



2023 Annual Monitoring Report

**Wausau Ground Water Contamination Site
Wausau, Wisconsin**

U.S. EPA ID: WID 980993521

Wausau Group of Responsible Parties

March 18, 2024

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1. Introduction

GHD Services Inc. (GHD) has prepared this 2023 Annual Monitoring Report for the Wausau Water Supply National Priorities List (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 August and September 2023.

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 along with 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. A Site plan is presented on Figure 2.

Source area remediation was accomplished by the installation of SVE systems at Marathon Electric¹ (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 through January 2001. The East Bank source remediation was approved as complete in 2007 and SVE system operation ceased.

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 treats water from the municipal supply wells. Water from EW1 was treated by air stripping (over riprap on the riverbank) before discharging to the Wisconsin River.

The pumping rates for the three extraction wells were originally defined in the CD. The Groundwater Flow Model Report (CRA, May 1993), 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 to pump EW1. The EW1 Shutdown Pilot Study Work Plan proposal was submitted to the EPA on September 3, 2013. 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 has not yet provided a final approval of the EW1 shutdown, the potential effects of the shutdown have continued to be evaluated through the annual groundwater monitoring conducted each fall from 2015 through 2023. EPA and WDNR approved the permanent shutdown and abandonment of EW1.

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.

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

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 sampling of monitoring wells and quarterly sampling of EW1 (when operating). During a monthly project call on April 8, 2021 the WDNR and EPA approved permanently changing the annual sampling event from the fourth quarter to the month of August.

The Groundwater Monitoring Plan requires an annual report on the activities occurring the previous calendar year. This report fulfills the requirement for 2023.

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 contain 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 30 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 2023, 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 2). During the 2023 sampling event, extraction well CW3 was down for repairs and was unable to be measured or sampled.

1.3 Site Geology

The Site is underlain by glacial outwash and alluvial sediments that have filled in the pre-glacial stream valley into 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. 2023 Annual Monitoring

The 2023 annual groundwater monitoring event was conducted on August 29 and 30 and September 1, 2023. Monitoring was conducted in accordance with the Groundwater Monitoring Plan (GMP) with the revisions to the analyte list and monitored locations as approved by EPA since the initial GMP was first approved in 2000. Table 2.1 presents the VOC analyte list and monitored locations for the 2023 sampling event. These locations were proposed in the 2019 Annual Monitoring Report (GHD, 2020). At the request of the EPA, monitoring well C3S was sampled in addition to the approved monitoring well list.

2.1 Water Level Monitoring

Table 2.2 presents the groundwater elevation data measured on August 29 and 30, 2023. Water table contours based on these measurements are depicted on Figure 3. Field staff obtained water level measurements on the East Bank on August 29, 2023, during the time well CW3 was not operating. The West Bank water level measurements were obtained on September 1, 2023, while well CW6 on the West Bank was operating. As explained in Section 1.1, well CW3 was not operating during the 2023 monitoring event. Water level measurements from the City production wells were obtained with the assistance of City personnel.

Typically, the East Bank groundwater flow patterns are controlled by the operation of CW3, however, since CW3 was not operational during the groundwater measurements, East Bank groundwater contours did not indicate the typical large cone of influence surrounding CW3 that fully captures the East Bank contaminant plume that we have seen historically. It can be assumed that, based on historical data, the cone of influence is still present when CW3 is operational, however this isn't depicted in the 2023 contours. Under natural conditions, groundwater on the East Bank flows in a south-southwest direction toward the Wisconsin River, as observed during 2023 sampling event when CW3 was not operating due to rehabilitation activities being conducted at the time of hydraulic monitoring. This effect on groundwater flow can be seen in Figure 3, as mentioned above.

West Bank contours depict a large cone of influence created by CW6 and CW10. 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.

2.2 Groundwater Sampling

During the annual groundwater sampling event, samples were collected from nine wells from the East Bank and fourteen wells from the West Bank monitoring networks, respectively. Groundwater samples were analyzed for the Site-specific VOC list (see Table 2.1) by EPA Method 8260B. 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. Eurofins Laboratories, Inc., of Chicago, Illinois, 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 2023 data are presented in Appendix A.

2.3 Extraction Well Sampling

EW-1 did not operate during 2023; thus, influent and post treatment effluent samples were not collected. However, a sample was collected from EW1 during the annual monitoring event, as discussed below.

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 August 2023 monitoring event. An inspection form was used to document the following well conditions:

- Well ID present
- Well location free of overgrowth
- Protective cover and casing condition
- Well cap condition
- Lock condition
- Concrete seal condition
- Locking cover condition
- Ground condition (subsidence)
- Flush mount surface condition
- Flush mount bolt condition

Table 3.1 presents the results of the inspection including locations where repairs are required. No critical damage was noted during the inspection. Location repairs will be addressed in 2024.

3.2 City Production Wells

Table 3.2 presents 2023 pumping data for the six City wells. While only wells 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 2023, CW3 operated for an average of 62.7 hours per week with an average pumping rate of 1,448 gpm, operating at approximately 92.4% of the total required gallons based on the 1995 EPA pumping requirements. As CW3 was offline for part of the month of August, these numbers are slightly lower than usual.

CW6 pumped an average of 100.0 hours per week with an average pumping rate of 1,068 gpm. Although well rehabilitation is conducted on a regular basis, CW6 is no longer capable of pumping at the prescribed rate of 1,400 gpm. The total volume of groundwater (332,954,400) pumped by CW6 during 2023 was 89.7% of the EPA recommended volume of 371,280,000 gallons/year.

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 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 by the City of Wausau with new asphalt, including the street adjacent to the west side of the property, North River Drive.

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 2023 found the pavement to be in fair condition. A copy of the pavement inspection log is provided in Appendix B.

4. Evaluation of Groundwater Monitoring Data

The objectives of the annual groundwater monitoring program are to monitor the long-term improvement of groundwater quality and containment of the contaminant plume. Table 4.1 presents the laboratory results for monitoring well samples collected in August and September 2023. VOC concentration maps for the principal Site contaminants (TCE, c12DCE, PCE and vinyl chloride) are presented on Figures 4, 5, 6, and 7. In 2021, select monitoring wells on both banks were sampled for 1,4-dioxane (1,4D). 1,4D was not detected at any of the wells sampled in 2021, and no further 14D sampling is anticipated. 1,4D Sampling results from 2021 are presented on Figure 8.

4.1 West Bank

The primary chlorinated VOC found in the West Bank groundwater is TCE, which was detected at 11 of the 13 West Bank monitoring wells, plus City well CW6. Monitoring wells with TCE concentrations greater than the MCL of 5 µg/L included R2D, W53A, W54, W55, and WSWD. The TCE concentration at CW6 is relatively stable at 2.7 µg/L in 2023, 3.0 µg/L in 2022, and 2.7 µg/L in 2021, all below the MCL.

The monitoring wells that exceeded the TCE MCL in the West Bank can be separated into two groups: south of EW1, located on or adjacent to the former landfill on Marathon Electric property, and north of EW1, downgradient of the former landfill in the direction of groundwater flow towards CW6 (see Figure 4). Well EW1 itself had no VOC detections during the 2023 sampling event.

VOC contaminants are more prevalent south of EW1, in the shallower portion of the aquifer near the source area. Monitoring wells south of EW1 exceeding the MCL for TCE included W53A, W54, and WSWD with concentrations of 43 µg/L, W54 140 µg/L, and 32 µg/L, respectively. TCE concentrations at W53A and W54 have exhibited substantial fluctuations since the shutdown of EW1 in 2012 (see the trend graphs in Appendix C). These fluctuations are typical of source area wells where increased precipitation and water level changes could have a localized effect on VOC concentrations in the groundwater. WSWD has been relatively stable, averaging around 30 µg/L over the prior three annual events.

North of EW1, the West Bank plume is in the deeper portion of the aquifer. Monitoring wells north of EW1 that exceeded the MCL for TCE during the 2023 sampling event included R2D and W55; R2D had a concentration of 10.0 µg/L, and W55 had a concentration of 17 µg/L. R2D is a deep aquifer well approximately 150 feet north of Marathon property. Recent decreasing TCE concentrations north of EW1 indicate that the plume remnant that was in a stagnation zone between EW1 and CW6 continues to migrate north to CW6 since EW1 stopped pumping. This is supported by generally increasing TCE concentrations at W55 since 2012 as well as generally decreasing concentrations at R3D and W52 (see these trend graphs in Appendix C). The TCE concentrations at R3D remain several orders of magnitude lower compared to data from 1999 through 2007, when concentrations ranged from 280 µg/L to 1,800 µg/L.

TCE degradation product, c12DCE, was detected at 3 locations in the West Bank, with no concentrations exceeding the cleanup standard of 70 µg/L. Additionally, PCE was detected in well C3S at very low concentrations not exceeding the MCL, and vinyl chloride was not detected in West Bank well samples. Overall, this is a decrease in chlorinated VOC detections compared to historical data.

The overall extent of the West Bank contaminant plume has not changed significantly since EW1 was shut down. TCE and c12DCE were the only VOCs detected down gradient from the source area on the West Bank. Figures 4 and 5 depict the TCE and c12DCE concentrations, respectively. The contour lines on the figures show the approximate areas of concentrations exceeding the MCL. Charts showing historical 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 initial contaminant of concern on the East Bank, the presence of TCE, c12DCE, and vinyl chloride at concentrations equal to or greater than PCE in some wells indicates an active natural biodegradation process is occurring. For example, the TCE concentration at monitoring well WW6 was higher than the PCE concentration.

PCE and/or its daughter products were detected at 4 of the 9 East Bank monitoring wells. Four monitoring wells had concentrations that exceeded the MCL of at least one VOC. East Bank contaminant concentrations continue to fluctuate, with generally increased concentrations in wells at or near the source, lower concentrations in mid plume wells, and increased concentrations farther downgradient at WW6 in c12DCE. A chart showing historical chlorinated VOC concentrations from CW3 located on the East Bank is presented in Appendix C, note that there is no change shown for 2023 as analytical was not collected due to well repairs. Individual VOC concentrations for the shallow wells are presented for PCE, TCE, c12DCE, and vinyl chloride on Figures 4 through 7, respectively.

4.3 Hydraulic Capture

Hydraulic capture of the Site contaminant plumes is demonstrated by the water table contours illustrated on Figure 3. 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.

5. Site Groundwater Monitoring Plan

The current Site groundwater monitoring plan includes an annual monitoring event that is conducted in September or October. In the 2016 Annual Monitoring Report (AMR), we proposed a reduced groundwater sampling list for the East Bank. Therefore, beginning in 2017, a reduced number of wells were sampled and gauged for hydraulic monitoring. In 2021, 10 East Bank monitoring wells were sampled, and water levels were measured at 14 East Bank wells as well as CW3. On the West Bank, 13 wells were sampled, and water levels were measured at 23 monitoring wells and the City supply wells. All groundwater samples were analyzed for the Site-specific VOC list by EPA Method 8260B. Table 2.1 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, and pre-treatment and post-treatment water samples were collected and analyzed for Site-specific VOCs.

5.1 Groundwater Monitoring Plan

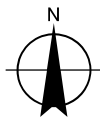
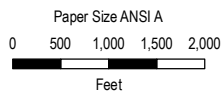
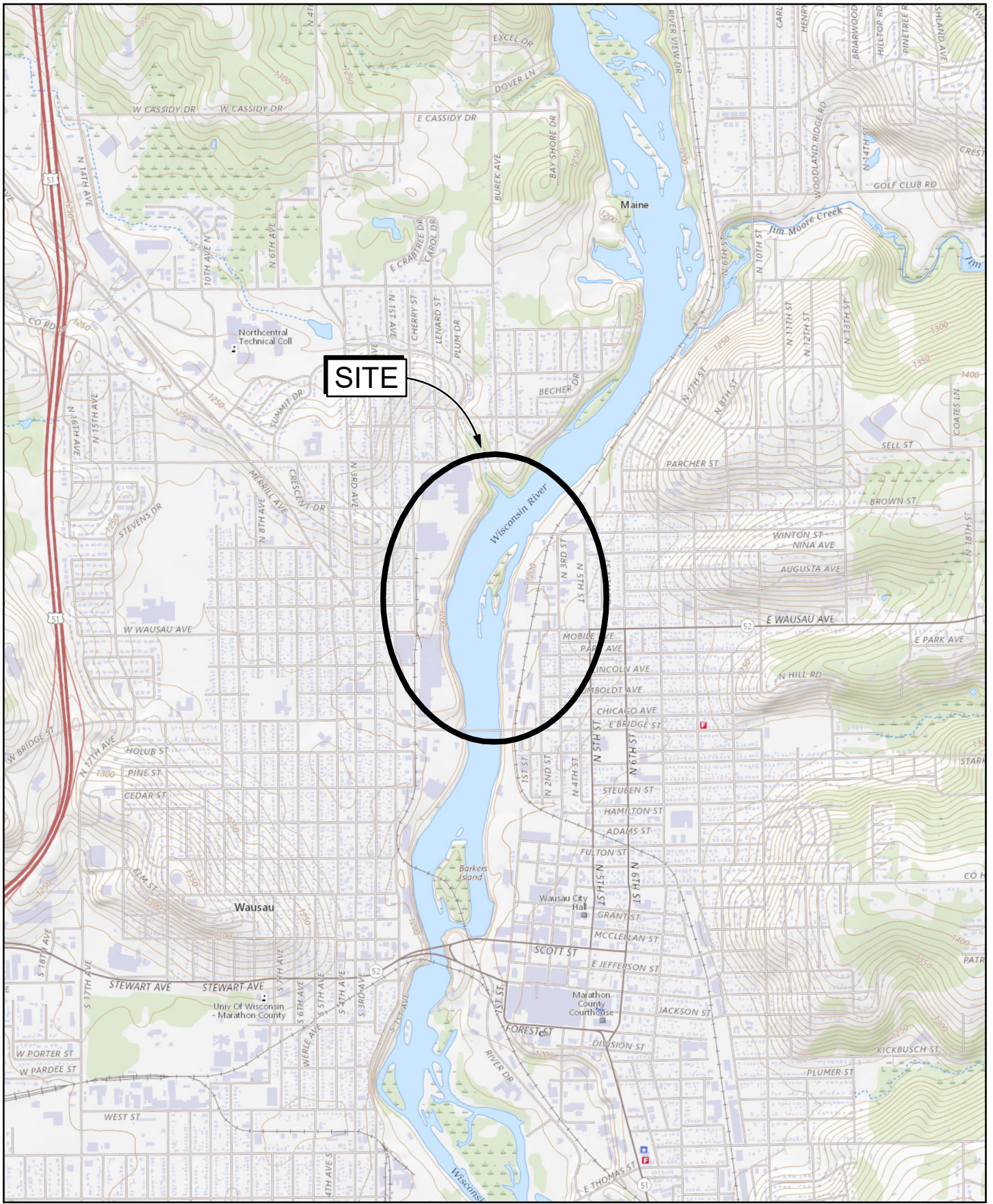
In February 2020, GHD proposed moving the annual groundwater monitoring event from the 4th quarter of the calendar year to August, beginning with the 2021 event. This request was given preliminary verbal approval by USEPA and WDNR in a call with GHD on April 8, 2021. No modifications to the monitoring plan are proposed currently. In 2023, the Group conducted the annual sampling event in August and plans to continue to conduct the sampling event in August of 2024.

6. Recommendations

In 2024 GHD, on behalf of the PRP group, proposes to commence abandonment of monitoring wells that no longer provide data that is viable to the evaluation of the Site. A separate letter will be sent to the WDNR detailing the proposed modifications to the Sampling Plan. The letter will detail the rationale behind the proposed modifications.

In addition, we would like to reopen discussions with the USEPA and WDNR to remove CW3 from the monitoring program, similar to what was conducted at EW1. GHD would like to propose a trial shutdown pilot study under a separate submittal if USEPA and WDNR are in agreement with this recommendation.

Figures



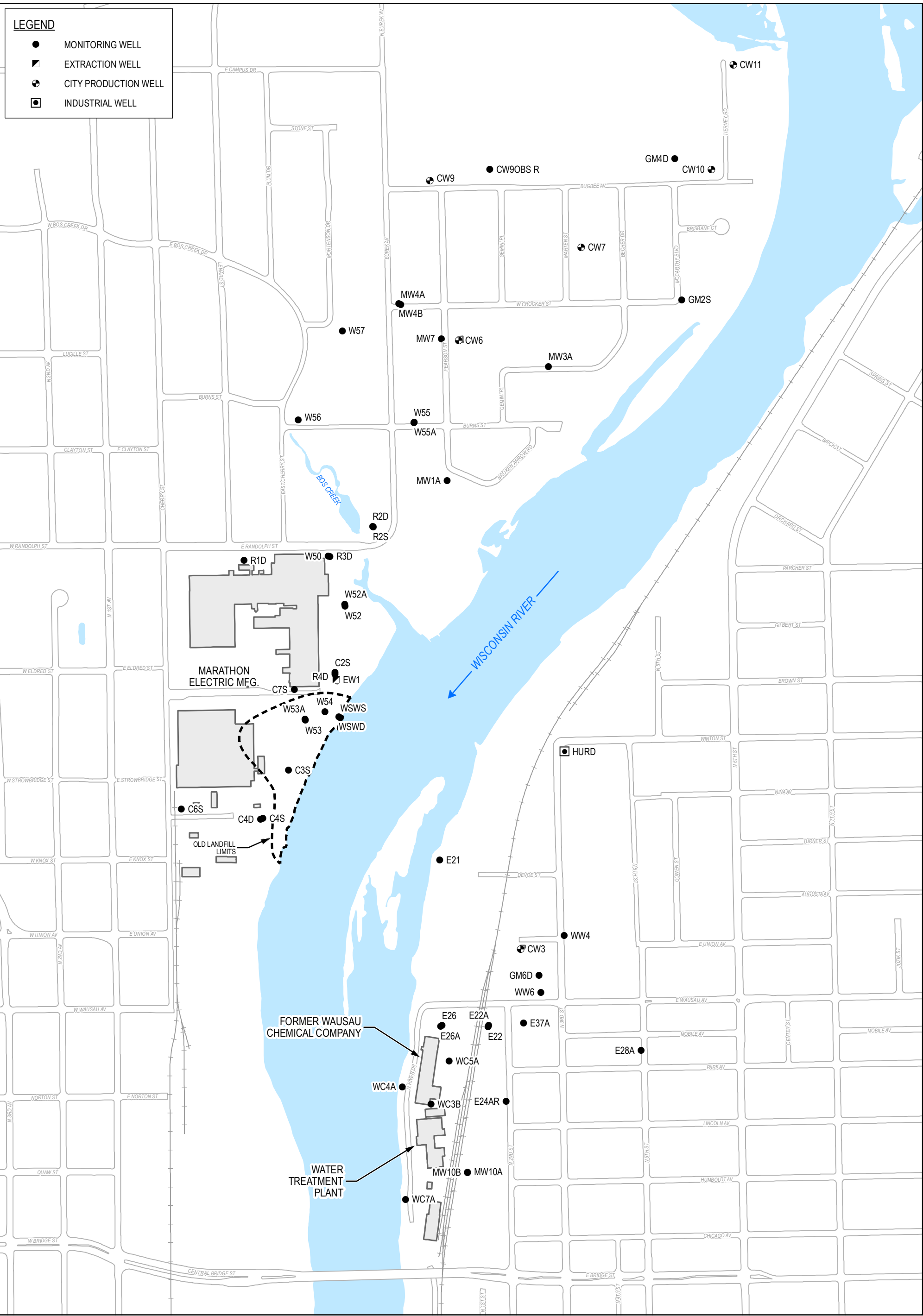
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 Grid: NAD 1983 HARN WISCRS Marathon County Feet

**WAUSAU WATER SUPPLY NPL SITE
 WAUSAU, WISCONSIN**

Project No. 003978-00
 Revision No. -
 Date 01/24/2024

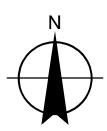
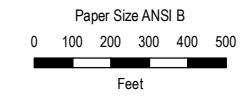
SITE LOCATION

FIGURE 1



LEGEND

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



**WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN**

Project No. 003978-00
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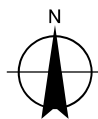
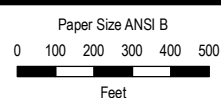
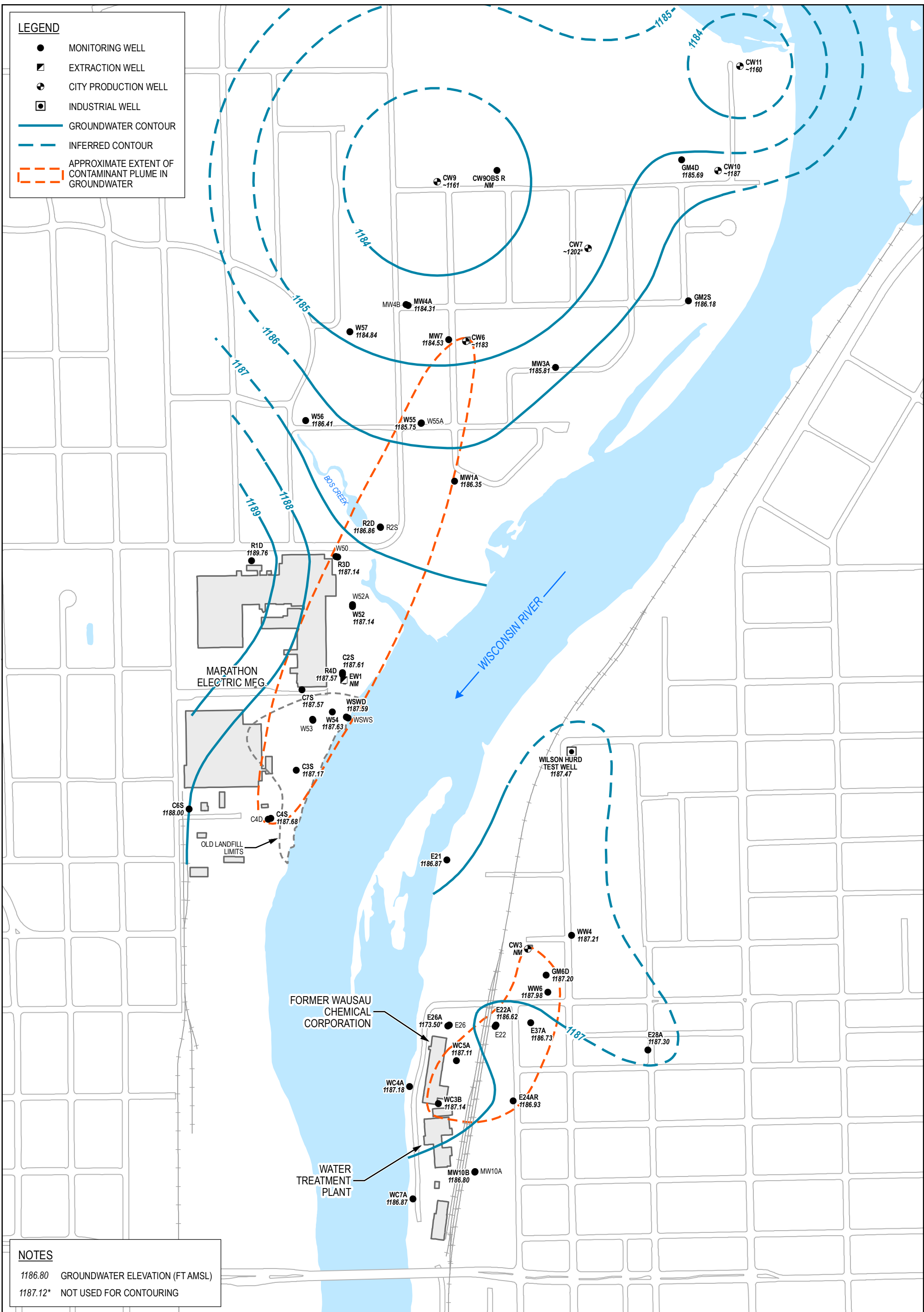
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SITE PLAN

FIGURE 2

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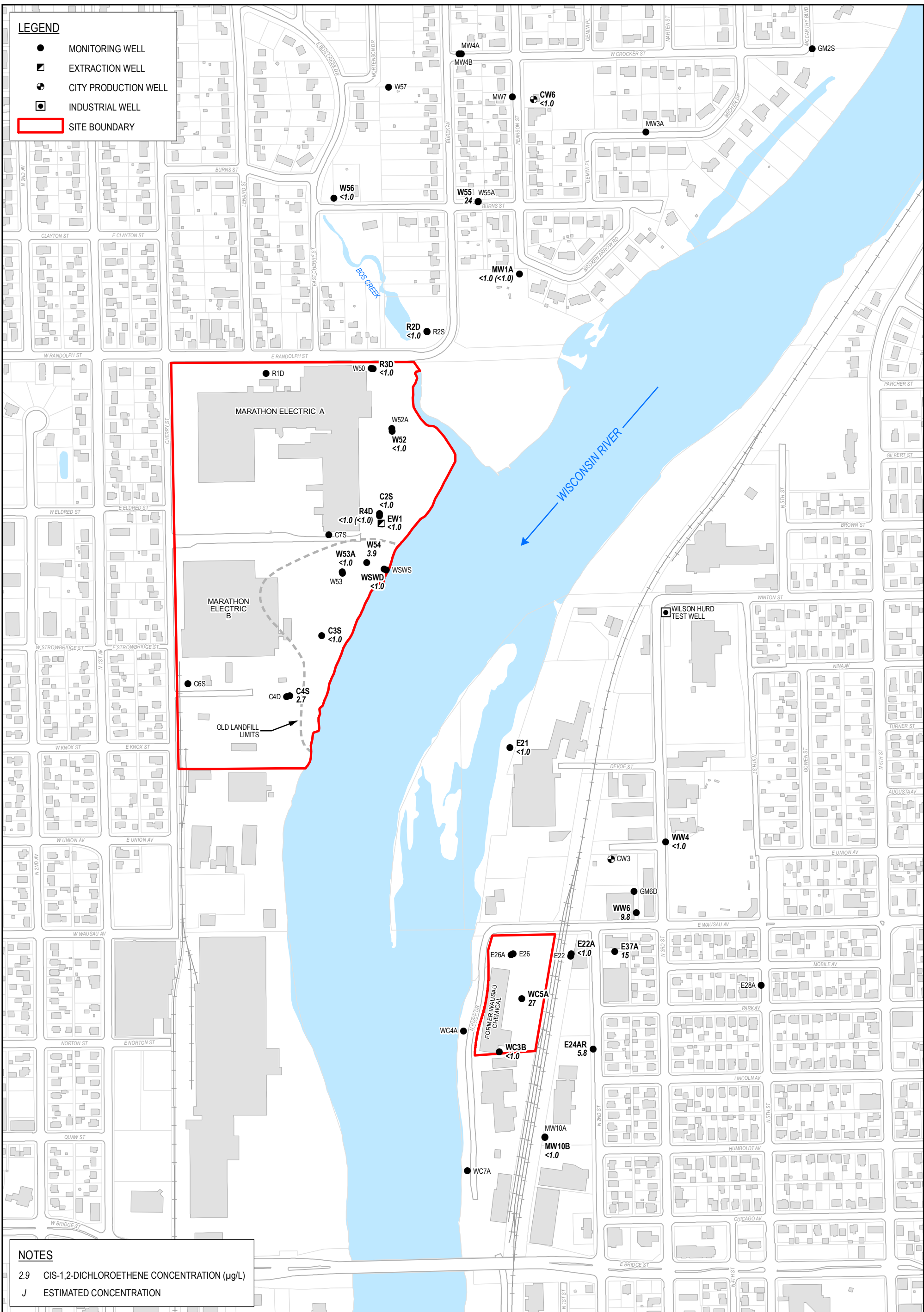
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Grid: NAD 1983 HARN WISCRS Marathon County Feet

