2022 Annual Monitoring Report

Wausau Water Supply NPL Site
Wausau, Wisconsin

Wausau Group

February 16, 2023

→ The Power of Commitment

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1. Introduction

GHD Services Inc. (GHD) has prepared this 2022 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 2022.

1.1 History

The Group initiated remedial action at the Site in the early 1990s in accordance with the September 29, 1990, Record of Decision (ROD) and the Consent Decree (CD) entered with the court on January 24, 1991. The final remedial action at the Site consisted of two soil vapor extraction (SVE) systems to address the source areas and groundwater extraction and treatment, utilizing existing municipal production wells (CW3 and CW6) and a remediation well (EW1). The Site location is shown on Figure 1 and a Site plan is presented on Figure 2.

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

The groundwater remediation system consists of two municipal water supply wells (CW3 and CW6) and one extraction well installed at Marathon Electric (EW1). Air strippers, located at the Wausau water treatment plant, treat water from the municipal supply wells. Water from EW1 was treated by air stripping (over riprap on the riverbank) before 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 for pumping 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 have not yet provided a final approval of the EW1 shut down, potential effects of the shut-down have continued to be evaluated through the annual groundwater monitoring conducted each fall from 2015 through 2022. EPA and WDNR have conditionally approved the permanent shutdown and abandonment of EW1 pending their review of the EW1 Abandonment Work Plan, which was submitted to the agencies on February 17, 2021.

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 2022.

1.2 Monitoring Background

Groundwater monitoring at this Site is a combination of hydraulic and water quality monitoring designed to verify that the groundwater extraction wells are containing the contaminant plume and that groundwater quality is improving as a result of past source remedial actions and ongoing volatile organic compound (VOC) removal from the aquifer. Groundwater remediation at the Wausau Site has been ongoing for over 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 2022, 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).

1.3 Site Geology

The Site is underlain by glacial outwash and alluvial sediments that have filled in the pre glacial stream valley in which the Wisconsin River now flows. This alluvial aquifer ranges from 0 to 160 feet thick and has an irregular base and lateral boundaries. Relatively impermeable bedrock underlies the aquifer and forms its lateral boundaries within the pre-glacial valley. Six production wells in the Site area provide drinking water for the City of Wausau. These wells are screened in the glacial outwash and alluvial sand and gravel deposits that underlie and are adjacent to the Wisconsin River.

1.4 Groundwater Cleanup Standards

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

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

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

2. 2022 Annual Monitoring

The 2022 annual groundwater monitoring event was conducted on August 8 and 9, 2022. Monitoring was conducted in accordance with the Groundwater Monitoring Plan (GMP) with the revisions to the analyte list and monitored locations approved by EPA in the years since the GMP was first approved in 2000. Table 2.1 presents the VOC analyte list and the monitored locations for the 2022 sampling event. These locations were proposed in the 2019 Annual Monitoring Report (GHD, 2020).

2.1 Water Level Monitoring

Table 2.2 presents the groundwater elevation data measured on August 8 and 9, 2022. Water table contours based on these measurements are presented on Figure 3. Field staff measured water levels on the East Bank on August 8 while CW3, the East Bank remediation well was operating, and on the West Bank on August 9 while CW6, the West Bank remediation well, was operating. As explained in Section 1.1, EW1 was not operating during the 2022 monitoring event. Water levels in the City production wells were measured with the assistance of City staff.

The East Bank groundwater flow patterns are controlled by the operation of CW3. East Bank groundwater contours indicate a large cone of influence surrounding CW3 that fully captures the East Bank contaminant plume. Under natural conditions, groundwater on the East Bank flows in a south-southwest direction towards the Wisconsin River, as observed as recently as the 2017 sampling event when CW3 was not operating due to rehabilitation activities being conducted at the time of hydraulic monitoring.

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

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. TestAmerica 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 2022 data are presented in Appendix A.

2.3 Extraction Well EW1 Sampling

EW1 did not operate during 2022; thus, influent and post treatment effluent samples were not collected. However, a sample was collected from EW1 during the annual monitoring event. In the EW1 sample, all VOCs were non-detect except toluene, which had an estimated concentration below the MCL of 0.21 J µg/L.

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 2022 monitoring round. An inspection form was used to document the following well conditions:

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

Table 3.1 presents the results of the inspection. The inspection indicated that all wells were in good to satisfactory condition. Some minor repairs, as well as vegetation clearing were conducted at select wells in 2022. A few monitoring wells were identified for minor repairs that will be conducted in 2022, however, those repairs were not completed in 2022. The well that were identified will be address in 2023.

3.2 City Production Wells

Table 3.2 presents 2022 pumping data for the six City wells. While only CW3 and CW6 are part of the remediation system, data for all City wells are presented, consistent with previous reports. The table shows, by month, the number of hours each well was operated, the number of gallons pumped from each well, and the average pumping rate while the pump was operating.

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

During 2022, CW3 operated for an average of 100.61 hours per week with an average pumping rate of 1,169 gpm, operating at approximately 151% of the total required gallons based on the 1995 EPA pumping requirements.

CW6 pumped an average of 75.55 hours per week with an average pumping rate of 1,122 gpm in 2022. 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 (264,458,000) pumped by CW 6 during 2021 was 71.2% of the EPA recommended volume of 371,280,000 gallons/year. Due to the construction of the new treatment plant in 2022, CW6 was offline periodically during the year, which caused the decrease in total volume pumped. In September 2022 CW6 was diverted into the new treatment plant.

3.3 East Bank Source Area Pavement Inspection

The EPA and WDNR approved final closure of the East Bank source remediation SVE system in September 2007. As described in the Pavement Cover and Building Maintenance Plan, a requirement of the closure was an annual inspection of the paved areas surrounding the Wausau Chemical property. The purpose of the inspection is to monitor the integrity of the paved areas of the property and make recommendations to minimize rainwater infiltration and prevent direct human contact with soils. In August 2009, the entire pavement area was repaved with new asphalt and the street adjacent to the west side of the property, North River Drive, was repaved by the City of Wausau.

Also, an approximately 2,800 square foot addition, with concrete floor and roof, was added to the south end of the building in 2009-2010. Inspections conducted during 2022 found the pavement to be in good 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 2022. VOC concentration maps for the principle 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.14D 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 C4S, R2D, W52, W53A, W54, and WSWD. Wells C4S, W53A, W54, and WSWD are located on or adjacent to the former landfill on Marathon Electric property (see Figure 4). R2D and W52 are located downgradient from Marathon Electric in the direction of groundwater flow toward CW6. The TCE concentration at CW6 (3.0 µg/L) was slightly higher than the 2021 concentration (2.7 µg/L) and was below the MCL.

TCE degradation product, c12DCE, was detected at 7 locations, however none of the c12DCE West Bank concentrations exceeded the cleanup standard of 70 µg/L. Neither PCE nor vinyl chloride were detected in West Bank well samples.

North of EW1 the West Bank plume is in the deeper portion of the aquifer. Two wells in the northern portion of the West Bank plume exceeded the MCL for TCE. R2D had a concentration of 8.7 µg/L and a duplicate sample with a concentration of 8.9 µg/L, W52 had a concentration of 6.7 µg/L. R2D is a deep aquifer well approximately 150 feet north of Marathon property. Recent decreasing TCE concentrations at that location 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 the generally increasing concentrations at W55 since 2012 (see the W55 trend graph in Appendix C). R3D had a concentration of 12 µg/L in 2020, however the concentration dropped to 1.6 µg/L in 2021 and remained low at 2.3 µg/L in 2022.The concentrations at R3D remain several orders of magnitude lower than the period from 1999 to 2007 when concentrations ranged from 280 µg/L to 1,800 µg/L.

The historical data for R2D, R3D, and R4D are presented in the table below. Although total chlorinated VOCs are shown here, TCE comprises 94-100 percent of the concentrations listed at R2D and R3D and approximately 13% at R4D (the remaining portion would be the TCE breakdown product c12DCE). Review of these data indicates plume migration to the south during the 1990s and 2000s, from the R2D area to R3D, as groundwater moved toward EW1. When EW1 stopped pumping in 2012, VOC concentrations increased at R2D as the aquifer flow direction changed back to the north toward CW6. The shut-down of EW1 eliminated the groundwater flow divide between CW6 and EW1, which has resulted in a more effective reduction of VOC concentrations in the R2D/R3D area.

