total/NA	Water	8260B	
MB 180-193065/8	Method Blank	Total/NA	Water	8260B	
LCS 180-193065/4	Lab Control Sample	Total/NA	Water	8260B	
240-71354-10 MS	W-161024-RA-10	Total/NA	Water	8260B	
240-71354-10 MSD	W-161024-RA-10	Total/NA	Water	8260B	

Analysis Batch: 193151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-71354-5	W-161024-RA-05	Total/NA	Water	8260B	
240-71354-6	W-161024-RA-06	Total/NA	Water	8260B	

GC/MS VOA (Continued)

Analysis Batch: 193151 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-71354-7	W-161024-RA-07	Total/NA	Water	8260B	
240-71354-8	W-161024-RA-08	Total/NA	Water	8260B	
240-71354-9	W-161024-RA-09	Total/NA	Water	8260B	
240-71354-11	W-161024-RA-11	Total/NA	Water	8260B	
240-71354-12	W-161024-RA-12	Total/NA	Water	8260B	
MB 180-193151/8	Method Blank	Total/NA	Water	8260B	
LCS 180-193151/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 180-193151/5	Lab Control Sample Dup	Total/NA	Water	8260B	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-01
Date Collected: 10/24/16 13:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193065	11/02/16 14:45	PJJ	TAL PIT

Client Sample ID: W-161024-RA-02
Date Collected: 10/24/16 13:30
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193065	11/02/16 15:14	PJJ	TAL PIT

Client Sample ID: W-161024-RA-03
Date Collected: 10/24/16 15:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	193065	11/02/16 12:55	PJJ	TAL PIT

Client Sample ID: W-161024-RA-04
Date Collected: 10/24/16 15:19
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		6	193065	11/02/16 13:22	PJJ	TAL PIT

Client Sample ID: W-161024-RA-05
Date Collected: 10/24/16 15:45
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193151	11/03/16 11:16	PJJ	TAL PIT

Client Sample ID: W-161024-RA-06
Date Collected: 10/24/16 16:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193151	11/03/16 11:43	PJJ	TAL PIT

Client Sample ID: W-161024-RA-07
Lab Sample ID: 240-71354-7
Date Collected: 10/24/16 16:30
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193151	11/03/16 12:11	PJJ	TAL PIT

Client Sample ID: W-161024-RA-08
Lab Sample ID: 240-71354-8
Date Collected: 10/24/16 17:40
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193151	11/03/16 12:38	PJJ	TAL PIT

Client Sample ID: W-161024-RA-09
Lab Sample ID: 240-71354-9
Date Collected: 10/24/16 17:40
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193151	11/03/16 13:06	PJJ	TAL PIT

Client Sample ID: W-161024-RA-10
Lab Sample ID: 240-71354-10
Date Collected: 10/24/16 17:00
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193065	11/02/16 11:05	PJJ	TAL PIT

Client Sample ID: W-161024-RA-11
Lab Sample ID: 240-71354-11
Date Collected: 10/24/16 13:00
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193151	11/03/16 13:34	PJJ	TAL PIT

Client Sample ID: W-161024-RA-12
Lab Sample ID: 240-71354-12
Date Collected: 10/24/16 13:00
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193151	11/03/16 14:01	PJJ	TAL PIT

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161024-RA-13
Date Collected: 10/24/16 13:40
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 20:22	DLF	TAL PIT

Client Sample ID: W-161024-RA-14
Date Collected: 10/24/16 13:45
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 20:46	DLF	TAL PIT

Client Sample ID: W-161024-RA-15
Date Collected: 10/24/16 15:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 21:10	DLF	TAL PIT

Client Sample ID: W-161024-RA-16
Date Collected: 10/24/16 15:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		12.5	193040	11/02/16 15:21	DLF	TAL PIT

Client Sample ID: W-161024-RA-17
Date Collected: 10/24/16 12:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193040	11/02/16 11:15	DLF	TAL PIT

Client Sample ID: W-161024-RA-18
Date Collected: 10/24/16 16:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193040	11/02/16 15:45	DLF	TAL PIT

Client Sample ID: W-161024-RA-19 — Lab Sample ID: 240-71354-19

Date Collected: 10/24/16 16:30 — **Matrix: Water**
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193040	11/02/16 16:10	DLF	TAL PIT

Client Sample ID: W-161025-RA-20 — Lab Sample ID: 240-71354-20

Date Collected: 10/25/16 07:40 — **Matrix: Water**
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 11:30	DLF	TAL PIT

Client Sample ID: W-161025-RA-21 — Lab Sample ID: 240-71354-21

Date Collected: 10/25/16 10:55 — **Matrix: Water**
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 13:56	DLF	TAL PIT

Client Sample ID: W-161025-RA-22 — Lab Sample ID: 240-71354-22

Date Collected: 10/25/16 10:47 — **Matrix: Water**
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 14:20	DLF	TAL PIT

Client Sample ID: W-161025-RA-23 — Lab Sample ID: 240-71354-23

Date Collected: 10/25/16 11:20 — **Matrix: Water**
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 14:44	DLF	TAL PIT

Client Sample ID: W-161025-RA-24 — Lab Sample ID: 240-71354-24

Date Collected: 10/25/16 08:00 — **Matrix: Water**
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 15:08	DLF	TAL PIT

Client Sample ID: W-161025-RA-25
Lab Sample ID: 240-71354-25
Date Collected: 10/25/16 08:30
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 15:32	DLF	TAL PIT

Client Sample ID: W-161025-RA-26
Lab Sample ID: 240-71354-26
Date Collected: 10/25/16 10:50
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 15:56	DLF	TAL PIT

Client Sample ID: W-161025-RA-27
Lab Sample ID: 240-71354-27
Date Collected: 10/25/16 10:50
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 16:20	DLF	TAL PIT

Client Sample ID: W-161025-RA-28
Lab Sample ID: 240-71354-28
Date Collected: 10/25/16 11:20
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 16:44	DLF	TAL PIT

Client Sample ID: W-161025-RA-29
Lab Sample ID: 240-71354-29
Date Collected: 10/25/16 12:40
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 17:09	DLF	TAL PIT

Client Sample ID: W-161025-RA-30
Lab Sample ID: 240-71354-30
Date Collected: 10/25/16 13:15
Matrix: Water
Date Received: 10/27/16 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 17:33	DLF	TAL PIT

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Client Sample ID: W-161025-RA-31
Date Collected: 10/25/16 14:20
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-31
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 17:57	DLF	TAL PIT

Client Sample ID: W-161025-RA-32
Date Collected: 10/25/16 15:25
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-32
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 18:45	DLF	TAL PIT

Client Sample ID: W-161025-RA-33
Date Collected: 10/25/16 15:35
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-33
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 19:09	DLF	TAL PIT

Client Sample ID: W-161025-RA-34
Date Collected: 10/25/16 13:30
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-34
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 19:33	DLF	TAL PIT

Client Sample ID: W-161025-RA-35
Date Collected: 10/25/16 14:30
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-35
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 19:58	DLF	TAL PIT

Client Sample ID: TRIP BLANK
Date Collected: 10/25/16 00:00
Date Received: 10/27/16 09:30

Lab Sample ID: 240-71354-36
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	193034	11/02/16 11:54	DLF	TAL PIT

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Certification Summary

Client: GHD Services Inc.
Project/Site: 3978, Wausau

TestAmerica Job ID: 240-71354-1

Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	NELAP	9	01144CA	06-30-14 *
California	State Program	9	2927	04-30-17
Connecticut	State Program	1	PH-0590	12-31-17
Florida	NELAP	4	E87225	06-30-17
Illinois	NELAP	5	200004	07-31-17
Kansas	NELAP	7	E-10336	01-31-17
Kentucky (UST)	State Program	4	58	02-23-17
Kentucky (WW)	State Program	4	98016	12-31-16 *
Minnesota	NELAP	5	039-999-348	12-31-16 *
Minnesota (Petrofund)	State Program	1	3506	07-31-17
Nevada	State Program	9	OH-000482008A	07-31-17
New Jersey	NELAP	2	OH001	06-30-17
New York	NELAP	2	10975	03-31-17
Ohio VAP	State Program	5	CL0024	09-14-17
Oregon	NELAP	10	4062	02-23-17
Pennsylvania	NELAP	3	68-00340	08-31-17
Texas	NELAP	6	T104704517-15-5	08-31-17
USDA	Federal		P330-13-00319	11-26-16 *
Virginia	NELAP	3	460175	09-14-17
Washington	State Program	10	C971	01-12-17
West Virginia DEP	State Program	3	210	12-31-16 *
Wisconsin	State Program	5	999518190	08-31-17

Laboratory: TestAmerica Pittsburgh

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-17
California	State Program	9	2891	03-31-18
Connecticut	State Program	1	PH-0688	09-30-18
Florida	NELAP	4	E871008	06-30-17
Illinois	NELAP	5	200005	06-30-17
Kansas	NELAP	7	E-10350	01-31-17
Louisiana	NELAP	6	04041	06-30-17
New Hampshire	NELAP	1	2030	04-04-17
New Jersey	NELAP	2	PA005	06-30-17
New York	NELAP	2	11182	03-31-17
North Carolina (WW/SW)	State Program	4	434	12-31-16
Pennsylvania	NELAP	3	02-00416	04-30-17
South Carolina	State Program	4	89014	04-30-17
Texas	NELAP	6	T104704528-15-2	03-31-17
US Fish & Wildlife	Federal		LE94312A-1	10-31-17
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-17
Virginia	NELAP	3	460189	09-14-17
West Virginia DEP	State Program	3	142	01-31-17
Wisconsin	State Program	5	998027800	08-31-17

* Certification renewal pending - certification considered valid.

2,6 / C3,0

CHAIN OF CUSTODY RECORD

COC NO.: SP- 02015
PAGE 1 OF 3
(See Reverse Side for Instructions)

CONESTOGA-ROVERS & ASSOCIATES
1801 Old Highway 8 Northwest, Suite 114
St. Paul, Minnesota 55112 United States
Phone: (651) 639-0913 Fax: (651) 639-0923

Project No/ Phase/Task Code: 003978	**Laboratory Name:** Test America	**Lab Location:**	**SSOW ID:**
Project Name: WAUSAU - NPL Site	**Lab Contact:**	**Lab Quote No:**	**Cooler No:**
Project Location: WAUSAU, WI			**Carrier:**
Chemistry Contact: G. ANDERSON			
Sampler(s): R. AAMOT, D. OJINAGA			

240-71354 Chain of Custody

Item	Sample Identification (Containers for each sample may be combined on one line)	Date (mm/dd//yy)	Time (hh:mm)	Matrix Code (see back of COC)	Grab (G) or Comp (C)	Unpreserved	Hydrochloric Acid (HCl)	Nitric Acid (HNO_3)	Sulfuric Acid (H_2SO_4)	Sodium Hydroxide (NaOH)	Methanol/Water (Soil VOC)	EnCores 3x5-g, 1x25-g	Other:	Total Containers/Sample	8260B	MSI	Special Instructions:
1	W-161024-RA-01	10/24/16	1320	WG	G		X							3	X		
2	" - " - 02		1330				X							3	X		
3	" - " - 03		1500				X							3	X		
4	" - " - 04		1519				X							3	X		
5	" - " - 05		1545				X							3	X		
6	" - " - 06		1620				X							3	X		
7	" - " - 07		1630				X							3	X		
8	" - " - 08		1740				X							3	X		
9	" - " - 09		1740				X							3	X		
10	" - " - 10		1700				X							9	X	X	
11	" - " - 11		1300				X							3	X		
12	" - " - 12		1300				X							3	X		
13	" - " - 13		1340				X							3	X		
14	" - " - 14		1345				X							3	X		
15	" - " - 15		1500				X							3	X		

TAT Required in business days (use separate COCs for different TATs):
☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 1 Week ☐ 2 Week ☐ Other:

Total Number of Containers: 51

All Samples in Cooler must be on COC

Notes/ Special Requirements:

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
1.	GHD	10/26/16	1600	1.	BANC	10/27/16	9:30
				2.			
				3.			

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT – ALL FIELDS MUST BE COMPLETED ACCURATELY

Distribution: WHITE – Fully Executed Copy (CRA) YELLOW – Receiving Laboratory Copy PINK – Shipper GOLDENROD – Sampling Crew

CRA Form: COC-10A (20110804)

CHAIN OF CUSTODY RECORD

COC NO.: SP- 02016
PAGE 2 OF 7
(See Reverse Side for Instructions)

CONESTOGA-ROVERS & ASSOCIATES
1801 Old Highway 8 Northwest, Suite 114
St. Paul, Minnesota 55112 United States
Phone: (651) 639-0913 Fax: (651) 639-0923

Project No/ Phase/Task Code: 003978	**Laboratory Name:** test America	**Lab Location:**	**SSOW ID:**
Project Name: WAUSAU - HPL SITE	**Lab Contact:**	**Lab Quote No:**	**Cooler No:**
Project Location: WAUSAU, WI			**Carrier:**
Chemistry Contact: G. ANDERSON			**Airbill No:**
Sampler(s): R. ARNOT, D. OSINAGA			**Date Shipped:**

Item	Sample Identification (Containers for each sample may be combined on one line)	Date (mm/dd/yy)	Time (hh:mm)	Matrix Code (see back of COC)	Grab (G) or Comp (C)	Unpreserved	Hydrochloric Acid (HCl)	Nitric Acid (HNO_3)	Sulfuric Acid (H_2SO_4)	Sodium Hydroxide (NaOH)	Methanol/Water (Soil VOC)	EnCores 3x5-g, 1x25-g	Other:	Total Containers/Sample	8260B	MS/MSD Request	Comments/ Special Instructions:
1	W-161024-RA-16	10/24/16	1520	WG	G		X							3	X		
2	W-161024-RA-17		1220				X							3	X		
3	W-161024-RA-18		1600				X							3	X		
4	W-161024-RA-19		1630				X							3	X		
5	W-161025-RA-20	10/25/16	740				X							9	X	X	
	RA-21		1055				X							3	X		
	RA-22		1047				X							3	X		
8	RA-23		1120				X							3	X		
9	RA-24		800				X							3	X		
10	RA-25		830				X							3	X		
11	RA-26		1050				X							3	X		
12	RA-27		1050				X							3	X		
13	RA-28		1120				X							3	X		
14	RA-29		1240				X							3	X		
15	W-161025-RA-30		1315				X							3	X		

TAT Required in business days (use separate COCs for different TATs):
☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 1 Week ☐ 2 Week ☐ Other:

Total Number of Containers: 51

All Samples in Cooler must be on COC

Notes/ Special Requirements:

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
1.	EHD	10/26/16	1600	1.	DANC	10/27/16	9:30
				2.			
				3.			