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

GROUNDWATER ELEVATIONS
AND CONTOURS
AUGUST 2023

Project No. 003978-00
Revision No. -
Date 01/29/2024

FIGURE 3

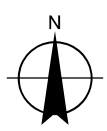
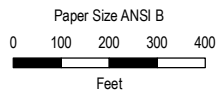


LEGEND

- MONITORING WELL
- ▣ EXTRACTION WELL
- ⊕ CITY PRODUCTION WELL
- ▣ INDUSTRIAL WELL
- ▭ SITE BOUNDARY

NOTES

- 2.9 CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
- J ESTIMATED CONCENTRATION



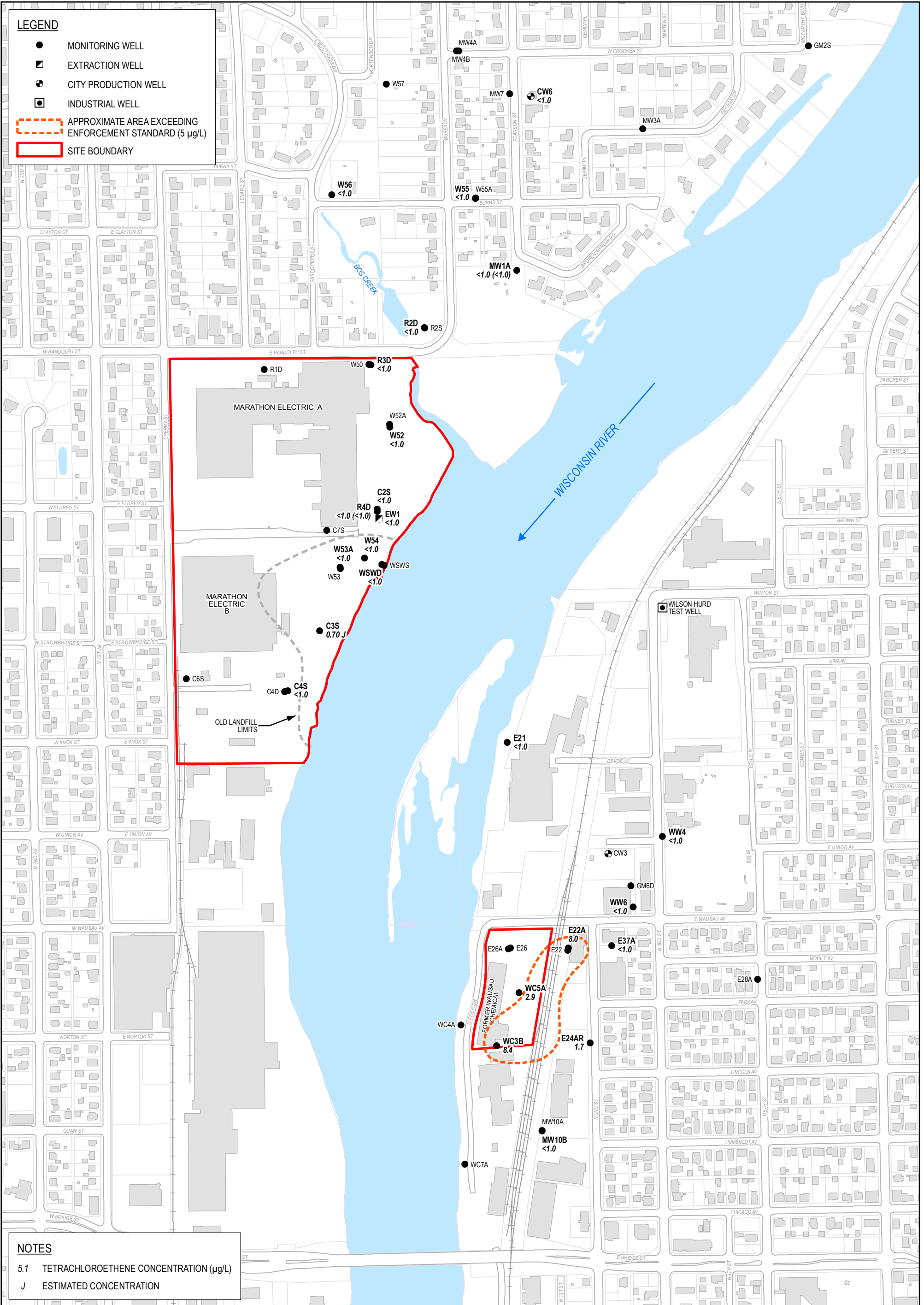
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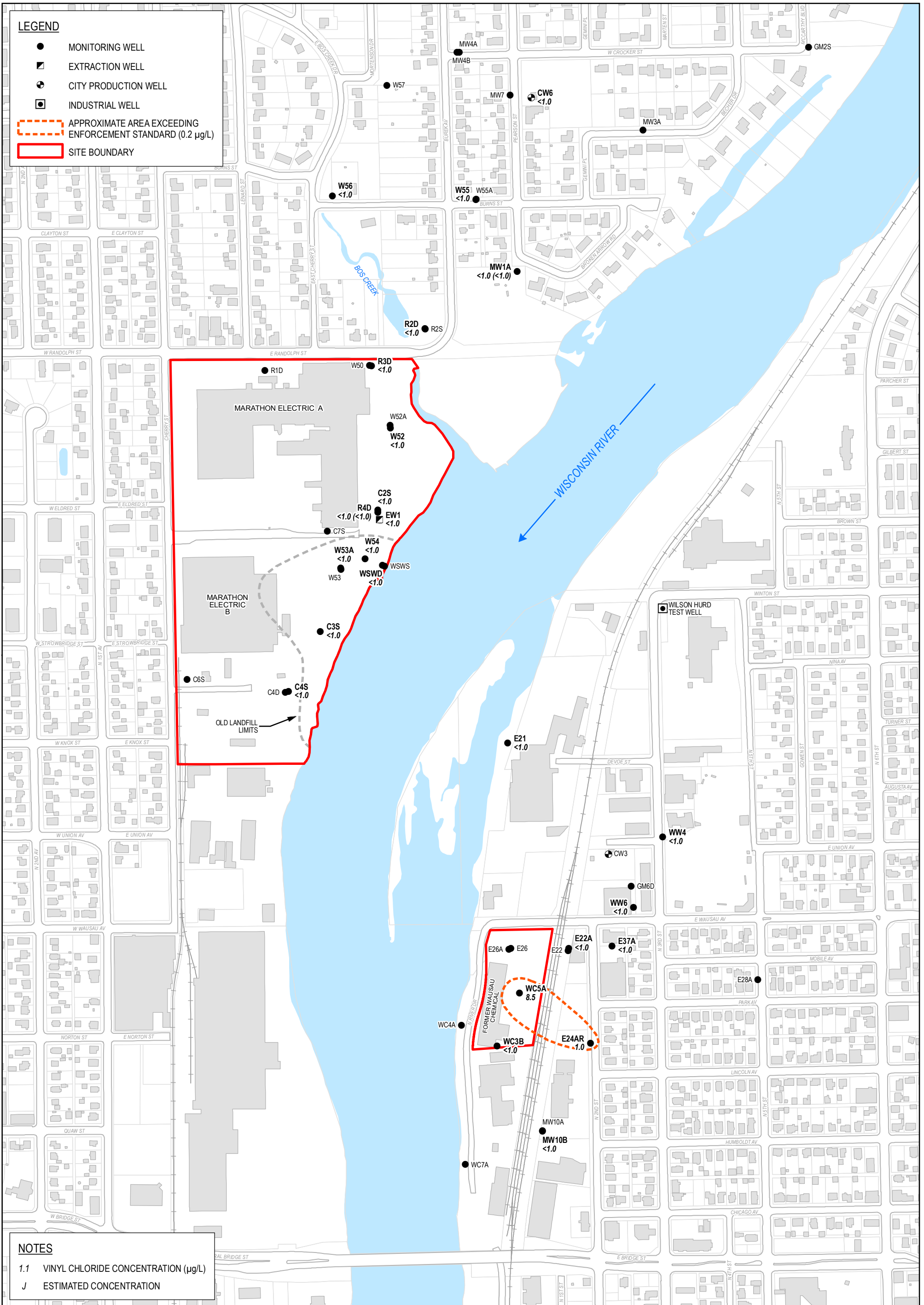
WAUSAU WATER SUPPLY NPL SITE
 WAUSAU, WISCONSIN

CIS-1,2-DICHLOROETHENE
 CONCENTRATIONS
 AUGUST 2023

Project No. 003978-00
 Revision No. -
 Date 01/24/2024

FIGURE 5



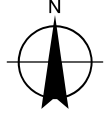
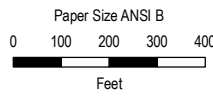


LEGEND

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

NOTES

- 1.1 VINYL CHLORIDE CONCENTRATION (µg/L)
- J ESTIMATED CONCENTRATION



WAUSAU WATER SUPPLY NPL SITE
 WAUSAU, WISCONSIN
**VINYL CHLORIDE
 CONCENTRATIONS
 AUGUST 2023**

Project No. 003978-00
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 Date 01/24/2024

FIGURE 7

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Data source: Marathon County. Created by: rpy

Tables

Table 2.1

**2023 Groundwater Monitoring Plan
Wausau Water Supply NPL Site
Wausau, Wisconsin**

Monitoring Event Annual - Fall	VOC Sample Locations		Laboratory Analysis Volatile Organic Compounds (VOC) Method 8260B	Groundwater Elevations	
	East Bank	West Bank		East Bank	West Bank
	CW3*, E21, E22A**, E37A, E24AR, MW10B, WW4, WW6, WC3B**, WC5A	EW1, CW6, R2D**, R3D, R4D, C2S, C3S, C4S, W52**, W53A, W54**, W55*, W56, WSWD, MW1A		E21, E22A, E24AR, E26A, E28A, E37A, GM6D, W.HURD, MW10B, WC3B, WC4A, WC5A, WC7A, WW4, WW6	C2S, C3S, C4S, C6S, C7S, GM2S, GM4D, MW1A, MW3A, MW4A, MW7, R1D, R2D, R3D, R4D, W52, W53A, W54, W55, W56, W57, WSWD, City Wells CW6, CW-7, CW9, CW10, CW11 (if pumping)

Site Specific VOC List

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

Notes:

* - Not sampled in 2023 due to being down for repairs

** - Well sampled for 1,4-Dioxane in 2021

Groundwater Elevations - August-September 2023
Wausau Water Supply NPL Site
Wausau, Wisconsin

	Reference Elevation	Water Level (ft BTOC) 8/29/2023	Water Table Elevation (ft AMSL) 8/29/2023
East Bank			
CW3*	1202.15	NM	NA
E21	1197.51	10.64	1186.87
E22A	1195.88	9.26	1186.62
E24AR	1209.33	22.40	1186.93
E26A	1199.13	25.63	1173.50
E28A	1211.60	24.30	1187.30
E37A	1197.84	11.11	1186.73
GM6D	1198.57	11.37	1187.20
W. HURD	1200.23	12.76	1187.47
MW10B	1210.37	23.57	1186.80
WC3B	1196.11	8.97	1187.14
WC4A	1196.57	9.39	1187.18
WC5A	1196.66	9.55	1187.11
WC7A	1196.77	9.90	1186.87
WW4	1200.34	13.13	1187.21
WW6	1200.53	12.55	1187.98
West Bank			
		8/29-9/1/23	8/29-9/1/23
CW6	1220.33	~37.4	~1183
CW7	1224.14	~22.6	~1202
CW9*	1226.16	~64.7	~1161
CW10	1218.49	~31.8	~1187
CW11*	1216.51	~56.4	~1160
CW9 OBS R	1224.51	NM	NA
EW1	1218.04	NM	NA
C2S	1219.05	31.44	1187.61
C3S	1220.58	33.41	1187.17
C4S	1216.70	29.02	1187.68
C6S	1221.58	33.58	1188.00
C7S	1220.87	33.30	1187.57
GM2S	1211.78	25.60	1186.18
GM4D	1216.35	30.66	1185.69
MW1A	1215.69	29.34	1186.35
MW3A	1220.87	35.06	1185.81
MW4A	1215.48	31.17	1184.31
MW7	1218.53	34.00	1184.53
R1D	1222.24	32.48	1189.76
R2D	1209.42	22.56	1186.86
R3D	1215.42	28.28	1187.14
R4D	1218.90	31.33	1187.57
W52	1219.16	32.02	1187.14
W53A	1216.67	29.41	1187.26
W54	1216.08	28.45	1187.63
W55	1217.04	31.29	1185.75
W56	1200.01	13.60	1186.41
W57	1201.76	16.92	1184.84
WSWD	1193.02	5.43	1187.59
Wisconsin River	--	--	--

Notes:

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

Table 2.3

Groundwater Sampling Summary - August 2023
Wausau Water Supply NPL Site
Wausau, Wisconsin

Well	Date	pH	Conductivity (uS/cm)	Temperature (°C)	Sample Type	Sample ID Number
East Bank						
CW3	--	--	±% 5 or ±% 10	±% 10	Grab	--
E21	8/29/2023	1/8/1904	185	14.05	Grab	W-230829-RA-08
E22A	8/29/2023	1/7/1904	248	12.19	Grab	W-230829-RA-01
E24AR	8/30/2023	1/7/1904	1.46	12.62	Grab	W-230830-RA-05 W-230830-RA-06 (FB)
E37A	8/30/2023	1/7/1904	281	15.63	Grab	W-230830-RA-04
MW10B	8/30/2023	1/7/1904	303	10.89	Grab	W-230830-RA-03
WC3B	8/30/2023	1/8/1904	515	17.8	Grab	W-230830-RA-10
WC5A	8/30/2023	1/7/1904	355	14.3	Grab	W-230830-RA-07
WW4	8/30/2023	1/7/1904	661	11.61	Grab	W-230830-RA-02
WW6	8/30/2023	1/8/1904	215	12.68	Grab	W-230830-RA-09
West Bank						
C2S	8/30/2023	1/8/1904	4620	12.38	Grab	GW-003978-230830-RA-26
C3S	8/29/2023	1/8/1904	929	12.55	Grab	GW-003978-230829--RA-16
C4S	8/30/2023	1/8/1904	3020	11.64	Grab	GW-003978-230830--RA-17
CW6	8/30/2023	1/8/1904	817	11.46	Grab	GW-003978-230830--RA-18
EW-1	8/30/2023	± 0.1	±% 5 or ±% 10	±% 10	Grab	GW-003978-230830--RA-23
MW1A	8/29/2023	1/10/1904	194	12.01	Grab	GW-003978-230829--11GW-003978-230829--12 (FD)
R2D	8/29/2023	1/8/1904	355	9.92	Grab	GW-003978-230829--RA-28
R3D	8/29/2023	1/8/1904	592	10.95	Grab	GW-003978-230829-RA-15
R4D	8/30/2023	1/8/1904	2140	14.51	Grab	GW-003978-230830--RA-24GW-003978-230830--RA-25 (FD)
W52	8/30/2023	1/9/1904	1810	11.66	Grab	GW-003978-230830--RA-21
W53A	8/30/2023	1/8/1904	4380	11.75	Grab	GW-003978-230830--RA-22
W54	8/30/2023	1/8/1904	5980	11.97	Grab	GW-003978-230830--RA-19 (EB)GW-003978-230830--RA-20
W55	8/29/2023	1/6/1904	254	17.76	Grab	GW-003978-230829-RA-13
W56	8/29/2023	1/9/1904	1080	9.88	Grab	GW-003978-230829--RA-14
WSWD	8/30/2023	1/8/1904	4270	11.87	Grab	GW-003978-230830--RA-27

Notes:

uS/cm - microsiemens per centimeter

NM - Not Measured

MS/MSD - Matrix Spike/Matrix Spike Duplicate

FD - Field Duplicate

EB - Equipment Blank

FB - Field Blank

**2023 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin**

	CW3	E21	E22	E22A	E24AR	E26	E26A	E28A	E37A
Difficult to find? Brush need cutting?	City pump house	No/No	Yes	Yes	No/No	No/No	No/No	No/No	Yes/No
Clearly labeled on outside? ID tag visible?	NA	Yes	No	No	No	Yes	Yes	No	Yes
Protop and Casing Condition	NA	Good	Good	Good	Good	Good	Fair	Rusty	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	No, sod covered	Yes, concrete surface - good	NOT visible/ sod cover Had to clean out around riser
Well Cap Condition (inner/outer)	NA	Good	Good	Good	Good	Good	Inner good	Inner good	Inner good
Does well riser inhibit the protop from being closed and locked?	NA	No	No	No	No	No	No	No, but corroded	No
Lock Condition	NA	Good	Good	Good	Fair	Good	Fair	Fair	Good
Ground subsidence?	NA	None	None	None	None	Soil - good	Soil - good	No	Low spot, would be ponded
Flush Mount? Potential for ponded water?	NA	Above grade	Flush - No Ponding	Flush - No Ponding	Flush - No	Above grade	Above grade	Flush - No	Flush - Yes
Flush Mount in impervious surface? (surface type)	NA	NA	Soil	Soil	Concrete pad in turf	NA	NA	Concrete sidewalk	Asphalt
Flush Mount water tight?	NA	NA	No	No	Yes	NA	NA	Yes	Yes
Notes		Lock is 2121 Master Erosion around riser	9/16" BAD BOLTS	Socket 3/4"	Socket 3/4"			3/4"	Socket 9/16"

**2023 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin**

	GM6D	W. HURD	MW10A	MW10B	WC3B	WC4A	WC5A	WC7	WW4
Difficult to find? Brush need cutting?	No/No	No/No	No/No	Yes	No/No	No/No	Yes	No/No	No/No
Clearly labeled on outside? ID tag visible?	No, label removed	Yes	wh	Yes	No	Yes	Yes	No, Yes	No
Protop and Casing Condition	Good	Good	Fair -rust	Poor, rusty, needs repair	Good	Good	Good	Needs Repair	Good
Surface seal visible? Concrete Condition? (Soil/sod covered?)	Yes, concrete surface seal in asphalt	No, sod	No, covered with vegetation	No, covered with vegetation	Yes, concrete good	No, sod	Can't see it	No, soil and grass	Concrete good
Well Cap Condition (inner/outer)	Good	Good	Fair, rust	Not Present	Good	Good	None, inner, outer rusted	Good	Good
Does well riser inhibit the protop from being closed and locked?	No	No	NA	No	No	No	No	No	No
Lock Condition	Good	Fair	Broken	None	Good	Good	Good	Good	Good
Ground subsidence?	None	None	None	None	None	None	None	None	None
Flush Mount? Potential for ponded water?	Flush - No	Above grade	Above grade	Above grade	Flush - No	Above grade	Above grade	Above grade	Flush - No
Flush Mount in impervious surface? (surface type)	New concrete vault in asphalt	NA	NA	NA	Yes - Concrete	NA	NA	NA	New concrete pad in sod
Flush Mount water tight?	Yes	NA	NA	NA	Yes	NA	NA	NA	Yes
Notes	Replace bollard, been removed Extremely soft bottom	No casing	NEED NEW PROTOP CAP - can't get it off	Soft bottom	No Bolts	Soft bottom		Riser cracked at ground level soft bottom	Socket 9/16"

**2023 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin**

	WW6	EW1	CW6	CW9 OBS R	CW10	CW11	C2S	C3S	C4S
Difficult to find? Brush need cutting?	No/No	Pump house	City pump house	No/No	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	Yes	No	Yes	USGS label	Yes	Yes	Yes	Yes	Yes
Protop and Casing Condition	Good	Good	NA	Good	NA	NA	Fair	Fair	Fair
Surface seal visible? Concrete Condition? (Soil/sod covered?)	Yes, asphalt - good condition	NA	NA	No, sod	NA	NA	Yes	No, sod	No, sod
Well Cap Condition (inner/outer)	Good	NA	NA	Good	NA	NA	Fair	Fair	Fair
Does well riser inhibit the protop from being closed and locked?	No	NA	NA	Yes	NA	NA	No	No	No
Lock Condition	Good	NA	NA	Good	NA	NA	Fair	Bad	Good
Ground subsidence?	None	None	NA	None	NA	NA	None	Grass	Grass
Flush Mount? Potential for ponded water?	Flush, No	NA	NA	Above grade	NA	NA	Above grade	Above grade	Above grade
Flush Mount in impervious surface? (surface type)	Yes, concrete/a asphalt	NA	NA	NA	NA	NA	NA	NA	NA
Flush Mount water tight?	Yes	NA	NA	NA	NA	NA	NA	NA	NA
Notes	Soft bottom								

**2023 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin**

	C4D	C6S	C7S	GM2S	GM4D	MW1A	MW3A	MW4A	MW4B
Difficult to find? Brush need cutting?	No/No	No/No	No/No	No/No	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Protop and Casing Condition	Ues	Fair	Fair	Good	Good	Good	Good	Good	Good
Surface seal visible? Concrete Condition? (Soil/sod covered?)	Yes, grass	No, sod	Soil covered	New concrete pad	No, sod and leaf litter	No, gravel	Yes, concrete - good	Yes, concrete - good	Yes, concrete - good
Well Cap Condition (inner/outer)	Good	Fair	Fair	Good	Fair	Good	Good	Good	Good
Does well riser inhibit the protop from being closed and locked?	No	No	No	No	No	Yes	No	No	No
Lock Condition	Good	Good	Fair	Good	Good	Good	Good	Good	Good
Ground subsidence?	Grass	None	Soil	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 - No	Flush - No	Flush - No
Flush Mount in impervious surface? (surface type)	NA	NA	NA	Concrete pad in sod	NA	NA	Soil, grass	Soil, grass	Soil, grass
Flush Mount water tight?	NA	NA	NA	Yes	NA	NA	Yes	Yes	Yes
Notes									

**2023 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin**

	MW7	R1D	R2S	R2D	R3D	R4D	W50	W52	W52A
Difficult to find? Brush need cutting?	No/No	No/No	Yes/Yes	Yes/Yes	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Protop and Casing Condition	Good	Good	Fair	Fair	Good	Fair	Good	Fair	Fair
Surface seal visible? Concrete Condition? (Soil/sod covered?)	Yes, concrete - good	Yes, concrete	No, leaf litter, soil	No, leaf litter, soil	No, grass	No, sod and leaf litter	No, grass	No, soil	No, soil and grass
Well Cap Condition (inner/outer)	Good	Good	Good	None	Fair	Fair	None	Fair	Fair
Does well riser inhibit the protop from being closed and locked?	No	No	No	No	No	Yes	No	No	No
Lock Condition	Good	None	Good	Good	Good	Fair	Good	Fair	should replace
Ground subsidence?	None	Concrete	Soil	Soil	Grass	None	Grass	None	None
Flush Mount? Potential for ponded water?	Flush - No	Above grade	Above grade	Above grade	Above grade	Above grade	Above grade	Above grade	Above grade
Flush Mount in impervious surface? (surface type)	Grass boulevard	NA	NA	NA	NA	NA	NA	NA	NA
Flush Mount water tight?	Yes	NA	NA	NA	NA	NA	NA	NA	NA
Notes					Brand new american lock				

**2023 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin**

	W53	W53A	W54	W55	W55A	W56	W57	WSWS	WSWD
Difficult to find? Brush need cutting?	No/No	No/No	No/No	No/No	No/No	Yes/Yes	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	No	No	No	Yes	No	Yes	No	Yes	Yes
Protop and Casing Condition	Fair	Good	Fair	Good	Fair	Fair	Fair	Good	Good
Surface seal visible? Concrete Condition? (Soil/sod covered?)	New concrete pad	Yes, concrete - fair	Yes - good	Yes, concrete - good	No - sod	No - leaf cover	No - sod	No - sod and leaf litter	No - sod and leaf litter
Well Cap Condition (inner/outer)	Good	Good	Good	Good	Poor, bolt stuck	Fair	Good	Good	Good
Does well riser inhibit the protop from being closed and locked?	No	No	No	No	No	No	No	No	No
Lock Condition	Good	Good	Old Lock	poor	no lock	New one	no lock	Fair	Fair
Ground subsidence?	None	None	Bad	None	None	Soil/ leaves	None	None	None
Flush Mount? Potential for ponded water?	Flush - No	Flush - No	Flush - Concrete	Flush - No	Flush - No	Above grade	Flush - No	Above grade	Above grade
Flush Mount in impervious surface? (surface type)	Yes, new vault	Concrete	Yes, Concrete	Concrete	Soil, grass	NA	Soil, grass	NA	NA
Flush Mount water tight?	Yes, new vault	Yes	Yes	Yes	Yes	NA	Yes	NA	NA
Notes			13/16" Socket			Brand new master lock today			