The increased concentration at R4D in 2019 may be due to increased infiltration of precipitation in the source area due to increased rainfall (2019 is the wettest year on record in Wausau since 1938, with over 48.1 inches of precipitation, compared to an average of approximately 33.3 inches per year from 1991 through 2018)[2]. In 2020 this concentration (4.7 µg/L) again decreased to below the MCL, and further decreased to 1.1 µg/L in 2021. In 2022 the concentration of total chlorinated VOCs increased above the MCL to 16.1 µg/L. The increased proportion of 12DCE may indicate natural breakdown of contamination.

[2] National Weather Service, Final 2019 Precipitation Totals Across North Central & Northeast Wisconsin. Weather.gov, January 2020

West Bank Total Chlorinated VOCs (µg/L)

Year	R4D	R3D	R2D
1996	540	2.0	1600
1997	65	5.0	720
1998	55	580	320
1999	33	1200	110
2000	58	1800	45
2001	13	1500	17
2002	36	1200	15
2003	38	980	10
2004	51	899	11
2005	56.5	400	7.5
2006	42	490	8.2
2007	1.3	280	9.9
2008	13	180	6.5
2009	22.9	92	7.3
2010	25.7	195.7	6.2
2011	27.6	203.1	11
2012	4.9	20.7	6.4
2013	16.6	4.8	20
March 2014	NA	73.7	18.2
May 2014	7.89	4.7	19.1
August 2014	NA	2.9	33.2
Nov 2014	1.8	2.6	47.2
2015	3.27	1.8	33.6
2016	5.97	2.0	22.9
2017	2.24	2.2	16.7
2018	0.68	2.1	15.9
2019	14	1.1	12.4
2020	4.7	13.1	13.1
2021	1.1	1.6	16.5
2022	16.1	2.3	9.42

Monitoring wells south of EW1 are in, or adjacent to, the old landfill, which is the principal West Bank source area. VOC contaminants are more prevalent in the shallower portion of the aquifer near the source area. Monitoring wells south of EW1 that exceeded the MCL for TCE included CS4, W53A, W54, and WSWD.

Four wells in the southern portion of the West Bank plume exceeded the MCL for TCE. C4S had a TCE concentration of 5.1 µg/L, W53A had a concentration of 83 µg/L, W54 had a concentration of 72 µg/L, and WSWD had a concentration of 32 µg/L. TCE concentrations at W53A and W54 have exhibited substantial fluctuations since the shut-down 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 local effect on VOC content in the groundwater.

The overall areal extent of the West Bank contaminant plume has not changed significantly since EW1 was shutdown. TCE and c12DCE were essentially the only VOCs detected downgradient from the source area on the West Bank. Figures 4 and 5 present 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 original contaminant on the East Bank, the presence of TCE, c12DCE, and vinyl chloride, at concentrations that exceed the PCE concentration in many wells, indicates an active natural biodegradation process. For example, at WW6 and E37A the c12DCE concentrations were higher than the PCE and TCE concentrations.

PCE or one of its daughter products was detected at 6 of the 9 East Bank monitoring wells. Five 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. Total chlorinated VOC concentrations from 2012 through 2022 for key East Bank wells are shown below:

East Bank Total Chlorinated VOCs (µg/L)

Year	WC3B	WC5A	E24AR	E22A	E37A	WW6	CW3
2012	3.5	1.3	3.9	25.4	68.1	45.5	3.6
2013	0.3	7.3	22.0	104.9	4.7	45.8	2.6
2014	6.3	14.9	222.5	12.5	3.7	51.9	3.0
2015	2.7	12.0	136.8	8.0	1.6	67.6	3.12
2016	0.56	26.1	152.1	123.0	1.78	8.0	3.0
2017	13.4	118.2	78.1	21.89	3.4	8.5	NA
2018	71.4	131.7	6.7	10.2	23.4	37.6	2.8
2019	480.0	1.1	5.28	1.6	1.6	29.4	2.8
2020	8.2	35.8	4.4	10.3	5.7	24.4	2.0
2021	6.8	33.3	8.7	13.2	31.4	3.0	1.9
2022	19.8	31.3	4.2	15	35.2	6.1	2.6

A chart showing historical chlorinated VOC concentrations from CW3 located on the East Bank is presented in Appendix C. Individual VOC concentrations for the shallow wells are presented for PCE, TCE, c12DCE, and vinyl chloride on Figures 4 through 7, respectively.

4.3 Emerging Contaminants

In 2019 the WDNR sent the Group a letter discussing the emerging contaminants PFAS and 14D. The letter requested that the Group evaluate and consider potential sources for each contaminant that may exist at the Site. The Group evaluated potential sources for the presence of 14D at the Site and concluded no likely known source existed. The Group decided to do a limited groundwater monitoring event at select monitoring wells at the Site during the 2021 annual monitoring event to investigate the potential presence of 14D. The wells were selected based on proximity to the existing chlorinated groundwater plumes on each bank. Since the Site groundwater is controlled hydraulically by the City wellfield, the Group believes any potential 14D plume(s) would be controlled similarly by these continuous pumping activities. A discussion of the Site's hydraulic capture model is presented in Section 4.4 below. The results of the 2021 14D sampling are discussed below. Analytical results for the limited 14D sampling event are included in Table 4.1 and on Figure 8.

A total of six wells, four on the West Bank (R2D, W52, W54, and W55), and two on the East Bank (E22A and WC3B), were sampled for the presence of 14D. 14D was not detected in any of the monitoring wells sampled during the 2021 sampling event. Based on the results of the limited groundwater investigation, 14D does not appear to be a concern at the Site and the Group does not plan any future sampling or other investigation activities at this time.

4.4 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 Proposed Groundwater Monitoring Plan Modifications

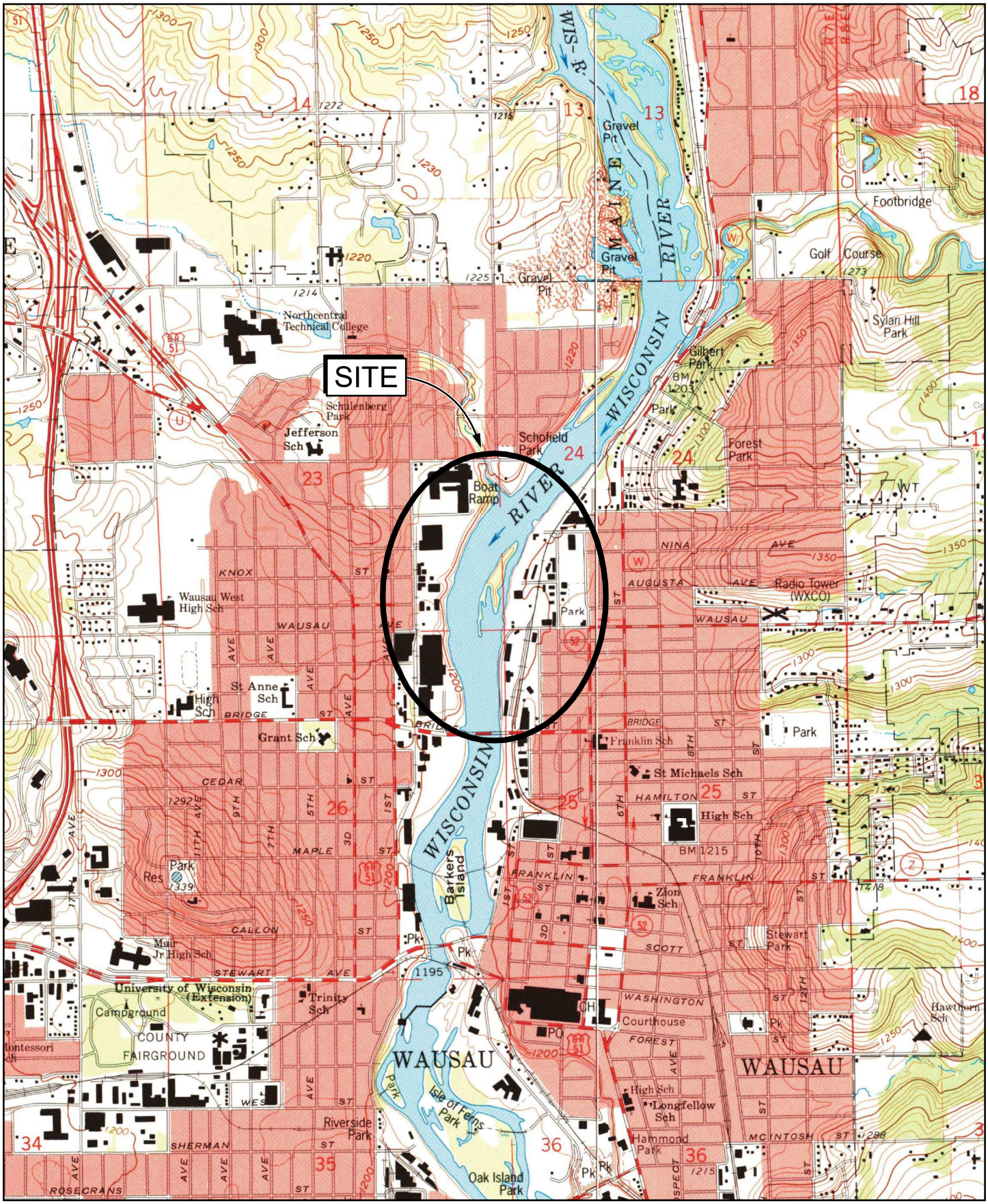
In February 2020, GHD proposed moving the annual groundwater monitoring event from the 4th quarter of the calendar year to August, beginning with the 2021 event. This request was given preliminary verbal approval by USEPA and WDNR in a call with GHD on 4/8/21. No modifications to the monitoring plan are proposed at this time. In 2022, the Group conducted the annual sampling event in August, 2022, and plans to continue to conduct the sampling event in August in 2023.