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT – ALL FIELDS MUST BE COMPLETED ACCURATELY

Distribution: WHITE – Fully Executed Copy (CRA) YELLOW – Receiving Laboratory Copy PINK – Shipper GOLDENROD – Sampling Crew

CRA Form: COC-10A (20110804)

CHAIN OF CUSTODY RECORD

COC NO.: SP- 02023
PAGE 3 OF 3
(See Reverse Side for Instructions)

CONESTOGA-ROVERS & ASSOCIATES
1801 Old Highway 8 Northwest, Suite 114
St. Paul, Minnesota 55112 United States
Phone: (651) 639-0913 Fax: (651) 639-0923

Project No/ Phase/Task Code: 3978	Laboratory Name: test America	Lab Location:	SSOW ID:
Project Name: Wausau	Lab Contact:	Lab Quote No:	Cooler No:
Project Location: Wausau			Carrier:
Chemistry Contact: G. Anderson			Airbill No:
Sampler(s): Ramon D. Ojinaga			Date Shipped:

Item	Sample Identification (Containers for each sample may be combined on one line)	Date (mm/dd/yy)	Time (hh:mm)	Matrix Code (see back of COC)	Grab (G) or Comp (C)	Container Quantity & Preservation: Unpreserved	Hydrochloric Acid (HCl)	Nitric Acid (HNO_3)	Sulfuric Acid (H_2SO_4)	Sodium Hydroxide (NaOH)	Methanol/Water (Soil VOC)	EnCores 3x5-g, 1x25-g	Other:	Total Containers/Sample	Analysis Requested (See Back of COC for Definitions): 8260 B	MS/MSD Request	Comments/ Special Instructions:
1	W-161025-RA-31	10/25/16	1420	WG	G		3							3	X		
2	RA-32		1525				3							3	X		
3	RA-33		1535				3							3	X		
4	RA-34		1330				3							3	X		
5	W-161025-RA-35		1430				3							3	X		
	trip blak																
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	

TAT Required in business days (use separate COCs for different TATs):
☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 1 Week ☐ 2 Week ☐ Other:

Total Number of Containers: 16
All Samples in Cooler must be on COC

Notes/ Special Requirements:

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
1.	GHD	10/26/16	1600	1.	TAN	10/27/16	9:30
2.				2.			
3.				3.			

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT – ALL FIELDS MUST BE COMPLETED ACCURATELY

Distribution: WHITE – Fully Executed Copy (CRA) YELLOW – Receiving Laboratory Copy PINK – Shipper GOLDENROD – Sampling Crew

CRA Form: COC-10A (20110804)

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 71354**
Canton Facility

Client CRA Site Name

Cooler Received on 10/27/16 Opened on 10/27/16

Cooler unpacked by: BMack

FedEx: 1st Grd (Exp) UPS FAS Stetson Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # Foam Box (Client Cooler) Box Other

Packing material used: Bubble Wrap (Foam) Plastic Bag None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-8 (CF +0.4 °C) Observed Cooler Temp. 2.6 °C Corrected Cooler Temp. 3.0 °C

IR GUN #36 (CF +1.3°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were custody seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
3. Shippers' packing slip attached to the cooler(s)?	(Yes)	No
4. Did custody papers accompany the sample(s)?	(Yes)	No
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes)	No
7. Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8. Could all bottle labels be reconciled with the COC?	(Yes)	No
9. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
10. Sufficient quantity received to perform indicated analyses?	(Yes)	No
11. Are these work share samples?	Yes	(No)
If yes, Questions 11-15 have been checked at the originating laboratory.		
11. Were sample(s) at the correct pH upon receipt?	Yes No	(NA) pH Strip Lot# HC682547
12. Were VOAs on the COC?	(Yes)	No
13. Were air bubbles >6 mm in any VOA vials?	Yes	(No) NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	(Yes)	No
15. Was a LL Hg or Me Hg trip blank present?	Yes	(No)

Contacted PM Date by via Verbal Voice Mail Other

Concerning

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

Total of 5 trip blanks.

17. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.

Sample(s) were received in a broken container.

Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

18. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.

Time preserved: Preservative(s) added/Lot number(s):

Ref: SOP NC-SC-0005, Sample Receiving
L:\QAQC\QA Department\QA TARDIS\Document Control\Work Instructions\In Revision\WI-NC-099-101216 Cooler Receipt Form.doc dji

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-71354-1

Login Number: 71354
List Number: 2
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh
List Creation: 11/01/16 02:12 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-71354-1

Login Number: 71354
List Number: 3
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh
List Creation: 11/01/16 02:14 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-71354-1

Login Number: 71354
List Number: 4
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh
List Creation: 11/01/16 02:17 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Memorandum

November 30, 2016

To:	Chuck Ahrens, GHD	Ref. No.:	003978
From:	Grant Anderson/sb/12	Tel:	(651) 639-0913

Subject: **Analytical Results and Reduced Data Validation**
Groundwater Sampling Event
Wausau Superfund – Wausau, Wisconsin
October 2016

1. Introduction

The following document details a reduced validation of analytical results for groundwater samples collected in support of the groundwater monitoring program at the Wausau Superfund Site in Wausau, Wisconsin on October 24 and 25, 2016. Samples were submitted to TestAmerica Laboratories, Inc. (TestAmerica), located in North Canton, Ohio. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard GHD Services, Inc. (GHD) report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spike samples, and field QA/QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

i) Quality Assurance Project Plan (QAPP), Report 2, March 2011

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," October 1999, United States Environmental Protection Agency (USEPA) 540/R 99/008

Item ii) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in Table 3. The sample chain of custody documents and analytical report were used to determine sample holding times. All samples were analyzed within the required holding time.

All samples were properly preserved and delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

Laboratory method blanks were analyzed at a minimum frequency of one per 20 investigative samples and/or one per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for VOC determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria.

5. Laboratory Control Sample (LCS) Analyses

LCS and/or laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS/LCSD contained all compounds of interest. With the exception of tetrachloroethene and vinyl chloride, the LCS recoveries and RPDs were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision. Table 4 lists outlying LCS results. Associated sample data are qualified as noted in the table.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The relative percent difference (RPD) between the MS and MSD is used to assess analytical precision.

MS/MSD analyses were performed as specified in Table 1.

The MS/MSD samples were spiked with all compounds of interest. The percent recoveries and RPD values were within the laboratory control limits demonstrating acceptable analytical accuracy and precision.

7. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample, one rinsate blank sample, two field blank samples and three field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, a trip blank sample was submitted to the laboratory for volatile organic compound (VOC) analysis. Acetone was detected in the trip blank. Table 5 lists compounds detected in the trip blank. Associated sample data are qualified as noted in the table.

Rinsate Blank Sample Analysis

To assess field decontamination procedures, ambient conditions at the site, and cleanliness of sample containers, a rinsate blank sample was submitted for analysis, as identified in Table 1. All results were non-detect for the analytes of interest.

Field Blank Sample Analysis

To assess ambient conditions at the site and cleanliness of sample containers, two field blank samples were submitted for analysis, as identified in Table 1. Acetone was detected in the field blanks. However, associated sample results were previously qualified based on acetone detected in the trip blank; therefore, no qualification of data was necessary based on compounds detected in the field blanks.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, three field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is one times the RL value.

The field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

8. Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the RL in Table 2.

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
October 2016

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters VOC	Comments
W-161024-RA-01	MW10B	water	10/24/16	13:20	X	
W-161024-RA-02	MW10A	water	10/24/16	13:30	X	
W-161024-RA-03	E22A	water	10/24/16	15:00	X	
W-161024-RA-04	E24AR	water	10/24/16	15:19	X	
W-161024-RA-05	WW4	water	10/24/16	15:45	X	
W-161024-RA-06	WW6	water	10/24/16	16:20	X	
W-161024-RA-07	E21	water	10/24/16	16:30	X	rinsate blank
W-161024-RA-08	E21	water	10/24/16	17:40	X	
W-161024-RA-09	E21	water	10/24/16	17:40	X	duplicate (RA-08)
W-161024-RA-10	W52	water	10/24/16	17:00	X	MS/MSD
W-161024-RA-11	WC3B	water	10/24/16	13:00	X	
W-161024-RA-12	WC3B	water	10/24/16	13:00	X	duplicate (RA-11)
W-161024-RA-13	WC5A	water	10/24/16	13:40	X	field blank
W-161024-RA-14	WC5A	water	10/24/16	13:45	X	
W-161024-RA-15	E37A	water	10/24/16	15:00	X	
W-161024-RA-16	FVD5	water	10/24/16	15:20	X	
W-161024-RA-17	CW3	water	10/24/16	12:20	X	
W-161024-RA-18	W53A	water	10/24/16	16:00	X	
W-161024-RA-19	R4D	water	10/24/16	16:30	X	
W-161025-RA-20	CW6	water	10/25/16	7:40	X	MS/MSD
W-161025-RA-21	W56	water	10/25/16	10:55	X	
W-161025-RA-22	R2D	water	10/25/16	10:47	X	
W-161025-RA-23	C4S	water	10/25/16	11:20	X	
W-161025-RA-24	W55	water	10/25/16	8:00	X	field blank
W-161025-RA-25	W55	water	10/25/16	8:30	X	
W-161025-RA-26	MW1A	water	10/25/16	10:50	X	
W-161025-RA-27	MW1A	water	10/25/16	10:50	X	duplicate (RA-26)
W-161025-RA-28	EW1	water	10/25/16	11:20	X	
W-161025-RA-29	W52A	water	10/25/16	12:40	X	
W-161025-RA-30	W54	water	10/25/16	13:15	X	

Table 1

Sample Collection and Analysis Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
October 2016

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters VOC	Comments
W-161025-RA-31	R3D	water	10/25/16	14:20	X	
W-161025-RA-32	WSWS	water	10/25/16	15:25	X	
W-161025-RA-33	WSWD	water	10/25/16	15:35	X	
W-161025-RA-34	C7S	water	10/25/16	13:30	X	
W-161025-RA-35	C2S	water	10/25/16	14:30	X	
TRIP BLANK	Trip Blank	water	10/25/16	-	X	Trip Blank

Notes:

VOC - Volatile Organic Compounds

Table 2

Validated Analytical Results Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
October 2016

Location ID:	MW10B	MW10A	E22A	E24AR	WW4	WW6	E21
Sample Name:	W-161024-RA-01	W-161024-RA-02	W-161024-RA-03	W-161024-RA-04	W-161024-RA-05	W-161024-RA-06	W-161024-RA-08
Sample Date:	10/24/2016	10/24/2016	10/24/2016	10/24/2016	10/24/2016	10/24/2016	10/24/2016
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U	1.0 U	1.0 U
Acetone	µg/L	10 U	10 U	50 U	60 U	10 U	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	5.0 U	97	1.0 U	6.2	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	0.33 J	1.0 U	120	42	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	1.0 U	3.0 J	5.8 J	1.0 U	0.53 J	1.0 U
Vinyl chloride	µg/L	1.0 U	1.0 U	5.0 U	7.3	1.0 U	1.3 J	1.0 U
Xylenes (total)	µg/L	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U	1.0 U	1.0 U

Table 2

Validated Analytical Results Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
October 2016

Location ID:		E21	W52	WC3B	WC3B	WC5A	E37A	FVD5
Sample Name:		W-161024-RA-09	W-161024-RA-10	W-161024-RA-11	W-161024-RA-12	W-161024-RA-14	W-161024-RA-15	W-161024-RA-16
Sample Date:		10/24/2016 duplicate	10/24/2016	10/24/2016	10/24/2016 duplicate	10/24/2016	10/24/2016	10/24/2016
Parameters	**Unit**							
Volatile Organic Compounds								
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	130 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	19
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U
cis-1,2-Dichloroethene	µg/L	1.0 U	2.1	1.0 U	1.0 U	15	0.60 J	13 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	270
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U
Tetrachloroethene	µg/L	1.0 U	1.0 U	0.55 J	1.0 U	2.9	0.88 J	13 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	14
Trichloroethene	µg/L	1.0 U	12	1.0 U	1.0 U	1.9	0.27 J	13 U
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	6.3	1.0 U	13 U
Xylenes (total)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	720

Table 2

Validated Analytical Results Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
October 2016

Location ID:		CW3	W53A	R4D	CW6	W56	R2D	C4S
Sample Name:		W-161024-RA-17	W-161024-RA-18	W-161024-RA-19	W-161025-RA-20	W-161025-RA-21	W-161025-RA-22	W-161025-RA-23
Sample Date:		10/24/2016	10/24/2016	10/24/2016	10/25/2016	10/25/2016	10/25/2016	10/25/2016
Parameters	**Unit**							
Volatile Organic Compounds								
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.64 J
cis-1,2-Dichloroethene	µg/L	0.68 J	1.0 U	0.57 J	1.0 U	1.0 U	1.9	1.8
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	0.82 J	34	5.4	3.3	1.0 U	21	5.5
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 2

Validated Analytical Results Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
October 2016

Location ID:		W55	MW1A	MW1A	EW1	W52A	W54	R3D
Sample Name:		W-161025-RA-25	W-161025-RA-26	W-161025-RA-27	W-161025-RA-28	W-161025-RA-29	W-161025-RA-30	W-161025-RA-31
Sample Date:		10/25/2016	10/25/2016	10/25/2016 duplicate	10/25/2016	10/25/2016	10/25/2016	10/25/2016
Parameters	**Unit**							
Volatile Organic Compounds								
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	2.4	1.0 U	1.0 U	1.0 U	1.0 U	0.69 J	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	7.4	1.0 U	1.0 U	1.0 U	1.0 U	13	2.0
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 2

Validated Analytical Results Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
October 2016

Location ID:	WSWS	WSWD	C7S	C2S	Trip Blank
Sample Name:	W-161025-RA-32	W-161025-RA-33	W-161025-RA-34	W-161025-RA-35	TRIP BLANK
Sample Date:	10/25/2016	10/25/2016	10/25/2016	10/25/2016	10/25/2016
Parameters	**Unit**				
Volatile Organic Compounds					
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U	9.8 J
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	0.34 J	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	1.2	14	5.1	1.0 U
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Notes:

U - Not detected at the associated reporting limit
J - Estimated concentration

Table 3

Analytical Methods and Holding Time Criteria
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
October 2016

			Holding Time	
			Collection to Extraction	Collection or Extraction to Analysis
Parameter	**Method**	**Matrix**	**(Days)**	**(Days)**
Volatile Organic Compounds (VOC)	SW-846 8260B	Water	-	14

Notes:

Method References:
SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions

Table 4

Qualified Sample Results Due to Outlying LCS/LCSD Results
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
October 2016

Parameter	Analyte	LCS Batch	LCS % Recovery	LCSD % Recovery	RPD (percent)	Control Limits % Recovery	Control Limits RPD	Associated Sample ID	Qualified Result	Units
VOC	Tetrachloroethene	193151	98	116	17	80-122	15	W-161024-RA-11	0.55 J	ug/L
VOC	Vinyl chloride	193151	81	97	18	61-138	16	W-161024-RA-06	1.3 J	ug/L