**2022 City Well Pumping Summary
Wausau Water Supply NPL Site
Wausau, Wisconsin**

		Well CW-3	Well CW-6	Well CW-7	Well CW-9	Well CW-10	Well CW-11
January	Hours	364.3	364.5	141.4	224.3	74.8	269
	Gallons	26.0602	21.6182	13.585	10.9551	11.1773	47.3582
	gpm	1192	988	1601	814	2490	2934
February	Hours	311.7	356	208.8	203.4	69.6	155.4
	Gallons	21.897	21.453	21.407	10.506	11.819	24.372
	gpm	1171	1004	1709	861	2830	2614
March	Hours	309.9	421.7	205.5	194	24.8	243.3
	Gallons	21.215	25.42	21.144	9.888	3.932	38.335
	gpm	1141	1005	1715	849	2642	2626
April	Hours	348.8	365	248.3	219.8	44.8	183.9
	Gallons	23.536	21.999	25.26	10.941	6.834	30.185
	gpm	1125	1005	1696	830	2542	2736
May	Hours	218	518	214.1	165.1	183	215.3
	Gallons	15.1	31.209	21.954	8.427	24.749	37.762
	gpm	1154	1004	1709	851	2254	2923
June	Hours	240.7	401.6	233.9	245.4	316.1	241.4
	Gallons	12.716	24.178	23.697	12.559	47.845	36.958
	gpm	880	1003	1689	853	2523	2552
July	Hours	269.7	473	332.4	277	218.5	226.7
	Gallons	13.1403	28.483	34.094	11.845	34.279	37.592
	gpm	812	1004	1709	713	2615	2764
August	Hours	0	604.6	426.8	266.3	203.5	272.3
	Gallons	0	36.9753	38.4432	12.7862	30.0893	38.5149
	gpm	0	1019	1501	800	2464	2357
September	Hours	252.7	454.9	249.2	200.6	201.3	114.7
	Gallons	18.5531	32.9053	24.0196	10.4981	30.8371	18.1024
	gpm	1224	1206	1606	872	2553	2630
October	Hours	315.7	419.1	120	101.7	144.5	134.7
	Gallons	23.9518	30.1977	11.5004	5.5327	21.0367	21.4558
	gpm	1264	1201	1597	907	2426	2655
November	Hours	270.6	440.2	98	108.1	118.4	108.5
	Gallons	20.9088	31.0935	9.4218	5.9272	16.8214	14.5769
	gpm	1288	1177	1602	914	2368	2239
December	Hours	360.8	379.3	169.9	125.9	64.6	154.1
	Gallons	27.6827	27.4224	15.3069	6.8069	8.9922	21.5057
	gpm	1279	1205	1502	901	2320	2326
Average hrs/week:		62.7	100.0	50.9	44.8	32.0	44.6
Average gpm:		1148	1068	1635	834	2488	2635

Notes:

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

Table 4.1

**Annual Groundwater Monitoring Event VOC Analytical Results- August 29-30, 2023
Wausau Water Supply NPL Site
Wausau, Wisconsin**

	Sample Location:	E21	E22A	E24AR	E37A	MW10B	WC3B
	Sample Name:	W-230829-RA-08	W-230829-RA-01	W-230830-RA-05	W-230830-RA-04	W-230830-RA-03	W-230830-RA-10
	Sample Date:	8/29/2023	8/29/2023	8/30/2023	8/30/2023	8/30/2023	8/30/2023
		EB	EB	EB	EB	EB	EB
Units	WDNR ES						
Volatile Organic Compounds							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	9000	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	6	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	ug/L	70	1.0 U	1.0 U	5.8	15	1.0 U
Ethylbenzene	ug/L	700	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	ug/L	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	5	1.0 U	8.0	1.7	1.0 U	8.4
Toluene	ug/L	800	0.50 U	0.23 J	0.50 U	0.19 J	0.25 J
Trichloroethene	ug/L	5	0.50 U	0.50 U	2.0	0.50 U	0.50 U
Vinyl chloride	ug/L	0.2	1.0 U	1.0 U	1.0	1.0 U	1.0 U
Xylenes (total)	ug/L	2000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 4.1

**Annual Groundwater Monitoring Event VOC Analytical Results- August 29-30, 2023
Wausau Water Supply NPL Site
Wausau, Wisconsin**

	Sample Location:	WC5A	WW4	WW6	C2S	C3S	C4S
	Sample Name:	W-230830-RA-07	W-230830-RA-02	W-230830-RA-09	W-230830-RA-26	W-230829-RA-16	W-230830-RA-17
	Sample Date:	8/30/2023	8/30/2023	8/30/2023	8/30/2023	8/29/2023	8/30/2023
		EB	EB	EB	WB	WB	WB
Units	WDNR ES						
Volatile Organic Compounds							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	9000	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	140	1.0 U
Chloroform (Trichloromethane)	ug/L	6	2.0 U	2.0 U	2.0 U	61	0.45 J
cis-1,2-Dichloroethene	ug/L	70	27	1.0 U	9.8	1.0 U	2.7
Ethylbenzene	ug/L	700	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	ug/L	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	5	2.9	1.0 U	1.0 U	0.70 J	1.0 U
Toluene	ug/L	800	0.50 U	0.19 J	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	5	0.50 U	0.50 U	0.53	0.83	1.9
Vinyl chloride	ug/L	0.2	8.5	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 4.1

**Annual Groundwater Monitoring Event VOC Analytical Results- August 29-30, 2023
Wausau Water Supply NPL Site
Wausau, Wisconsin**

	Sample Location:	CW6	EW1	MW1A	MW1A	R2D	R3D
	Sample Name:	W-230830-RA-18	W-230830-RA-23	W-230829-RA-11	W-230829-RA-12	W-230830-RA-28	W-230829-RA-15
	Sample Date:	8/30/2023	8/30/2023	8/29/2023	8/29/2023	8/30/2023	8/29/2023
		WB	WB	WB	WB	WB	WB
					Duplicate		
	Units	WDNR ES					
Volatile Organic Compounds							
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	9000	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	6	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	ug/L	70	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	700	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	ug/L	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	800	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	5	2.7	0.50 U	0.50 U	10	1.7
Vinyl chloride	ug/L	0.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	2000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 4.1

**Annual Groundwater Monitoring Event VOC Analytical Results- August 29-30, 2023
Wausau Water Supply NPL Site
Wausau, Wisconsin**

	Sample Location:	R4D	R4D	W52	W53A	W54	W55	
	Sample Name:	W-230830-RA-24	W-230830-RA-25	W-230830-RA-21	W-230830-RA-22	W-230830-RA-20	W-230829-RA-13	
	Sample Date:	8/30/2023	8/30/2023	8/30/2023	8/30/2023	8/30/2023	8/29/2023	
		WB	WB	WB	WB	WB	WB	
			Duplicate					
	Units	WDNR ES						
Volatile Organic Compounds								
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acetone	ug/L	9000	10 U	10 U	10 U	10 U	10 U	
Benzene	ug/L	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Chloroform (Trichloromethane)	ug/L	6	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	
cis-1,2-Dichloroethene	ug/L	70	1.0 U	1.0 U	1.0 U	3.9	24	
Ethylbenzene	ug/L	700	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	
Methylene chloride	ug/L	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	
Tetrachloroethene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Toluene	ug/L	800	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	
Trichloroethene	ug/L	5	0.76	0.70	1.7	43	140	17
Vinyl chloride	ug/L	0.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Xylenes (total)	ug/L	2000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	

Table 4.1

**Annual Groundwater Monitoring Event VOC Analytical Results- August 29-30, 2023
Wausau Water Supply NPL Site
Wausau, Wisconsin**

Sample Location:	W56	WSWD
Sample Name:	W-230829-RA-14	W-230830-RA-27
Sample Date:	8/29/2023	8/30/2023
	WB	WB

	Units	WDNR ES		
Volatile Organic Compounds				
1,1,2-Trichloroethane	ug/L	5	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	7	1.0 U	1.0 U
Acetone	ug/L	9000	10 U	10 U
Benzene	ug/L	5	0.50 U	0.50 U
Carbon tetrachloride	ug/L	5	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	6	2.0 U	2.0 U
cis-1,2-Dichloroethene	ug/L	70	1.0 U	1.0 U
Ethylbenzene	ug/L	700	0.50 U	0.50 U
Methylene chloride	ug/L	5	5.0 U	5.0 U
Tetrachloroethene	ug/L	5	1.0 U	1.0 U
Toluene	ug/L	800	0.50 U	0.50 U
Trichloroethene	ug/L	5	0.50 U	32
Vinyl chloride	ug/L	0.2	1.0 U	1.0 U
Xylenes (total)	ug/L	2000	1.0 U	1.0 U

Notes:

EB - East Bank Well

WB - West Bank Well

U - Not detected at the associated reporting limit

J - Estimated concentration

-Detected

-Concentration exceeded

WDNR Enforcement Standard, Upaded 1/25/2023

Appendices

Appendix A

August 29, 30, and September 1, 2023

Laboratory Report and Data Quality

Validation Memorandum



ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Grant Anderson
GHD Services Inc.
900 Long Lake Road
Suite 200
New Brighton, Minnesota 55112

Generated 9/15/2023 12:50:03 AM

JOB DESCRIPTION

Wausau - 003978

JOB NUMBER

500-238904-1

Eurofins Chicago

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Chicago Project Manager.

Authorization



Generated
9/15/2023 12:50:03 AM

Authorized for release by
Carlene McCutcheon, Senior Project Manager
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Case Narrative

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Job ID: 500-238904-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative 500-238904-1

Receipt

The samples were received on 8/31/2023 10:05 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.2° C.

Receipt Exceptions

One or more containers for the following sample(s) was received broken or leaking: Sample 4 has 1 VOA Vial broken.

The method requirement for no headspace was not met. The following volatile sample(s) were analyzed with headspace in the sample container(s): Sample 17 has 1 VOA vial with headspace.

The container label for the following sample(s) did not match the information listed on the Chain-of-Custody (COC) Sample 29. Received 4 VOA Vials, while the COC lists 1 VOA Vial.

GC/MS VOA

Method 8260B: Acetone was detected in the following samples: W-230829-RA-01 (500-238904-1), W-230830-RA-02 (500-238904-2), W-230830-RA-03 (500-238904-3), W-230830-RA-04 (500-238904-4) and W-230830-RA-05 (500-238904-5). Acetone is a known lab contaminant; therefore all low level detects for this compound could be suspected as lab contamination.

Method 8260B: The matrix spike/ matrix spike duplicate (MS/MSD) for the following sample was analyzed outside the 12 hour tune window. No further action was taken. W-230830-RA-05 (500-238904-5)

Method 8260B: Internal standard (1,4-Dichlorobenzene-d4) response was outside of acceptance limits for the following sample: W-230830-RA-06 (500-238904-6), W-230829-RA-08 (500-238904-8), W-230830-RA-10 (500-238904-10) and W-230829-RA-12 (500-238904-12). The sample did not have detects of requested analytes using this internal standard. Surrogate 4-Bromofluorobenzene is also being quantitated with this internal standard.

Method 8260B: The matrix spike (MS) recoveries for analytical batch 500-730885 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 500-731305 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

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

Detection Summary

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-01

Lab Sample ID: 500-238904-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.2	J B	10	1.7	ug/L	1		8260B	Total/NA
Tetrachloroethene	8.0		1.0	0.37	ug/L	1		8260B	Total/NA
Toluene	0.23	J	0.50	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-02

Lab Sample ID: 500-238904-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	5.3	J B	10	1.7	ug/L	1		8260B	Total/NA
Toluene	0.19	J	0.50	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-03

Lab Sample ID: 500-238904-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.3	J B	10	1.7	ug/L	1		8260B	Total/NA
Toluene	0.25	J	0.50	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-04

Lab Sample ID: 500-238904-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	5.2	J B	10	1.7	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	15		1.0	0.41	ug/L	1		8260B	Total/NA
Toluene	0.19	J	0.50	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-05

Lab Sample ID: 500-238904-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	5.2	J B	10	1.7	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	5.8		1.0	0.41	ug/L	1		8260B	Total/NA
Tetrachloroethene	1.7		1.0	0.37	ug/L	1		8260B	Total/NA
Trichloroethene	2.0		0.50	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	1.0		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-06

Lab Sample ID: 500-238904-6

No Detections.

Client Sample ID: W-230830-RA-07

Lab Sample ID: 500-238904-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	27		1.0	0.41	ug/L	1		8260B	Total/NA
Tetrachloroethene	2.9		1.0	0.37	ug/L	1		8260B	Total/NA
Vinyl chloride	8.5		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: W-230829-RA-08

Lab Sample ID: 500-238904-8

No Detections.

Client Sample ID: W-230830-RA-09

Lab Sample ID: 500-238904-9

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	9.8		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	0.53		0.50	0.16	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-10

Lab Sample ID: 500-238904-10

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	8.4		1.0	0.37	ug/L	1		8260B	Total/NA

Client Sample ID: W-230829-RA-11

Lab Sample ID: 500-238904-11

No Detections.

Client Sample ID: W-230829-RA-12

Lab Sample ID: 500-238904-12

No Detections.

Client Sample ID: W-230829-RA-13

Lab Sample ID: 500-238904-13

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	24		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	17		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-230829-RA-14

Lab Sample ID: 500-238904-14

No Detections.

Client Sample ID: W-230829-RA-15

Lab Sample ID: 500-238904-15

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	1.7		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-230829-RA-16

Lab Sample ID: 500-238904-16

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Chloroform	61		2.0	0.37	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.70	J	1.0	0.37	ug/L	1		8260B	Total/NA
Trichloroethene	1.9		0.50	0.16	ug/L	1		8260B	Total/NA
Carbon tetrachloride - DL	140		10	3.8	ug/L	10		8260B	Total/NA

Client Sample ID: W-230830-RA-17

Lab Sample ID: 500-238904-17

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.45	J	2.0	0.37	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	2.7		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	4.9		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-18

Lab Sample ID: 500-238904-18

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	2.7		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-19

Lab Sample ID: 500-238904-19

No Detections.

Client Sample ID: W-230830-RA-20

Lab Sample ID: 500-238904-20

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	3.9		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene - DL	140		5.0	1.6	ug/L	10		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Euofins Chicago

Detection Summary

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-21

Lab Sample ID: 500-238904-21

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	1.7		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-22

Lab Sample ID: 500-238904-22

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	43		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-23

Lab Sample ID: 500-238904-23

No Detections.

Client Sample ID: W-230830-RA-24

Lab Sample ID: 500-238904-24

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.76		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-25

Lab Sample ID: 500-238904-25

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.70		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-26

Lab Sample ID: 500-238904-26

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.83		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-27

Lab Sample ID: 500-238904-27

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	32		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-230830-RA-28

Lab Sample ID: 500-238904-28

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	10		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: Trip Blank

Lab Sample ID: 500-238904-29

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Chicago

Method Summary

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	EET CHI
5030B	Purge and Trap	SW846	EET CHI

Protocol References:

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

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

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Sample Summary

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-238904-1	W-230829-RA-01	Water	08/29/23 13:26	08/31/23 10:05
500-238904-2	W-230830-RA-02	Water	08/30/23 09:19	08/31/23 10:05
500-238904-3	W-230830-RA-03	Water	08/30/23 08:07	08/31/23 10:05
500-238904-4	W-230830-RA-04	Water	08/30/23 10:29	08/31/23 10:05
500-238904-5	W-230830-RA-05	Water	08/30/23 08:46	08/31/23 10:05
500-238904-6	W-230830-RA-06	Water	08/30/23 08:38	08/31/23 10:05
500-238904-7	W-230830-RA-07	Water	08/30/23 11:19	08/31/23 10:05
500-238904-8	W-230829-RA-08	Water	08/29/23 16:47	08/31/23 10:05
500-238904-9	W-230830-RA-09	Water	08/30/23 09:28	08/31/23 10:05
500-238904-10	W-230830-RA-10	Water	08/30/23 12:08	08/31/23 10:05
500-238904-11	W-230829-RA-11	Water	08/29/23 14:22	08/31/23 10:05
500-238904-12	W-230829-RA-12	Water	08/29/23 14:23	08/31/23 10:05
500-238904-13	W-230829-RA-13	Water	08/29/23 15:23	08/31/23 10:05
500-238904-14	W-230829-RA-14	Water	08/29/23 15:59	08/31/23 10:05
500-238904-15	W-230829-RA-15	Water	08/29/23 16:38	08/31/23 10:05
500-238904-16	W-230829-RA-16	Water	08/29/23 17:11	08/31/23 10:05
500-238904-17	W-230830-RA-17	Water	08/30/23 08:02	08/31/23 10:05
500-238904-18	W-230830-RA-18	Water	08/30/23 08:27	08/31/23 10:05
500-238904-19	W-230830-RA-19	Water	08/30/23 08:45	08/31/23 10:05
500-238904-20	W-230830-RA-20	Water	08/30/23 08:49	08/31/23 10:05
500-238904-21	W-230830-RA-21	Water	08/30/23 09:46	08/31/23 10:05
500-238904-22	W-230830-RA-22	Water	08/30/23 10:12	08/31/23 10:05
500-238904-23	W-230830-RA-23	Water	08/30/23 10:37	08/31/23 10:05
500-238904-24	W-230830-RA-24	Water	08/30/23 10:42	08/31/23 10:05
500-238904-25	W-230830-RA-25	Water	08/30/23 10:42	08/31/23 10:05
500-238904-26	W-230830-RA-26	Water	08/30/23 10:57	08/31/23 10:05
500-238904-27	W-230830-RA-27	Water	08/30/23 11:35	08/31/23 10:05
500-238904-28	W-230830-RA-28	Water	08/30/23 12:15	08/31/23 10:05
500-238904-29	Trip Blank	Water	08/30/23 00:00	08/31/23 10:05

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-01

Lab Sample ID: 500-238904-1

Date Collected: 08/29/23 13:26

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/06/23 17:25	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/06/23 17:25	1
Acetone	4.2	J B	10	1.7	ug/L			09/06/23 17:25	1
Benzene	<0.15		0.50	0.15	ug/L			09/06/23 17:25	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/06/23 17:25	1
Chloroform	<0.37		2.0	0.37	ug/L			09/06/23 17:25	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/06/23 17:25	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/06/23 17:25	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/06/23 17:25	1
Tetrachloroethene	8.0		1.0	0.37	ug/L			09/06/23 17:25	1
Toluene	0.23	J	0.50	0.15	ug/L			09/06/23 17:25	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/06/23 17:25	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/06/23 17:25	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/06/23 17:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		75 - 126					09/06/23 17:25	1
4-Bromofluorobenzene (Surr)	116		72 - 124					09/06/23 17:25	1
Dibromofluoromethane	106		75 - 120					09/06/23 17:25	1
Toluene-d8 (Surr)	89		75 - 120					09/06/23 17:25	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-02

Lab Sample ID: 500-238904-2

Date Collected: 08/30/23 09:19

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/06/23 17:49	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/06/23 17:49	1
Acetone	5.3	J B	10	1.7	ug/L			09/06/23 17:49	1
Benzene	<0.15		0.50	0.15	ug/L			09/06/23 17:49	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/06/23 17:49	1
Chloroform	<0.37		2.0	0.37	ug/L			09/06/23 17:49	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/06/23 17:49	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/06/23 17:49	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/06/23 17:49	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/06/23 17:49	1
Toluene	0.19	J	0.50	0.15	ug/L			09/06/23 17:49	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/06/23 17:49	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/06/23 17:49	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/06/23 17:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		75 - 126					09/06/23 17:49	1
4-Bromofluorobenzene (Surr)	112		72 - 124					09/06/23 17:49	1
Dibromofluoromethane	107		75 - 120					09/06/23 17:49	1
Toluene-d8 (Surr)	89		75 - 120					09/06/23 17:49	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-03

Lab Sample ID: 500-238904-3

Date Collected: 08/30/23 08:07

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/06/23 18:13	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/06/23 18:13	1
Acetone	4.3	J B	10	1.7	ug/L			09/06/23 18:13	1
Benzene	<0.15		0.50	0.15	ug/L			09/06/23 18:13	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/06/23 18:13	1
Chloroform	<0.37		2.0	0.37	ug/L			09/06/23 18:13	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/06/23 18:13	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/06/23 18:13	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/06/23 18:13	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/06/23 18:13	1
Toluene	0.25	J	0.50	0.15	ug/L			09/06/23 18:13	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/06/23 18:13	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/06/23 18:13	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/06/23 18:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		75 - 126		09/06/23 18:13	1
4-Bromofluorobenzene (Surr)	113		72 - 124		09/06/23 18:13	1
Dibromofluoromethane	109		75 - 120		09/06/23 18:13	1
Toluene-d8 (Surr)	89		75 - 120		09/06/23 18:13	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-04

Lab Sample ID: 500-238904-4

Date Collected: 08/30/23 10:29

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/06/23 18:38	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/06/23 18:38	1
Acetone	5.2	J B	10	1.7	ug/L			09/06/23 18:38	1
Benzene	<0.15		0.50	0.15	ug/L			09/06/23 18:38	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/06/23 18:38	1
Chloroform	<0.37		2.0	0.37	ug/L			09/06/23 18:38	1
cis-1,2-Dichloroethene	15		1.0	0.41	ug/L			09/06/23 18:38	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/06/23 18:38	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/06/23 18:38	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/06/23 18:38	1
Toluene	0.19	J	0.50	0.15	ug/L			09/06/23 18:38	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/06/23 18:38	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/06/23 18:38	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/06/23 18:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		75 - 126					09/06/23 18:38	1
4-Bromofluorobenzene (Surr)	112		72 - 124					09/06/23 18:38	1
Dibromofluoromethane	109		75 - 120					09/06/23 18:38	1
Toluene-d8 (Surr)	89		75 - 120					09/06/23 18:38	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-05

Lab Sample ID: 500-238904-5

Date Collected: 08/30/23 08:46

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/06/23 19:02	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/06/23 19:02	1
Acetone	5.2	J B	10	1.7	ug/L			09/06/23 19:02	1
Benzene	<0.15		0.50	0.15	ug/L			09/06/23 19:02	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/06/23 19:02	1
Chloroform	<0.37		2.0	0.37	ug/L			09/06/23 19:02	1
cis-1,2-Dichloroethene	5.8		1.0	0.41	ug/L			09/06/23 19:02	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/06/23 19:02	1
Methylene Chloride	<1.6	F1	5.0	1.6	ug/L			09/06/23 19:02	1
Tetrachloroethene	1.7		1.0	0.37	ug/L			09/06/23 19:02	1
Toluene	<0.15		0.50	0.15	ug/L			09/06/23 19:02	1
Trichloroethene	2.0		0.50	0.16	ug/L			09/06/23 19:02	1
Vinyl chloride	1.0		1.0	0.20	ug/L			09/06/23 19:02	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/06/23 19:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		75 - 126					09/06/23 19:02	1
4-Bromofluorobenzene (Surr)	112		72 - 124					09/06/23 19:02	1
Dibromofluoromethane	110		75 - 120					09/06/23 19:02	1
Toluene-d8 (Surr)	90		75 - 120					09/06/23 19:02	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-06

Lab Sample ID: 500-238904-6

Date Collected: 08/30/23 08:38

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 01:25	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 01:25	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 01:25	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 01:25	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 01:25	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 01:25	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 01:25	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 01:25	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 01:25	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 01:25	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 01:25	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 01:25	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 01:25	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 01:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		75 - 126		09/08/23 01:25	1
4-Bromofluorobenzene (Surr)	97 *		72 - 124		09/08/23 01:25	1
Dibromofluoromethane	104		75 - 120		09/08/23 01:25	1
Toluene-d8 (Surr)	95		75 - 120		09/08/23 01:25	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-07

Lab Sample ID: 500-238904-7

Date Collected: 08/30/23 11:19

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 01:48	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 01:48	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 01:48	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 01:48	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 01:48	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 01:48	1
cis-1,2-Dichloroethene	27		1.0	0.41	ug/L			09/08/23 01:48	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 01:48	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 01:48	1
Tetrachloroethene	2.9		1.0	0.37	ug/L			09/08/23 01:48	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 01:48	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 01:48	1
Vinyl chloride	8.5		1.0	0.20	ug/L			09/08/23 01:48	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 01:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 126		09/08/23 01:48	1
4-Bromofluorobenzene (Surr)	100	*	72 - 124		09/08/23 01:48	1
Dibromofluoromethane	109		75 - 120		09/08/23 01:48	1
Toluene-d8 (Surr)	98		75 - 120		09/08/23 01:48	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-08

Lab Sample ID: 500-238904-8

Date Collected: 08/29/23 16:47

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 02:11	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 02:11	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 02:11	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 02:11	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 02:11	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 02:11	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 02:11	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 02:11	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 02:11	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 02:11	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 02:11	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 02:11	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 02:11	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 02:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		75 - 126		09/08/23 02:11	1
4-Bromofluorobenzene (Surr)	102	*	72 - 124		09/08/23 02:11	1
Dibromofluoromethane	111		75 - 120		09/08/23 02:11	1
Toluene-d8 (Surr)	98		75 - 120		09/08/23 02:11	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-09

Lab Sample ID: 500-238904-9

Date Collected: 08/30/23 09:28

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 12:03	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 12:03	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 12:03	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 12:03	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 12:03	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 12:03	1
cis-1,2-Dichloroethene	9.8		1.0	0.41	ug/L			09/08/23 12:03	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 12:03	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 12:03	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 12:03	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 12:03	1
Trichloroethene	0.53		0.50	0.16	ug/L			09/08/23 12:03	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 12:03	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 12:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		75 - 126					09/08/23 12:03	1
4-Bromofluorobenzene (Surr)	99		72 - 124					09/08/23 12:03	1
Dibromofluoromethane	98		75 - 120					09/08/23 12:03	1
Toluene-d8 (Surr)	101		75 - 120					09/08/23 12:03	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-10

Lab Sample ID: 500-238904-10

Date Collected: 08/30/23 12:08

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 02:57	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 02:57	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 02:57	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 02:57	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 02:57	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 02:57	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 02:57	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 02:57	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 02:57	1
Tetrachloroethene	8.4		1.0	0.37	ug/L			09/08/23 02:57	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 02:57	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 02:57	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 02:57	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 02:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		75 - 126		09/08/23 02:57	1
4-Bromofluorobenzene (Surr)	101	*	72 - 124		09/08/23 02:57	1
Dibromofluoromethane	110		75 - 120		09/08/23 02:57	1
Toluene-d8 (Surr)	95		75 - 120		09/08/23 02:57	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-11

Lab Sample ID: 500-238904-11

Date Collected: 08/29/23 14:22

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 12:30	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 12:30	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 12:30	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 12:30	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 12:30	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 12:30	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 12:30	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 12:30	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 12:30	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 12:30	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 12:30	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 12:30	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 12:30	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 12:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 126		09/08/23 12:30	1
4-Bromofluorobenzene (Surr)	99		72 - 124		09/08/23 12:30	1
Dibromofluoromethane	100		75 - 120		09/08/23 12:30	1
Toluene-d8 (Surr)	99		75 - 120		09/08/23 12:30	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-12

Lab Sample ID: 500-238904-12

Date Collected: 08/29/23 14:23

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 03:43	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 03:43	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 03:43	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 03:43	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 03:43	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 03:43	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 03:43	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 03:43	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 03:43	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 03:43	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 03:43	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 03:43	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 03:43	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 03:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 126		09/08/23 03:43	1
4-Bromofluorobenzene (Surr)	98	*	72 - 124		09/08/23 03:43	1
Dibromofluoromethane	114		75 - 120		09/08/23 03:43	1
Toluene-d8 (Surr)	95		75 - 120		09/08/23 03:43	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-13