6. Recommendations

In 2023, we would like to start to abandon monitoring wells that are no longer providing 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 re-start the discussions remove CW3, similar to what was conducted at EW1. GHD would like to propose a trial shutdown pilot study in a separate submittal if WDNR and EPA is in agreement.

Figures



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Feet

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Horizontal Datum: North American 1983 HARN
Grid: NAD 1983 HARN WISCRS Marathon County Feet

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WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Project No. **003978-00**
Revision No. **-**
Date **12/15/2022**

SITE LOCATION

FIGURE 1

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Print date: 15 Dec 2022 - 14:00

Data source: USGS 7.5 Minute Topos - Wausau East; Wausau West. Created by: rjcoy

LEGEND

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

CW11
GM4D
CW10
CW9OBS R
CW9
CW7
MW4A
MW4B
GM2S
W57
MW7
CW6
MW3A
W56
W55
W55A
MW1A
R2D
R2S
R1D
W50
R3D
W52A
W52
C2S
R4D
EW1
C7S
W53A
W54
WSWS
W53
WSWD
C3S
C6S
C4D
C4S
OLD LANDFILL LIMITS
E21
HURD
WW4
CW3
GM6D
WW6
E26
E22A
E37A
E26A
E22
E28A
WC5A
WC4A
WC3B
E24AR
MW10B
MW10A
WC7A
MARATHON ELECTRIC MFG.
FORMER WAUSAU CHEMICAL COMPANY
WATER TREATMENT PLANT
WISCONSIN RIVER
BOS CREEK
E CAMPUS DR
STONE ST
PLUM DR
MORTENSON DR
W BOS CREEK DR
E BOS CREEK DR
LILAC ST
N BUREK AV
BUGBEE AV
TIERNEY RD
GEMINI PL
MARTEN ST
BECHER DR
BRISBANE CT
McCARTHY BLVD
W CROCKER ST
PEARSON ST
LUCILLE ST
N 2ND AV
BURNS ST
CLAYTON ST
E CLAYTON ST
CHERRY ST
EAST O HERRY ST
BROKEN ARROW RD
SPRING ST
BIRCH ST
ORCHARD ST
W RANDOLPH ST
E RANDOLPH ST
PARCHER ST
N 1ST AV
GILBERT ST
W ELDRED ST
E ELDRED ST
N 5TH ST
BROWN ST
W STROWBRIDGE ST
E STROWBRIDGE ST
WINTON ST
N 6TH ST
NINA AV
N 7TH ST
W KNOX ST
E KNOX ST
TURNER ST
DEVOE ST
N 4TH ST
GOWEN ST
AUGUSTA AV
W UNION AV
E UNION AV
JOZIK ST
W WAUSAU AV
E WAUSAU AV
N 3RD ST
CENTER ST
MOBILE AV
PARK AV
NORTON ST
E NORTON ST
N 3RD AV
LINCOLN AV
N 2ND ST
QUAW ST
HUMBOLDT AV
W BRIDGE ST
CENTRAL BRIDGE ST
E BRIDGE ST
N 1ST ST
N 4TH ST
N RIVER DR

Paper Size ANSI B

0 100 200 300 400 500

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983 HARN
Grid: NAD 1983 HARN WISCRS Marathon County Feet

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GHD

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Project No. **003978-00**
Revision No. **-**
Date **01/30/2023**

SITE PLAN

FIGURE 2

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Print date: 30 Jan 2023 - 16:48

Data source: Marathon County. Created by: rjcoy

LEGEND

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

CW11 ~1193
1187
1186
1185
GM4D 1185.35
CW10 ~1170
CW9 NM
CW9OBS R
CW7 NM
GM2S 1187.10
MW4B
MW4A 1186.28
W57 1186.53
MW7 1185.32
CW6 ~1164
MW3A 1186.99
W56 1187.16
W55 1183.93*
W55A
1188
1189
1190
BOS CREEK
MW1A 1187.01
R2D 1187.33
R2S
R1D 1190.06
W50
R3D 1187.44
W52A
W52 1187.53
WISCONSIN RIVER
C2S 1187.71
R4D 1187.65
EW1 NM
MARATHON ELECTRIC MFG.
C7S 1187.64
WSWD 1187.66
W54 1187.67
WSWS
W53
1192
C3S 1187.08
WILSON HURD TEST WELL
C6S 1193.67
C4S 1187.63
C4D
1191
1193
OLD LANDFILL LIMITS
E21 1186.58
1186
1187
1185
WW4 1185.16
CW3 ~1144
GM6D 1185.22
WW6 1186.69*
E37A 1185.90
E26A 1186.78
E26
E22
E22A 1186.24
E28A 1186.71
FORMER WAUSAU CHEMICAL CORPORATION
WC5A 1186.29
WC4A 1186.65
WC3B 1186.54
E24AR 1186.21
WATER TREATMENT PLANT
MW10B 1186.37
MW10A
WC7A 1186.59

NOTES

1186.80 GROUNDWATER ELEVATION (FT AMSL)

*1187.12** NOT USED FOR CONTOURING

Paper Size ANSI B

0 100 200 300 400 500

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983 HARN
Grid: NAD 1983 HARN WISCRS Marathon County Feet