Notes:

LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
RPD - Relative Percent Difference
J - Estimated concentration

Table 5

Qualified Sample Data Due to Analyte Concentrations in the Trip Blanks
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
October 2016

Paramete	Blank Date (mm/dd/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
VOC	10/25/2016	Acetone	9.8 J	W-161024-RA-14	2.6 J	10 U	ug/L
				W-161024-RA-15	3.1 J	10 U	ug/L
				W-161024-RA-18	3.8 J	10 U	ug/L
				W-161025-RA-21	4.5 J	10 U	ug/L
				W-161025-RA-23	3.0 J	10 U	ug/L
				W-161025-RA-25	2.6 J	10 U	ug/L
				W-161025-RA-26	2.5 J	10 U	ug/L
				W-161025-RA-27	3.5 J	10 U	ug/L
				W-161025-RA-30	3.3 J	10 U	ug/L
				W-161025-RA-31	3.7 J	10 U	ug/L

Notes:

U - Not detected at the associated reporting limit
J - Estimated concentration

Appendix B
Inspection Report

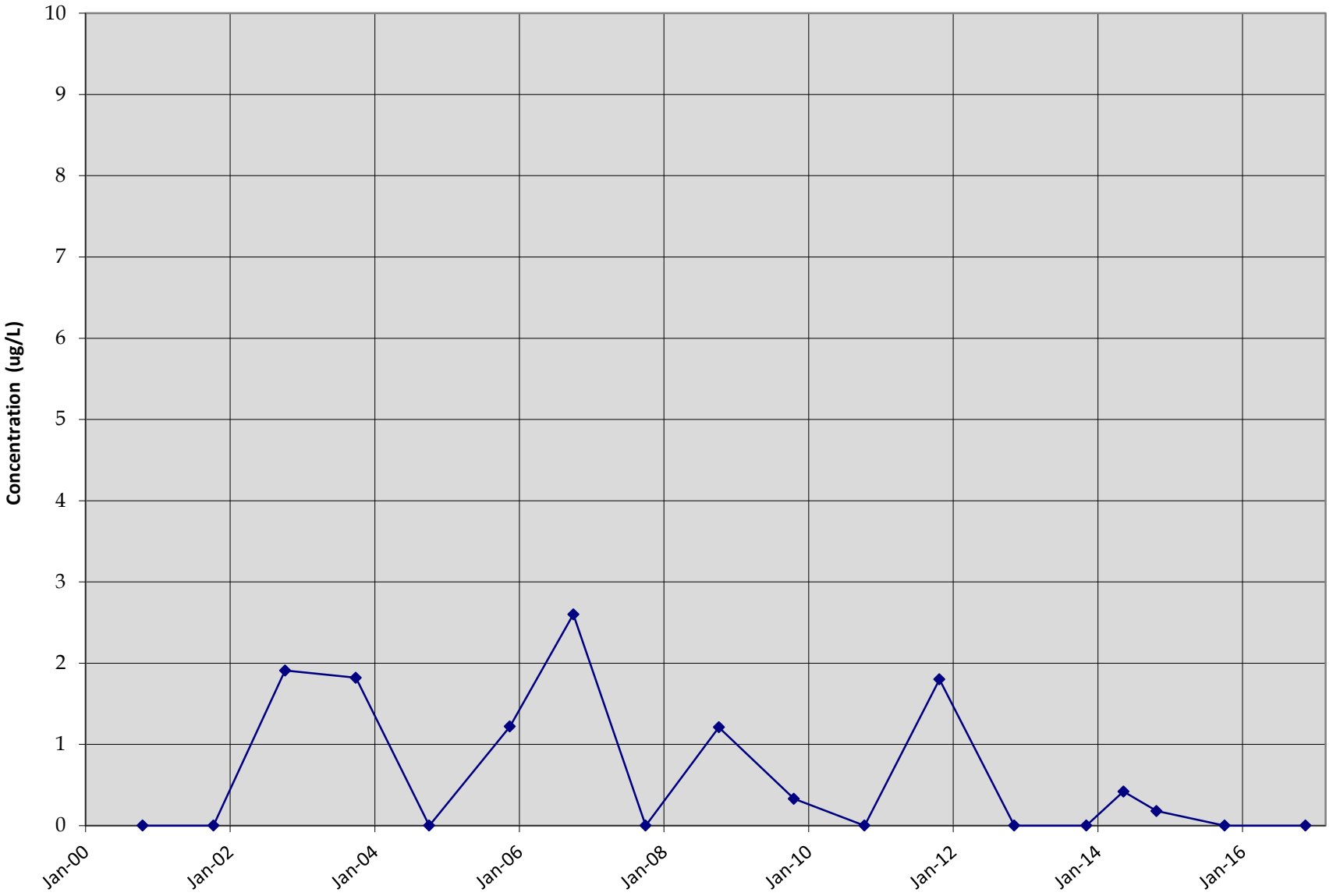
Appendix B - Table 1

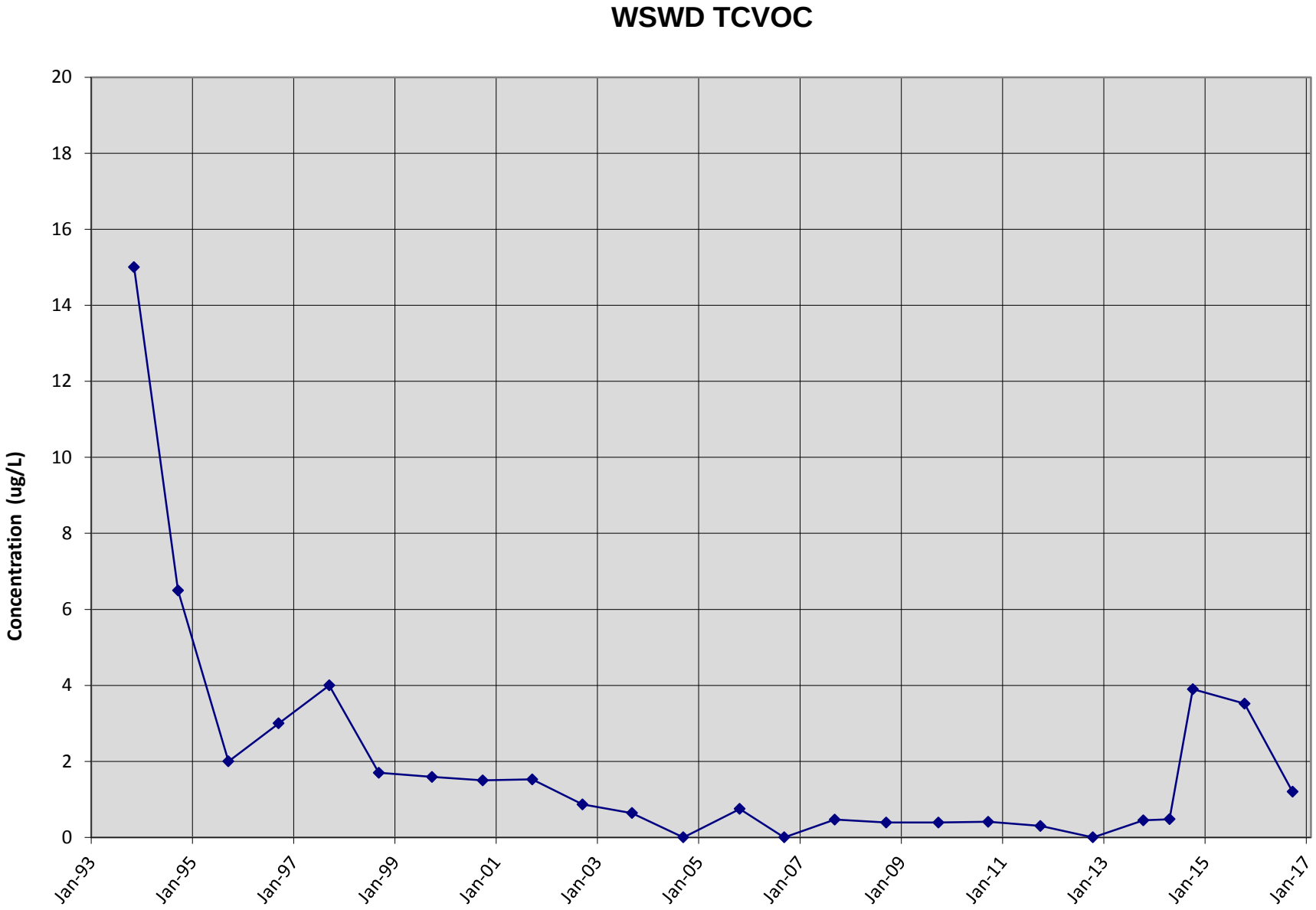
Pavement Barrier Inspection Log
Wausau Chemical Corporation

Inspection Date	Inspector	Condition of Cap	Recommendations	Have Recommendations From Previous Inspection Been Implemented?
8/29/2011	Rob Flashinski	Pavement was completely replaced in 2009. Three cracks starting to form, but have not penetrated.	No action required.	Yes.
7/2/2012	Rob Flashinski	Overall condition is very good. Recent work by the gas company has been patched thoroughly. All existing cracks have been filled.	None.	None Existed.
5/21/2013	Rob Flashinski	No change in appearance.	None.	Yes.
11/6/2013	Rob Flashinski	Overall condition is still good. Some hairline type cracks starting to form on the ends of previously filled cracks and near gas company asphalt work.	Nothing at this point. The hairline cracks will likely need attention in the spring.	Yes.
11/7/2014	Rob Flashinski	Overall condition is still good. Some hairline type cracks still exist on the ends of previously filled cracks and asphalt work by gas meter is starting to show again, but no cracks have formed.	Nothing at this point. Expect that some tar caulking will be needed in the spring.	Yes.
10/16/2015	Rob Flashinski	Overall condition is still good. Existing Cracks were sealed by Advanced Seal Coatings.	Nothing at this point.	Yes.
9/14/2016	Rob Flashinski	Overall condition is still good. Prior repair work is still in good condition also	Nothing at this point.	Yes.