Lab Sample ID: 500-238904-13

Date Collected: 08/29/23 15:23

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 12:57	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 12:57	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 12:57	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 12:57	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 12:57	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 12:57	1
cis-1,2-Dichloroethene	24		1.0	0.41	ug/L			09/08/23 12:57	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 12:57	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 12:57	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 12:57	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 12:57	1
Trichloroethene	17		0.50	0.16	ug/L			09/08/23 12:57	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 12:57	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 12:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		75 - 126					09/08/23 12:57	1
4-Bromofluorobenzene (Surr)	99		72 - 124					09/08/23 12:57	1
Dibromofluoromethane	100		75 - 120					09/08/23 12:57	1
Toluene-d8 (Surr)	101		75 - 120					09/08/23 12:57	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-14

Lab Sample ID: 500-238904-14

Date Collected: 08/29/23 15:59

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 13:23	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 13:23	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 13:23	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 13:23	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 13:23	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 13:23	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 13:23	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 13:23	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 13:23	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 13:23	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 13:23	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 13:23	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 13:23	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 13:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		75 - 126					09/08/23 13:23	1
4-Bromofluorobenzene (Surr)	99		72 - 124					09/08/23 13:23	1
Dibromofluoromethane	100		75 - 120					09/08/23 13:23	1
Toluene-d8 (Surr)	100		75 - 120					09/08/23 13:23	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-15

Lab Sample ID: 500-238904-15

Date Collected: 08/29/23 16:38

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 13:51	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 13:51	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 13:51	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 13:51	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 13:51	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 13:51	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 13:51	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 13:51	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 13:51	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 13:51	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 13:51	1
Trichloroethene	1.7		0.50	0.16	ug/L			09/08/23 13:51	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 13:51	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 13:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 126					09/08/23 13:51	1
4-Bromofluorobenzene (Surr)	101		72 - 124					09/08/23 13:51	1
Dibromofluoromethane	100		75 - 120					09/08/23 13:51	1
Toluene-d8 (Surr)	100		75 - 120					09/08/23 13:51	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-16

Lab Sample ID: 500-238904-16

Date Collected: 08/29/23 17:11

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 14:17	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 14:17	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 14:17	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 14:17	1
Chloroform	61		2.0	0.37	ug/L			09/08/23 14:17	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 14:17	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 14:17	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 14:17	1
Tetrachloroethene	0.70 J		1.0	0.37	ug/L			09/08/23 14:17	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 14:17	1
Trichloroethene	1.9		0.50	0.16	ug/L			09/08/23 14:17	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 14:17	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 14:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		75 - 126		09/08/23 14:17	1
4-Bromofluorobenzene (Surr)	101		72 - 124		09/08/23 14:17	1
Dibromofluoromethane	100		75 - 120		09/08/23 14:17	1
Toluene-d8 (Surr)	100		75 - 120		09/08/23 14:17	1

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	140		10	3.8	ug/L			09/11/23 13:10	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		75 - 126		09/11/23 13:10	10
4-Bromofluorobenzene (Surr)	98		72 - 124		09/11/23 13:10	10
Dibromofluoromethane	102		75 - 120		09/11/23 13:10	10
Toluene-d8 (Surr)	98		75 - 120		09/11/23 13:10	10

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-17

Lab Sample ID: 500-238904-17

Date Collected: 08/30/23 08:02

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 14:44	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 14:44	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 14:44	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 14:44	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 14:44	1
Chloroform	0.45	J	2.0	0.37	ug/L			09/08/23 14:44	1
cis-1,2-Dichloroethene	2.7		1.0	0.41	ug/L			09/08/23 14:44	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 14:44	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 14:44	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 14:44	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 14:44	1
Trichloroethene	4.9		0.50	0.16	ug/L			09/08/23 14:44	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 14:44	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 14:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		75 - 126					09/08/23 14:44	1
4-Bromofluorobenzene (Surr)	101		72 - 124					09/08/23 14:44	1
Dibromofluoromethane	100		75 - 120					09/08/23 14:44	1
Toluene-d8 (Surr)	101		75 - 120					09/08/23 14:44	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-18

Lab Sample ID: 500-238904-18

Date Collected: 08/30/23 08:27

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 15:10	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 15:10	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 15:10	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 15:10	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 15:10	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 15:10	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 15:10	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 15:10	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 15:10	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 15:10	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 15:10	1
Trichloroethene	2.7		0.50	0.16	ug/L			09/08/23 15:10	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 15:10	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 15:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 126		09/08/23 15:10	1
4-Bromofluorobenzene (Surr)	103		72 - 124		09/08/23 15:10	1
Dibromofluoromethane	102		75 - 120		09/08/23 15:10	1
Toluene-d8 (Surr)	99		75 - 120		09/08/23 15:10	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-19

Lab Sample ID: 500-238904-19

Date Collected: 08/30/23 08:45

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 15:37	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 15:37	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 15:37	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 15:37	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 15:37	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 15:37	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 15:37	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 15:37	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 15:37	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 15:37	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 15:37	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 15:37	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 15:37	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 15:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 126					09/08/23 15:37	1
4-Bromofluorobenzene (Surr)	103		72 - 124					09/08/23 15:37	1
Dibromofluoromethane	101		75 - 120					09/08/23 15:37	1
Toluene-d8 (Surr)	99		75 - 120					09/08/23 15:37	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-20

Lab Sample ID: 500-238904-20

Date Collected: 08/30/23 08:49

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 16:04	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 16:04	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 16:04	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 16:04	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 16:04	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 16:04	1
cis-1,2-Dichloroethene	3.9		1.0	0.41	ug/L			09/08/23 16:04	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 16:04	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 16:04	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 16:04	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 16:04	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 16:04	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 16:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		75 - 126		09/08/23 16:04	1
4-Bromofluorobenzene (Surr)	100		72 - 124		09/08/23 16:04	1
Dibromofluoromethane	99		75 - 120		09/08/23 16:04	1
Toluene-d8 (Surr)	101		75 - 120		09/08/23 16:04	1

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	140		5.0	1.6	ug/L			09/11/23 13:37	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		75 - 126		09/11/23 13:37	10
4-Bromofluorobenzene (Surr)	98		72 - 124		09/11/23 13:37	10
Dibromofluoromethane	103		75 - 120		09/11/23 13:37	10
Toluene-d8 (Surr)	98		75 - 120		09/11/23 13:37	10

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-21

Lab Sample ID: 500-238904-21

Date Collected: 08/30/23 09:46

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 16:30	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 16:30	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 16:30	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 16:30	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 16:30	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 16:30	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 16:30	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 16:30	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 16:30	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 16:30	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 16:30	1
Trichloroethene	1.7		0.50	0.16	ug/L			09/08/23 16:30	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 16:30	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 16:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 126		09/08/23 16:30	1
4-Bromofluorobenzene (Surr)	100		72 - 124		09/08/23 16:30	1
Dibromofluoromethane	101		75 - 120		09/08/23 16:30	1
Toluene-d8 (Surr)	100		75 - 120		09/08/23 16:30	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-22

Lab Sample ID: 500-238904-22

Date Collected: 08/30/23 10:12

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 16:57	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 16:57	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 16:57	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 16:57	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 16:57	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 16:57	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 16:57	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 16:57	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 16:57	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 16:57	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 16:57	1
Trichloroethene	43		0.50	0.16	ug/L			09/08/23 16:57	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 16:57	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 16:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		75 - 126		09/08/23 16:57	1
4-Bromofluorobenzene (Surr)	100		72 - 124		09/08/23 16:57	1
Dibromofluoromethane	101		75 - 120		09/08/23 16:57	1
Toluene-d8 (Surr)	99		75 - 120		09/08/23 16:57	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-23

Lab Sample ID: 500-238904-23

Date Collected: 08/30/23 10:37

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 17:24	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 17:24	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 17:24	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 17:24	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 17:24	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 17:24	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 17:24	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 17:24	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 17:24	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 17:24	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 17:24	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 17:24	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 17:24	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 17:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 126		09/08/23 17:24	1
4-Bromofluorobenzene (Surr)	100		72 - 124		09/08/23 17:24	1
Dibromofluoromethane	101		75 - 120		09/08/23 17:24	1
Toluene-d8 (Surr)	99		75 - 120		09/08/23 17:24	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-24

Lab Sample ID: 500-238904-24

Date Collected: 08/30/23 10:42

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 17:50	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 17:50	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 17:50	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 17:50	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 17:50	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 17:50	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 17:50	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 17:50	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 17:50	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 17:50	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 17:50	1
Trichloroethene	0.76		0.50	0.16	ug/L			09/08/23 17:50	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 17:50	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 17:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 126		09/08/23 17:50	1
4-Bromofluorobenzene (Surr)	100		72 - 124		09/08/23 17:50	1
Dibromofluoromethane	101		75 - 120		09/08/23 17:50	1
Toluene-d8 (Surr)	98		75 - 120		09/08/23 17:50	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-25

Lab Sample ID: 500-238904-25

Date Collected: 08/30/23 10:42

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 18:17	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 18:17	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 18:17	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 18:17	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 18:17	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 18:17	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 18:17	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 18:17	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 18:17	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 18:17	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 18:17	1
Trichloroethene	0.70		0.50	0.16	ug/L			09/08/23 18:17	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 18:17	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 18:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 126		09/08/23 18:17	1
4-Bromofluorobenzene (Surr)	101		72 - 124		09/08/23 18:17	1
Dibromofluoromethane	102		75 - 120		09/08/23 18:17	1
Toluene-d8 (Surr)	99		75 - 120		09/08/23 18:17	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-26

Lab Sample ID: 500-238904-26

Date Collected: 08/30/23 10:57

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 18:43	1
1,1-Dichloroethene	<0.39	F1	1.0	0.39	ug/L			09/08/23 18:43	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 18:43	1
Benzene	<0.15	F1	0.50	0.15	ug/L			09/08/23 18:43	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 18:43	1
Chloroform	<0.37	F1	2.0	0.37	ug/L			09/08/23 18:43	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 18:43	1
Ethylbenzene	<0.18	F1	0.50	0.18	ug/L			09/08/23 18:43	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 18:43	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 18:43	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 18:43	1
Trichloroethene	0.83		0.50	0.16	ug/L			09/08/23 18:43	1
Vinyl chloride	<0.20	F1	1.0	0.20	ug/L			09/08/23 18:43	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 18:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		75 - 126					09/08/23 18:43	1
4-Bromofluorobenzene (Surr)	100		72 - 124					09/08/23 18:43	1
Dibromofluoromethane	103		75 - 120					09/08/23 18:43	1
Toluene-d8 (Surr)	98		75 - 120					09/08/23 18:43	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-27

Lab Sample ID: 500-238904-27

Date Collected: 08/30/23 11:35

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 23:31	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 23:31	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 23:31	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 23:31	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 23:31	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 23:31	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 23:31	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 23:31	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 23:31	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 23:31	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 23:31	1
Trichloroethene	32		0.50	0.16	ug/L			09/08/23 23:31	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 23:31	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 23:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		75 - 126					09/08/23 23:31	1
4-Bromofluorobenzene (Surr)	93		72 - 124					09/08/23 23:31	1
Dibromofluoromethane	104		75 - 120					09/08/23 23:31	1
Toluene-d8 (Surr)	101		75 - 120					09/08/23 23:31	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-28

Lab Sample ID: 500-238904-28

Date Collected: 08/30/23 12:15

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 23:54	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 23:54	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 23:54	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 23:54	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 23:54	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 23:54	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 23:54	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 23:54	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 23:54	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 23:54	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 23:54	1
Trichloroethene	10		0.50	0.16	ug/L			09/08/23 23:54	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 23:54	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 23:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 126		09/08/23 23:54	1
4-Bromofluorobenzene (Surr)	97		72 - 124		09/08/23 23:54	1
Dibromofluoromethane	103		75 - 120		09/08/23 23:54	1
Toluene-d8 (Surr)	102		75 - 120		09/08/23 23:54	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: Trip Blank

Lab Sample ID: 500-238904-29

Date Collected: 08/30/23 00:00

Matrix: Water

Date Received: 08/31/23 10:05

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 22:45	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 22:45	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 22:45	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 22:45	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 22:45	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 22:45	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 22:45	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 22:45	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 22:45	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 22:45	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 22:45	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 22:45	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 22:45	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 22:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 126		09/08/23 22:45	1
4-Bromofluorobenzene (Surr)	96		72 - 124		09/08/23 22:45	1
Dibromofluoromethane	105		75 - 120		09/08/23 22:45	1
Toluene-d8 (Surr)	101		75 - 120		09/08/23 22:45	1

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	ISTD response or retention time outside acceptable limits
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFI	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
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)
TNTC	Too Numerous To Count

QC Association Summary

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

GC/MS VOA

Analysis Batch: 730885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-238904-1	W-230829-RA-01	Total/NA	Water	8260B	
500-238904-2	W-230830-RA-02	Total/NA	Water	8260B	
500-238904-3	W-230830-RA-03	Total/NA	Water	8260B	
500-238904-4	W-230830-RA-04	Total/NA	Water	8260B	
500-238904-5	W-230830-RA-05	Total/NA	Water	8260B	
MB 500-730885/6	Method Blank	Total/NA	Water	8260B	
LCS 500-730885/4	Lab Control Sample	Total/NA	Water	8260B	
500-238904-5 MS	W-230830-RA-05	Total/NA	Water	8260B	
500-238904-5 MSD	W-230830-RA-05	Total/NA	Water	8260B	

Analysis Batch: 731284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-238904-6	W-230830-RA-06	Total/NA	Water	8260B	
500-238904-7	W-230830-RA-07	Total/NA	Water	8260B	
500-238904-8	W-230829-RA-08	Total/NA	Water	8260B	
500-238904-10	W-230830-RA-10	Total/NA	Water	8260B	
500-238904-12	W-230829-RA-12	Total/NA	Water	8260B	
MB 500-731284/6	Method Blank	Total/NA	Water	8260B	
LCS 500-731284/3	Lab Control Sample	Total/NA	Water	8260B	
500-238904-13 MS	W-230829-RA-13	Total/NA	Water	8260B	
500-238904-13 MSD	W-230829-RA-13	Total/NA	Water	8260B	

Analysis Batch: 731305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-238904-9	W-230830-RA-09	Total/NA	Water	8260B	
500-238904-11	W-230829-RA-11	Total/NA	Water	8260B	
500-238904-13	W-230829-RA-13	Total/NA	Water	8260B	
500-238904-14	W-230829-RA-14	Total/NA	Water	8260B	
500-238904-15	W-230829-RA-15	Total/NA	Water	8260B	
500-238904-16	W-230829-RA-16	Total/NA	Water	8260B	
500-238904-17	W-230830-RA-17	Total/NA	Water	8260B	
500-238904-18	W-230830-RA-18	Total/NA	Water	8260B	
500-238904-19	W-230830-RA-19	Total/NA	Water	8260B	
500-238904-20	W-230830-RA-20	Total/NA	Water	8260B	
500-238904-21	W-230830-RA-21	Total/NA	Water	8260B	
500-238904-22	W-230830-RA-22	Total/NA	Water	8260B	
500-238904-23	W-230830-RA-23	Total/NA	Water	8260B	
500-238904-24	W-230830-RA-24	Total/NA	Water	8260B	
500-238904-25	W-230830-RA-25	Total/NA	Water	8260B	
500-238904-26	W-230830-RA-26	Total/NA	Water	8260B	
MB 500-731305/7	Method Blank	Total/NA	Water	8260B	
LCS 500-731305/4	Lab Control Sample	Total/NA	Water	8260B	
500-238904-26 MS	W-230830-RA-26	Total/NA	Water	8260B	
500-238904-26 MSD	W-230830-RA-26	Total/NA	Water	8260B	

Analysis Batch: 731496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-238904-27	W-230830-RA-27	Total/NA	Water	8260B	
500-238904-28	W-230830-RA-28	Total/NA	Water	8260B	
500-238904-29	Trip Blank	Total/NA	Water	8260B	
MB 500-731496/6	Method Blank	Total/NA	Water	8260B	

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

GC/MS VOA (Continued)

Analysis Batch: 731496 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 500-731496/3	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 731597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-238904-16 - DL	W-230829-RA-16	Total/NA	Water	8260B	
500-238904-20 - DL	W-230830-RA-20	Total/NA	Water	8260B	
MB 500-731597/7	Method Blank	Total/NA	Water	8260B	
LCS 500-731597/4	Lab Control Sample	Total/NA	Water	8260B	

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Surrogate Summary

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-126)	BFB (72-124)	DBFM (75-120)	TOL (75-120)
500-238904-1	W-230829-RA-01	111	116	106	89
500-238904-2	W-230830-RA-02	110	112	107	89
500-238904-3	W-230830-RA-03	112	113	109	89
500-238904-4	W-230830-RA-04	110	112	109	89
500-238904-5	W-230830-RA-05	113	112	110	90
500-238904-5 MS	W-230830-RA-05	105	112	103	92
500-238904-5 MSD	W-230830-RA-05	103	111	103	91
500-238904-6	W-230830-RA-06	107	97 *	104	95
500-238904-7	W-230830-RA-07	108	100 *	109	98
500-238904-8	W-230829-RA-08	106	102 *	111	98
500-238904-9	W-230830-RA-09	98	99	98	101
500-238904-10	W-230830-RA-10	111	101 *	110	95
500-238904-11	W-230829-RA-11	102	99	100	99
500-238904-12	W-230829-RA-12	108	98 *	114	95
500-238904-13	W-230829-RA-13	100	99	100	101
500-238904-13 MS	W-230829-RA-13	104	103	104	98
500-238904-13 MSD	W-230829-RA-13	107	95	103	97
500-238904-14	W-230829-RA-14	101	99	100	100
500-238904-15	W-230829-RA-15	102	101	100	100
500-238904-16	W-230829-RA-16	101	101	100	100
500-238904-16 - DL	W-230829-RA-16	105	98	102	98
500-238904-17	W-230830-RA-17	100	101	100	101
500-238904-18	W-230830-RA-18	104	103	102	99
500-238904-19	W-230830-RA-19	104	103	101	99
500-238904-20	W-230830-RA-20	101	100	99	101
500-238904-20 - DL	W-230830-RA-20	106	98	103	98
500-238904-21	W-230830-RA-21	102	100	101	100
500-238904-22	W-230830-RA-22	106	100	101	99
500-238904-23	W-230830-RA-23	104	100	101	99
500-238904-24	W-230830-RA-24	104	100	101	98
500-238904-25	W-230830-RA-25	104	101	102	99
500-238904-26	W-230830-RA-26	106	100	103	98
500-238904-26 MS	W-230830-RA-26	103	98	102	98
500-238904-26 MSD	W-230830-RA-26	99	99	99	100
500-238904-27	W-230830-RA-27	105	93	104	101
500-238904-28	W-230830-RA-28	104	97	103	102
500-238904-29	Trip Blank	104	96	105	101
LCS 500-730885/4	Lab Control Sample	102	106	100	93
LCS 500-731284/3	Lab Control Sample	96	95	96	101
LCS 500-731305/4	Lab Control Sample	94	101	96	102
LCS 500-731496/3	Lab Control Sample	95	95	95	104
LCS 500-731597/4	Lab Control Sample	94	98	96	102
MB 500-730885/6	Method Blank	106	111	102	90
MB 500-731284/6	Method Blank	104	95	103	98
MB 500-731305/7	Method Blank	100	100	99	101
MB 500-731496/6	Method Blank	103	95	103	100
MB 500-731597/7	Method Blank	104	98	102	99

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Wausau - 003978
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

Job ID: 500-238904-1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

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

Lab Sample ID: MB 500-730885/6
Matrix: Water
Analysis Batch: 730885

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

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/06/23 10:48	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/06/23 10:48	1
Acetone	2.26	J	10	1.7	ug/L			09/06/23 10:48	1
Benzene	<0.15		0.50	0.15	ug/L			09/06/23 10:48	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/06/23 10:48	1
Chloroform	<0.37		2.0	0.37	ug/L			09/06/23 10:48	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/06/23 10:48	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/06/23 10:48	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/06/23 10:48	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/06/23 10:48	1
Toluene	<0.15		0.50	0.15	ug/L			09/06/23 10:48	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/06/23 10:48	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/06/23 10:48	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/06/23 10:48	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	106		75 - 126		09/06/23 10:48	1
4-Bromofluorobenzene (Surr)	111		72 - 124		09/06/23 10:48	1
Dibromofluoromethane	102		75 - 120		09/06/23 10:48	1
Toluene-d8 (Surr)	90		75 - 120		09/06/23 10:48	1

Lab Sample ID: LCS 500-730885/4
Matrix: Water
Analysis Batch: 730885

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1,2-Trichloroethane	50.0	45.7		ug/L		91	71 - 130
1,1-Dichloroethene	50.0	45.1		ug/L		90	67 - 122
Acetone	50.0	44.2		ug/L		88	40 - 143
Benzene	50.0	46.5		ug/L		93	70 - 120
Carbon tetrachloride	50.0	53.6		ug/L		107	59 - 133
Chloroform	50.0	46.5		ug/L		93	70 - 120
cis-1,2-Dichloroethene	50.0	47.3		ug/L		95	70 - 125
Ethylbenzene	50.0	46.3		ug/L		93	70 - 123
Methylene Chloride	50.0	48.0		ug/L		96	69 - 125
Tetrachloroethene	50.0	41.7		ug/L		83	70 - 128
Toluene	50.0	47.1		ug/L		94	70 - 125
Trichloroethene	50.0	46.9		ug/L		94	70 - 125
Vinyl chloride	50.0	52.3		ug/L		105	64 - 126
Xylenes, Total	100	95.4		ug/L		95	70 - 125

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	102		75 - 126
4-Bromofluorobenzene (Surr)	106		72 - 124
Dibromofluoromethane	100		75 - 120
Toluene-d8 (Surr)	93		75 - 120

QC Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

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

Lab Sample ID: 500-238904-5 MS
Matrix: Water
Analysis Batch: 730885

Client Sample ID: W-230830-RA-05
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichloroethane	<0.35		50.0	50.6		ug/L		101	71 - 130
1,1-Dichloroethene	<0.39		50.0	48.3		ug/L		97	67 - 122
Acetone	5.2	J B	50.0	55.1		ug/L		100	40 - 143
Benzene	<0.15		50.0	48.9		ug/L		98	70 - 120
Carbon tetrachloride	<0.38		50.0	56.7		ug/L		113	59 - 133
Chloroform	<0.37		50.0	50.1		ug/L		100	70 - 120
cis-1,2-Dichloroethene	5.8		50.0	56.9		ug/L		102	70 - 125
Ethylbenzene	<0.18		50.0	46.6		ug/L		93	70 - 123
Methylene Chloride	<1.6	F1	50.0	62.8	F1	ug/L		126	69 - 125
Tetrachloroethene	1.7		50.0	44.0		ug/L		85	70 - 128
Toluene	<0.15		50.0	48.4		ug/L		97	70 - 125
Trichloroethene	2.0		50.0	50.4		ug/L		97	70 - 125
Vinyl chloride	1.0		50.0	58.9		ug/L		116	64 - 126
Xylenes, Total	<0.22		100	96.5		ug/L		97	70 - 125

Surrogate	MS %Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	105		75 - 126
4-Bromofluorobenzene (Surr)	112		72 - 124
Dibromofluoromethane	103		75 - 120
Toluene-d8 (Surr)	92		75 - 120

Lab Sample ID: 500-238904-5 MSD
Matrix: Water
Analysis Batch: 730885

Client Sample ID: W-230830-RA-05
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	<0.35		50.0	47.0		ug/L		94	71 - 130	7	20
1,1-Dichloroethene	<0.39		50.0	46.0		ug/L		92	67 - 122	5	20
Acetone	5.2	J B	50.0	50.5		ug/L		91	40 - 143	9	20
Benzene	<0.15		50.0	45.7		ug/L		91	70 - 120	7	20
Carbon tetrachloride	<0.38		50.0	54.0		ug/L		108	59 - 133	5	20
Chloroform	<0.37		50.0	47.3		ug/L		95	70 - 120	6	20
cis-1,2-Dichloroethene	5.8		50.0	53.8		ug/L		96	70 - 125	6	20
Ethylbenzene	<0.18		50.0	44.1		ug/L		88	70 - 123	6	20
Methylene Chloride	<1.6	F1	50.0	59.3		ug/L		119	69 - 125	6	20
Tetrachloroethene	1.7		50.0	41.4		ug/L		79	70 - 128	6	20
Toluene	<0.15		50.0	45.5		ug/L		91	70 - 125	6	20
Trichloroethene	2.0		50.0	47.5		ug/L		91	70 - 125	6	20
Vinyl chloride	1.0		50.0	55.8		ug/L		110	64 - 126	5	20
Xylenes, Total	<0.22		100	90.2		ug/L		90	70 - 125	7	20

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	103		75 - 126
4-Bromofluorobenzene (Surr)	111		72 - 124
Dibromofluoromethane	103		75 - 120
Toluene-d8 (Surr)	91		75 - 120

QC Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

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

Lab Sample ID: MB 500-731284/6
Matrix: Water
Analysis Batch: 731284

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

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/07/23 22:43	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/07/23 22:43	1
Acetone	<1.7		10	1.7	ug/L			09/07/23 22:43	1
Benzene	<0.15		0.50	0.15	ug/L			09/07/23 22:43	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/07/23 22:43	1
Chloroform	<0.37		2.0	0.37	ug/L			09/07/23 22:43	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/07/23 22:43	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/07/23 22:43	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/07/23 22:43	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/07/23 22:43	1
Toluene	<0.15		0.50	0.15	ug/L			09/07/23 22:43	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/07/23 22:43	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/07/23 22:43	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/07/23 22:43	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	104		75 - 126		09/07/23 22:43	1
4-Bromofluorobenzene (Surr)	95		72 - 124		09/07/23 22:43	1
Dibromofluoromethane	103		75 - 120		09/07/23 22:43	1
Toluene-d8 (Surr)	98		75 - 120		09/07/23 22:43	1

Lab Sample ID: LCS 500-731284/3
Matrix: Water
Analysis Batch: 731284

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1,2-Trichloroethane	50.0	44.7		ug/L		89	71 - 130
1,1-Dichloroethene	50.0	42.9		ug/L		86	67 - 122
Acetone	50.0	36.1		ug/L		72	40 - 143
Benzene	50.0	44.2		ug/L		88	70 - 120
Carbon tetrachloride	50.0	46.8		ug/L		94	59 - 133
Chloroform	50.0	43.4		ug/L		87	70 - 120
cis-1,2-Dichloroethene	50.0	44.4		ug/L		89	70 - 125
Ethylbenzene	50.0	48.2		ug/L		96	70 - 123
Methylene Chloride	50.0	40.6		ug/L		81	69 - 125
Tetrachloroethene	50.0	48.9		ug/L		98	70 - 128
Toluene	50.0	45.2		ug/L		90	70 - 125
Trichloroethene	50.0	47.4		ug/L		95	70 - 125
Vinyl chloride	50.0	52.3		ug/L		105	64 - 126
Xylenes, Total	100	93.5		ug/L		94	70 - 125