N

GHD

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

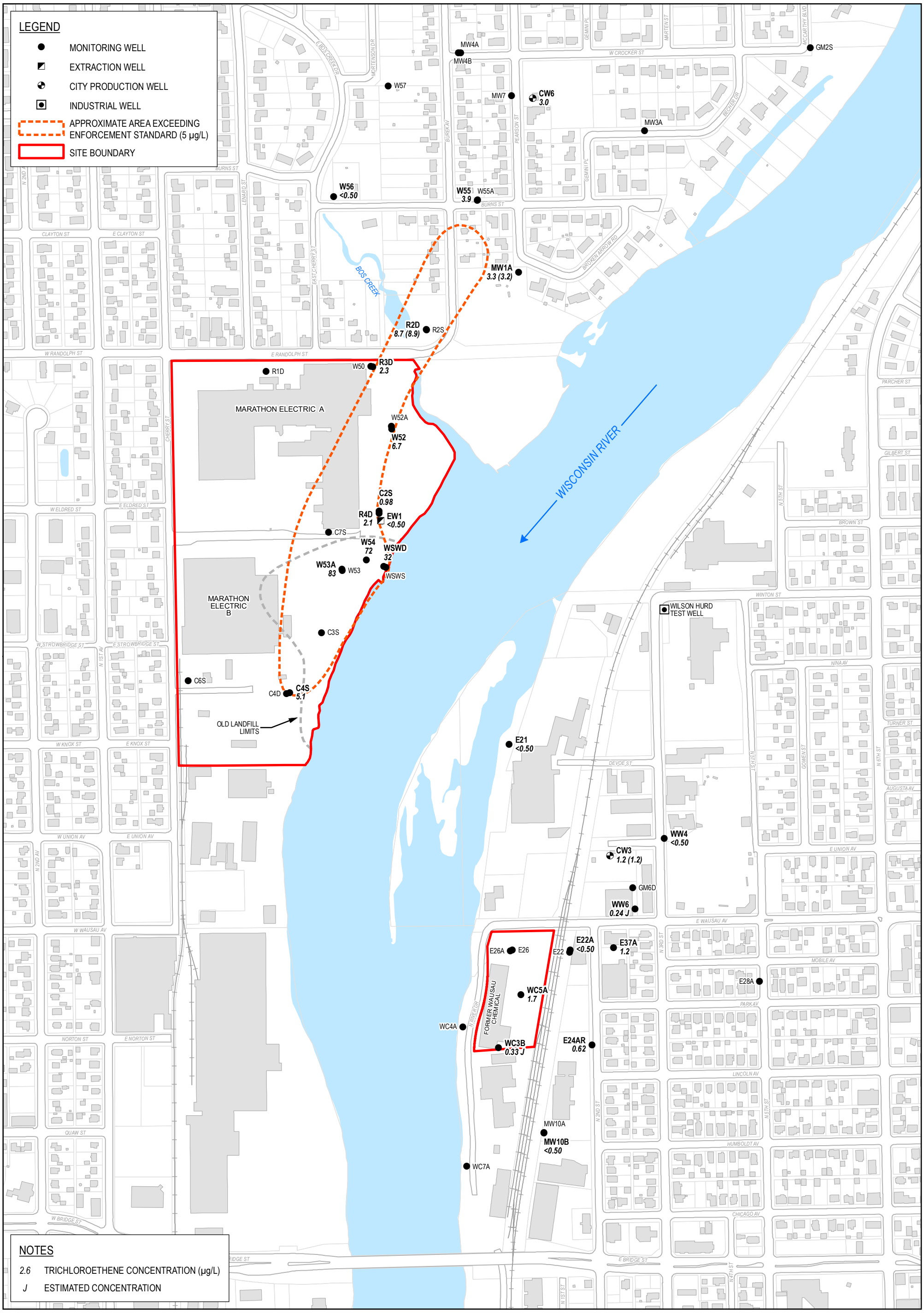
GROUNDWATER ELEVATIONS AND CONTOURS AUGUST 2022

Project No. **003978-00**
Revision No. **-**
Date **02/10/2023**

FIGURE 3

Q:\GIS\PROJECTS\03000s\3978\Maps\Deliverables\RPT\RPT048\003978-00(RPT048)GIS-SP003.mxd
Print date: 10 Feb 2023 - 12:35

Data source: Marathon County. Created by: rjcoy



Paper Size ANSI B

0 100 200 300 400

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983 HARN
Grid: NAD 1983 HARN WISCRS Marathon County Feet

N

GHD

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

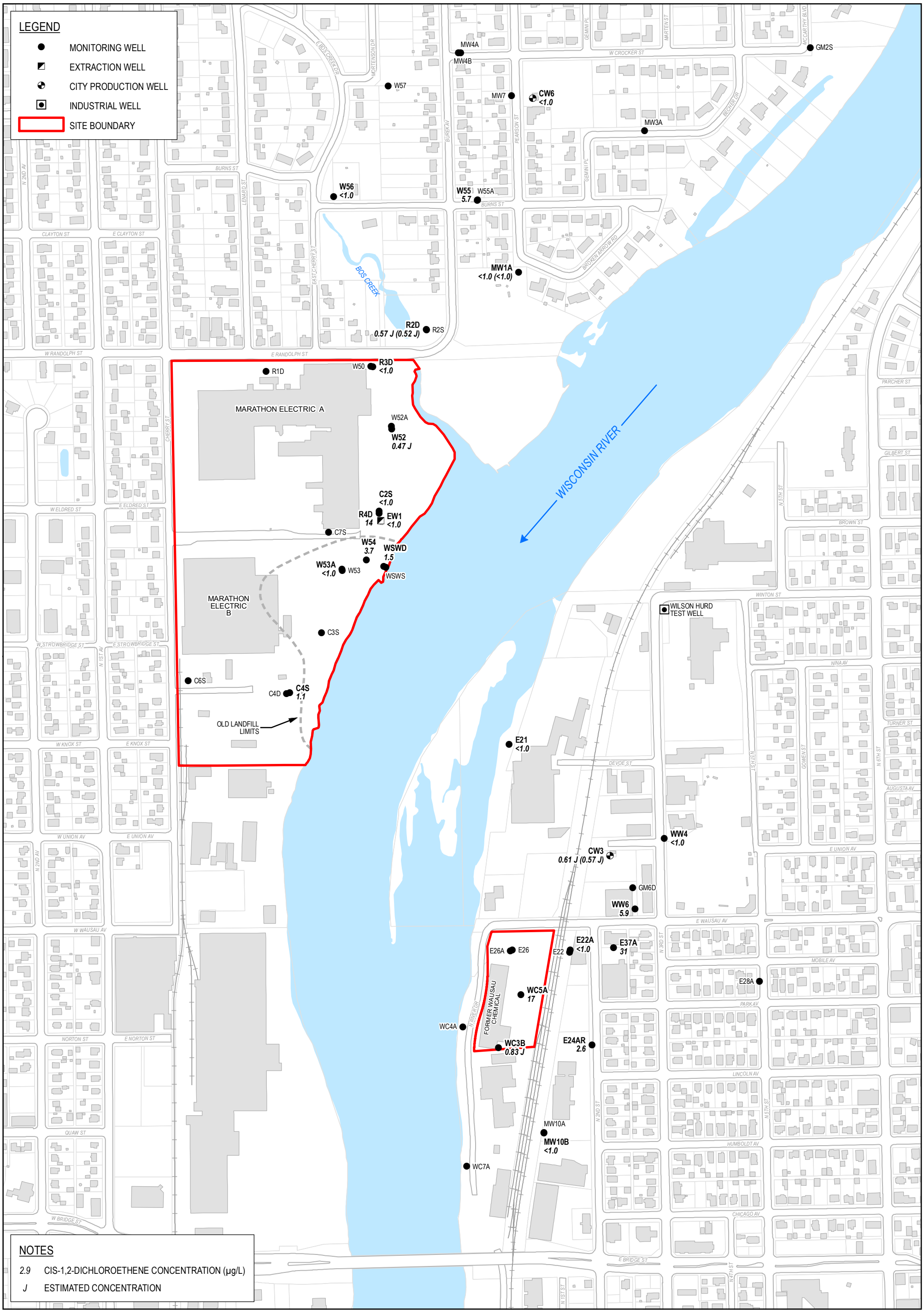
TRICHLOROETHENE CONCENTRATIONS AUGUST 2022

Project No. **003978-00**
Revision No. **-**
Date **01/30/2023**

FIGURE 4

Q:\GIS\PROJECTS\03000s\3978\Maps\Deliverables\RPT\RPT048\003978-00(RPT048)GIS-SP004.mxd
Print date: 30 Jan 2023 - 16:57

Data source: Marathon County. Created by: rjcoy



Paper Size ANSI B

0 100 200 300 400

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983 HARN
Grid: NAD 1983 HARN WISCRS Marathon County Feet