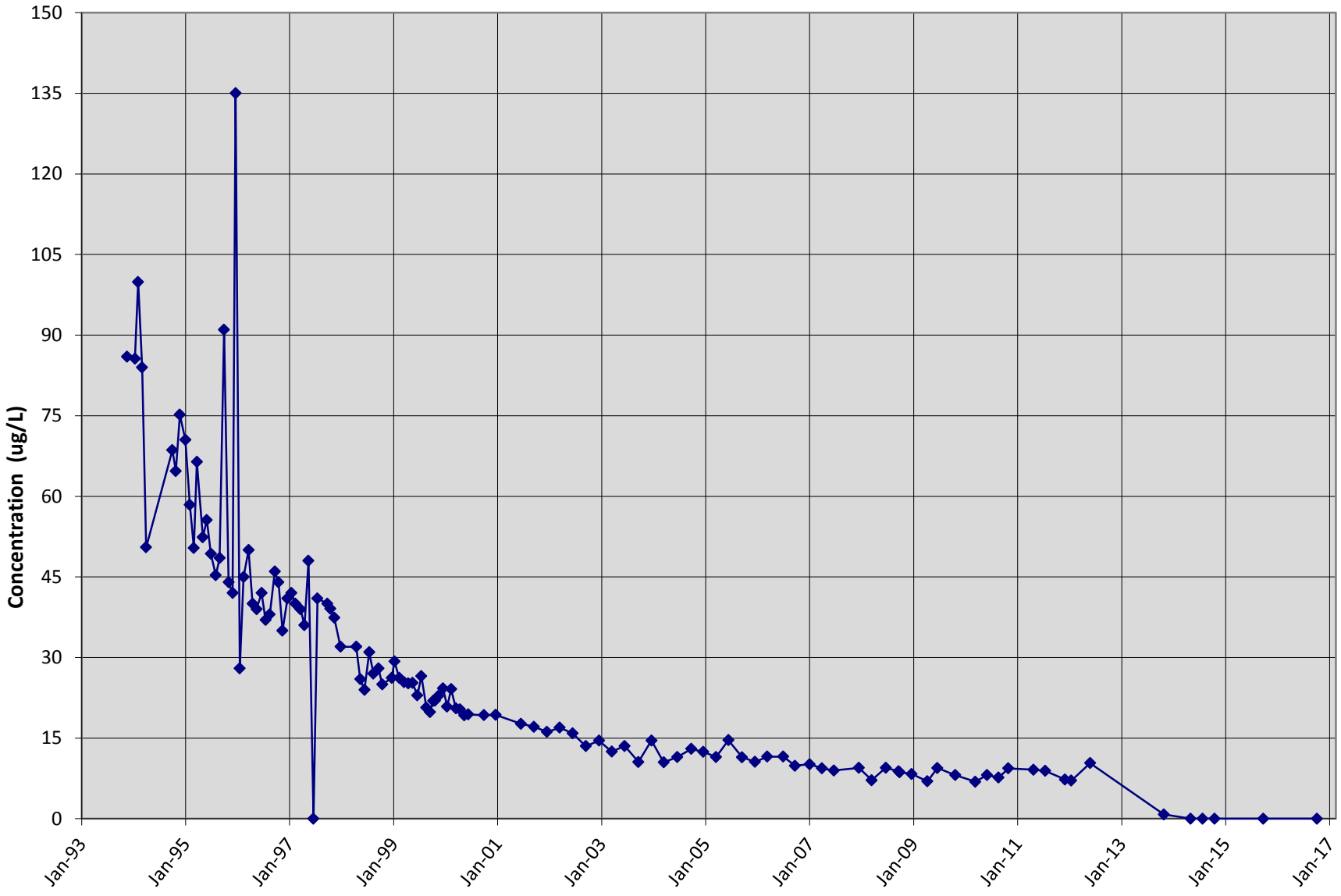
Appendix C
Charts

MW1A TCVOC

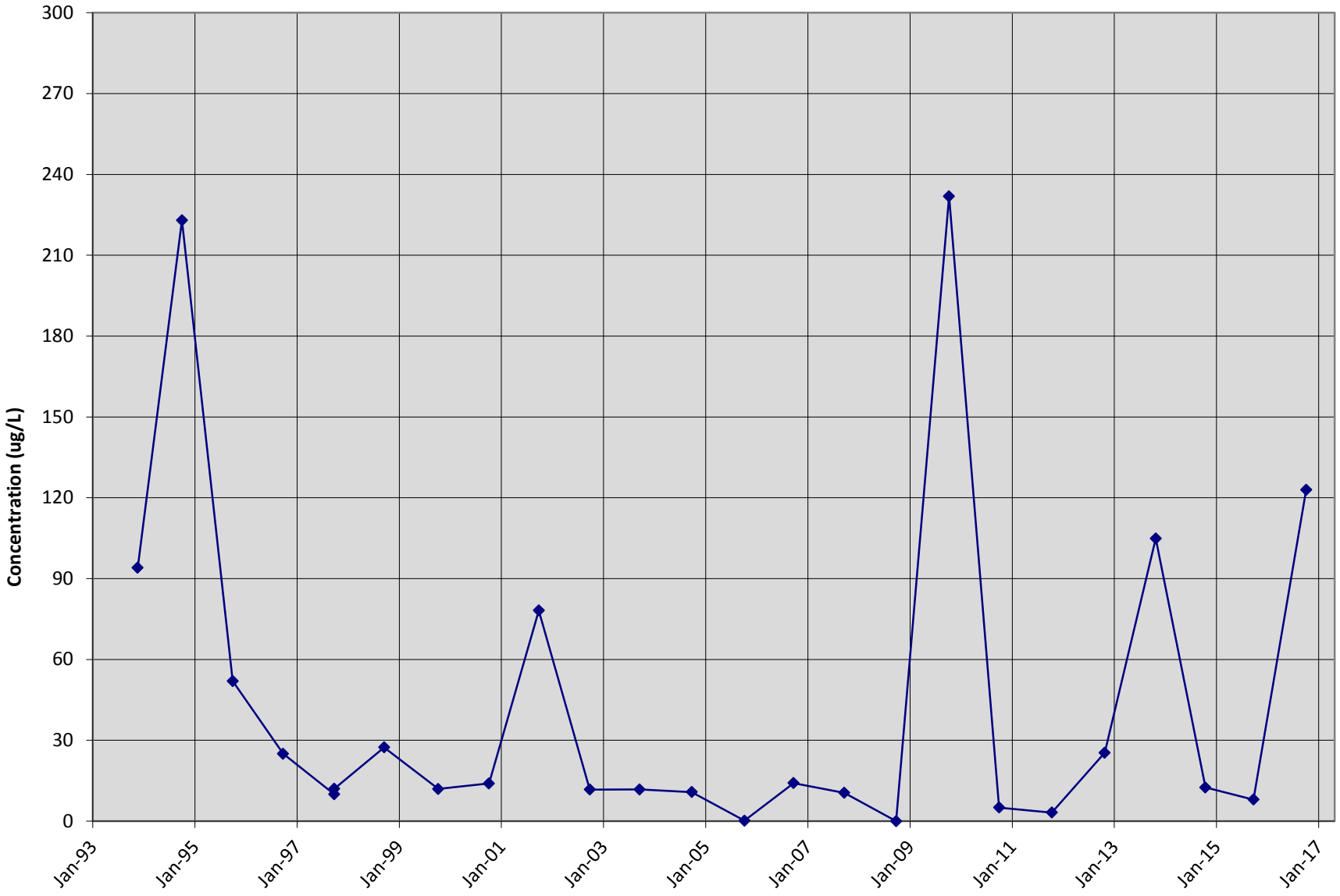

Concentration (ug/L)
10
9
8
7
6
5
4
3
2
1
0
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16

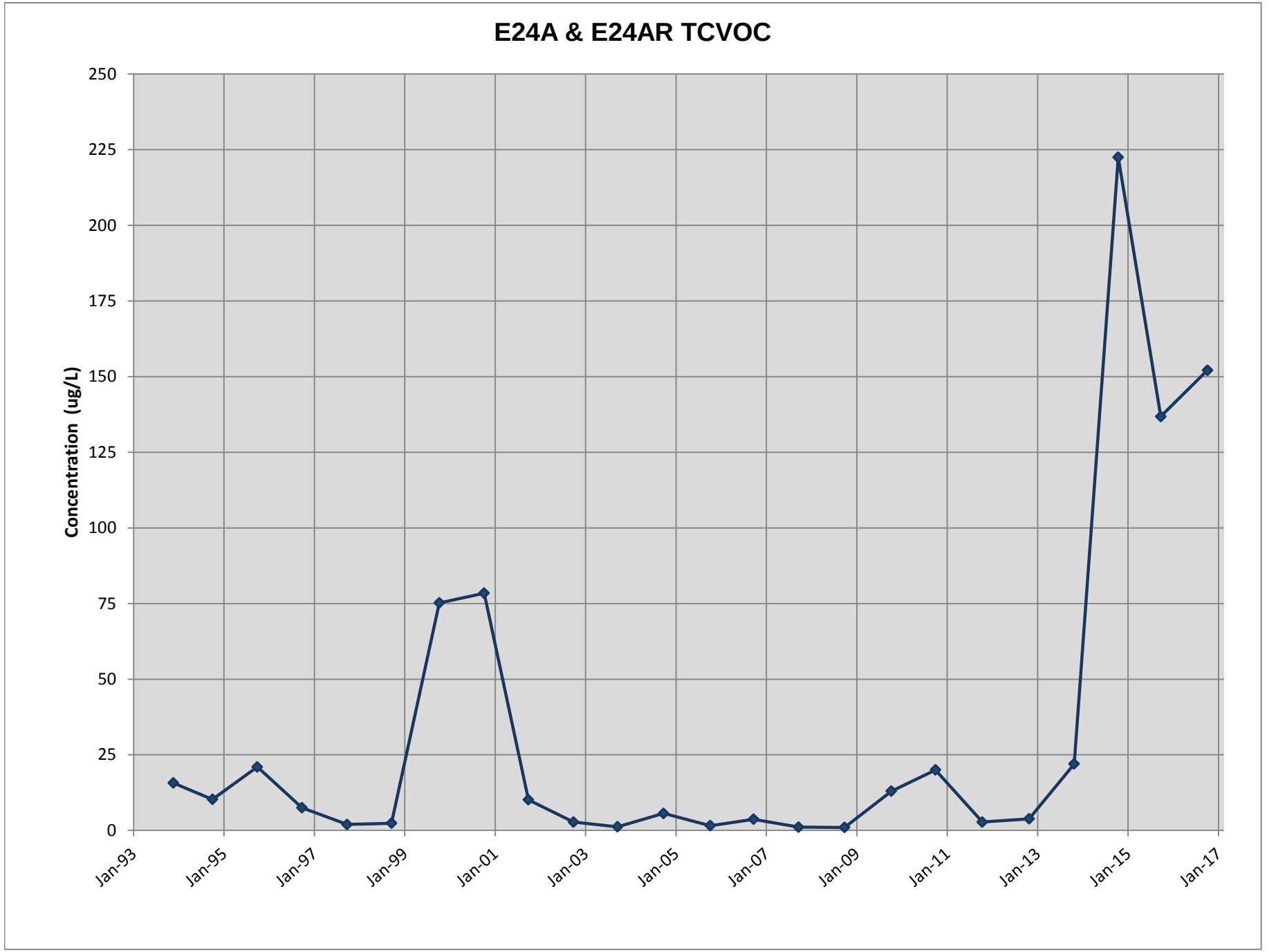

WSWD TCVOC
Concentration (ug/L)
20
18
16
14
12
10
8
6
4
2
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

EW1 TCVOC

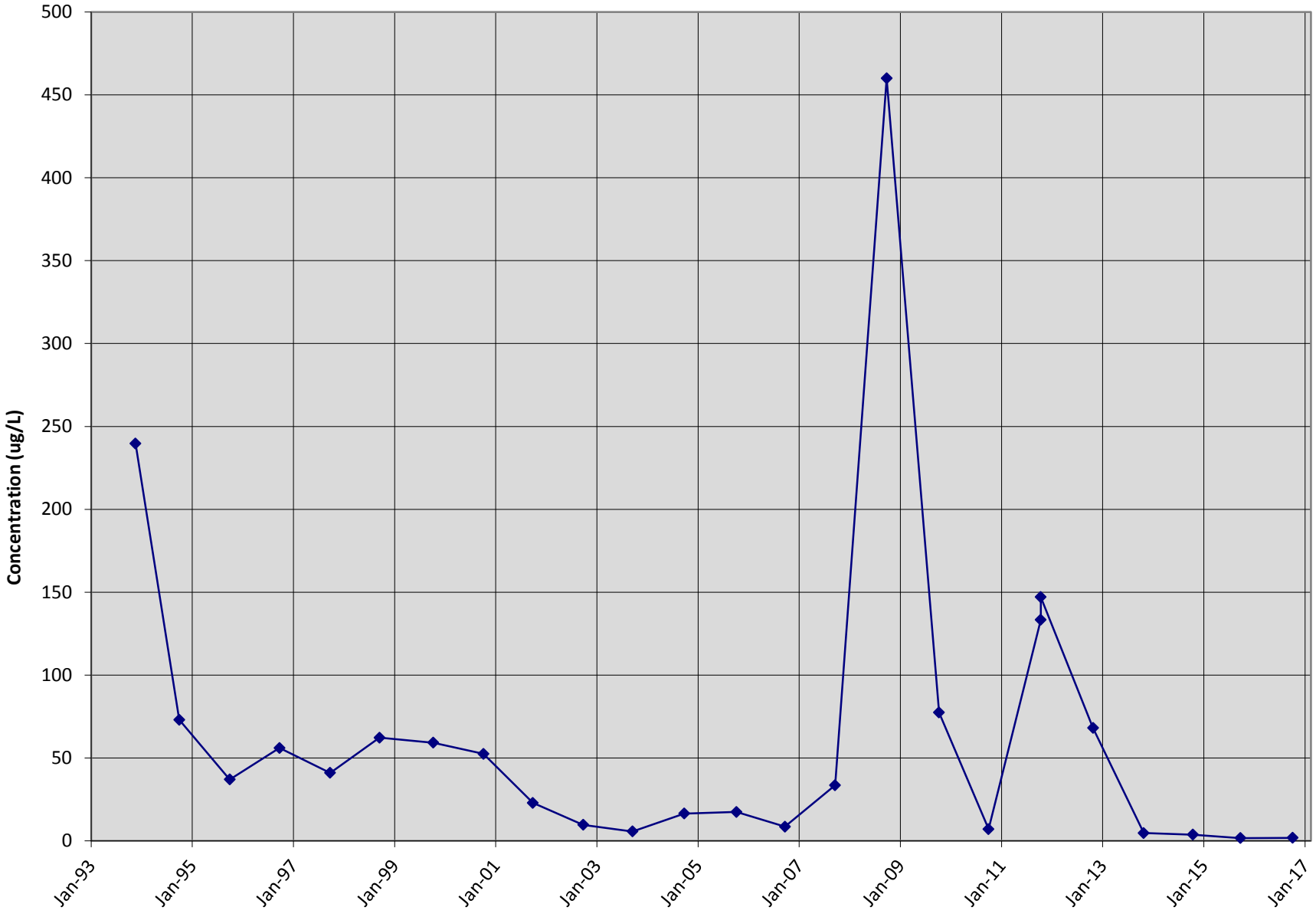

Concentration (ug/L)
150
135
120
105
90
75
60
45
30
15
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

E22A TCVOC

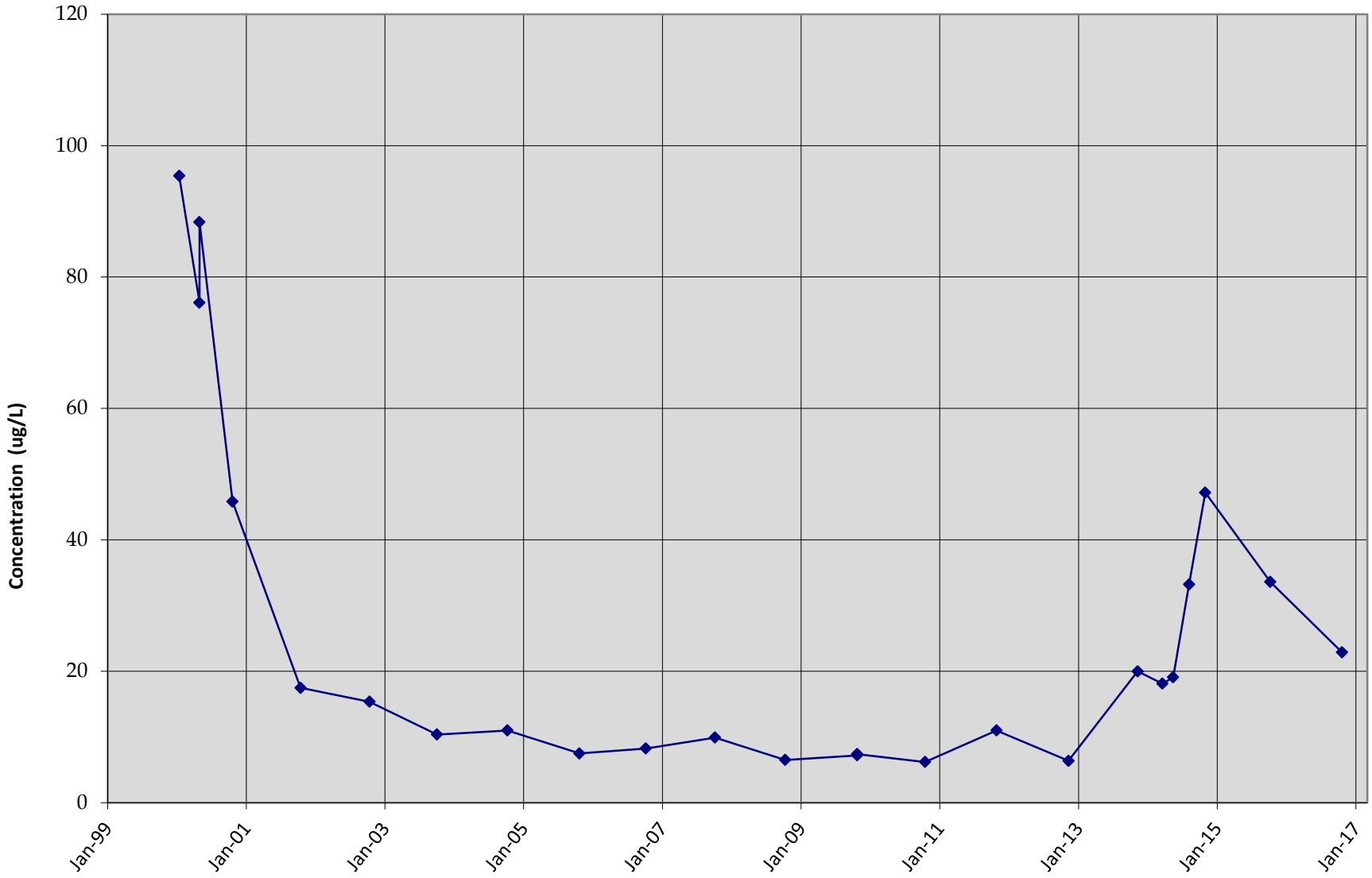

Concentration (ug/L)
300
270
240
210
180
150
120
90
60
30
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