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		75 - 126
4-Bromofluorobenzene (Surr)	95		72 - 124
Dibromofluoromethane	96		75 - 120
Toluene-d8 (Surr)	101		75 - 120

QC Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

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

Lab Sample ID: 500-238904-13 MS

Matrix: Water

Analysis Batch: 731284

Client Sample ID: W-230829-RA-13

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichloroethane	<0.35		50.0	46.8		ug/L		94	71 - 130
1,1-Dichloroethene	<0.39		50.0	39.9		ug/L		80	67 - 122
Acetone	<1.7		50.0	19.8		ug/L		40	40 - 143
Benzene	<0.15		50.0	44.6		ug/L		89	70 - 120
Carbon tetrachloride	<0.38		50.0	43.0		ug/L		86	59 - 133
Chloroform	<0.37		50.0	47.0		ug/L		94	70 - 120
cis-1,2-Dichloroethene	24		50.0	73.5		ug/L		98	70 - 125
Ethylbenzene	<0.18		50.0	42.4		ug/L		85	70 - 123
Methylene Chloride	<1.6		50.0	46.0		ug/L		92	69 - 125
Tetrachloroethene	<0.37		50.0	41.9		ug/L		84	70 - 128
Toluene	<0.15		50.0	41.5		ug/L		83	70 - 125
Trichloroethene	17		50.0	63.6		ug/L		93	70 - 125
Vinyl chloride	<0.20		50.0	46.4		ug/L		93	64 - 126
Xylenes, Total	<0.22		100	87.2		ug/L		87	70 - 125

Surrogate	MS %Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	104		75 - 126
4-Bromofluorobenzene (Surr)	103		72 - 124
Dibromofluoromethane	104		75 - 120
Toluene-d8 (Surr)	98		75 - 120

Lab Sample ID: 500-238904-13 MSD

Matrix: Water

Analysis Batch: 731284

Client Sample ID: W-230829-RA-13

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	<0.35		50.0	47.8		ug/L		96	71 - 130	2	20
1,1-Dichloroethene	<0.39		50.0	41.5		ug/L		83	67 - 122	4	20
Acetone	<1.7		50.0	23.3		ug/L		47	40 - 143	16	20
Benzene	<0.15		50.0	44.9		ug/L		90	70 - 120	1	20
Carbon tetrachloride	<0.38		50.0	43.1		ug/L		86	59 - 133	0	20
Chloroform	<0.37		50.0	46.5		ug/L		93	70 - 120	1	20
cis-1,2-Dichloroethene	24		50.0	74.3		ug/L		100	70 - 125	1	20
Ethylbenzene	<0.18		50.0	44.8		ug/L		90	70 - 123	6	20
Methylene Chloride	<1.6		50.0	47.1		ug/L		94	69 - 125	2	20
Tetrachloroethene	<0.37		50.0	43.5		ug/L		87	70 - 128	4	20
Toluene	<0.15		50.0	42.8		ug/L		86	70 - 125	3	20
Trichloroethene	17		50.0	65.0		ug/L		96	70 - 125	2	20
Vinyl chloride	<0.20		50.0	48.8		ug/L		98	64 - 126	5	20
Xylenes, Total	<0.22		100	88.7		ug/L		89	70 - 125	2	20

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	107		75 - 126
4-Bromofluorobenzene (Surr)	95		72 - 124
Dibromofluoromethane	103		75 - 120
Toluene-d8 (Surr)	97		75 - 120

QC Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

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

Lab Sample ID: MB 500-731305/7
Matrix: Water
Analysis Batch: 731305

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

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 11:10	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 11:10	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 11:10	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 11:10	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 11:10	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 11:10	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 11:10	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 11:10	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 11:10	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 11:10	1
Toluene	0.205	J	0.50	0.15	ug/L			09/08/23 11:10	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 11:10	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 11:10	1
Xylenes, Total	0.229	J	1.0	0.22	ug/L			09/08/23 11:10	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	100		75 - 126		09/08/23 11:10	1
4-Bromofluorobenzene (Surr)	100		72 - 124		09/08/23 11:10	1
Dibromofluoromethane	99		75 - 120		09/08/23 11:10	1
Toluene-d8 (Surr)	101		75 - 120		09/08/23 11:10	1

Lab Sample ID: LCS 500-731305/4
Matrix: Water
Analysis Batch: 731305

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1,2-Trichloroethane	40.0	42.8		ug/L		107	71 - 130
1,1-Dichloroethene	40.0	46.8		ug/L		117	67 - 122
Acetone	40.0	36.9		ug/L		92	40 - 143
Benzene	40.0	43.8		ug/L		110	70 - 120
Carbon tetrachloride	40.0	47.3		ug/L		118	59 - 133
Chloroform	40.0	44.9		ug/L		112	70 - 120
cis-1,2-Dichloroethene	40.0	43.7		ug/L		109	70 - 125
Ethylbenzene	40.0	46.2		ug/L		116	70 - 123
Methylene Chloride	40.0	43.0		ug/L		107	69 - 125
Tetrachloroethene	40.0	47.2		ug/L		118	70 - 128
Toluene	40.0	42.7		ug/L		107	70 - 125
Trichloroethene	40.0	44.1		ug/L		110	70 - 125
Vinyl chloride	40.0	48.4		ug/L		121	64 - 126
Xylenes, Total	80.0	88.0		ug/L		110	70 - 125

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	94		75 - 126
4-Bromofluorobenzene (Surr)	101		72 - 124
Dibromofluoromethane	96		75 - 120
Toluene-d8 (Surr)	102		75 - 120

QC Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

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

Lab Sample ID: 500-238904-26 MS

Matrix: Water

Analysis Batch: 731305

Client Sample ID: W-230830-RA-26

Prep Type: Total/NA

Analyte	Sample	Sample Qualifier	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result			Result	Qualifier				
1,1,2-Trichloroethane	<0.35		40.0	48.2		ug/L		120	71 - 130
1,1-Dichloroethene	<0.39	F1	40.0	47.5		ug/L		119	67 - 122
Acetone	<1.7		40.0	49.6		ug/L		124	40 - 143
Benzene	<0.15	F1	40.0	46.2		ug/L		115	70 - 120
Carbon tetrachloride	<0.38		40.0	47.9		ug/L		120	59 - 133
Chloroform	<0.37	F1	40.0	49.1	F1	ug/L		123	70 - 120
cis-1,2-Dichloroethene	<0.41		40.0	47.3		ug/L		118	70 - 125
Ethylbenzene	<0.18	F1	40.0	46.6		ug/L		117	70 - 123
Methylene Chloride	<1.6		40.0	47.5		ug/L		119	69 - 125
Tetrachloroethene	<0.37		40.0	45.5		ug/L		114	70 - 128
Toluene	<0.15		40.0	43.6		ug/L		109	70 - 125
Trichloroethene	0.83		40.0	45.9		ug/L		113	70 - 125
Vinyl chloride	<0.20	F1	40.0	58.2	F1	ug/L		146	64 - 126
Xylenes, Total	<0.22		80.0	90.6		ug/L		113	70 - 125

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	103		75 - 126
4-Bromofluorobenzene (Surr)	98		72 - 124
Dibromofluoromethane	102		75 - 120
Toluene-d8 (Surr)	98		75 - 120

Lab Sample ID: 500-238904-26 MSD

Matrix: Water

Analysis Batch: 731305

Client Sample ID: W-230830-RA-26

Prep Type: Total/NA

Analyte	Sample	Sample Qualifier	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
	Result			Result	Qualifier						
1,1,2-Trichloroethane	<0.35		40.0	51.2		ug/L		128	71 - 130	6	20
1,1-Dichloroethene	<0.39	F1	40.0	50.8	F1	ug/L		127	67 - 122	7	20
Acetone	<1.7		40.0	45.0		ug/L		112	40 - 143	10	20
Benzene	<0.15	F1	40.0	49.0	F1	ug/L		122	70 - 120	6	20
Carbon tetrachloride	<0.38		40.0	50.6		ug/L		126	59 - 133	5	20
Chloroform	<0.37	F1	40.0	51.7	F1	ug/L		129	70 - 120	5	20
cis-1,2-Dichloroethene	<0.41		40.0	49.7		ug/L		124	70 - 125	5	20
Ethylbenzene	<0.18	F1	40.0	50.8	F1	ug/L		127	70 - 123	9	20
Methylene Chloride	<1.6		40.0	50.1		ug/L		125	69 - 125	5	20
Tetrachloroethene	<0.37		40.0	49.6		ug/L		124	70 - 128	9	20
Toluene	<0.15		40.0	47.2		ug/L		118	70 - 125	8	20
Trichloroethene	0.83		40.0	48.6		ug/L		120	70 - 125	6	20
Vinyl chloride	<0.20	F1	40.0	54.1	F1	ug/L		135	64 - 126	7	20
Xylenes, Total	<0.22		80.0	98.3		ug/L		123	70 - 125	8	20

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	99		75 - 126
4-Bromofluorobenzene (Surr)	99		72 - 124
Dibromofluoromethane	99		75 - 120
Toluene-d8 (Surr)	100		75 - 120

QC Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

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

Lab Sample ID: MB 500-731496/6
Matrix: Water
Analysis Batch: 731496

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

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			09/08/23 21:36	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			09/08/23 21:36	1
Acetone	<1.7		10	1.7	ug/L			09/08/23 21:36	1
Benzene	<0.15		0.50	0.15	ug/L			09/08/23 21:36	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/08/23 21:36	1
Chloroform	<0.37		2.0	0.37	ug/L			09/08/23 21:36	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			09/08/23 21:36	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			09/08/23 21:36	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			09/08/23 21:36	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			09/08/23 21:36	1
Toluene	<0.15		0.50	0.15	ug/L			09/08/23 21:36	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/08/23 21:36	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			09/08/23 21:36	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			09/08/23 21:36	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	103		75 - 126		09/08/23 21:36	1
4-Bromofluorobenzene (Surr)	95		72 - 124		09/08/23 21:36	1
Dibromofluoromethane	103		75 - 120		09/08/23 21:36	1
Toluene-d8 (Surr)	100		75 - 120		09/08/23 21:36	1

Lab Sample ID: LCS 500-731496/3
Matrix: Water
Analysis Batch: 731496

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1,2-Trichloroethane	50.0	45.7		ug/L		91	71 - 130
1,1-Dichloroethene	50.0	48.1		ug/L		96	67 - 122
Acetone	50.0	43.1		ug/L		86	40 - 143
Benzene	50.0	46.9		ug/L		94	70 - 120
Carbon tetrachloride	50.0	52.9		ug/L		106	59 - 133
Chloroform	50.0	45.5		ug/L		91	70 - 120
cis-1,2-Dichloroethene	50.0	45.5		ug/L		91	70 - 125
Ethylbenzene	50.0	49.5		ug/L		99	70 - 123
Methylene Chloride	50.0	43.1		ug/L		86	69 - 125
Tetrachloroethene	50.0	51.8		ug/L		104	70 - 128
Toluene	50.0	47.1		ug/L		94	70 - 125
Trichloroethene	50.0	49.1		ug/L		98	70 - 125
Vinyl chloride	50.0	53.5		ug/L		107	64 - 126
Xylenes, Total	100	97.5		ug/L		98	70 - 125

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	95		75 - 126
4-Bromofluorobenzene (Surr)	95		72 - 124
Dibromofluoromethane	95		75 - 120
Toluene-d8 (Surr)	104		75 - 120

QC Sample Results

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

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

Lab Sample ID: MB 500-731597/7
Matrix: Water
Analysis Batch: 731597

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

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			09/11/23 10:56	1
Trichloroethene	<0.16		0.50	0.16	ug/L			09/11/23 10:56	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
1,2-Dichloroethane-d4 (Surr)	104		75 - 126				09/11/23 10:56	1	
4-Bromofluorobenzene (Surr)	98		72 - 124				09/11/23 10:56	1	
Dibromofluoromethane	102		75 - 120				09/11/23 10:56	1	
Toluene-d8 (Surr)	99		75 - 120				09/11/23 10:56	1	

Lab Sample ID: LCS 500-731597/4
Matrix: Water
Analysis Batch: 731597

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Trichloroethene	40.0	37.9		ug/L		95	70 - 125
Surrogate	LCS	LCS					
	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	94		75 - 126				
4-Bromofluorobenzene (Surr)	98		72 - 124				
Dibromofluoromethane	96		75 - 120				
Toluene-d8 (Surr)	102		75 - 120				

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-01

Lab Sample ID: 500-238904-1

Date Collected: 08/29/23 13:26

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	730885	W1T	EET CHI	09/06/23 17:25

Client Sample ID: W-230830-RA-02

Lab Sample ID: 500-238904-2

Date Collected: 08/30/23 09:19

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	730885	W1T	EET CHI	09/06/23 17:49

Client Sample ID: W-230830-RA-03

Lab Sample ID: 500-238904-3

Date Collected: 08/30/23 08:07

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	730885	W1T	EET CHI	09/06/23 18:13

Client Sample ID: W-230830-RA-04

Lab Sample ID: 500-238904-4

Date Collected: 08/30/23 10:29

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	730885	W1T	EET CHI	09/06/23 18:38

Client Sample ID: W-230830-RA-05

Lab Sample ID: 500-238904-5

Date Collected: 08/30/23 08:46

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	730885	W1T	EET CHI	09/06/23 19:02

Client Sample ID: W-230830-RA-06

Lab Sample ID: 500-238904-6

Date Collected: 08/30/23 08:38

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731284	EA	EET CHI	09/08/23 01:25

Client Sample ID: W-230830-RA-07

Lab Sample ID: 500-238904-7

Date Collected: 08/30/23 11:19

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731284	EA	EET CHI	09/08/23 01:48

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-08

Date Collected: 08/29/23 16:47

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731284	EA	EET CHI	09/08/23 02:11

Client Sample ID: W-230830-RA-09

Date Collected: 08/30/23 09:28

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 12:03

Client Sample ID: W-230830-RA-10

Date Collected: 08/30/23 12:08

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731284	EA	EET CHI	09/08/23 02:57

Client Sample ID: W-230829-RA-11

Date Collected: 08/29/23 14:22

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 12:30

Client Sample ID: W-230829-RA-12

Date Collected: 08/29/23 14:23

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731284	EA	EET CHI	09/08/23 03:43

Client Sample ID: W-230829-RA-13

Date Collected: 08/29/23 15:23

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 12:57

Client Sample ID: W-230829-RA-14

Date Collected: 08/29/23 15:59

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 13:23

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230829-RA-15

Lab Sample ID: 500-238904-15

Date Collected: 08/29/23 16:38

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 13:51

Client Sample ID: W-230829-RA-16

Lab Sample ID: 500-238904-16

Date Collected: 08/29/23 17:11

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 14:17
Total/NA	Analysis	8260B	DL	10	731597	W1T	EET CHI	09/11/23 13:10

Client Sample ID: W-230830-RA-17

Lab Sample ID: 500-238904-17

Date Collected: 08/30/23 08:02

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 14:44

Client Sample ID: W-230830-RA-18

Lab Sample ID: 500-238904-18

Date Collected: 08/30/23 08:27

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 15:10

Client Sample ID: W-230830-RA-19

Lab Sample ID: 500-238904-19

Date Collected: 08/30/23 08:45

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 15:37

Client Sample ID: W-230830-RA-20

Lab Sample ID: 500-238904-20

Date Collected: 08/30/23 08:49

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 16:04
Total/NA	Analysis	8260B	DL	10	731597	W1T	EET CHI	09/11/23 13:37

Client Sample ID: W-230830-RA-21

Lab Sample ID: 500-238904-21

Date Collected: 08/30/23 09:46

Matrix: Water

Date Received: 08/31/23 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 16:30

Eurofins Chicago

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: W-230830-RA-22

Date Collected: 08/30/23 10:12

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-22

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 16:57

Client Sample ID: W-230830-RA-23

Date Collected: 08/30/23 10:37

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-23

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 17:24

Client Sample ID: W-230830-RA-24

Date Collected: 08/30/23 10:42

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-24

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 17:50

Client Sample ID: W-230830-RA-25

Date Collected: 08/30/23 10:42

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-25

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 18:17

Client Sample ID: W-230830-RA-26

Date Collected: 08/30/23 10:57

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-26

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731305	W1T	EET CHI	09/08/23 18:43

Client Sample ID: W-230830-RA-27

Date Collected: 08/30/23 11:35

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-27

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731496	W1T	EET CHI	09/08/23 23:31

Client Sample ID: W-230830-RA-28

Date Collected: 08/30/23 12:15

Date Received: 08/31/23 10:05

Lab Sample ID: 500-238904-28

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	731496	W1T	EET CHI	09/08/23 23:54

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Client Sample ID: Trip Blank

Lab Sample ID: 500-238904-29

Date Collected: 08/30/23 00:00

Matrix: Water

Date Received: 08/31/23 10:05

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	8260B		1	731496	W1T	EET CHI	09/08/23 22:45

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

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Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Wausau - 003978

Job ID: 500-238904-1

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-23 *

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* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain of Custody Record

668306



Environment Testing
America

Address: _____

Regulatory Program: DW NPDES RCRA Other

TAL-8210

Client Contact Company Name: <u>GHD</u> Address: <u>900 Long Lake Rd</u> City/State/Zip: <u>St. Paul MN 55112</u> Phone: <u>612-529-6855</u> Fax: _____ Project Name: <u>Wausau</u> Site: <u>003978</u> PO# _____		Project Manager <u>Ojiraga</u> Tel/Email _____		Site Contact: <u>Grant Anderson</u> Date: _____ Lab Contact: _____ Carrier: _____		COC No. _____ of <u>3</u> COCs Sampler _____ For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No. <u>500-238904</u>			
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		500-238904 COC 					
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Select VOC's	Sample Specific Notes
1 1 W-230829-RA-01	8/29	1326	G	GW	3		X		
2 W-230830-RA-02	8/30	0919	G	GW	3		X		
3 W-230830-RA-03	8/30	0807	G	GW	3		X		
4 W-230830-RA-04	8/30	1029	G	GW	3		X		
5 W-230830-RA-05	8/30	0846	G	GW	3		X		
6 W-230830-RA-06	8/30	0838	G	GW	3		X		
7 W-230830-RA-07	8/30	1119	G	GW	3		X		
8 W-230829-RA-08	8/29	1647	G	GW	3		X		
9 W-230830-RA-09	8/30	0928	G	GW	3		X		
10 W-230830-RA-10	8/30	1208	G	GW	3		X		
11 W-230829-RA-11	8/29	1422	G	GW	3		X		
12 W-230829-RA-12	8/29	1423	G	GW	3		X		
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments:									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No. _____		Cooler Temp. (°C): Obs'd: <u>1.3</u> Corr'd: <u>0.2</u>		Therm ID No. _____			
Relinquished by: _____ Company: <u>GHD</u>		Date/Time: <u>8/30 1600</u>		Received by: _____ Company: _____		Date/Time: _____			
Relinquished by: _____ Company: _____		Date/Time: _____		Received by: _____ Company: _____		Date/Time: _____			
Relinquished by: _____ Company: _____		Date/Time: _____		Received in Laboratory by: <u>Braun</u> Company: <u>EETA</u>		Date/Time: <u>8/31/23 1005</u>			

Chain of Custody Record

668307



Environment Testing
America

Address _____

Regulatory Program: DW NPDES RCRA Other

TAL-8210

Client Contact		Project Manager			Site Contact			Date			
Company Name GAH		Tel/Email			Lab Contact			COC No			
Address		Analysis Turnaround Time			Filtered Sample (Y/N) Perform MS / MSD (Y/N) Select VOC's			2 of 3 COCs			
City/State/Zip		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS						For Lab Use Only Walk-in Client <input type="checkbox"/> Lab Sampling <input type="checkbox"/>		Job / SDG No 500-238904	
Phone		TAT if different from Below _____									
Fax		<input type="checkbox"/> 2 weeks									
Project Name		<input type="checkbox"/> 1 week									
Site		<input type="checkbox"/> 2 days			Sample Specific Notes						
P O #		<input type="checkbox"/> 1 day									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.					
13	W-230829-RA-13	8/29	1527	G	GW	3	X				
14	W-230829-RA-14	8/29	1554	G	GW	3	X				
15	W-230829-RA-15	8/29	1638	G	GW	3	X				
16	W-230829-RA-16	8/29	1711	G	GW	3	X				
17	W-230830-RA-17	8/30	0802	G	GW	3	X				
18	W-230830-RA-18	8/30	0827	G	GW	3	X				
19	W-230830-RA-19	8/30	0845	G	GW	3	X				
20	W-230830-RA-20	8/30	0849	G	GW	3	X				
21	W-230830-RA-21	8/30	0946	G	GW	3	X				
22	W-230830-RA-22	8/30	1012	G	GW	3	X				
23	W-230830-RA-23	8/30	1037	G	GW	3	X				
24	W-230830-RA-24	8/30	1042	G	GW	3	X				
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments:											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No			Cooler Temp (°C): Obs'd 1.3 Corr'd 0.2		Therm ID No				
Relinquished by:		Company		Date/Time		Received by		Date/Time			
Relinquished by		Company		Date/Time		Received by		Date/Time			
Relinquished by		Company		Date/Time		Received in Laboratory by Prawa		Company: EETA Date/Time: 8/31/23 1005			

Chain of Custody Record

668308



Environment Testing
America

Address _____

Regulatory Program: DW NPDES RCRA Other

TAL-8210

Client Contact		Project Manager			Site Contact			Date		COC No	
Company Name GHO		Tel/Email			Lab Contact			Carrier		2 of 3 COCs	
Address		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS			Filtered Sample (Y/N) Perform MS/MSD (Y/N) Select VOC's					Sampler	
City/State/Zip										For Lab Use Only	
Phone		TAT if different from Below _____								Walk-in Client	
Fax		<input type="checkbox"/> 2 weeks								Lab Sampling	
Project Name		<input type="checkbox"/> 1 week								Job / SDG No	
Site		<input type="checkbox"/> 2 days								500-238904	
P O #		<input type="checkbox"/> 1 day								Sample Specific Notes	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)			
25	W-230830-RA-25	8/30	1042	G	GW	3		X			
26	W-230830-RA-26	8/30	1057	G	GW	9		X			
27	W-230830-RA-27	8/30	1135	G	GW	3		X			
28	W-230830-RA-28	8/30	1215	G	GW	3		X			
29	Trip Blank					1					
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
Special Instructions/QC Requirements & Comments:											
Custody Seals Intact <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No			Cooler Temp (°C). Obs'd 1.3 Corr'd 0.2		Therm ID No _____				
Relinquished by		Company		Date/Time		Received by		Company		Date/Time	
Relinquished by		Company		Date/Time		Received by		Company		Date/Time	
Relinquished by		Company		Date/Time		Received in Laboratory by		Company		Date/Time	
						Braun		EETA		8/31/23 1005	



ORIGIN ID: JOTA (612) 524-6836
RYAN AMOT
GHD SERVICES INC.
900 LONG LAKE ROAD
SUITE 200
SAINT PAUL, MN 55112
UNITED STATES US

SHIP DATE: 17AUG23
ACTWGT: 20.00 LB MAN
CAD: 033264/CAFE3751



500-238904 Waybi

TO **SAMPLE LOGIN**
EUROFINS CHICAGO
2417 BOND ST

585C5/7584/FE2P

UNIVERSITY PARK IL 60484

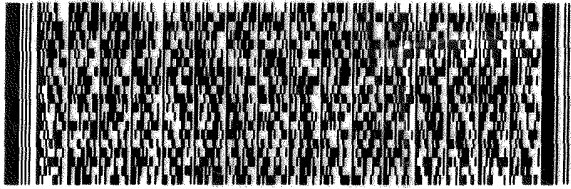
(708) 534-5200

REF:

INU:
PO:

DEPT:

RMA: ||| |||||



FedEx
Express



123030305120115082020327

FedEx

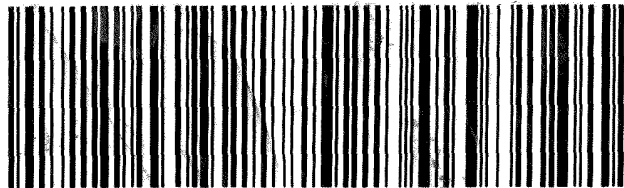
TRK# 6180 7197 6732
0221

THU - 31 AUG 10:30A
PRIORITY OVERNIGHT

Post # 158297-435 RPOB EXP 07/24

NX JOTA

60484
IL-US ORD



84456638 08/30 583J5/7584/9AE3

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Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-238904-1

Login Number: 238904

List Number: 1

Creator: Schmidt, Kara

List Source: Eurofins Chicago

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	0.2
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.	False	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	
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").	False	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Data Verification Report

November 08, 2023

To	OJ Ojinaga, GHD	Project No.	003978-MEM-4
		Email	grant.anderson@ghd.com
From	Grant Anderson/mg/4	Contact No.	612-524-6836
Project Name	Wausau-Superfund Site		
Subject	Analytical Results and Data Verification Annual Groundwater Sampling Event Wausau Superfund Site Wausau, Wisconsin August 2023		

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

1. Introduction

This document details a data verification of analytical results for groundwater samples collected in support Annual Groundwater Sampling Event at the Wausau Superfund Site during August 2023. Samples were submitted to Eurofins Chicago, located in University Park, Illinois. 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 report deliverables were submitted by the laboratories. 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 spikes (MS) 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 document entitled:

1. "National Functional Guidelines for Organic Superfund Methods Data Review", EPA 540-R-20-005, November 2020

Item 1. will subsequently be referred to as the "Guidelines" in this report.

2. Sample Holding Time and Preservation

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

All samples were properly preserved, 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 1 per 20 investigative samples and/or 1 per analytical batch.

With the exception of acetone, all method blank results were non-detect or yielded detections that did not result in qualification of sample data. Table 4 lists the acetone method blank detection. Associated sample data are qualified as noted in the table.

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 volatile organic compound (VOC) analyses were spiked with the appropriate number of surrogate compounds prior to sample extraction or analysis.

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

5. Laboratory Control Sample Analyses

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained all compounds of interest. All LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy.

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 known concentrations of the analytes 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. All percent recoveries and RPD values were within the laboratory control limits or yielded recoveries outside of the control limits that did not result in qualification of sample data, demonstrating acceptable analytical accuracy and precision.

7. Field QA/QC Samples

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

Trip Blank Sample Analysis

To evaluate potential contamination from sample collection, transportation, storage, and analytical activities, one trip blank sample was submitted to the laboratory for VOC analysis. All results were non-detect for the compounds of interest.