N

GHD

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

CIS-1,2-DICHLOROETHENE CONCENTRATIONS AUGUST 2022

Project No. **003978-00**
Revision No. **-**
Date **01/30/2023**

FIGURE 5

Q:\GIS\PROJECTS\03000s\3978\Maps\Deliverables\RPT\RPT048\003978-00(RPT048)GIS-SP005.mxd
Print date: 30 Jan 2023 - 16:59

Data source: Marathon County. Created by: rjcoy

LEGEND

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

MW4A
MW4B
GM2S
W57
MW7
CW6 <1.0
MW3A
W56 <1.0
W55 <1.0
W55A
MW1A <1.0 (<1.0)
R2D <1.0 (<1.0)
R2S
R1D
W50
R3D <1.0
MARATHON ELECTRIC A
W52A
W52 <1.0
C2S <1.0
R4D <1.0
EW1 <1.0
C7S
W54 <1.0
W53A 0.39 J
W53
WSWS
WSWD <1.0
MARATHON ELECTRIC B
C3S
C6S
C4D
C4S <1.0
OLD LANDFILL LIMITS
WISCONSIN RIVER
WILSON HURD TEST WELL
E21 <1.0
WW4 <1.0
CW3 0.80 J (0.72 J)
GM6D
WW6 <1.0
E26A
E26
E22
E22A 15
E37A 1.6
WC5A 3.6
FORMER WAUSAU CHEMICAL
WC4A
WC3B 18
E24AR 0.40 J
E28A
MW10A
MW10B <1.0
WC7A

NOTES

5.1 TETRACHLOROETHENE CONCENTRATION (µg/L)

J ESTIMATED CONCENTRATION

Paper Size ANSI B

0 100 200 300 400

Feet

N

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983 HARN
Grid: NAD 1983 HARN WISCRS Marathon County Feet

GHD

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

TETRACHLOROETHENE CONCENTRATIONS AUGUST 2022

Project No. 003978-00
Revision No. -
Date 01/30/2023

FIGURE 6

Q:\GIS\PROJECTS\03000s\3978\Maps\Deliverables\RPT\RPT048\003978-00(RPT048)GIS-SP006.mxd
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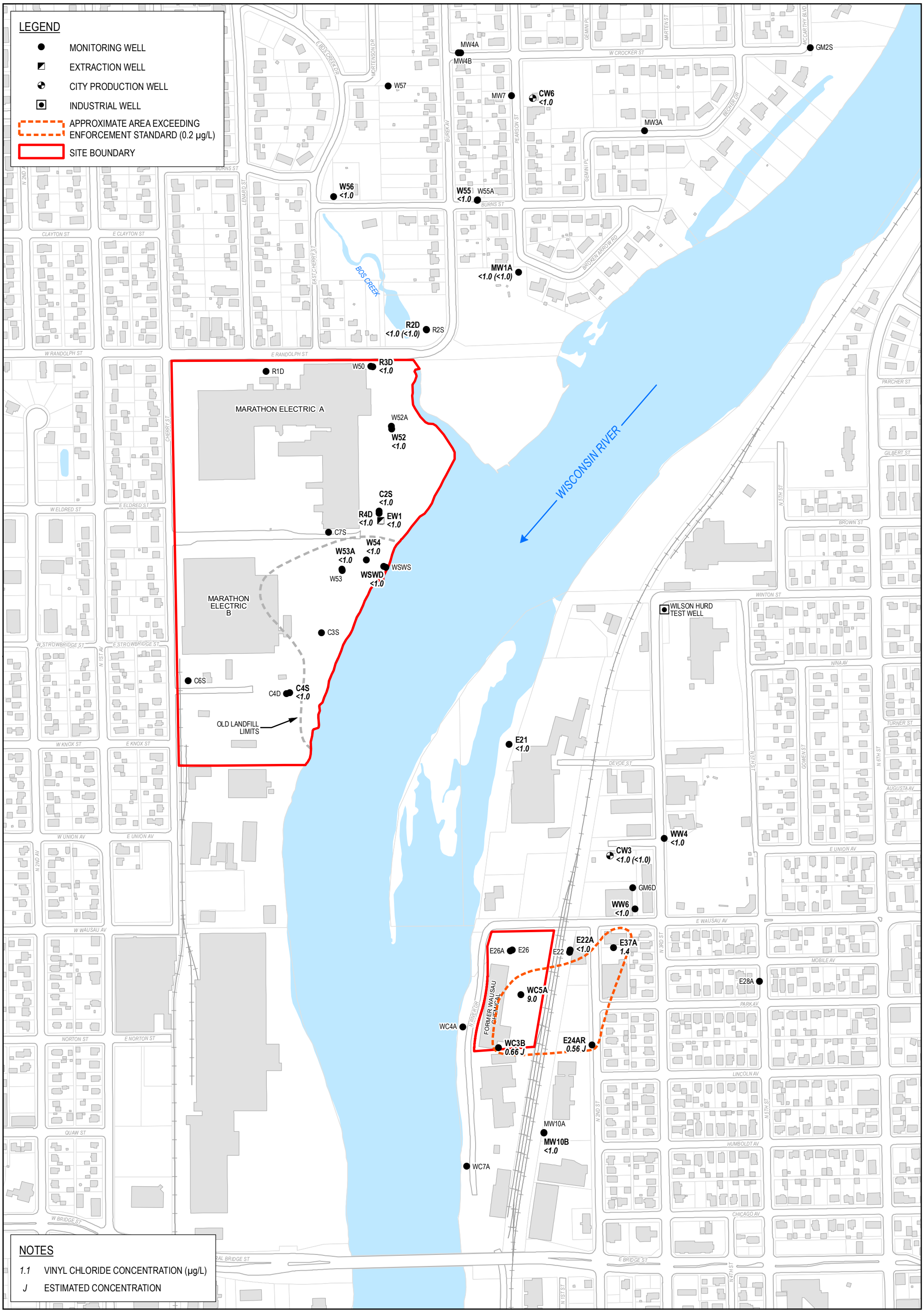
Data source: Marathon County. Created by: rjcoy


LEGEND
MONITORING WELL
EXTRACTION WELL
CITY PRODUCTION WELL
INDUSTRIAL WELL
APPROXIMATE AREA EXCEEDING ENFORCEMENT STANDARD (0.2 µg/L)
SITE BOUNDARY
MW4A
MW4B
GM2S
W57
MW7
CW6 <1.0
MW3A
W56 <1.0
W55 <1.0
W55A
MW1A <1.0 (<1.0)
R2D <1.0 (<1.0)
R2S
R1D
W50
R3D <1.0
MARATHON ELECTRIC A
W52A
W52 <1.0
C2S <1.0
R4D <1.0
EW1 <1.0
C7S
W53A <1.0
W54 <1.0
W53
WSWS
WSWD <1.0
MARATHON ELECTRIC B
C3S
C6S
C4D
C4S <1.0
OLD LANDFILL LIMITS
WISCONSIN RIVER
WILSON HURD TEST WELL
E21 <1.0
WW4 <1.0
CW3 <1.0 (<1.0)
GM6D
WW6 <1.0
E26A
E26
E22
E22A <1.0
E37A 1.4
E28A
WC5A 9.0
FORMER WAUSAU CHEMICAL
WC4A
WC3B 0.66 J
E24AR 0.56 J
MW10A
MW10B <1.0
WC7A
BOS CREEK
E BOS CREEK DR
MORTENSON DR
BUREK AV
PEARSON ST
GEMINI PL
MARTEN ST
MCCARTHY BLVD
W CROCKER ST
BECHER DR
BROKEN ARROW RD
BURNS ST
LENARD ST
EAST CHERRY ST
CLAYTON ST
E CLAYTON ST
W RANDOLPH ST
E RANDOLPH ST
CHERRY ST
W ELDRED ST
E ELDRED ST
W STROWBRIDGE ST
E STROWBRIDGE ST
N 1ST AV
W KNOX ST
E KNOX ST
W UNION AV
E UNION AV
N 2ND AV
W WAUSAU AV
NORTON ST
E NORTON ST
QUAW ST
W BRIDGE ST
E BRIDGE ST
N RIVER DR
N 1ST ST
N 2ND ST
N 3RD ST
N 5TH ST
N 6TH ST
WINTON ST
NINA AV
DEVOE ST
GOWEN ST
TURNER ST
AUGUSTA AV
E WAUSAU AV
MOBILE AV
PARK AV
LINCOLN AV
HUMBOLDT AV
CHICAGO AV
PARCHER ST
GILBERT ST
BROWN ST
NOTES
1.1 VINYL CHLORIDE CONCENTRATION (µg/L)
J ESTIMATED CONCENTRATION
Paper Size ANSI B
0 100 200 300 400
Feet
N
Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983 HARN
Grid: NAD 1983 HARN WISCRS Marathon County Feet
GHD
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN
VINYL CHLORIDE CONCENTRATIONS AUGUST 2022
Project No. 003978-00
Revision No. -
Date 01/30/2023
FIGURE 7
Q:\GIS\PROJECTS\03000s\3978\Maps\Deliverables\RPT\RPT048\003978-00(RPT048)GIS-SP007.mxd
Print date: 30 Jan 2023 - 17:03
Data source: Marathon County. Created by: rjcoy