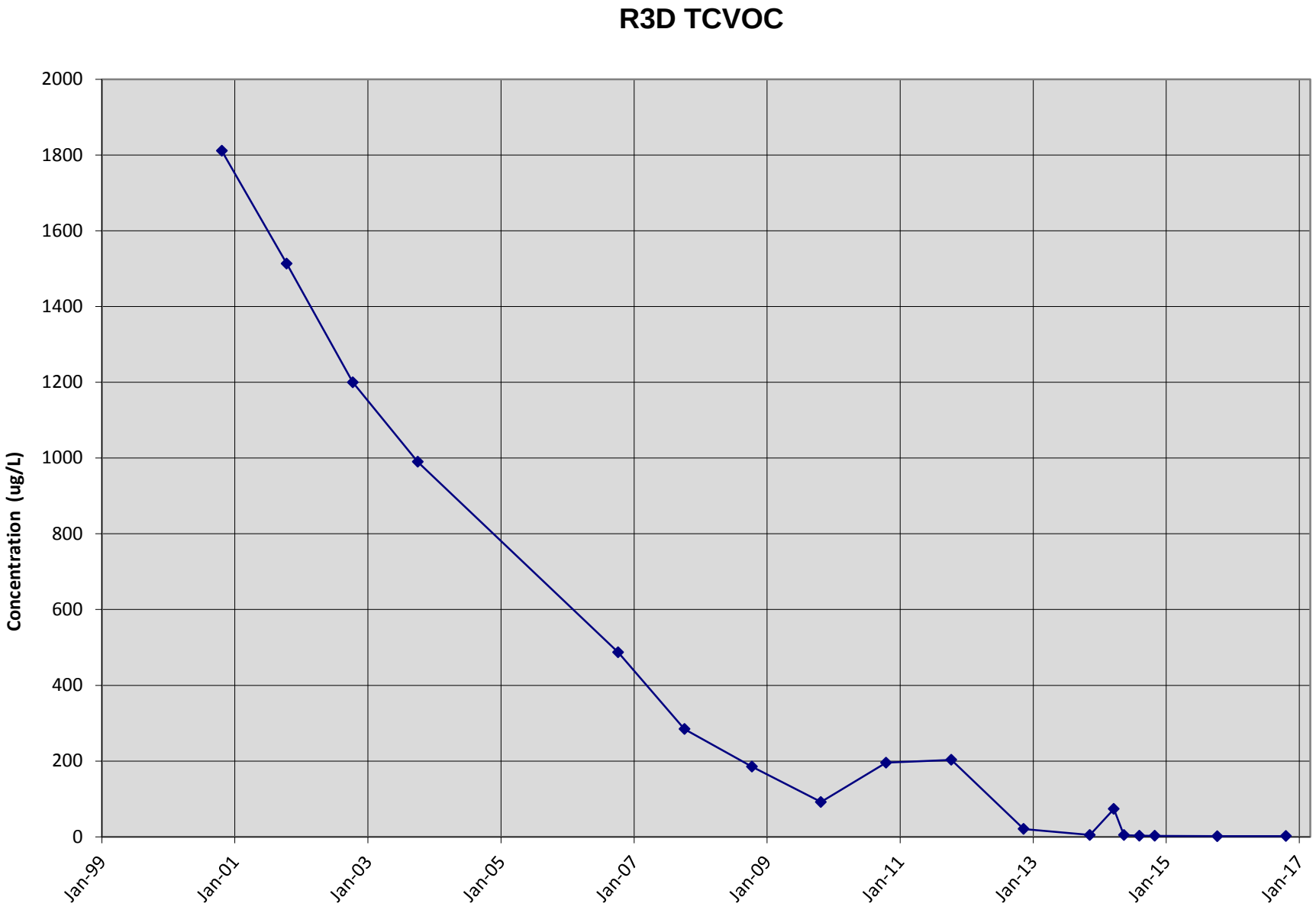

E24A & E24AR TCVOC
Concentration (ug/L)
250
225
200
175
150
125
100
75
50
25
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

E37A TCVOC

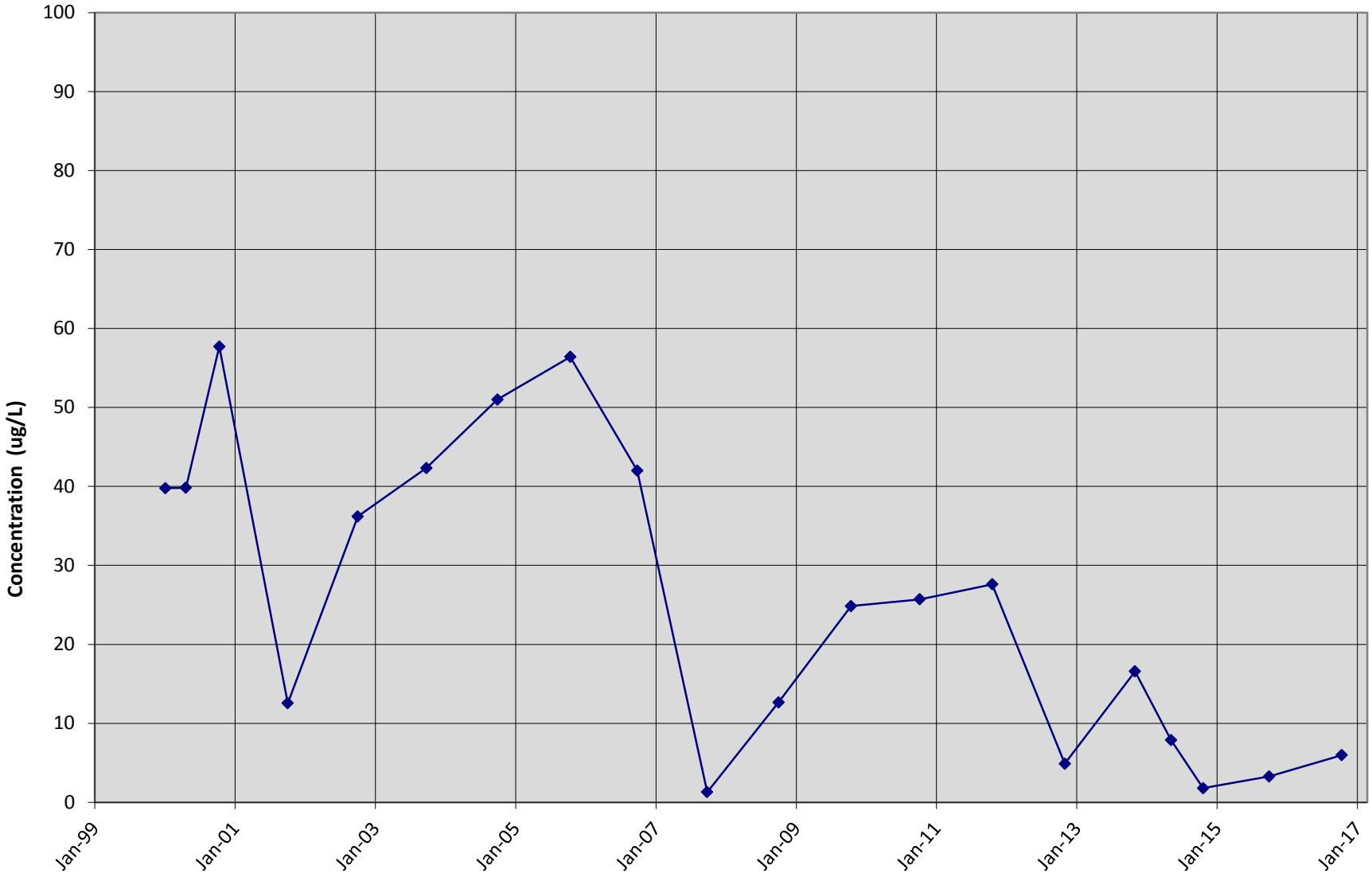

Concentration (ug/L)
500
450
400
350
300
250
200
150
100
50
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

R2D TCVOC

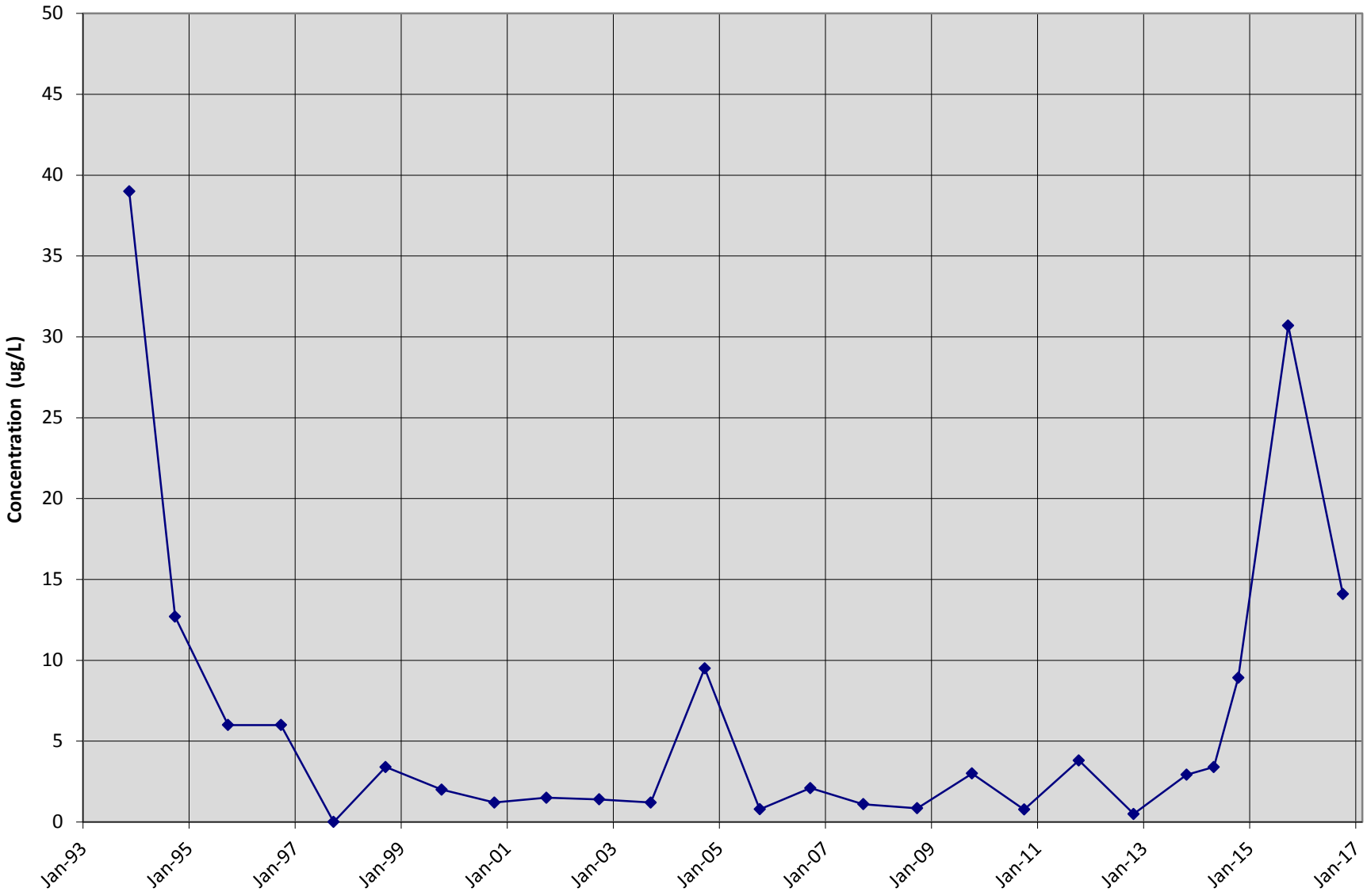

120
100
80
60
40
20
0
Concentration (ug/L)
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17


R3D TCVOC
Concentration (ug/L)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

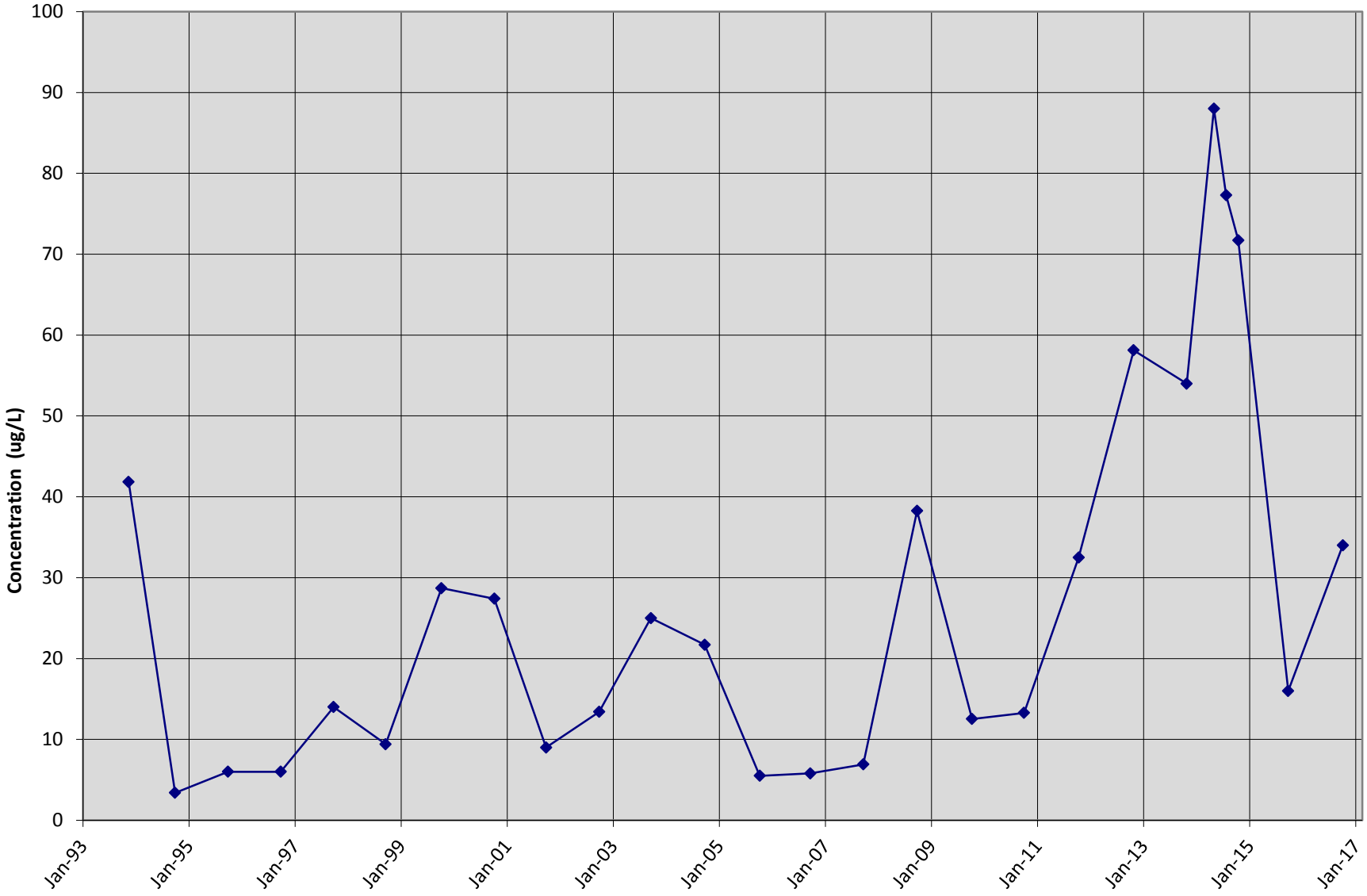
R4D TCVOC


Concentration (ug/L)
100
90
80
70
60
50
40
30
20
10
0
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