Field Blank Sample Analysis

To assess ambient conditions at the site, one field blank was submitted for analysis, as identified in Table 1. All results were non-detect for the analytes of interest.

Rinsate Blank Sample Analysis

To assess field decontamination procedures and cleanliness of sample containers, one rinsate blank sample was submitted for analysis, as identified in Table 1. All results were non-detect for the compounds of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, two field duplicate sample sets were collected and submitted "blind" to the laboratories, 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.

All 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 sample specific 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 are acceptable with the specific qualifications noted herein.

Regards,



Grant Anderson
Digital Intelligence-Data Management-Data Validator

Encl.

Table 1

**Sample Collection and Analysis Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2023**

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters	Comments
W-230829-RA-01	E22A	water	08/29/2023	13:26	Select VOC	
W-230830-RA-02	WW4	water	08/30/2023	09:19	Select VOC	
W-230830-RA-03	MW10B	water	08/30/2023	08:07	Select VOC	
W-230830-RA-04	E37A	water	08/30/2023	10:29	Select VOC	
W-230830-RA-05	E24AR	water	08/30/2023	08:46	Select VOC	
W-230830-RA-06	Field Blank	water	08/30/2023	08:38	Select VOC	Field Blank
W-230830-RA-07	WC5A	water	08/30/2023	11:19	Select VOC	
W-230829-RA-08	E21	water	08/29/2023	16:47	Select VOC	
W-230830-RA-09	WW6	water	08/30/2023	09:28	Select VOC	
W-230830-RA-10	WC3B	water	08/30/2023	12:08	Select VOC	
W-230829-RA-11	MW1A	water	08/29/2023	14:22	Select VOC	
W-230829-RA-12	MW1A	water	08/29/2023	14:23	Select VOC	Duplicate (RA-11)
W-230829-RA-13	W55	water	08/29/2023	15:23	Select VOC	MS/MSD
W-230829-RA-14	W56	water	08/29/2023	15:59	Select VOC	
W-230829-RA-15	R3D	water	08/29/2023	16:38	Select VOC	
W-230829-RA-16	C3S	water	08/29/2023	17:11	Select VOC	
W-230830-RA-17	C4S	water	08/30/2023	08:02	Select VOC	
W-230830-RA-18	CW6	water	08/30/2023	08:27	Select VOC	
W-230830-RA-19	Equipment Blank	water	08/30/2023	08:45	Select VOC	Rinsate Blank
W-230830-RA-20	W54	water	08/30/2023	08:49	Select VOC	
W-230830-RA-21	W52	water	08/30/2023	09:46	Select VOC	
W-230830-RA-22	W53A	water	08/30/2023	10:12	Select VOC	
W-230830-RA-23	EW1	water	08/30/2023	10:37	Select VOC	
W-230830-RA-24	R4D	water	08/30/2023	10:42	Select VOC	
W-230830-RA-25	R4D	water	08/30/2023	10:42	Select VOC	Duplicate (RA-24)
W-230830-RA-26	C2S	water	08/30/2023	10:57	Select VOC	
W-230830-RA-27	WSWD	water	08/30/2023	11:35	Select VOC	
W-230830-RA-28	R2D	water	08/30/2023	12:15	Select VOC	
Trip Blank	Trip Blank	water	08/30/2023	00:00	Select VOC	Trip Blank

Notes:

VOC - Volatile Organic Compounds

MS/MSD - Matrix Spike/Matrix Spike Duplicate

Table 2

**Validated Analytical Results Sample Collection and Analysis Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2023**

Location ID: Sample Name: Sample Date:	C2S W-230830-RA-26 08/30/2023	C3S W-230829-RA-16 08/29/2023	C4S W-230830-RA-17 08/30/2023	CW6 W-230830-RA-18 08/30/2023	E21 W-230829-RA-08 08/29/2023	E22A W-230829-RA-01 08/29/2023	E24AR W-230830-RA-05 08/30/2023	E37A W-230830-RA-04 08/30/2023	EW1 W-230830-RA-23 08/30/2023
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	1.0 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	1.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	µg/L	1.0 U	140	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	2.0 U	61	0.45 J	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	2.7	1.0 U	1.0 U	1.0 U	5.8	15
Ethylbenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	µg/L	1.0 U	0.70 J	1.0 U	1.0 U	1.0 U	8.0	1.7	1.0 U
Toluene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.23 J	0.50 U	0.19 J
Trichloroethene	µg/L	0.83	1.9	4.9	2.7	0.50 U	0.50 U	2.0	0.50 U
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	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	1.0 U

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

Table 2

**Validated Analytical Results Sample Collection and Analysis Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2023**

Location ID: Sample Name: Sample Date:	MW10B W-230830-RA-03 08/30/2023	MW1A W-230829-RA-11 08/29/2023	MW1A W-230829-RA-12 08/29/2023 Duplicate	R2D W-230830-RA-28 08/30/2023	R3D W-230829-RA-15 08/29/2023	R4D W-230830-RA-24 08/30/2023	R4D W-230830-RA-25 08/30/2023 Duplicate	W52 W-230830-RA-21 08/30/2023	W53A W-230830-RA-22 08/30/2023	W54 W-230830-RA-20 08/30/2023
Parameters										
Volatile Organic Compounds										
1,1,2-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.9
Ethylbenzene	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	0.25 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	0.50 U	0.50 U	0.50 U	10	1.7	0.76	0.70	1.7	43	140
Vinyl chloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	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 2

Validated Analytical Results Sample Collection and Analysis Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2023

Location ID:	W55	W56	WC3B	WC5A	WSWD	WW4	WW6
Sample Name:	W-230829-RA-13	W-230829-RA-14	W-230830-RA-10	W-230830-RA-07	W-230830-RA-27	W-230830-RA-02	W-230830-RA-09
Sample Date:	08/29/2023	08/29/2023	08/30/2023	08/30/2023	08/30/2023	08/30/2023	08/30/2023
Parameters							
Volatile Organic Compounds							
1,1,2-Trichloroethane	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	24	1.0 U	1.0 U	27	1.0 U	1.0 U	9.8
Ethylbenzene	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	1.0 U	1.0 U	8.4	2.9	1.0 U	1.0 U	1.0 U
Toluene	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.19 J	0.50 U
Trichloroethene	17	0.50 U	0.50 U	0.50 U	32	0.50 U	0.53
Vinyl chloride	1.0 U	1.0 U	1.0 U	8.5	1.0 U	1.0 U	1.0 U
Xylenes (total)	1.0 U	1.0 U	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 Method
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2023**

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

Method Reference:

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 Analyte Concentrations in the Method Blanks
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2023

Parameter	Analyte	Analysis Batch	Blank Result *	Sample ID	Original Result	Qualified Result	Units
VOC	Acetone	500-730885	2.26J	W-230829-RA-01	4.2 J	10 U	ug/L
				W-230830-RA-02	5.3 J	10 U	ug/L
				W-230830-RA-03	4.3 J	10 U	ug/L
				W-230830-RA-04	5.2 J	10 U	ug/L
				W-230830-RA-05	5.2 J	10 U	ug/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- U - Not detected at the associated reporting limit
- J - Estimated concentration

Appendix B

Wausau Chemical Pavement Inspection Report

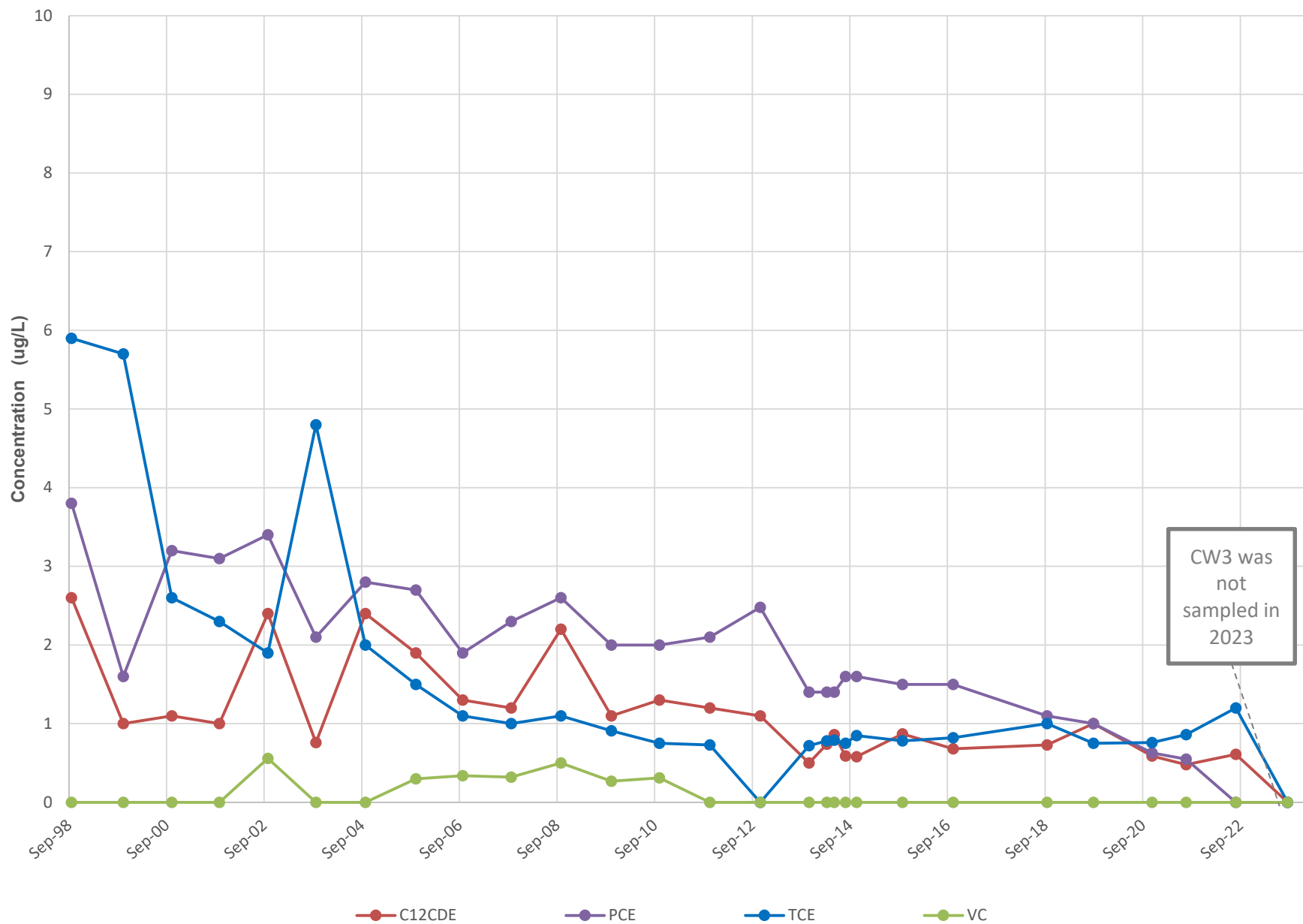
**Pavement Barrier Inspection Log
Former Wausau Chemical Corporation**

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.
8/14/2017	Rob Flashinski	Overall condition is still good. Some signs of asphalt aging.	Nothing.	Yes.
10/30/2018	Rob Flashinski	Overall condition is decent, however, more noticeable cracking is evident.	Filled cracks with asphalt filler in 2018	Yes.
10/29/2019	Charles Ahrens - GHD	Good condition. Cracks filled in 2018 are still in good shape.	No repairs necessary.	Yes.
11/19/2020	Kiel Jenkin - GHD	Good condition. Cracks filled in 2018 are still in good shape.	No repairs necessary.	N/A
8/2/2021	Kiel Jenkin - GHD	Good condition. Cracks filled in 2018 are still in good shape.	No repairs necessary.	N/A
8/8/2022	Ryan Aamot - GHD	Good condition. Cracks filled in 2018 are still in good shape.	No repairs necessary.	N/A
8/30/2023	Ryan Aamot - GHD	Decent condition. Asphalt starting to age.	No repairs necessary.	N/A