LEGEND

- MONITORING WELL
- EXTRACTION WELL
- CITY PRODUCTION WELL
- INDUSTRIAL WELL
- SITE BOUNDARY

MW4A
MW4B
GM2S
W57
MW7
CW6 NA
MW3A
W56 NA
W55 <2.0
W55A
MW1A NA
R2D <2.0
R2S
R3D NA
W50
R1D
MARATHON ELECTRIC A
W52A
W52 <2.0 (<2.0)
C2S NA
R4D NA
EW1 NA
C7S
W54 <2.0
W53A NA
W53
WSWS
WSWD NA
MARATHON ELECTRIC B
C3S
C6S
C4D
C4S NA
OLD LANDFILL LIMITS
WILSON HURD TEST WELL
E21 NA
WW4 NA
CW3 NA
GM6D
WW6 NA
E22A <2.0
E26A
E26
E22
E37A NA
E28A
WC5A NA
FORMER WAUSAU CHEMICAL
WC4A
WC3B <2.0
E24AR NA
MW10B NA
MW10A
WC7A
WISCONSIN RIVER
BOS CREEK
E BOS CREEK DR
MORTENSON DR
BUREK AV
PEARSON ST
GEMINI PL
MARTEN ST
MCCARTHY BLVD
W CROCKER ST
BECHER DR
BROKEN ARROW RD
BURNS ST
LENARD ST
EAST CHERRY ST
CLAYTON ST
E CLAYTON ST
N 2ND AV
W RANDOLPH ST
E RANDOLPH ST
CHERRY ST
W ELDRED ST
E ELDRED ST
W STROWBRIDGE ST
E STROWBRIDGE ST
N 1ST AV
W KNOX ST
E KNOX ST
W UNION AV
E UNION AV
W WAUSAU AV
E WAUSAU AV
NORTON ST
E NORTON ST
QUAW ST
W BRIDGE ST
CENTRAL BRIDGE ST
E BRIDGE ST
N 1ST ST
N 3RD ST
N 2ND ST
N RIVER DR
N 5TH ST
N 6TH ST
WINTON ST
NINA AV
DEVOE ST
GOWEN ST
TURNER ST
AUGUSTA AV
MOBILE AV
PARK AV
LINCOLN AV
HUMBOLDT AV
CHICAGO AV
BROWN ST
GILBERT ST
PARCHER ST
STH 15 N

NOTES

<2.0 1,4-DIOXANE CONCENTRATION (µg/L)

NA NOT ANALYZED FOR 1,4-DIOXANE

Paper Size ANSI B

0 100 200 300 400

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983 HARN
Grid: NAD 1983 HARN WISCRS Marathon County Feet

N

GHD

WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

1,4-DIOXANE CONCENTRATIONS AUGUST 2021

Project No. **003978-00**
Revision No. **-**
Date **01/30/2023**

FIGURE 8

Q:\GIS\PROJECTS\03000s\3978\Maps\Deliverables\RPT\RPT048\003978-00(RPT048)GIS-SP008.mxd
Print date: 30 Jan 2023 - 17:06

Data source: Marathon County. Created by: rjcoy

Tables

Table 2.1

2022 Groundwater Monitoring Plan
Wausau Water Supply NPL Site
Wausau, Wisconsin

Monitoring Event	VOC Sample Locations		Laboratory Analysis	Groundwater Elevations	
	East Bank	West Bank		East Bank	West Bank
Annual - Fall	CW3, E21, E22A*, E37A, E24AR, MW10B, WW4, WW6, WC3B*, WC5A	EW1, CW6, R2D*, R3D, R4D, C2S, C4S, W52*, W53A, W54*, W55*, W56, WSWD, MW1A	Volatile Organic Compounds (VOC) Method 8260B	E21, E22A, E24AR, E26A, E28A, E37A, FVD5, GM6D, W.HURD, MW10B, WC3B, WC4A, WC5A, WC7, WW4, WW6, City Well CW3	C3S, C4S, C6S, C7S, GM2S, GM4D, MW1A, MW3A, MW4A, MW7, R1D, R2D, R3D, R4D, W52, W53A, W54, W55, W56, W57, WSWD, CW9-OBS, City Wells CW6, 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:
* - Well sampled for 1,4-Dioxane in 2021

Table 2.2

Groundwater Elevations - August 2022
Wausau Water Supply NPL Site
Wausau, Wisconsin

	Reference Elevation	Water Level (ft BTOC)	Water Table Elevation (ft AMSL)
East Bank		**8/8/2022**	**8/8/2022**
CW3*	1202.15	58	1144
E21	1197.51	10.93	1186.58
E22A	1195.88	9.64	1186.24
E24AR	1209.33	23.12	1186.21
E26A	1199.13	12.35	1186.78
E28A	1211.60	24.89	1186.71
E37A	1197.84	11.94	1185.90
GM6D	1198.57	13.35	1185.22
W. HURD	1200.23	NM	NA
MW10B	1210.37	24.00	1186.37
WC3B	1196.11	9.57	1186.54
WC4A	1196.57	9.92	1186.65
WC5A	1196.66	10.37	1186.29
WC7A	1196.77	10.18	1186.59
WW4	1200.34	15.18	1185.16
WW6	1200.53	13.84	1186.69
West Bank		**8/9/2022**	**8/9/2022**
CW6*	1220.33	56	1164
CW7	1224.14	NM	NA
CW9	1226.16	NM	NA
CW10*	1218.49	48	1170
CW11	1216.51	24	1193
CW9 OBS R	1224.51	NM	NA
EW1	1218.04	NM	NA
C2S	1219.05	31.34	1187.71
C3S	1220.58	33.50	1187.08
C4S	1216.70	29.07	1187.63
C6S	1221.58	27.91	1193.67
C7S	1220.87	33.23	1187.64
GM2S	1211.78	24.68	1187.10
GM4D	1216.35	31.00	1185.35
MW1A	1215.69	28.68	1187.01
MW3A	1220.87	33.88	1186.99
MW4A	1215.48	29.20	1186.28
MW7	1218.53	33.21	1185.32
R1D	1222.24	32.18	1190.06
R2D	1209.42	22.09	1187.33
R3D	1215.42	27.98	1187.44
R4D	1218.90	31.25	1187.65
W52	1219.16	31.63	1187.53
W53A	1216.67	27.52	1189.15
W54	1216.08	28.41	1187.67
W55	1217.04	33.11	1183.93
W56	1200.01	12.85	1187.16
W57	1201.76	15.23	1186.53
WSWD	1193.02	5.36	1187.66
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 2022
Wausau Water Supply NPL Site
Wausau, Wisconsin