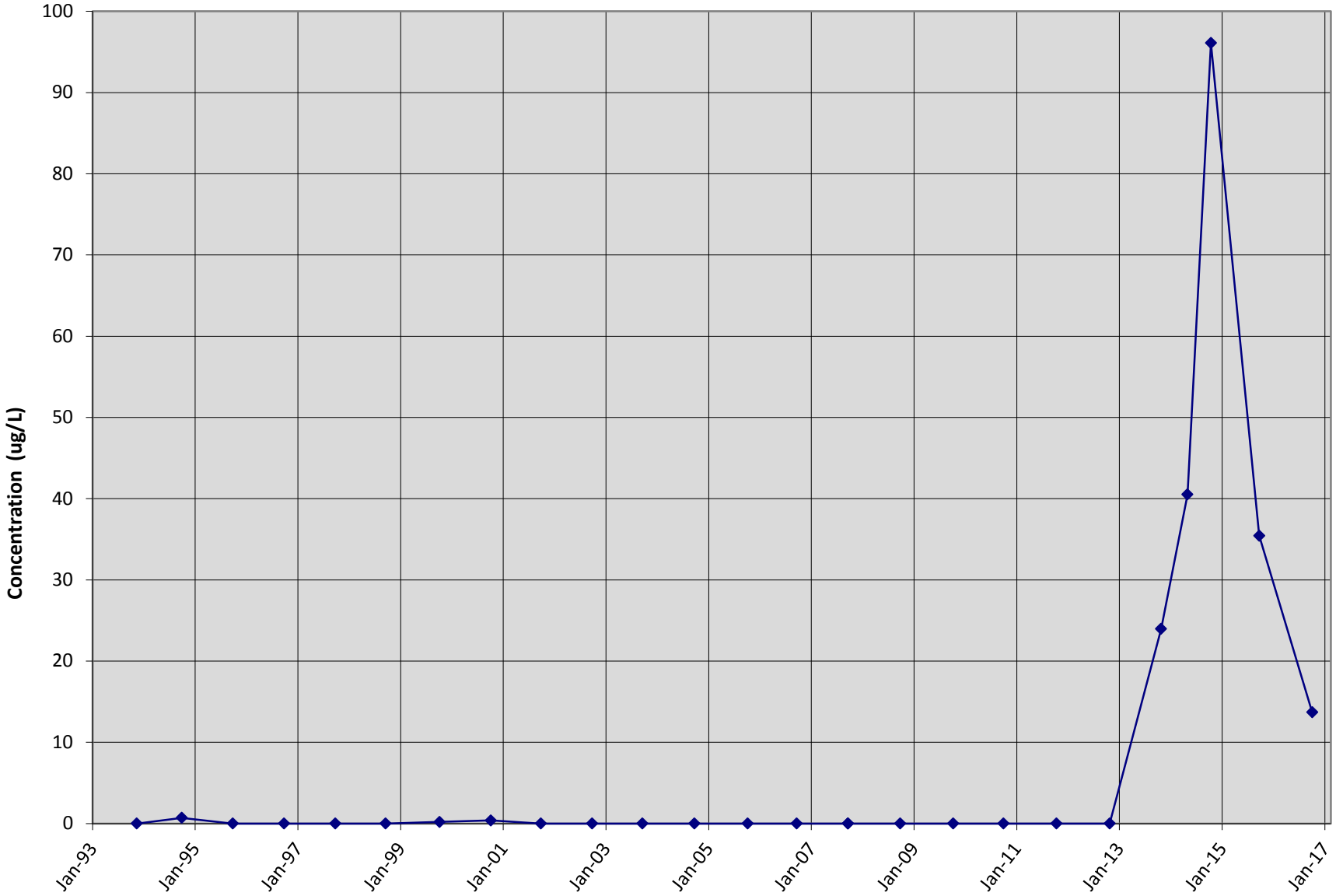
W52 TCVOC


Concentration (ug/L)
50
45
40
35
30
25
20
15
10
5
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

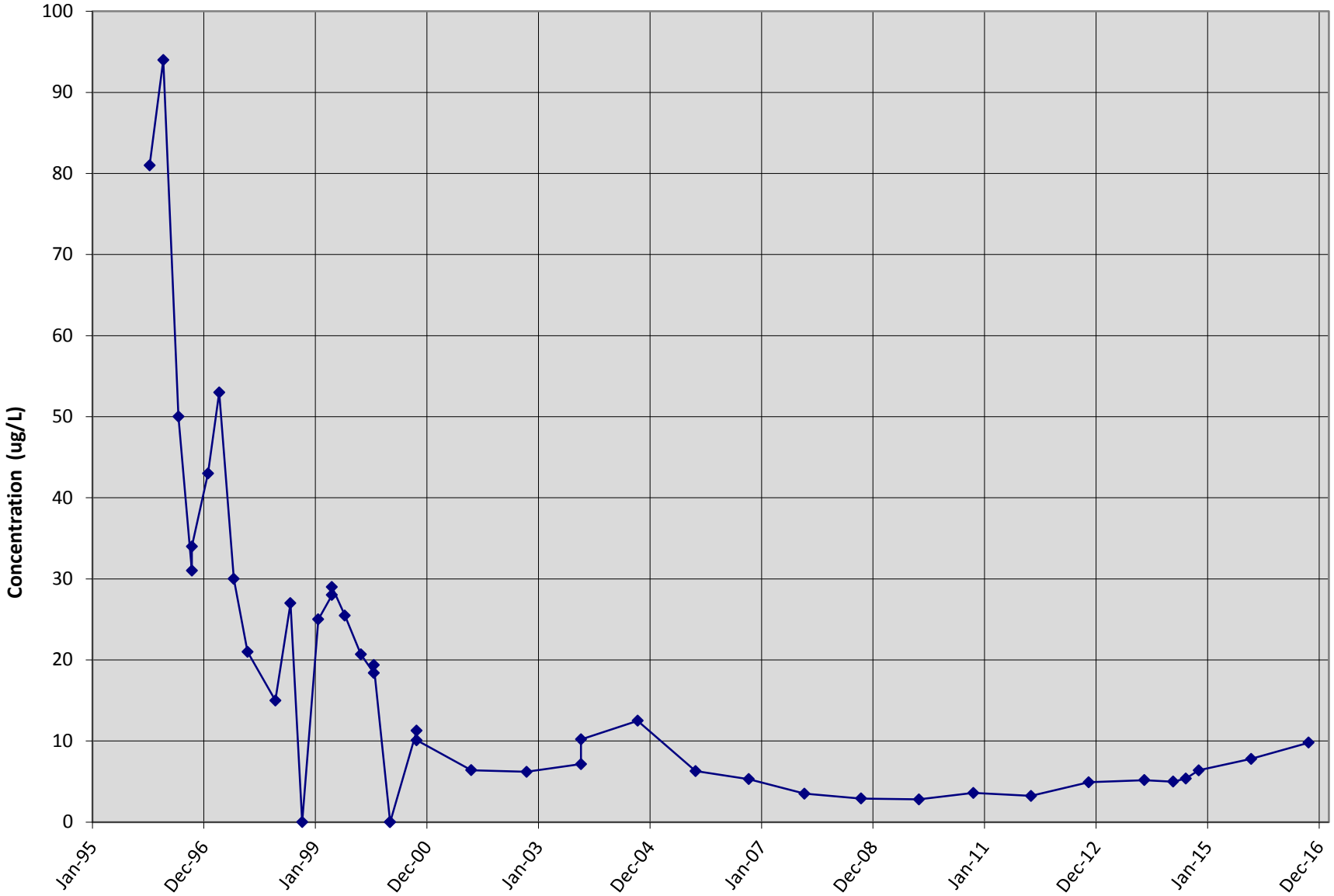
W53A TCVOC


Concentration (ug/L)
100
90
80
70
60
50
40
30
20
10
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

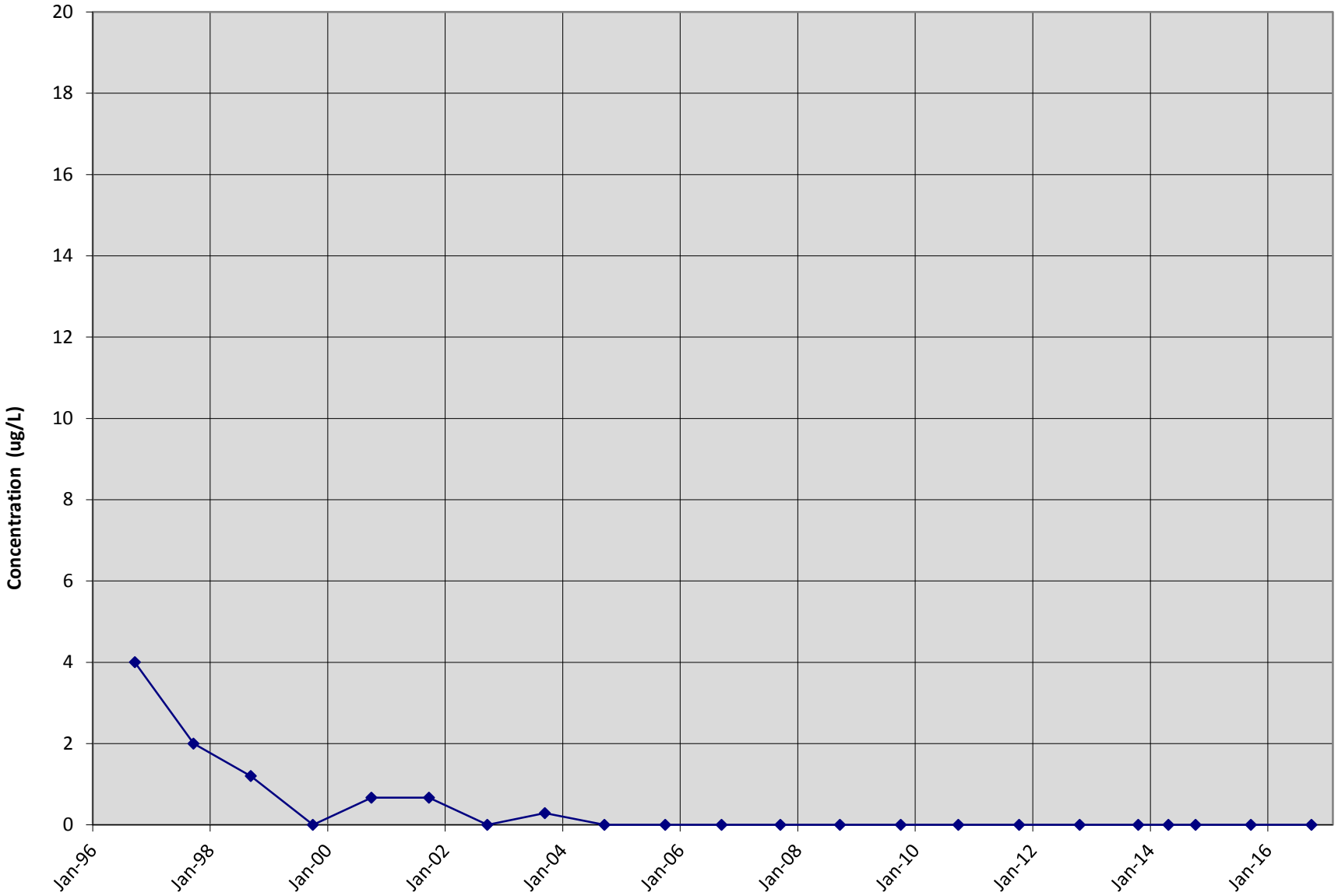
W54 TCVOC


Concentration (ug/L)
100
90
80
70
60
50
40
30
20
10
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

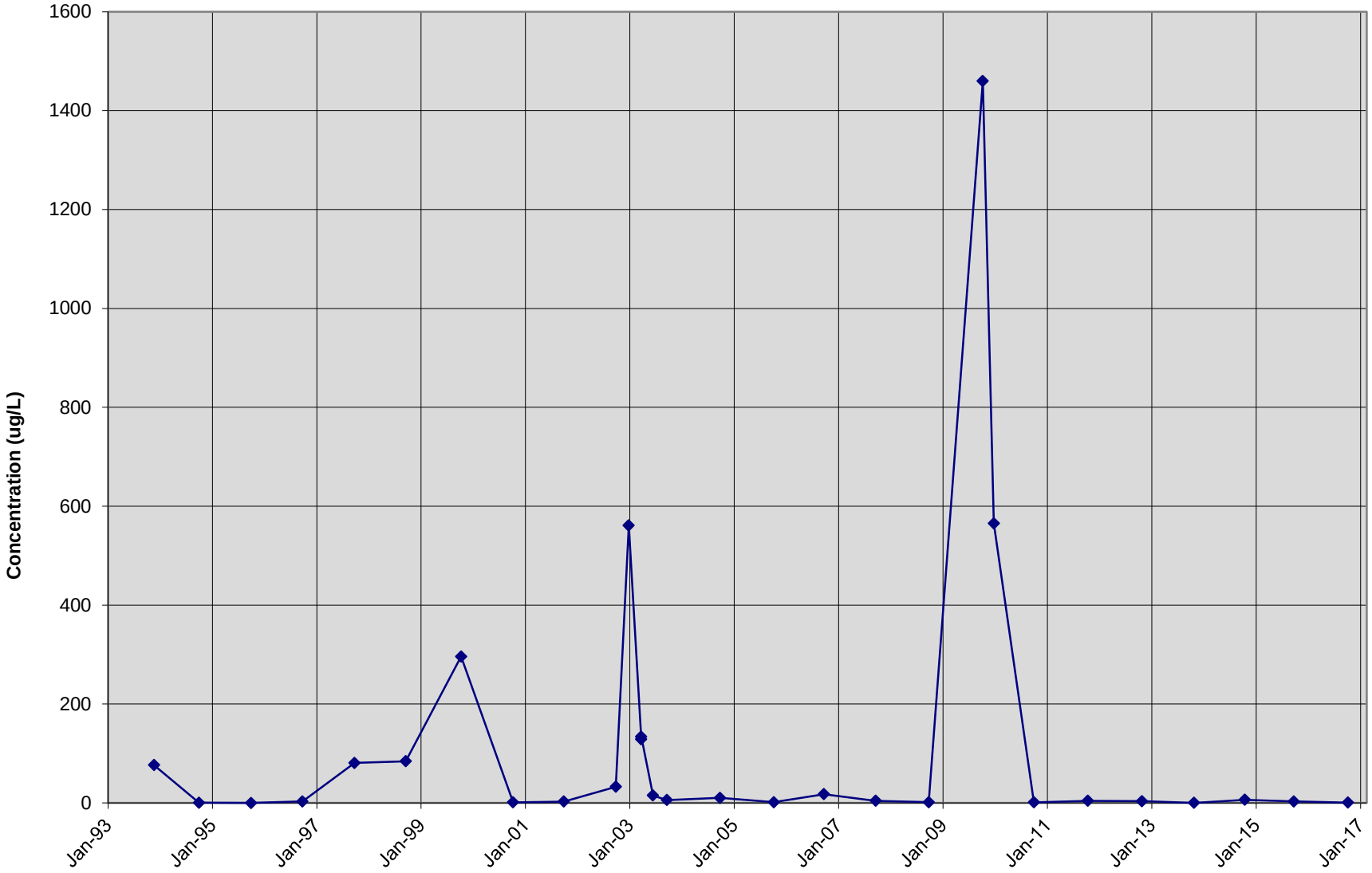
W55 TCVOC


Concentration (ug/L)
100
90
80
70
60
50
40
30
20
10
0
Jan-95
Dec-96
Jan-99
Dec-00
Jan-03
Dec-04
Jan-07
Dec-08
Jan-11
Dec-12
Jan-15
Dec-16