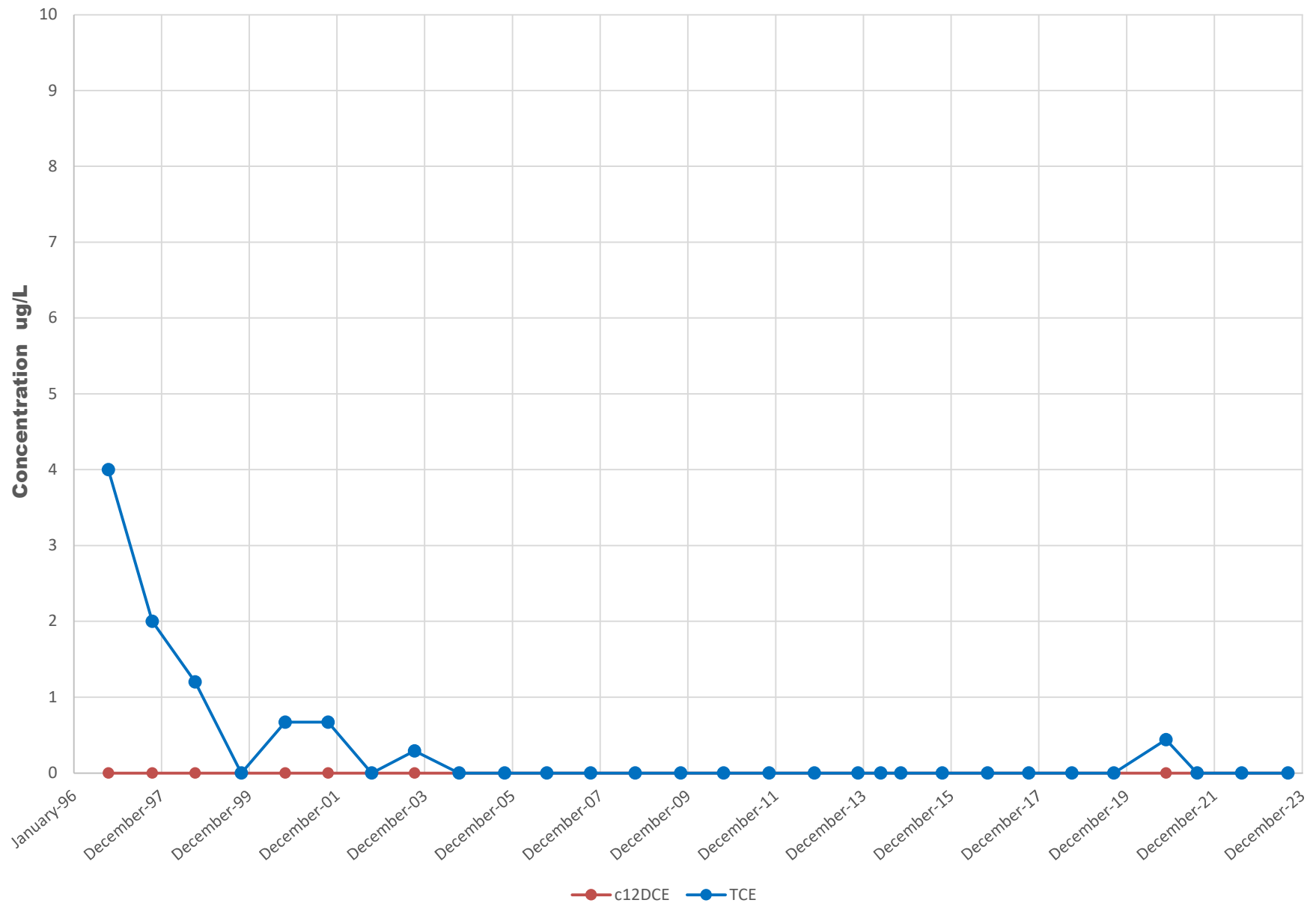
Appendix C

Total Chlorinated VOC Concentration Charts

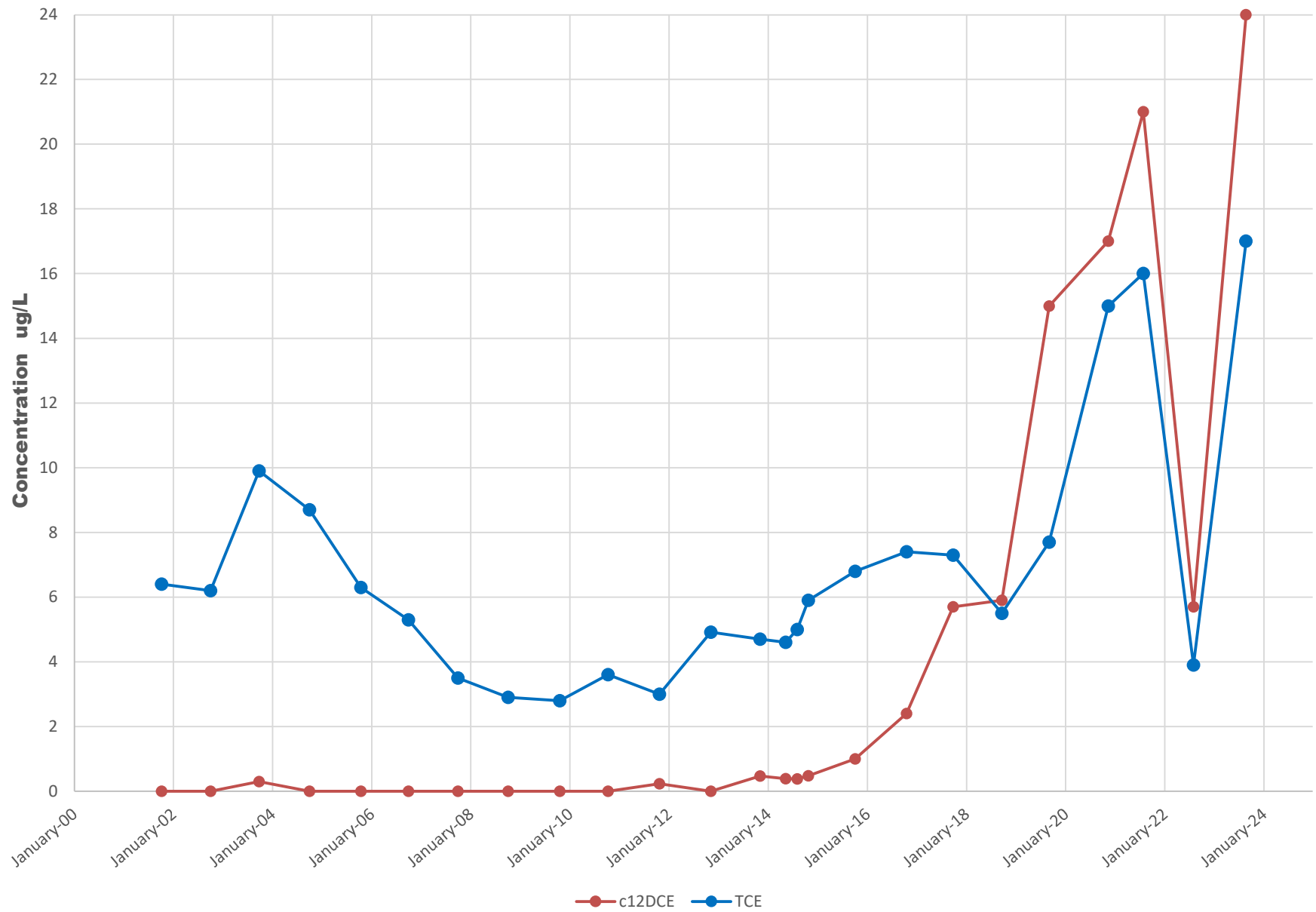
CW-3



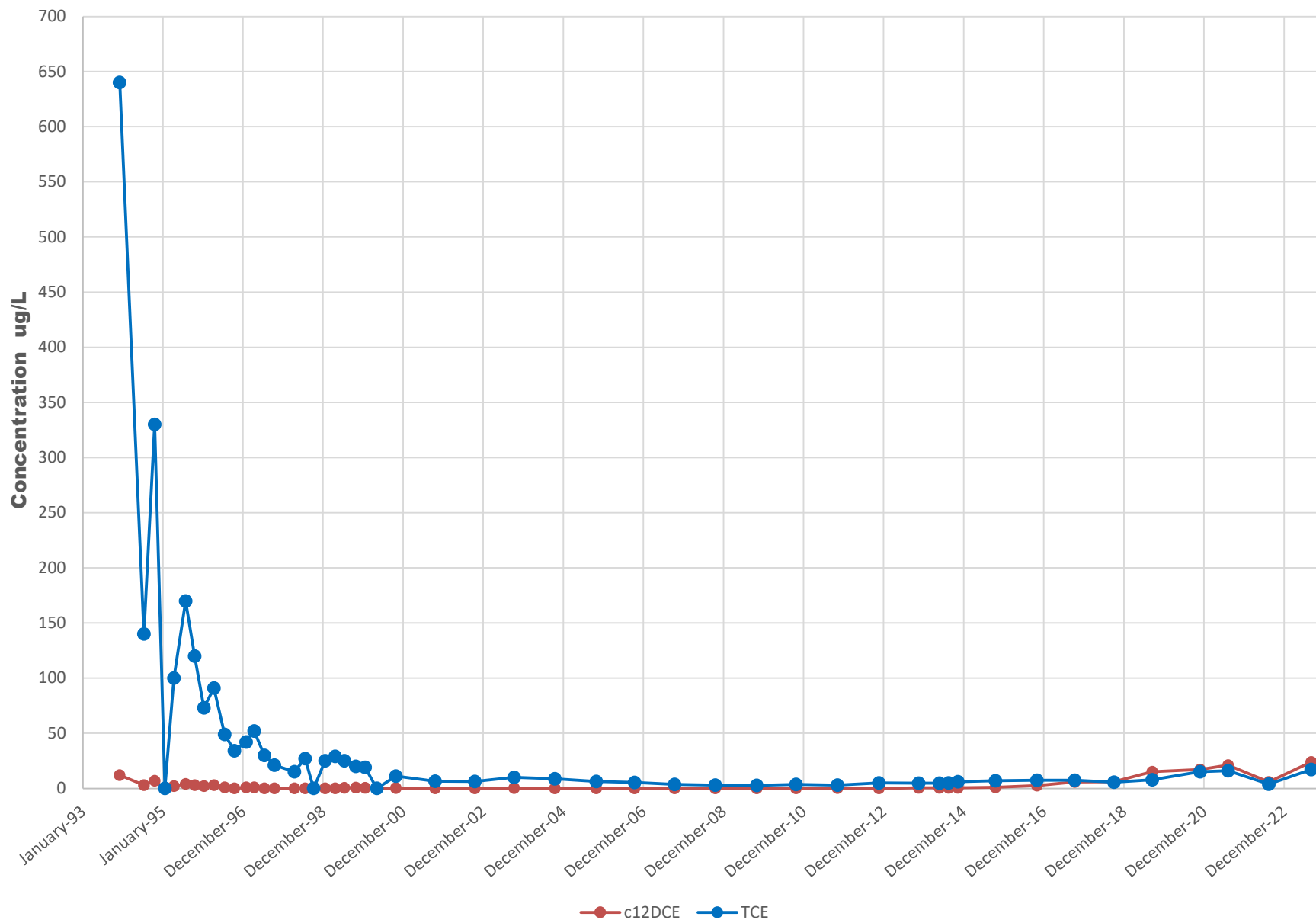
W56



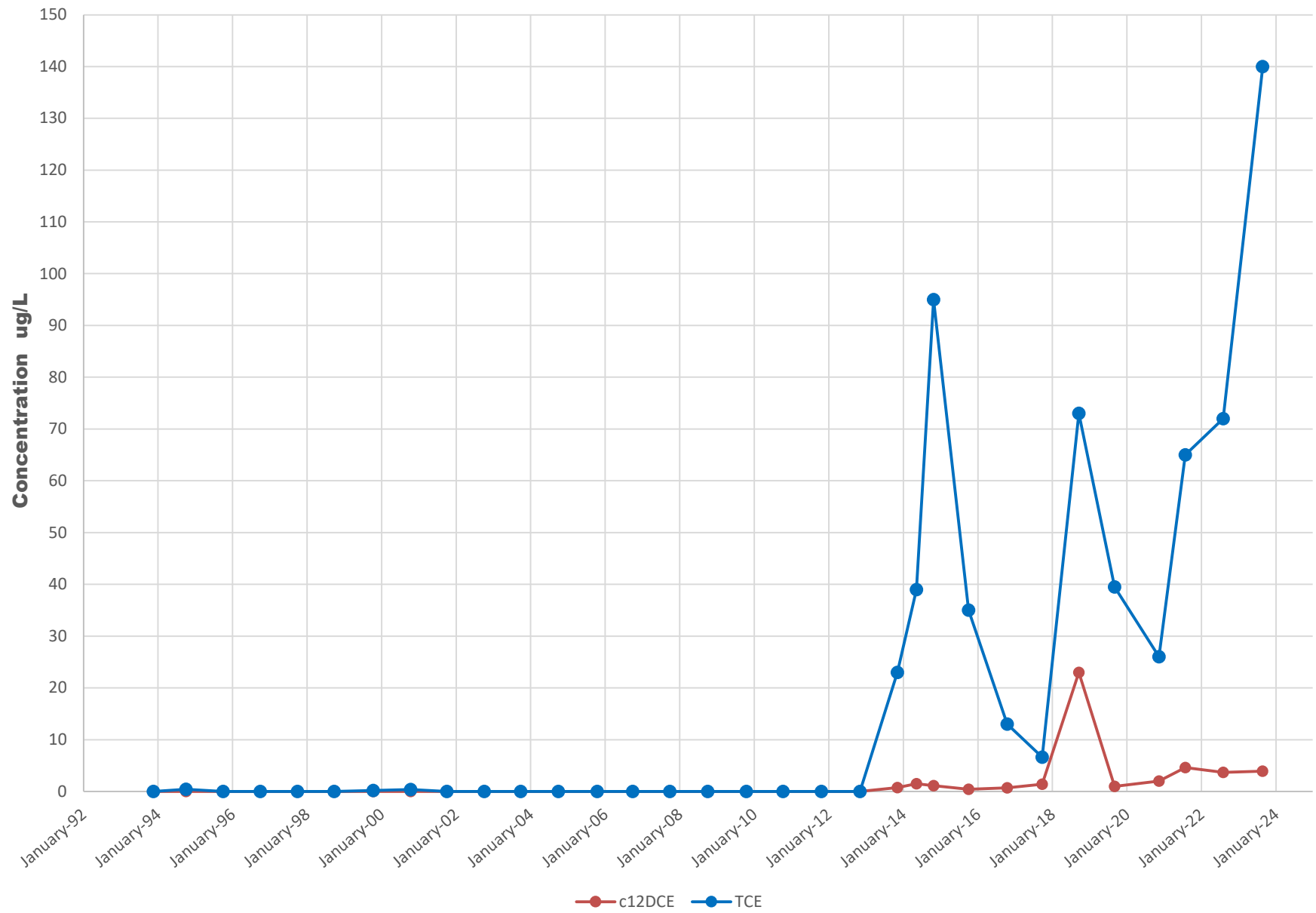
W55 Since 2000



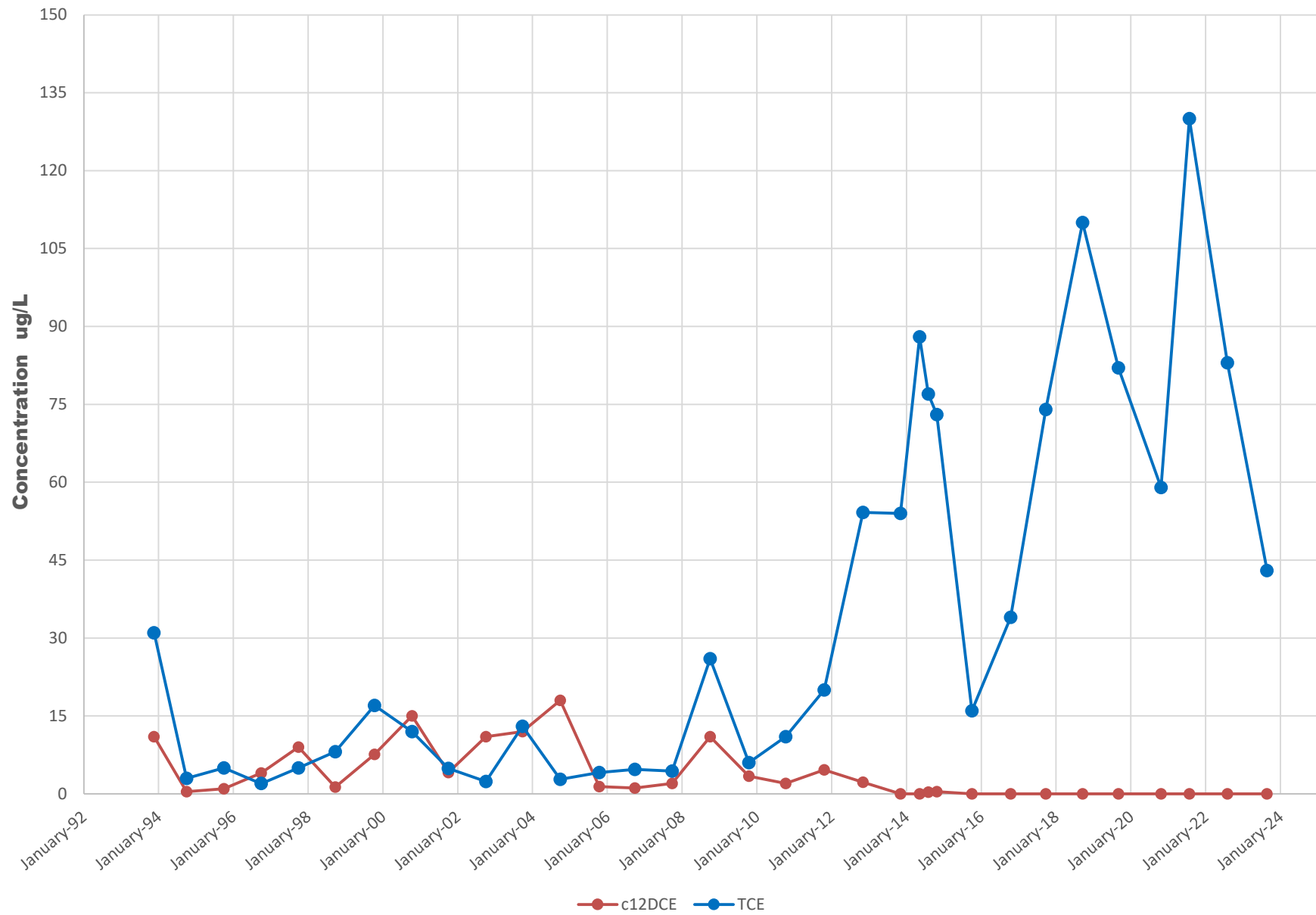
W55 All Data



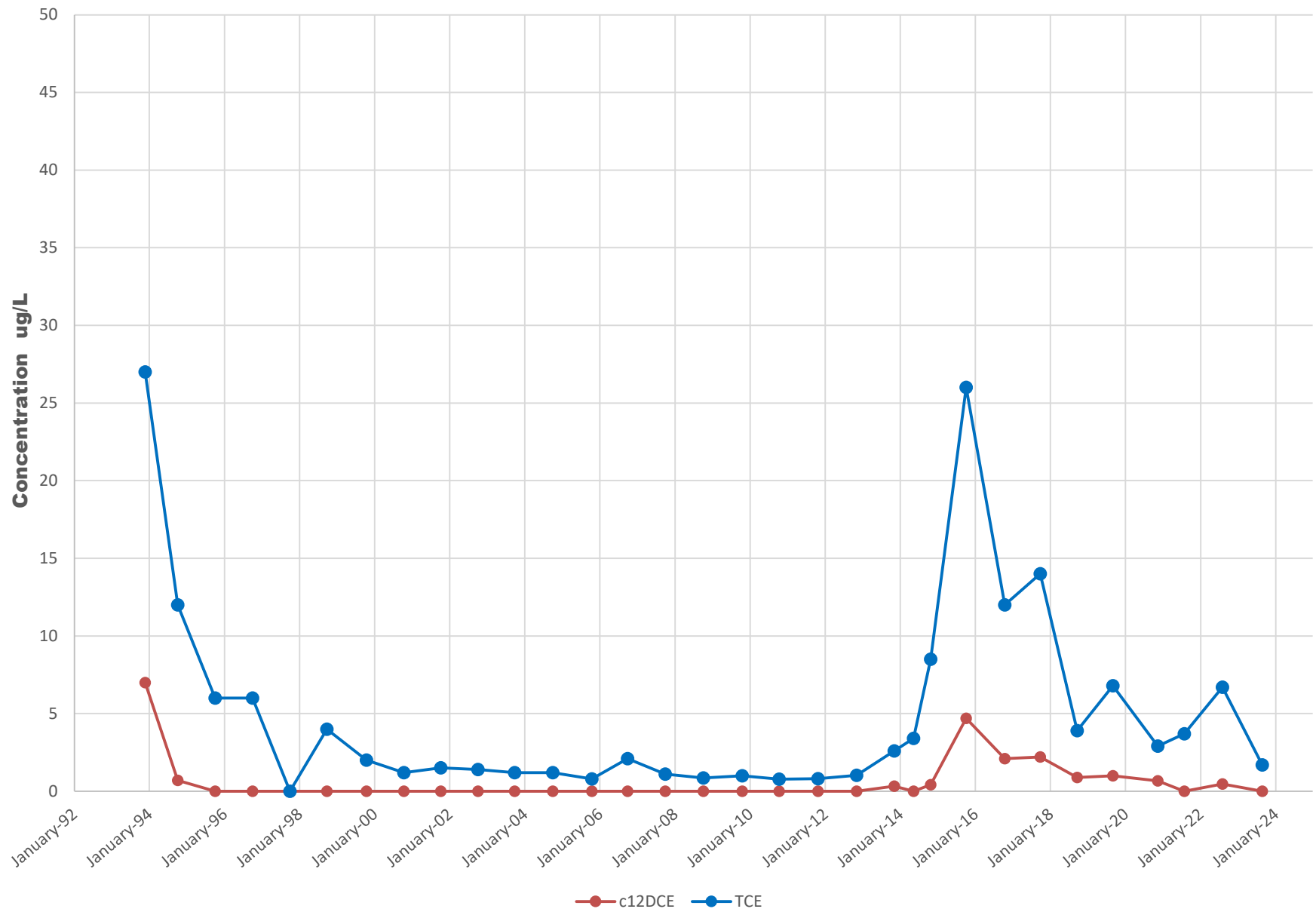
W54



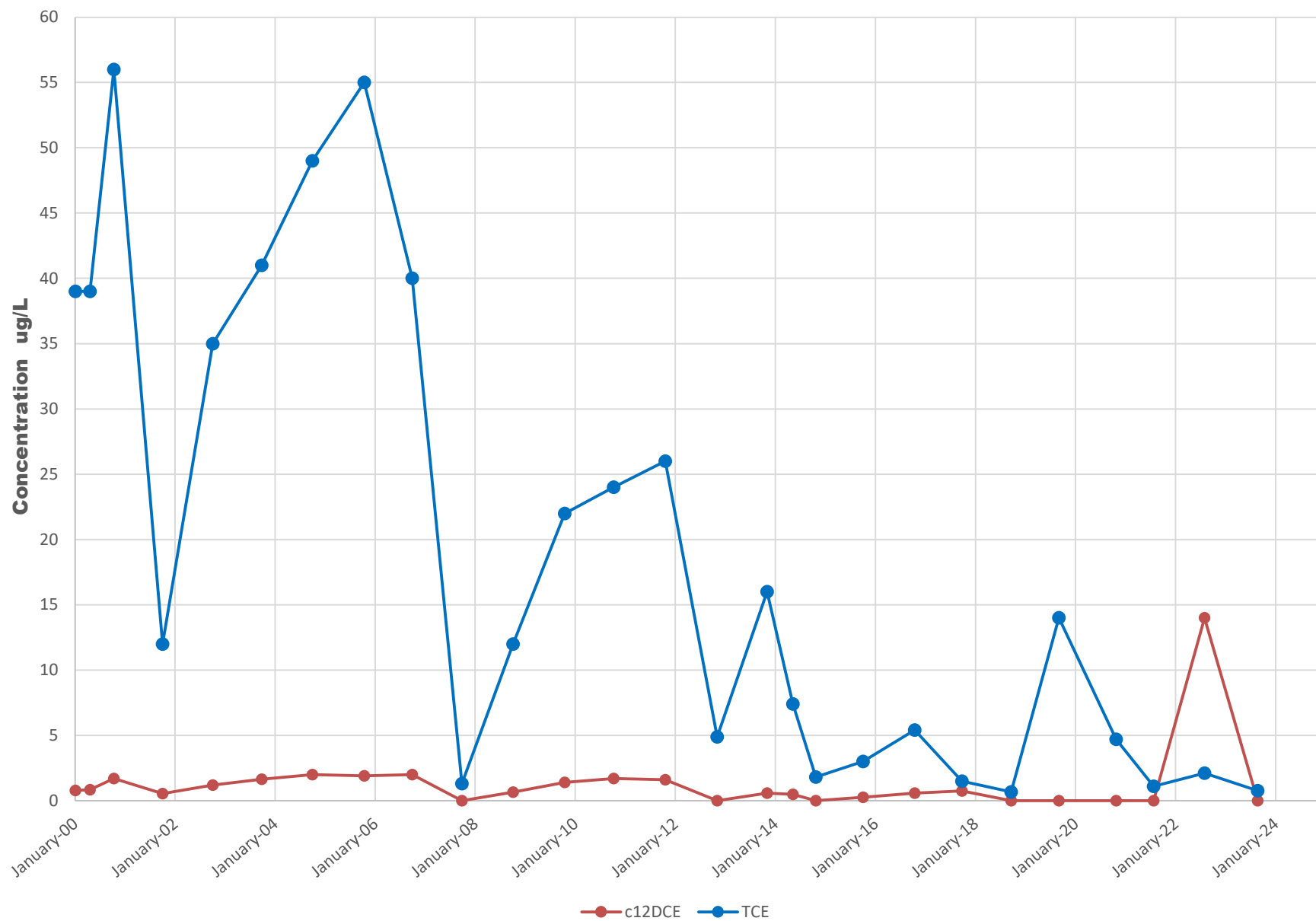
W53A



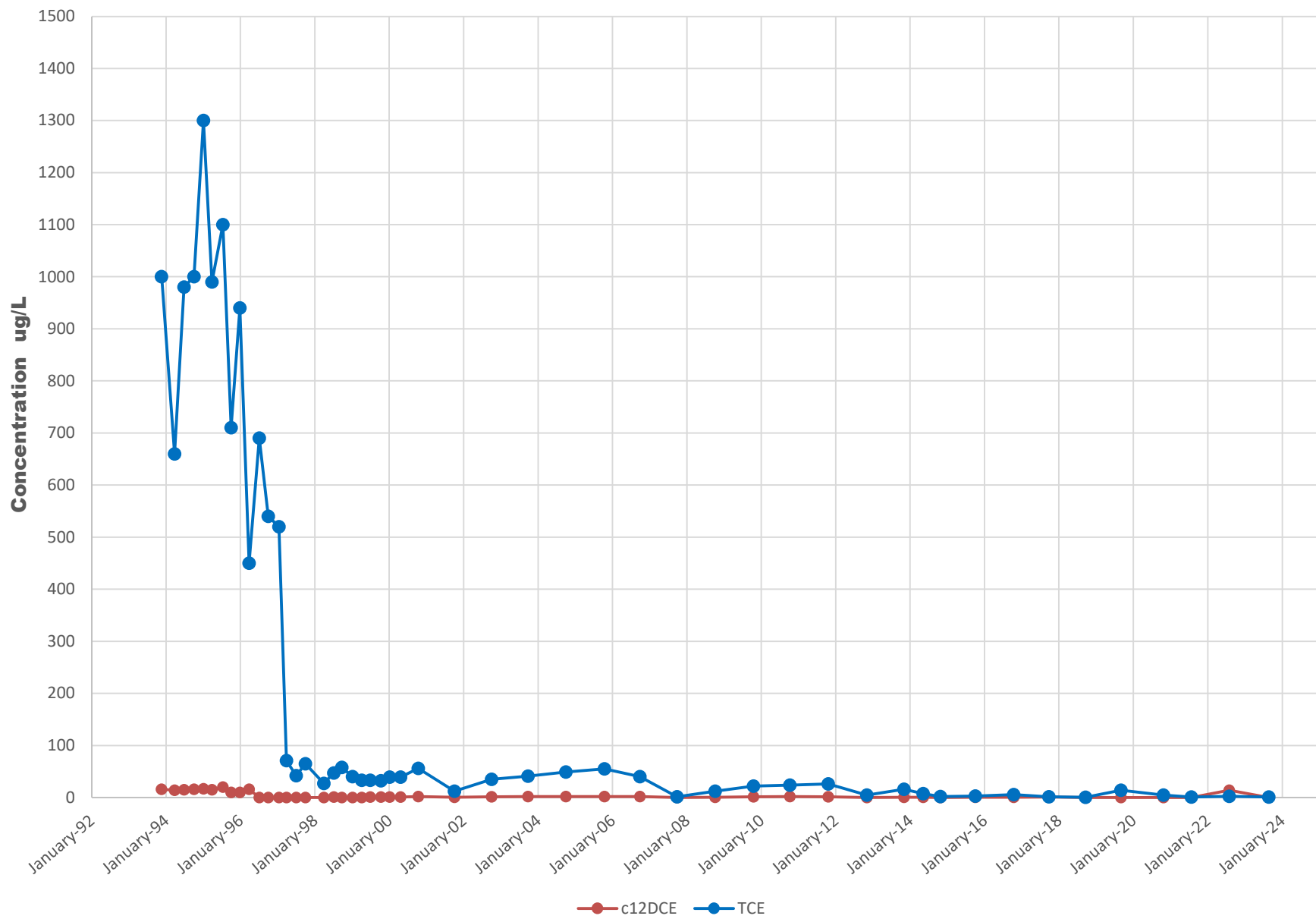
W52



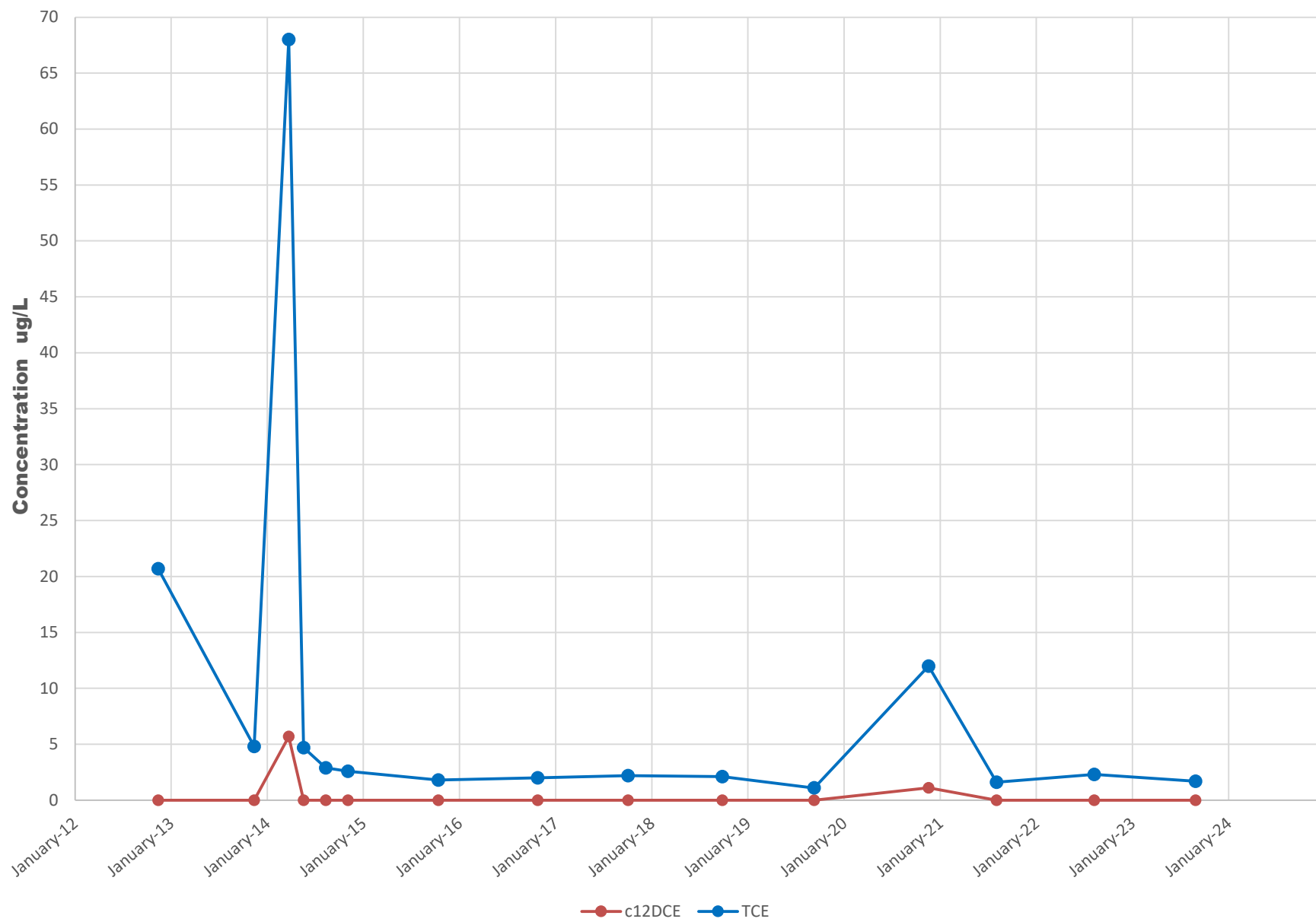
R4D Since 2000