Well	Date	pH	Conductivity (uS/cm)	Temperature (ºC)	Sample Type	Sample ID Number
East Bank						
CW3	8/9/2026	6.97	745	16.7	Grab	W-220808-RA-08 W-220808-RA-09 (FD)
E21	8/9/2026	7.24	224	18.78	Grab	W-220808-RA-06
E22A	8/9/2026	6.09	394	12.19	Grab	W-220808-RA-02
E24AR	8/9/2026	7.17	1110	17.65	Grab	W-220808-RA-07
E37A	8/9/2026	6.87	646	16.21	Grab	W-220808-RA-01
MW10B	8/9/2026	7.27	428	15.68	Grab	W-220808-RA-10
WC3B	8/9/2026	6.79	503	15.3	Grab	W-220808-RA-12
WC5A	8/9/2026	6.88	378	14.3	Grab	W-220808-RA-11
WW4	8/9/2026	6.34	639	13.72	Grab	W-220808-RA-04 W-220808-RA-05 (FB)
WW6	8/9/2026	6.76	294	12.84	Grab	W-220808-RA-03

Table 2.3

Groundwater Sampling Summary - August 2022
Wausau Water Supply NPL Site
Wausau, Wisconsin

Well	Date	pH	Conductivity (uS/cm)	Temperature (ºC)	Sample Type	Sample ID Number
West Bank						
C2S	8/9/2026	6.32	1930	18.36	Grab	W-220808-RA-13
C4S	8/10/2026	6.39	1360	12.34	Grab	W-220809-RA-17
CW6	8/10/2026	NM	860	12.64	Grab	W-220809-RA-16
EW-1	8/10/2026	8.06	377	15.96	Grab	W-220809-RA-30
MW1A	8/10/2026	4.93	480	12.93	Grab	W-220809-RA-26 W-220809-RA-27 (FD)
R2D	8/10/2026	6.79	183	13.22	Grab	W-220809-RA-22 W-220809-RA-23 (FD)
R3D	8/10/2026	6.29	725	11.03	Grab	W-220809-RA-20 W-220809-RA-21 (EB)
R4D	8/9/2026	6.74	925	17.81	Grab	W-220808-RA-14
W52	8/10/2026	4.87	666	17.04	Grab	W-220809-RA-28 (MS/MSD)
W53A	8/10/2026	NM	3010	14.57	Grab	W-220809-RA-29
W54	8/10/2026	6.77	1920	12.66	Grab	W-220809-RA-19
W55	8/9/2026	7.3	399	15.9	Grab	W-220808-RA-15
W56	8/10/2026	8.23	1030	12.41	Grab	W-220809-RA-24 W-220809-RA-25 (FB)
WSWD	8/10/2026	NM	1720	13.52	Grab	W-220809-RA-18

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

Table 3.1

2022 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	CW3	E21	E22	E22A	E24AR	E26	E26A	E28A	E37A	GM6D	W. HURD	MW10A	MW10B	WC3B	WC4A	WC5A	WC7	WW4	WW6	EW1	CW6	CW9 OBS R	CW10	CW11
Difficult to find? Brush need cutting?	City pump house	No/No	Yes	Yes	No/No	No/No	No/No	No/No	No/No	No/No	No/No	No/No	Yes	No/No	No/No	Yes	No/No	No/No	No/No	Pump house	City pump house	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	NA	Yes	No	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No, painted	No	Yes	No	Yes	USGS label	Yes	Yes
Protop and Casing Condition	NA	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Good	Fair -rust	Good	Good	Good	Good	Needs Repair	Good	Good	Good	NA	Good	NA	NA
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	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	New concrete pad	Yes, asphalt - good condition	NA	NA	No, sod	NA	NA
Well Cap Condition (inner/outer)	NA	Good	Good	Good	Good	Good	Good	Good	No	Good	Good	Fair, rust	Fair, difficult to remove	Good	Good	None	Good	Good	Good	NA	NA	Good	NA	NA
Does well riser inhibit the protop from being closed and locked?	NA	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	NA	NA	Yes	NA	NA
Lock Condition	NA	Good	Good	Good	Fair	Good	Fair	Fair	Bad	Good	Fair	Broken	None	Good	Good	Good	Good	Good	Good	NA	NA	Good	NA	NA
Ground subsidence?	NA	None	None	None	None	Soil - good	Soil - good	No subsidenc	No subsidenc	None	None	None	None	None	None	None	None	None	None	None	NA	None	NA	NA
Flush Mount? Potential for ponded water?	NA	Above grade	Flush - No	Flush - No	Flush - No	Above grade	Above grade	Flush - No	Flush - Yes	Flush - No	Above grade, no	Above grade	Above grade	Flush - No	Above grade	Above grade	Above grade	Flush - No	Above grade	NA	NA	Above grade	NA	NA
Flush Mount in impervious surface? (surface type)	NA	NA	Soil	Soil	Concrete pad in turf	NA	NA	Concrete sidewalk	Asphalt	New concrete vault in asphalt	NA	NA	NA	Yes - Concrete	NA	NA	NA	New concrete pad in sod	NA	NA	NA	NA	NA	NA
Flush Mount water tight?	NA	NA	No	No	Yes	NA	NA	Yes	No	Yes	NA	NA	NA	Yes	NA	NA	NA	No	NA	NA	NA	NA	NA	NA
Notes		Lock is 2106 Master	No Bolts	Socket 3/4"	Socket 3/4"			Needs Bolts	Socket 9/16"	Socket 9/16"		NEED NEW PROTOP CAP						Socket 9/16"	Socket 9/16"					

Table 3.1

2022 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	C2S	C3S	C4S	C4D	C6S	C7S	GM2S	GM4D	MW1A	MW3A	MW4A	MW4B	MW7	R1D	R2S	R2D	R3D	R4D	W50	W52	W52A	W53	W53A	W54
Difficult to find? Brush need cutting?	No/No	No/No	No/No	No/No	No/No	No/No	No/No	No/No	No/No	No/No	No/No	No/No	No/No	No/No	Yes/Yes	Yes/Yes	No/No	No/No	No/No	No/No	No/No	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Protop and Casing Condition	Fair	Fair	Fair	Ues	Fair	Fair	Good	Good	Good	Good	Good	Good	Good	Good	Fair	Fair	Good	Fair	Good	Fair	Fair	Fair	Good	Fair
Surface seal visible? Concrete Condition? (Soil/sod covered?)	Yes	No, sod	No, sod	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	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	New concrete pad	Yes, concrete - fair	Yes - good
Well Cap Condition (inner/outer)	Fair	Fair	Fair	Good	Fair	Fair	Good	Fair	Good	Good	Good	Good	Good	Good	Good	None	Fair	Fair	None	Fair	Fair	Good	Good	Good
Does well riser inhibit the protop from being closed and locked?	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No
Lock Condition	Fair	Bad	Good	Good	Good	Fair	Good	Good	Good	Good	Good	Good	Good	None	Good	Good	Good	Fair	Good	Fair	should replace	Good	Good	Old Lock
Ground subsidence?	None	Grass	Grass	Grass	None	Soil	None	None	None	None	None	None	None	Concrete	Soil	Soil	Grass	None	Grass	None	None	None	None	Bad
Flush Mount? Potential for ponded water?	Above grade	Above grade	Above grade	Above grade	Above grade	Above grade	New vault installed	Above grade	Above grade	Flush - No	Flush - No	Flush - No	Flush - No	Above grade	Above grade	Above grade	Above grade	Above grade	Above grade	Above grade	Above grade	Flush - No	Flush - No	Flush - Concrete
Flush Mount in impervious surface? (surface type)	NA	NA	NA	NA	NA	NA	Concrete pad in sod	NA	NA	Soil, grass	Soil, grass	Soil, grass	Grass boulevard	NA	NA	NA	NA	NA	NA	NA	NA	Yes, new vault	Concrete	Yes, Concrete
Flush Mount water tight?	NA	NA	NA	NA	NA	NA	Yes	NA	NA	Yes	Yes	Yes	Yes	NA	NA	NA	NA	NA	NA	NA	NA	Yes, new vault	Yes	Yes
Notes																	Brand new american lock							13/16" Socket