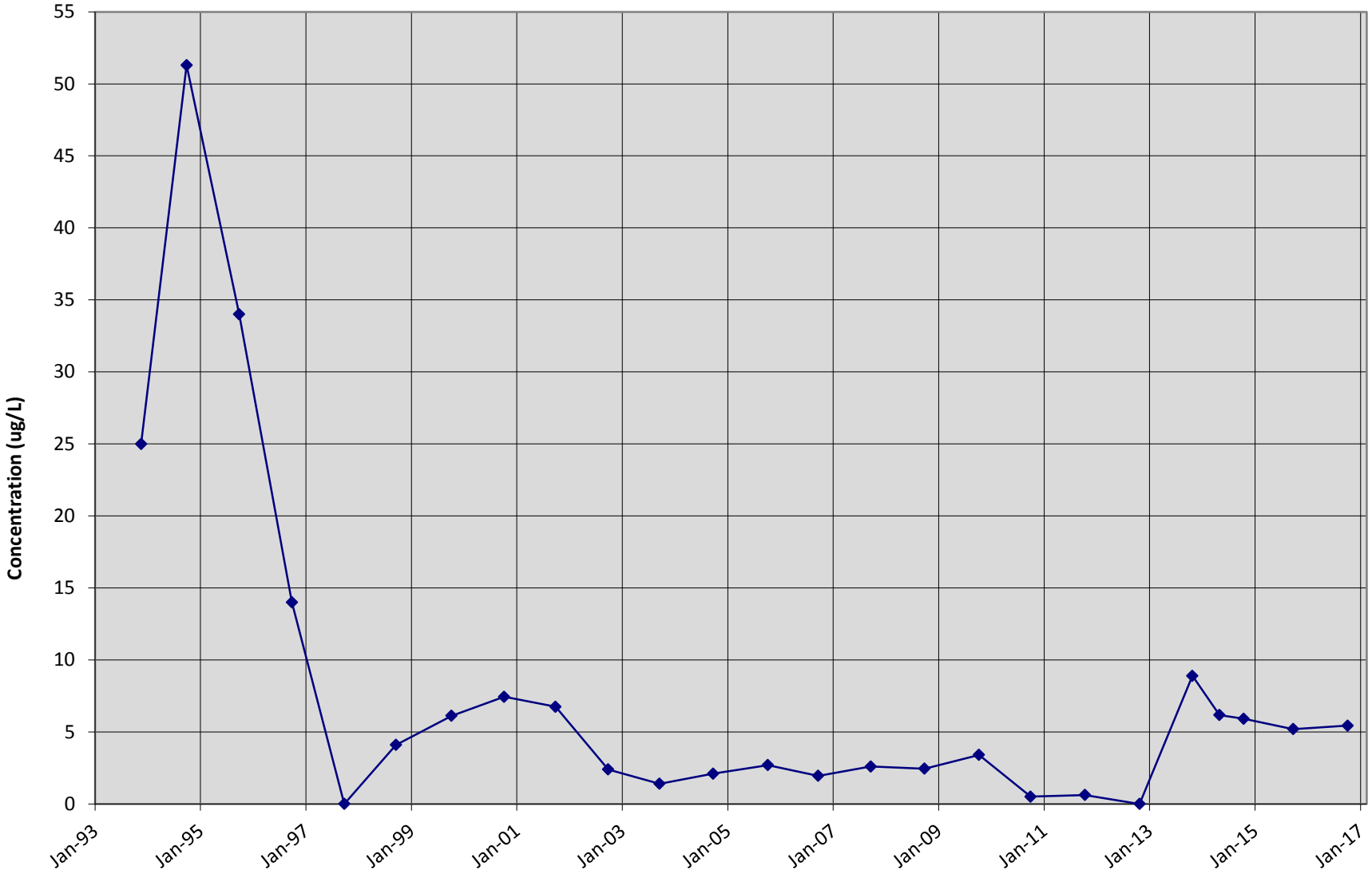
W56 TCVOC

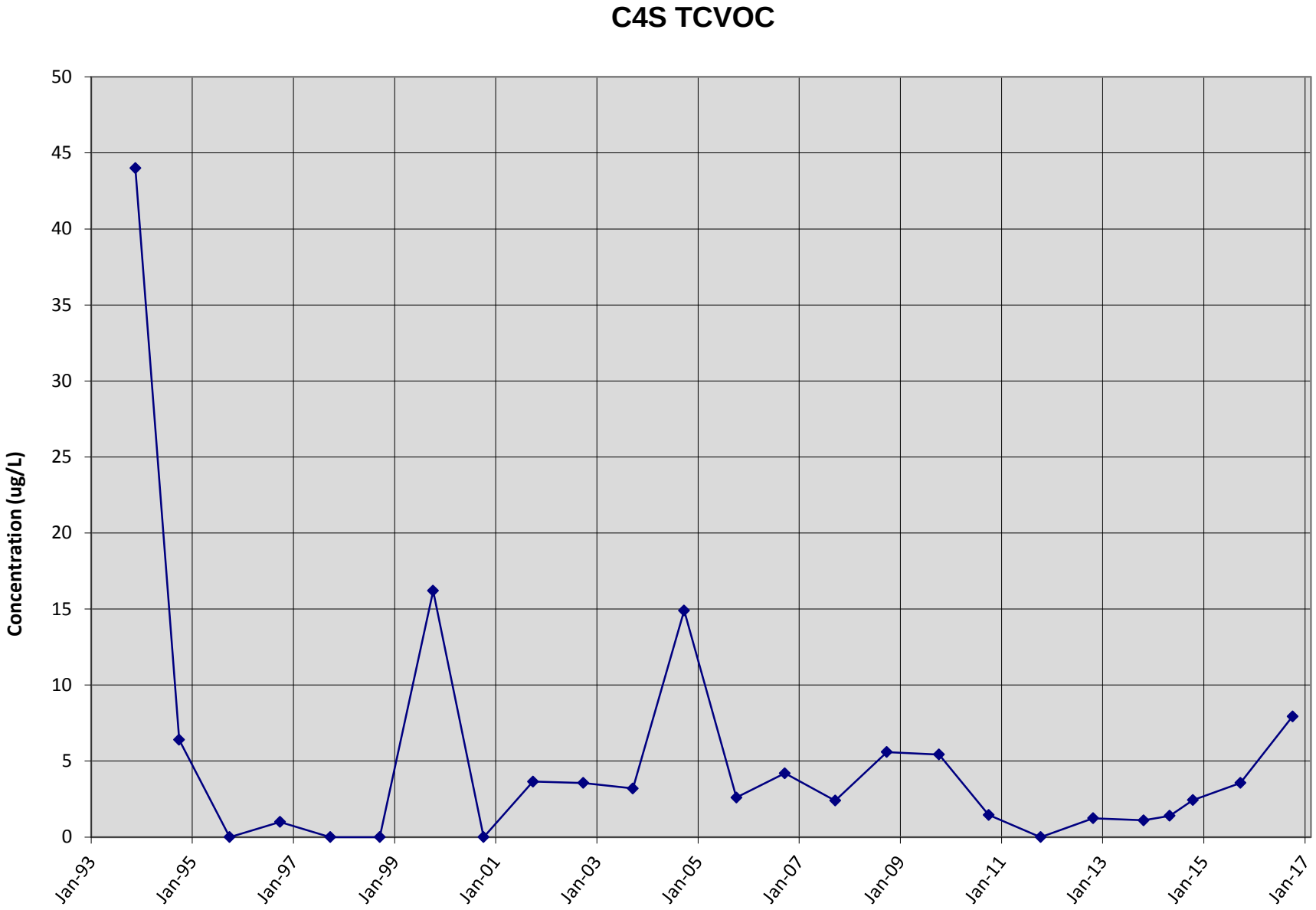

Concentration (ug/L)
20
18
16
14
12
10
8
6
4
2
0
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16

WC3B TVOC

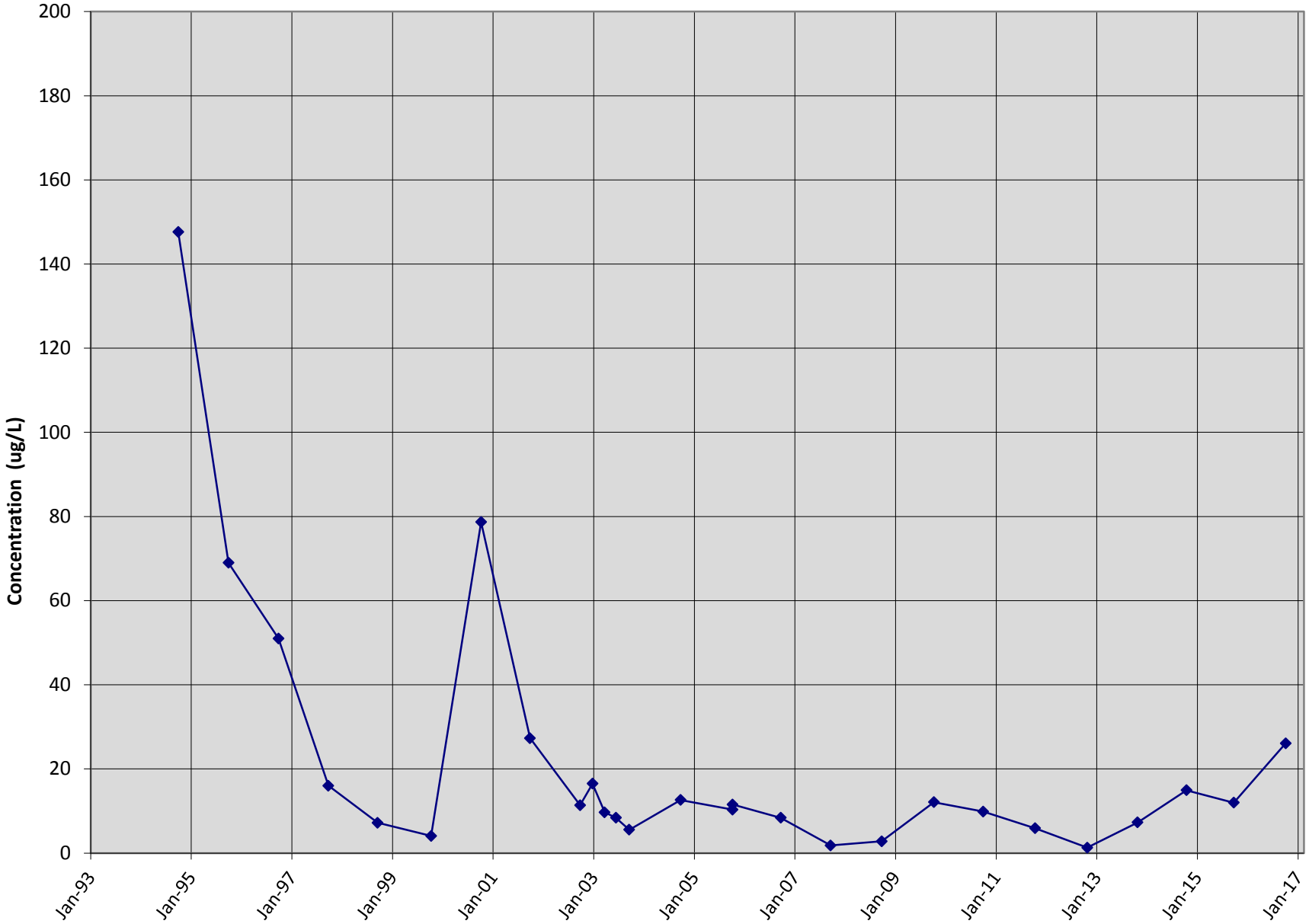

Concentration (ug/L)
1600
1400
1200
1000
800
600
400
200
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