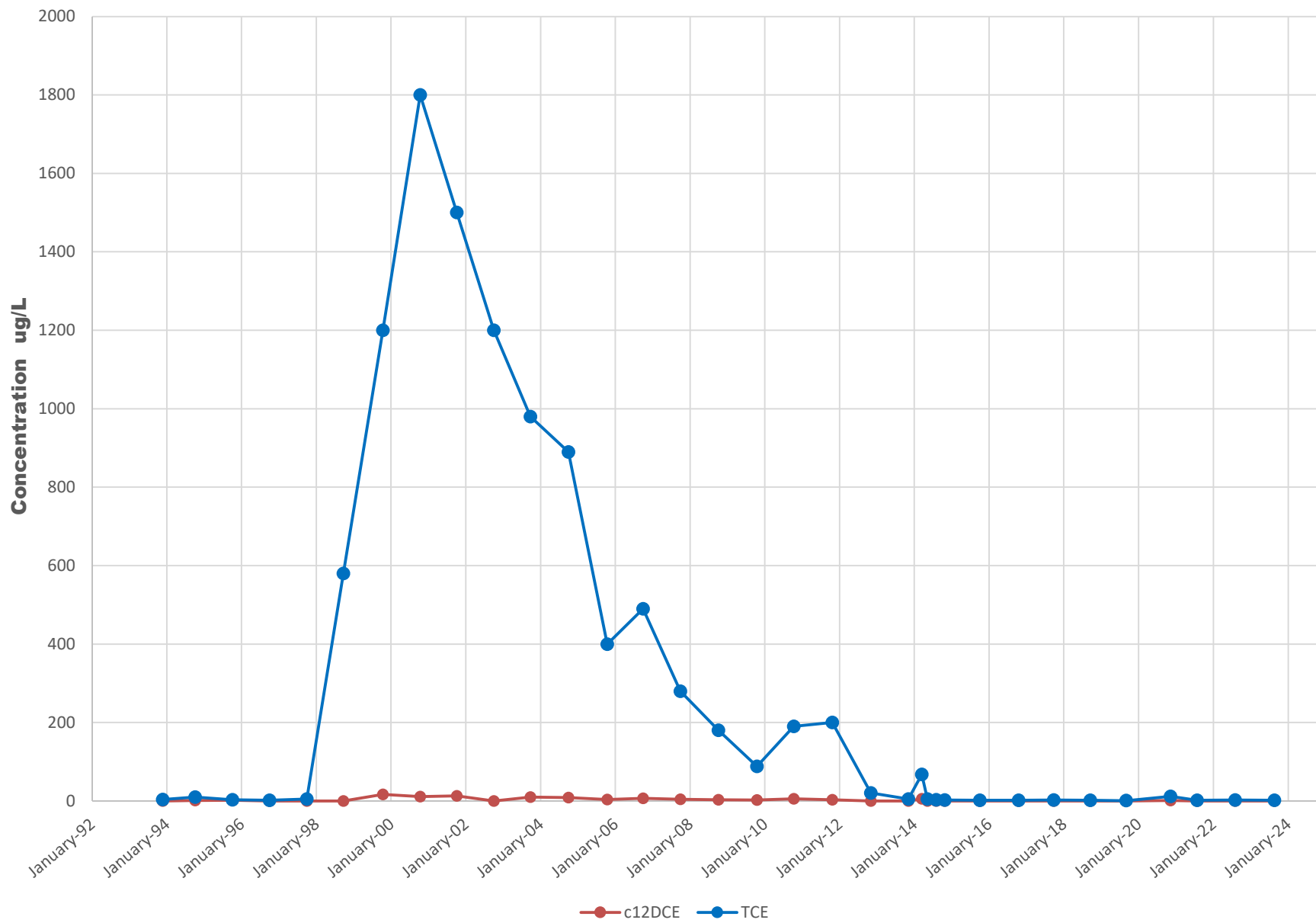
R4D All Data



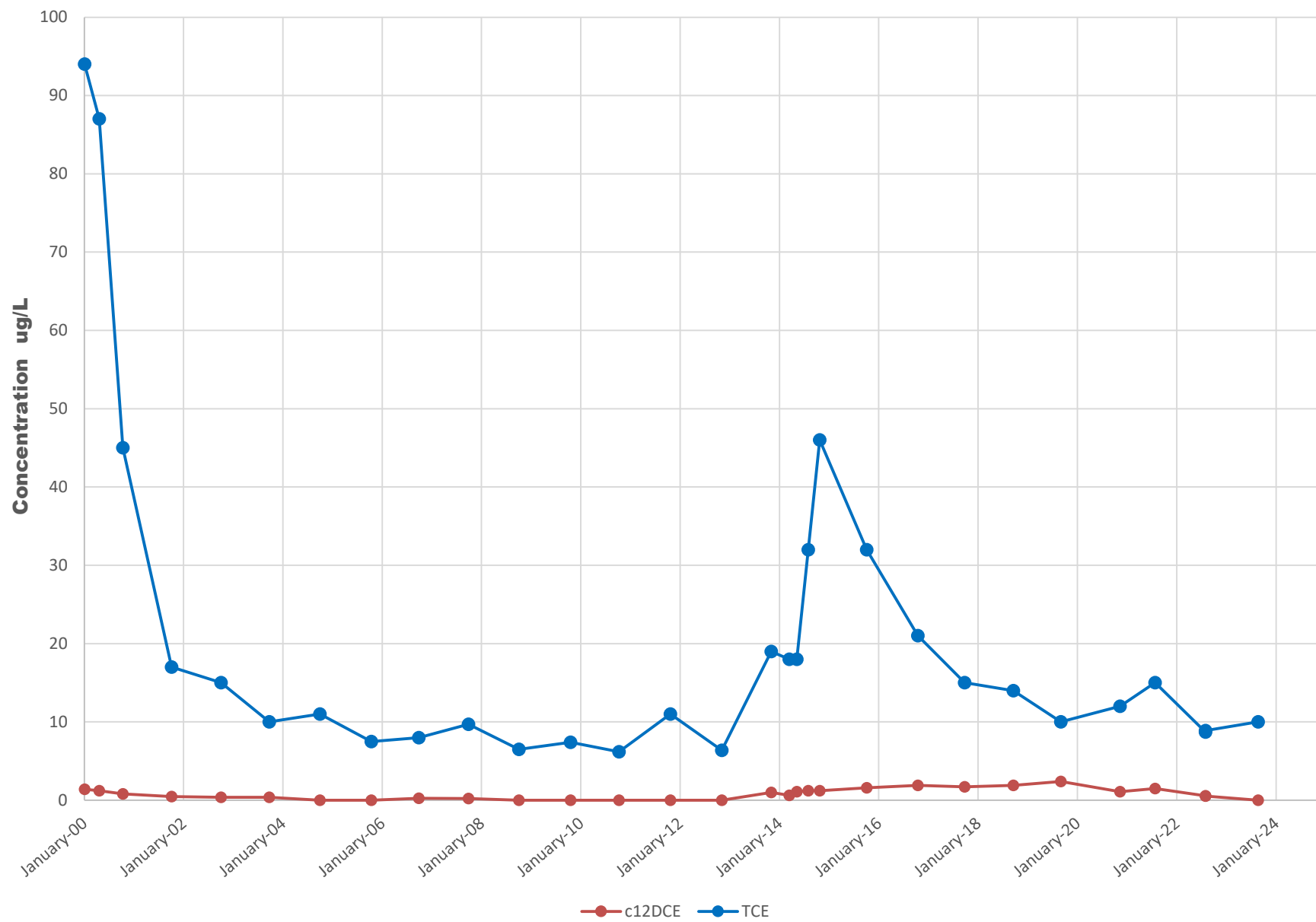
R3D Since 2011



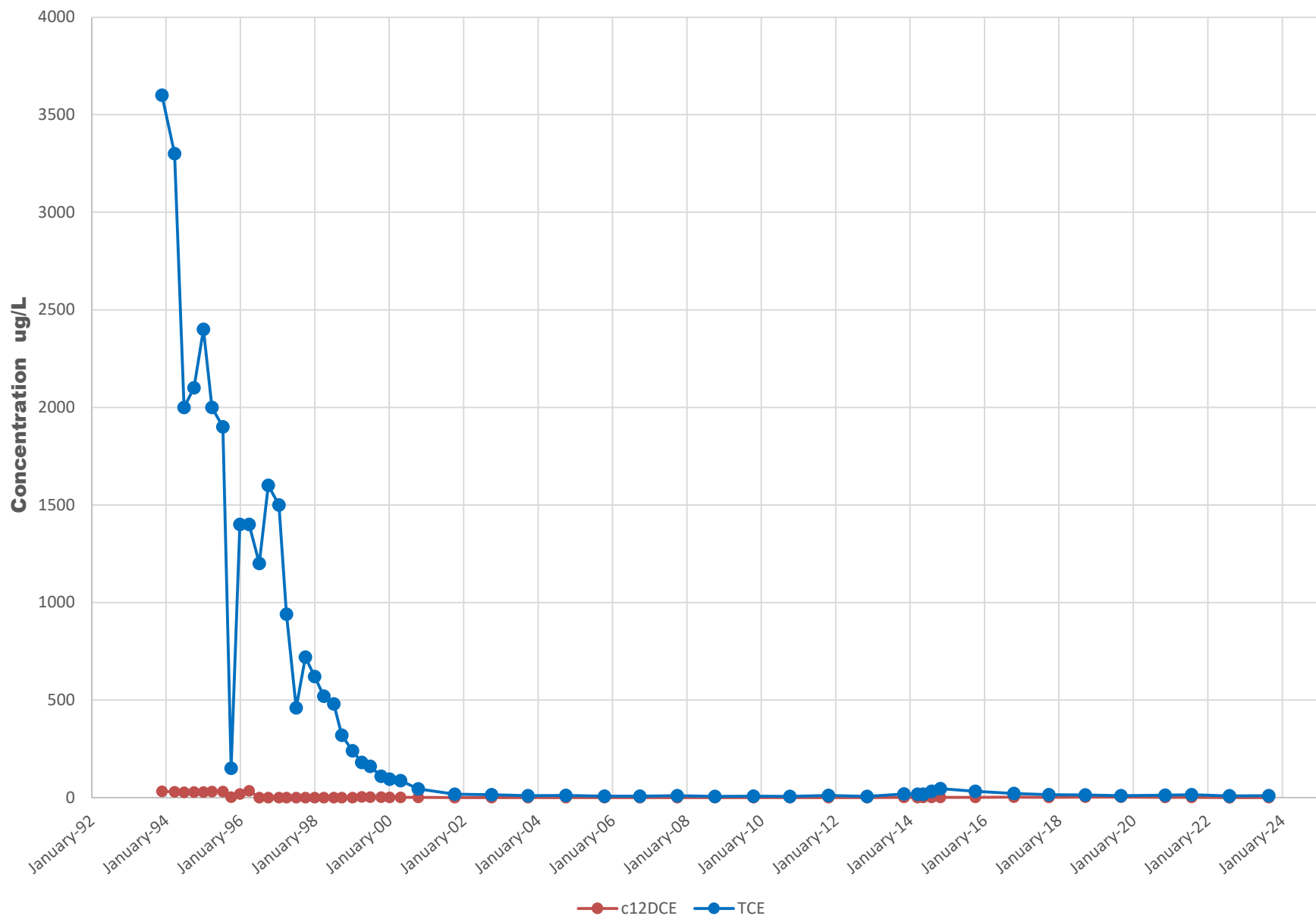
R3D All Data



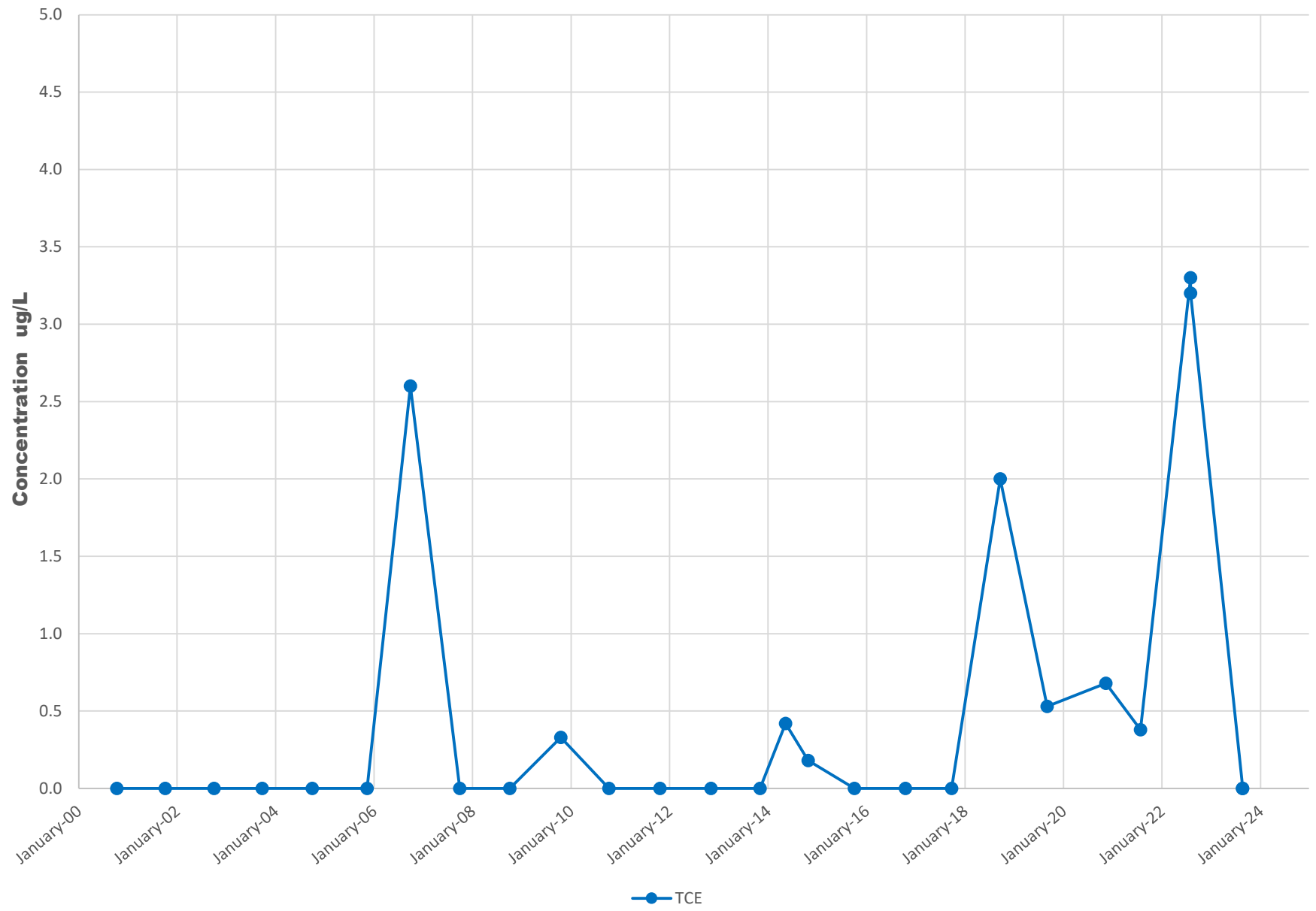
R2D Since 2000



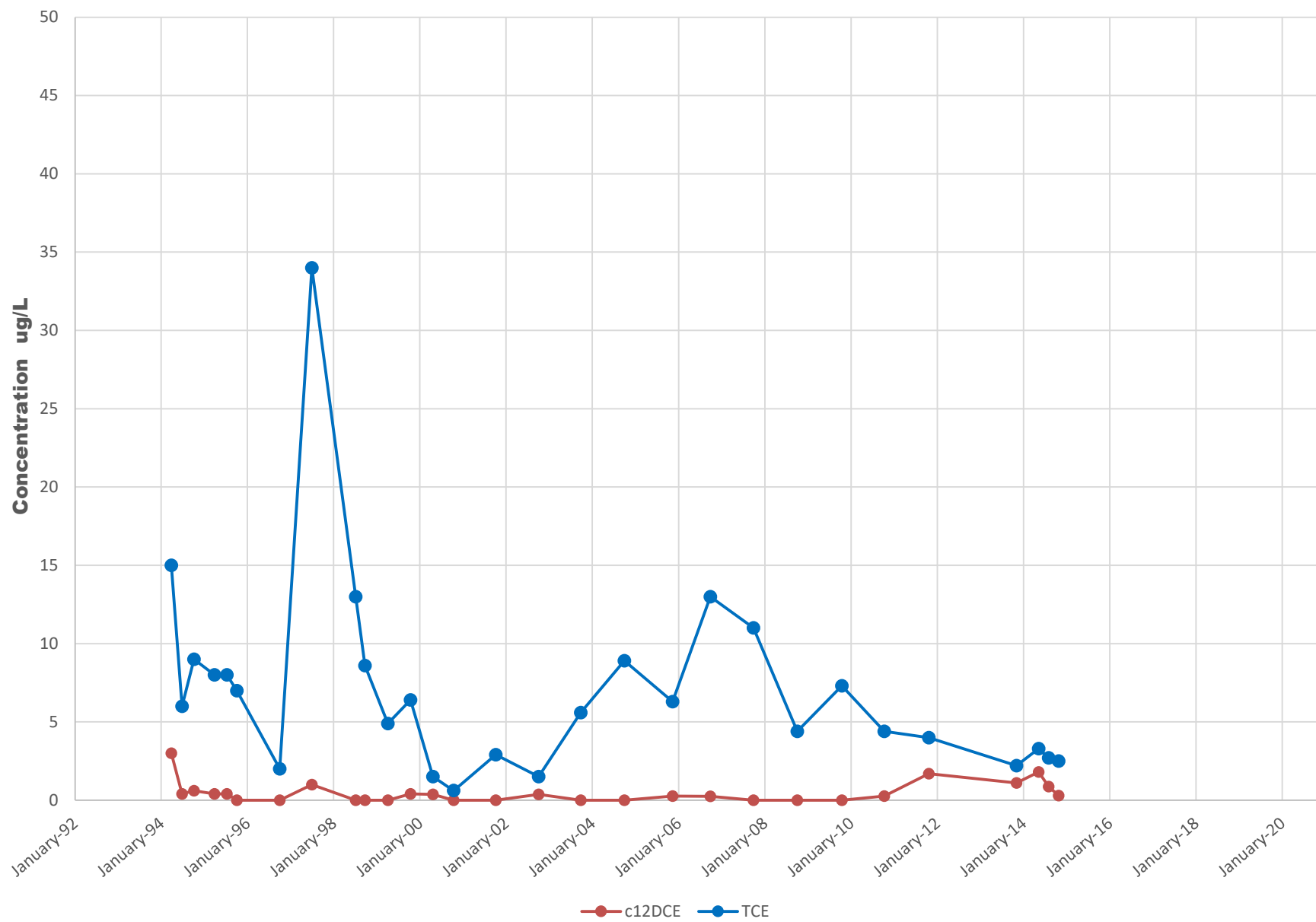
R2D All Data



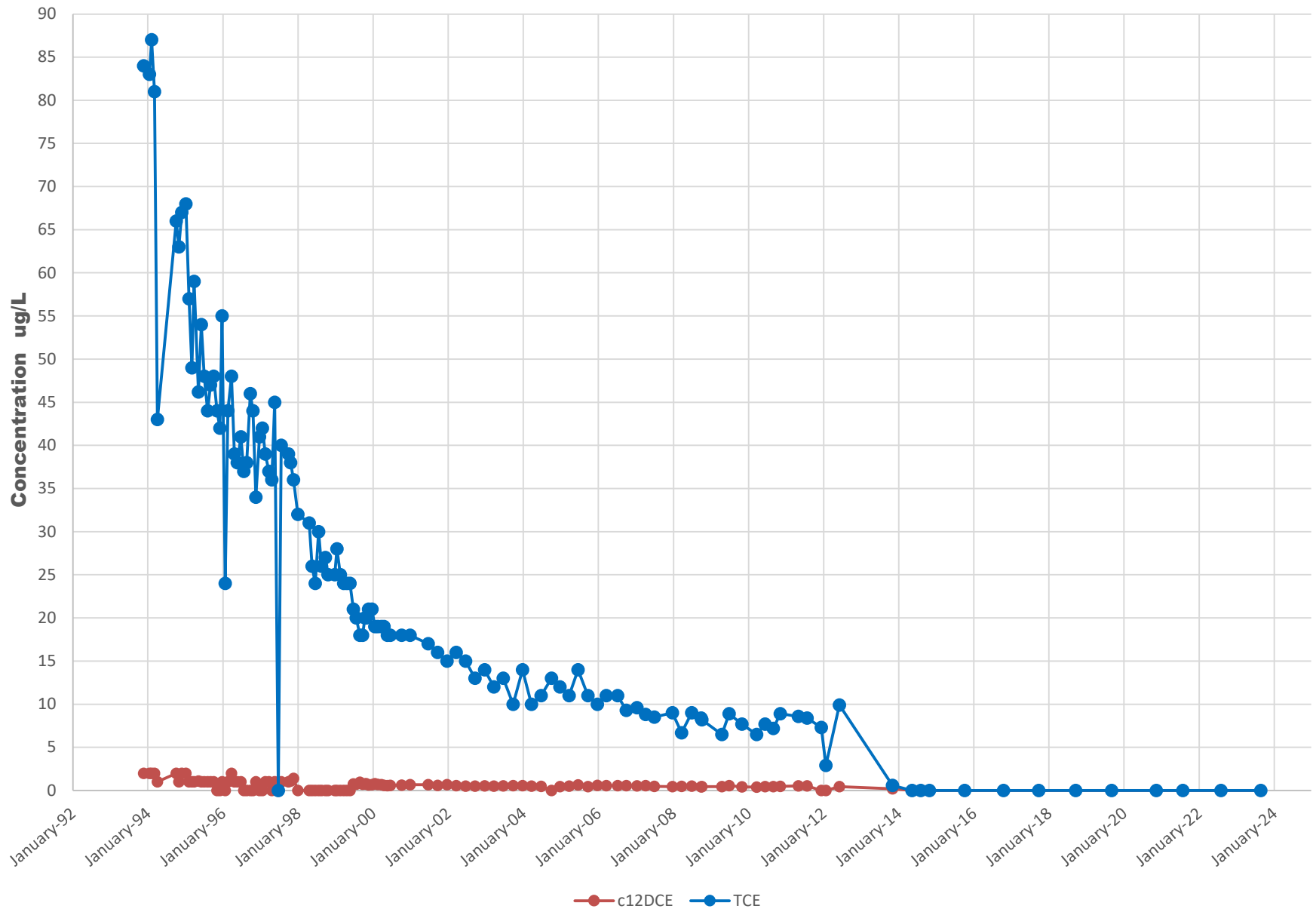
MW1A



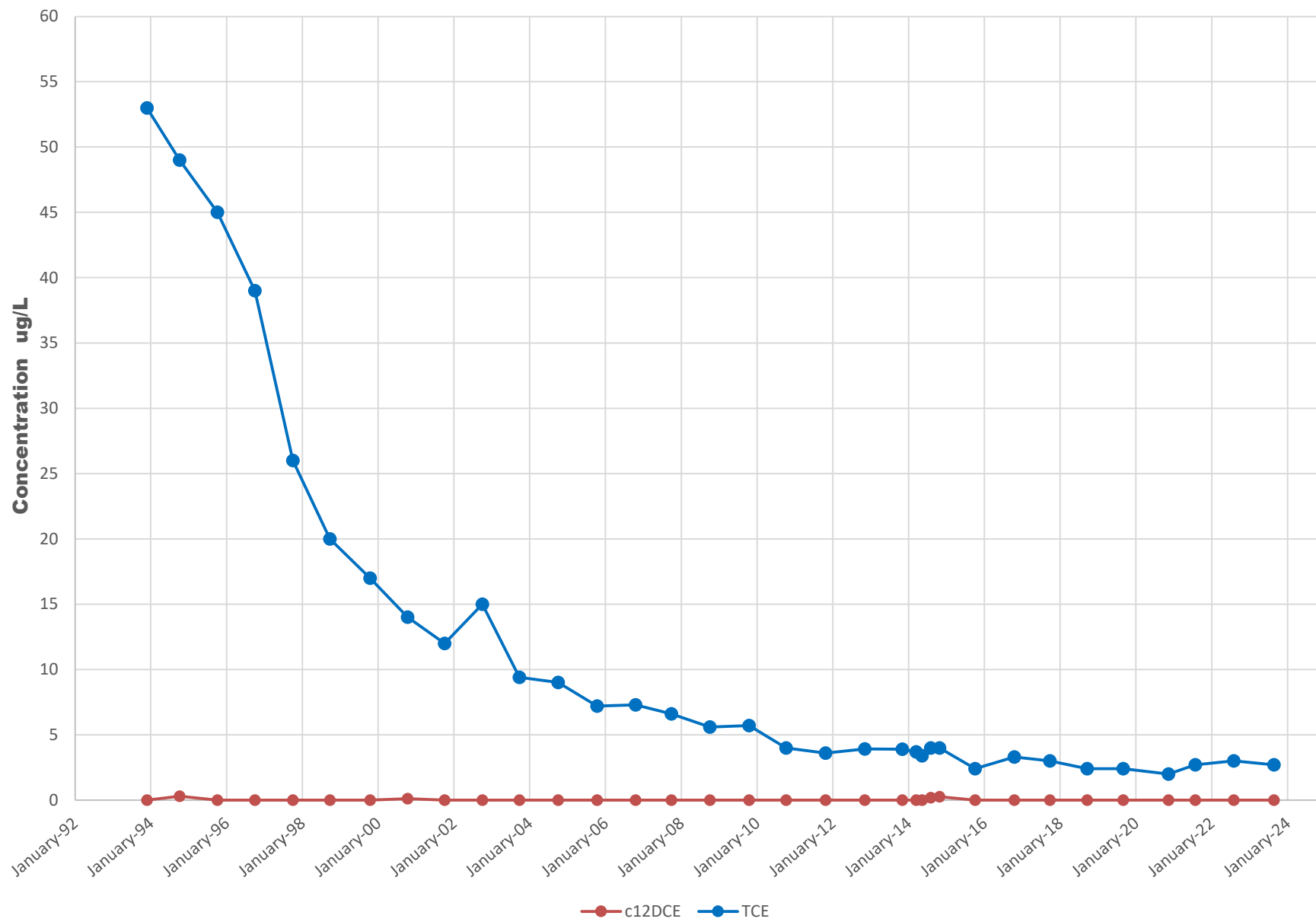
IWD



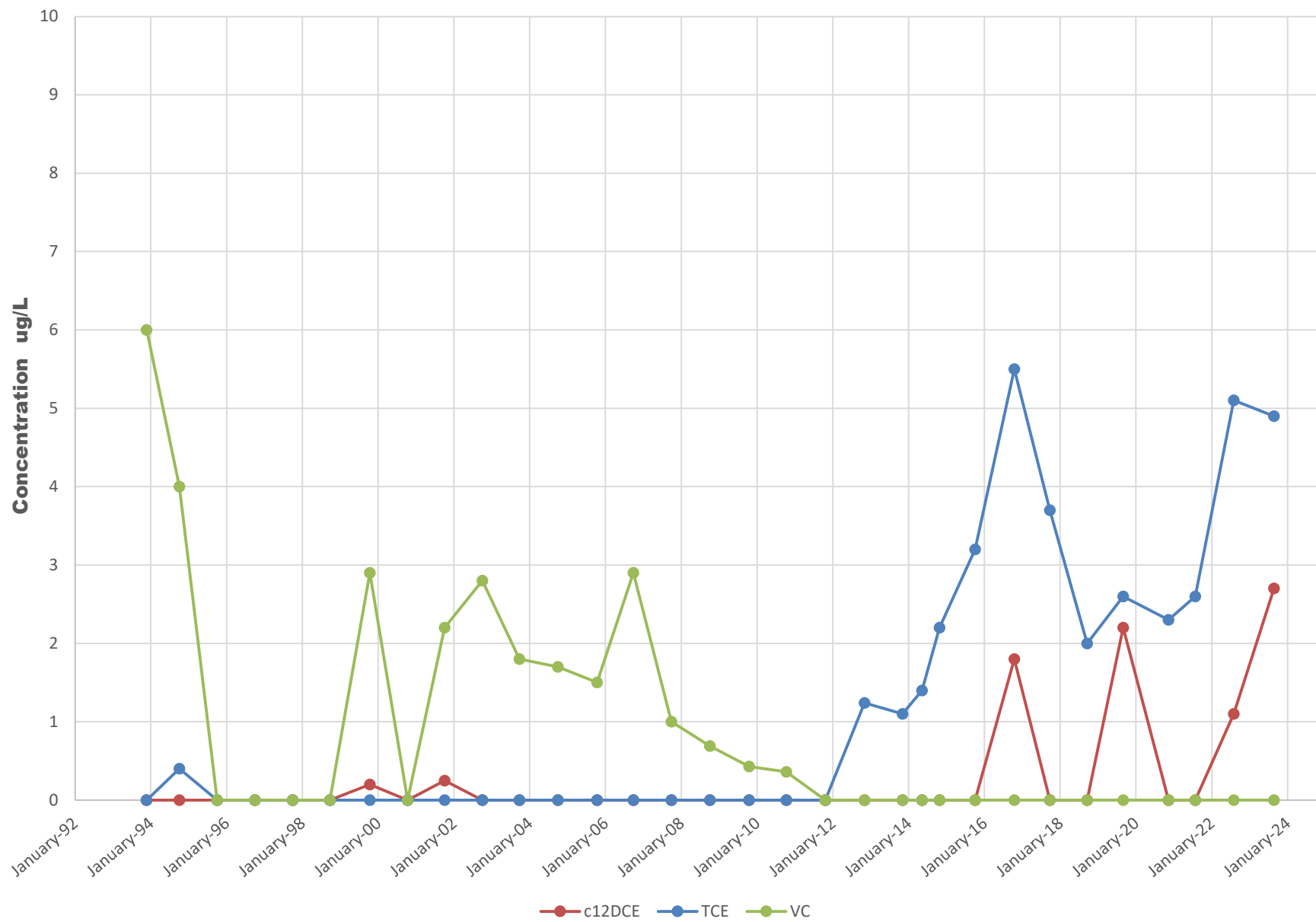
EW-1



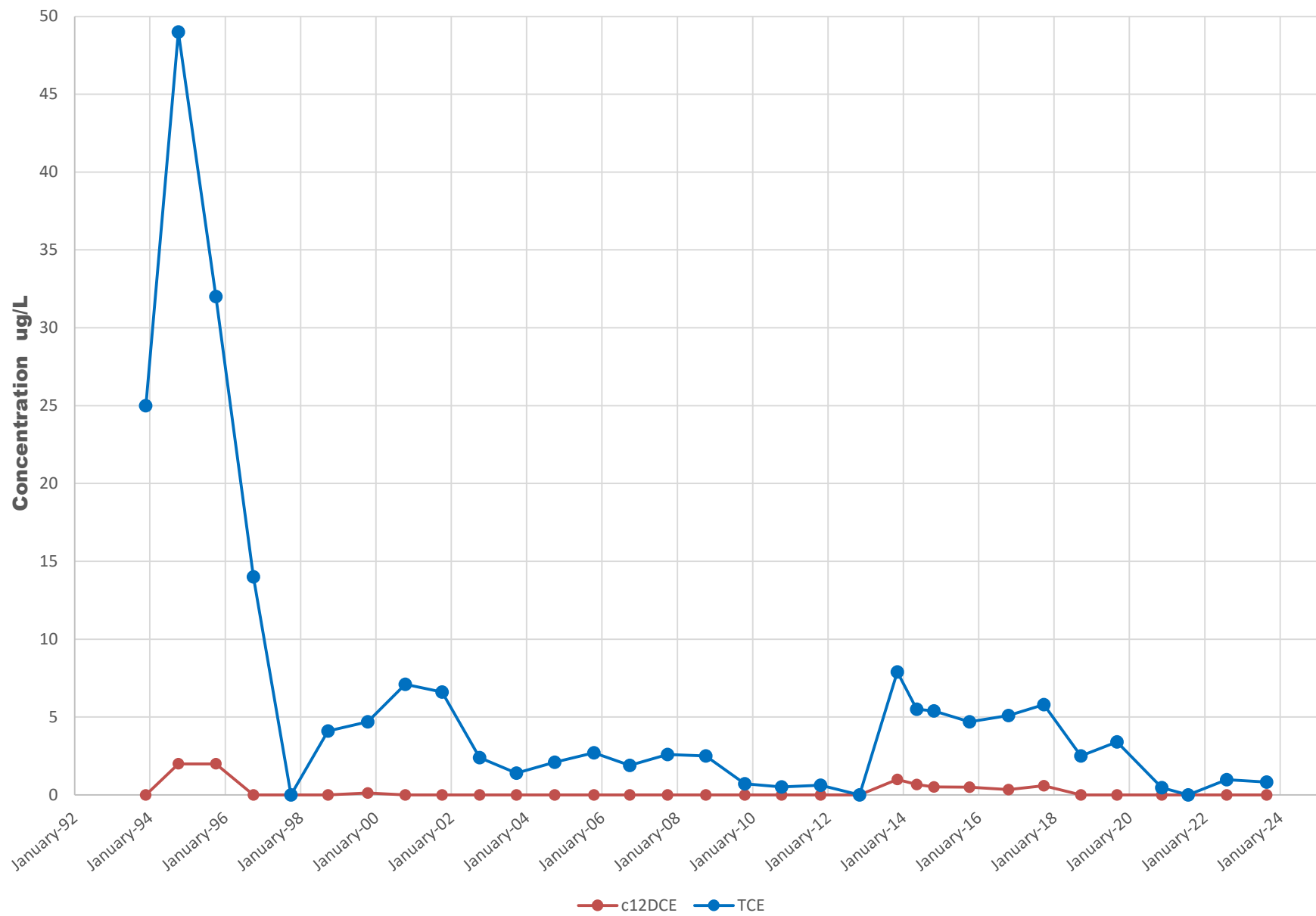
CW6



C4S



C2S





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