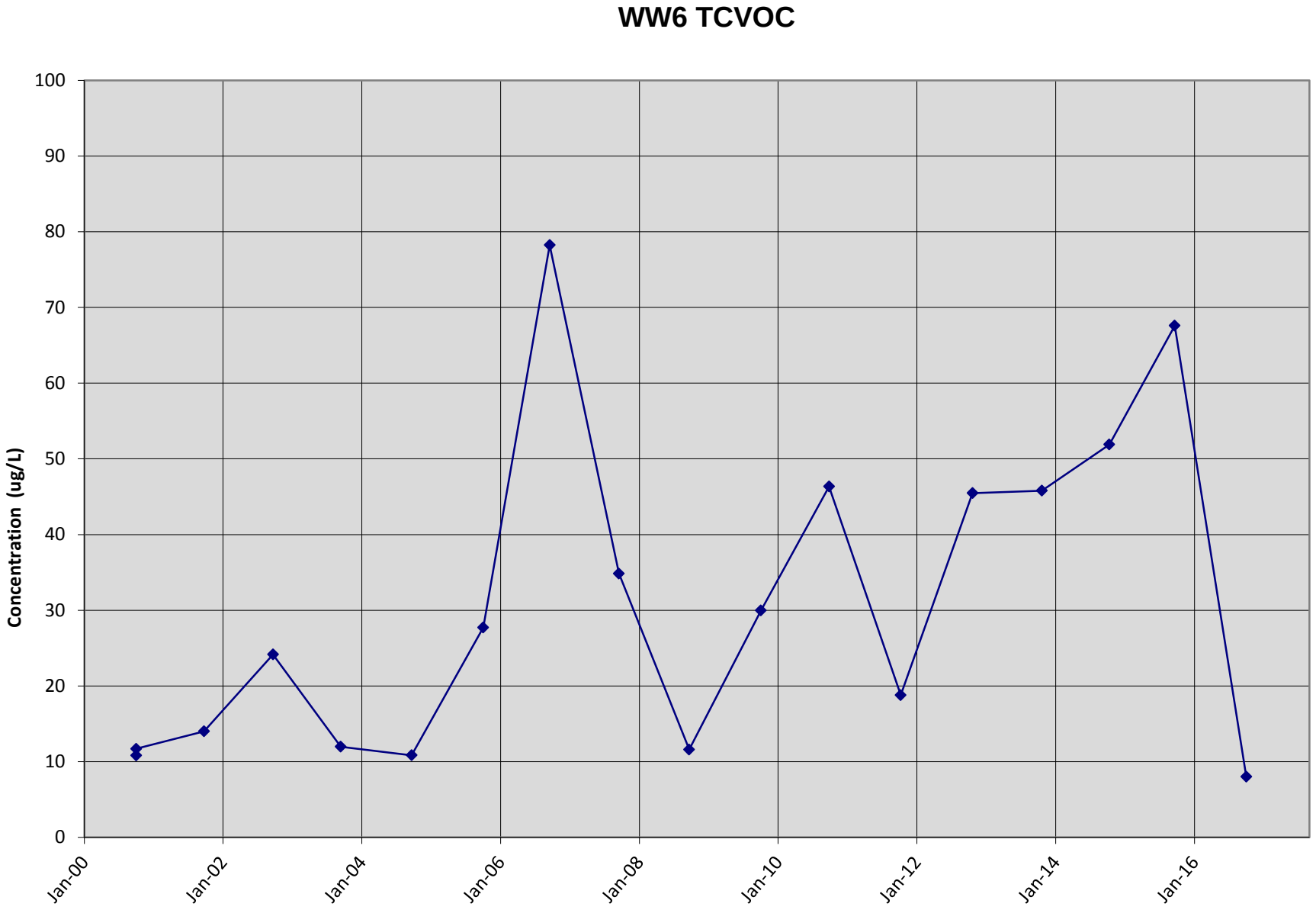
C2S TCVOC


Concentration (ug/L)
55
50
45
40
35
30
25
20
15
10
5
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

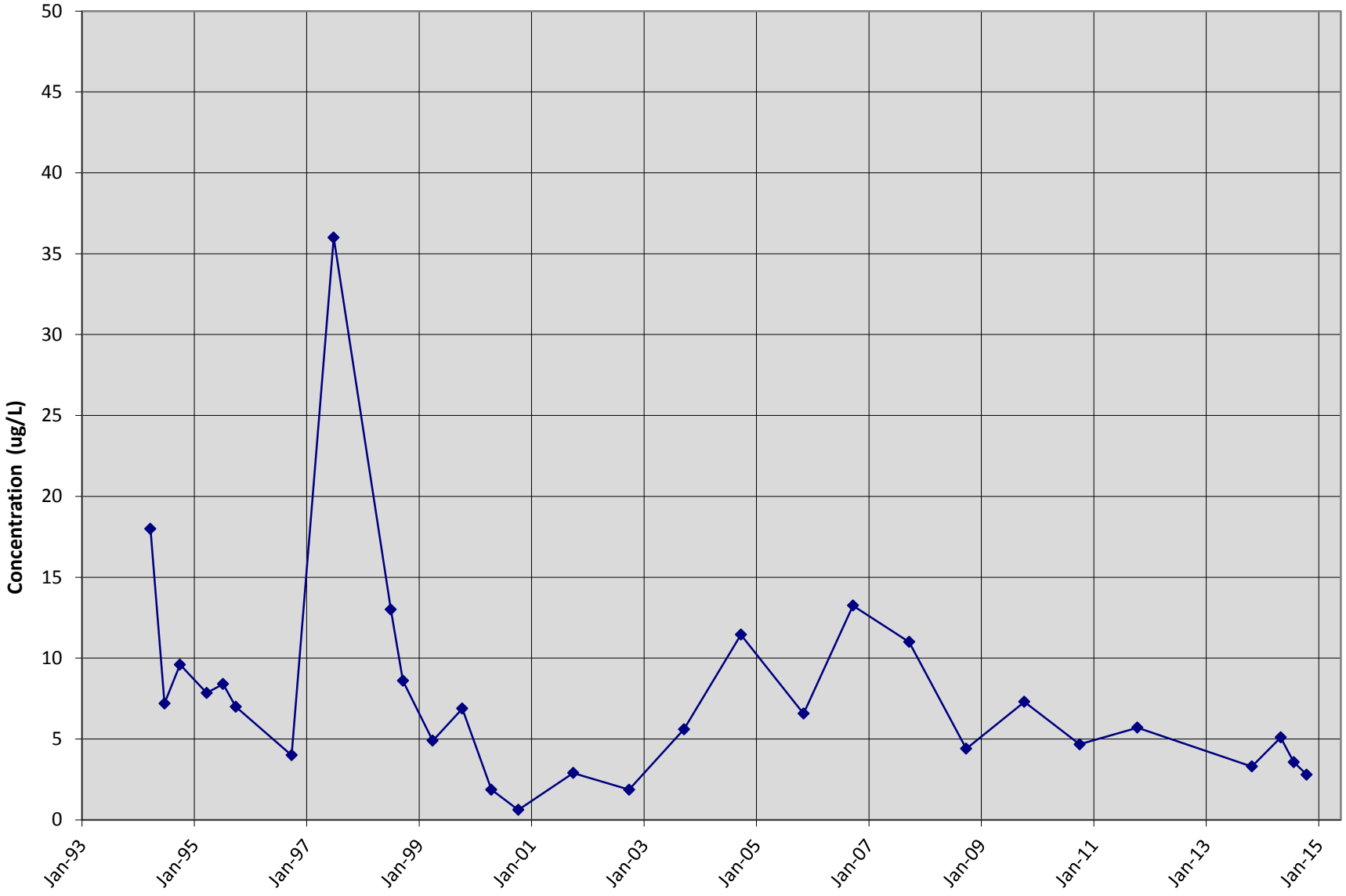

C4S TCVOC
Concentration (ug/L)
50
45
40
35
30
25
20
15
10
5
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

WC5A TCVOC

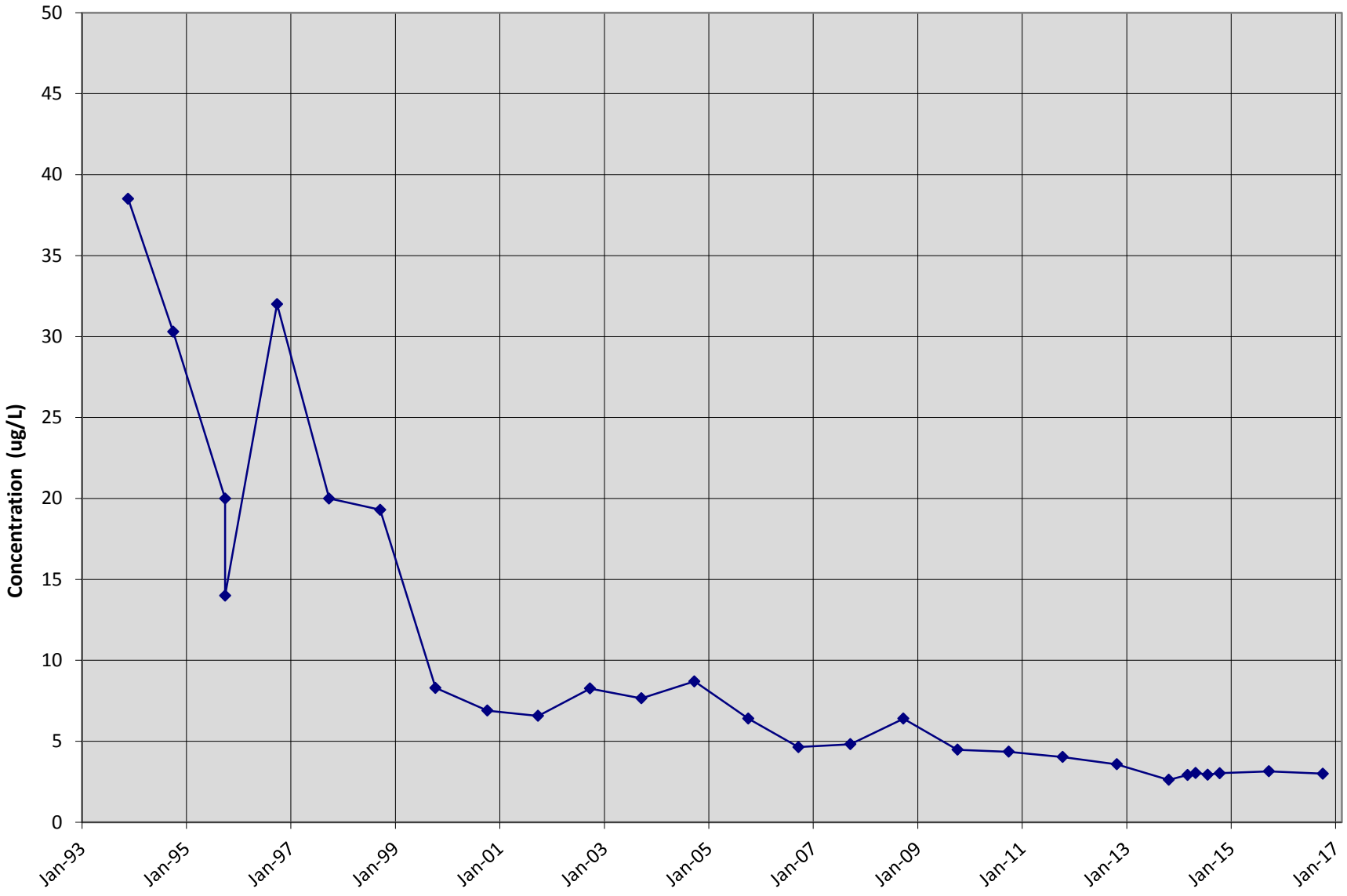

Concentration (ug/L)
200
180
160
140
120
100
80
60
40
20
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17


WW6 TCVOC
Concentration (ug/L)
100
90
80
70
60
50
40
30
20
10
0
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16

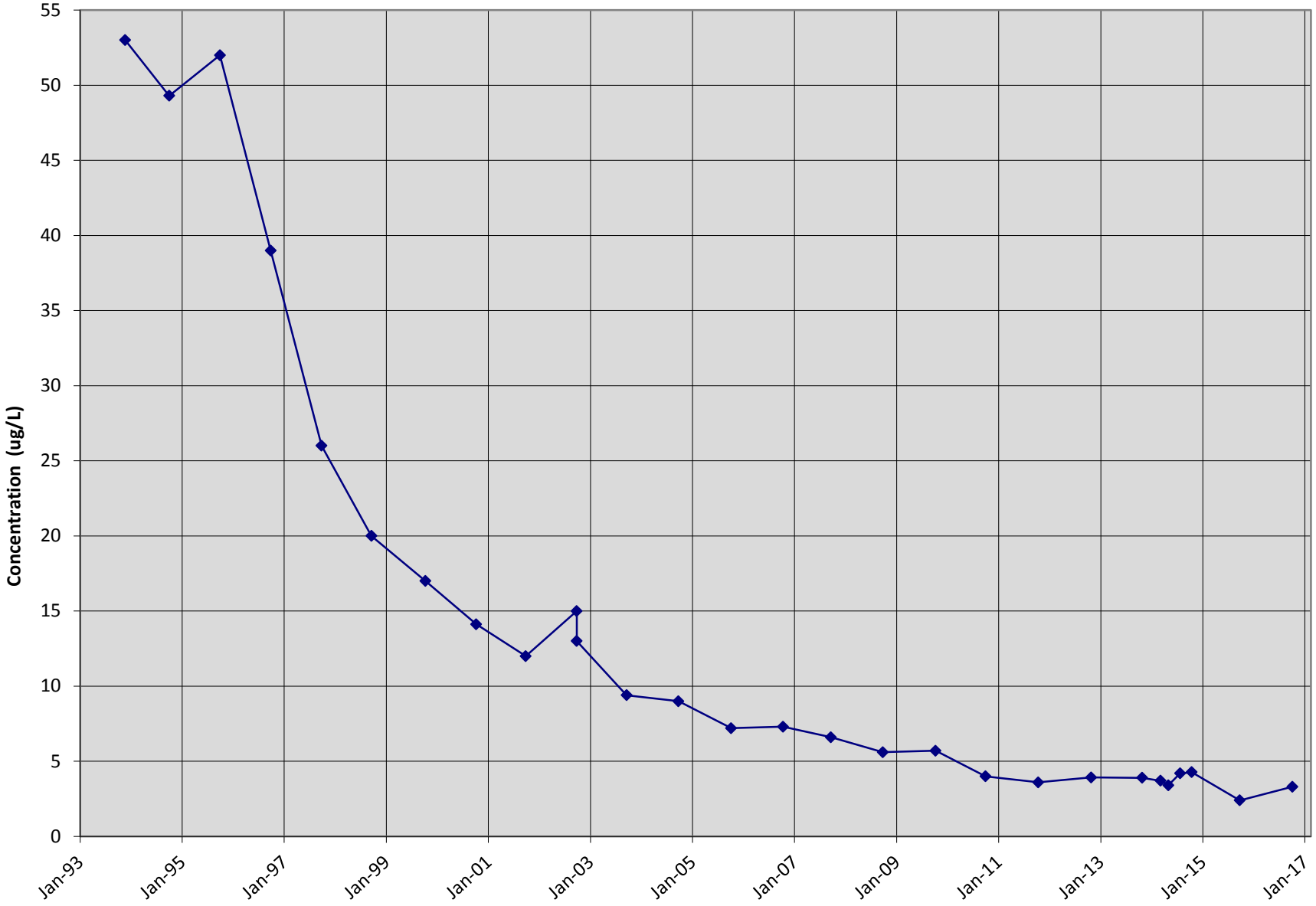
IWD TCVOC


Concentration (ug/L)
50
45
40
35
30
25
20
15
10
5
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15

CW3 TCVOC


Concentration (ug/L)
50
45
40
35
30
25
20
15
10
5
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

CW6 TCVOC


Concentration (ug/L)
55
50
45
40
35
30
25
20
15
10
5
0
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17

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