Table 3.1

2022 Monitoring Well Inspection
Wausau Water Supply NPL Site
Wausau, Wisconsin

	W55	W55A	W56	W57	WSWS	WSWD
Difficult to find? Brush need cutting?	No/No	No/No	Yes/Yes	No/No	No/No	No/No
Clearly labeled on outside? ID tag visible?	Yes	No	Yes	No	Yes	Yes
Protop and Casing Condition	Good	Fair	Fair	Fair	Good	Good
Surface seal visible? Concrete Condition? (Soil/sod covered?)	Yes, concete - good	No - sod	No - leaf cover	No - sod	No - sod and leaf litter	No - sod and leaf litter
Well Cap Condition (inner/outer)	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
Lock Condition	poor	no lock	New one	no lock	Fair	Fair
Ground subsidence?	None	None	Soil/ leaves	None	None	None
Flush Mount? Potential for ponded water?	Flush - No	Flush - No	Above grade	Flush - No	Above grade	Above grade
Flush Mount in impervious surface? (surface type)	Concrete	Soil, grass	NA	Soil, grass	NA	NA
Flush Mount water tight?	Yes	Yes	NA	Yes	NA	NA
Notes			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
	Hours	345.5	397.2	201	209.2	57.2	191.5
January	Gallons	24.442	25.661	23.685	10.56	11.39	33.491
	gpm	1179	1077	1964	841	3319	2915
	Hours	290.9	379.7	172.2	177.3	0	243.4
February	Gallons	20.29	23.65	20.302	8.87	0	42.559
	gpm	1162	1038	1965	834	0	2914
	Hours	289.7	453.2	200.9	206.8	0	274.4
March	Gallons	20.137	28.163	23.574	10.343	0	47.979
	gpm	1158	1036	1956	834	0	2914
	Hours	339.1	380	299.6	328.9	28.1	122.6
April	Gallons	23.793	23.73	35.273	16.55	5.195	21.398
	gpm	1169	1041	1962	839	3081	2909
	Hours	526.5	216.1	232.1	258.9	106.2	195.4
May	Gallons	35.75	13.406	27.294	12.905	19.946	34.166
	gpm	1132	1034	1960	831	3130	2914
	Hours	430	20.1	319.2	526.6	181.6	168.9
June	Gallons	29.17	1.481	36.67	25.346	33.341	29.459
	gpm	1131	1228	1915	802	3060	2907
	Hours	361.6	380.6	329.5	54.9	77.1	327.8
July	Gallons	24.711	27.824	39.098	2.638	14.74	57.341
	gpm	1139	1218	1978	801	3186	2915
	Hours	313.9	394.2	17.5	65.5	186.1	392.3
August	Gallons	22.293	28.961	2.033	2.734	34.788	69.572
	gpm	1184	1224	1936	696	3116	2956
	Hours	616.3	113	337.4	90.25	151.4	191.7
September	Gallons	44.317	9.64	35.452	3.964	29.095	33.371
	gpm	1198	1422	1751	732	3203	2901
	Hours	680.6	223.8	281	45.5	81.8	200.9
October	Gallons	48.854	15.196	33.338	2.749	15.287	35.306
	gpm	1196	1132	1977	1007	3115	2929
	Hours	626.5	255.5	387.2	169	171.7	0
November	Gallons	44.872	17.246	46.497	9.464	31.698	0
	gpm	1194	1125	2001	933	3077	0
	Hours	411.3	715	187.9	287.25	18.7	306.6
December	Gallons	28.429	49.5	22.157	14.504	2.879	46.242
	gpm	1152	1154	1965	842	2566	2514
Average hrs/week:		**100.6**	**75.5**	**57.0**	**46.5**	**20.4**	**50.3**
Average gpm:		**1169**	**1122**	**1941**	**831**	**3119**	**2873**

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
Analytical Results - August 8-9, 2022
Wausau Water Supply NPL Site
Wausau, Wisconsin

Sample Location:			*CW3*	*CW3*	*E21*	*E22A*	*E24AR*	*E37A*	*MW10B*	*WC3B*	*WC5A*
Sample Name:			*W-220808-RA-08*	*W-220808-RA-09*	*W-220808-RA-06*	*W-220808-RA-02*	*W-220808-RA-07*	*W-220808-RA-01*	*W-220808-RA-10*	*W-220808-RA-12*	*W-220808-RA-11*
Sample Date:			*08/08/2022*	*08/08/2022 (Duplicate)*	*08/08/2022*	*08/08/2022*	*08/08/2022*	*08/08/2022*	*08/08/2022*	*08/08/2022*	*08/08/2022*
			EB	*EB*	*EB*	*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	1.0 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	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	9,000	10 U	10 U	10 U	10 U	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	0.16 J	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	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	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	ug/L	70	0.61 J	0.57 J	1.0 U	1.0 U	2.6	31	1.0 U	0.83 J	17
Ethylbenzene	ug/L	700	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	ug/L	5	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	ug/L	5	0.80 J	0.72 J	1.0 U	**15**	0.40 J	1.6	1.0 U	**18**	3.6
Toluene	ug/L	800	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	ug/L	5	1.2	1.2	0.50 U	0.50 U	0.62	1.2	0.50 U	0.33 J	1.7
Vinyl chloride	ug/L	0.2	1.0 U	1.0 U	1.0 U	1.0 U	**0.56 J**	**1.4**	1.0 U	**0.66 J**	**9.0**
Xylenes (total)	ug/L	2,000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.35 J	1.0 U

Note:
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

Table 4.1

Annual Groundwater Monitoring Event
Analytical Results - August 8-9, 2022
Wausau Water Supply NPL Site
Wausau, Wisconsin

Sample Location:			*WW4*	*WW6*	*C2S*	*C4S*	*CW6*	*EW1*	*MW1A*	*MW1A*	*R2D*
Sample Name:			*W-220808-RA-04*	*W-220808-RA-03*	*W-220808-RA-13*	*W-220809-RA-17*	*W-220809-RA-16*	*W-220809-RA-30*	*W-220809-RA-26*	*W-220809-RA-27*	*W-220809-RA-22*
Sample Date:			*08/08/2022*	*08/08/2022*	*08/08/2022*	*08/09/2022*	*08/09/2022*	*08/09/2022*	*08/09/2022*	*08/09/2022 (Duplicate)*	*08/09/2022*
			EB	*EB*	*WB*	*WB*	*WB*	*WB*	*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	1.0 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	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	9,000	10 U	10 U	10 U	10 U	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	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	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	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	ug/L	70	1.0 U	5.9	1.0 U	1.1	1.0 U	1.0 U	1.0 U	1.0 U	0.57 J
Ethylbenzene	ug/L	700	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	ug/L	5	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	ug/L	5	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	ug/L	800	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.21 J	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	5	0.50 U	0.24 J	0.98	**5.1**	3.0	0.50 U	3.3	3.2	**8.7**
Vinyl chloride	ug/L	0.2	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)	ug/L	2,000	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

Note:
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

Table 4.1

Annual Groundwater Monitoring Event
Analytical Results - August 8-9, 2022
Wausau Water Supply NPL Site
Wausau, Wisconsin

Sample Location:			*R2D*	*R3D*	*R4D*	*W52*	*W53A*	*W54*	*W55*	*W56*	*WSWD*
Sample Name:			*W-220809-RA-23*	*W-220809-RA-20*	*W-220808-RA-14*	*W-220809-RA-28*	*W-220809-RA-29*	*W-220809-RA-19*	*W-220808-RA-15*	*W-220809-RA-24*	*W-220809-RA-18*
Sample Date:			*08/09/2022 (Duplicate)*	*08/09/2022*	*08/08/2022*	*08/09/2022*	*08/09/2022*	*08/09/2022*	*08/08/2022*	*08/09/2022*	*08/09/2022*
			WB	*WB*	*WB*	*WB*	*WB*	*WB*	*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	1.0 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	1.0 U	1.0 U	1.0 U	0.52 J
Acetone	ug/L	9,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	5	0.50 U	17 U	0.50 U	0.50 U	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	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	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	ug/L	70	0.52 J	1.0 U	14	0.47 J	1.0 U	3.7	5.7	1.0 U	1.5
Ethylbenzene	ug/L	700	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	ug/L	5	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	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	0.39 J	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	800	0.50 U	1.2 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	5	**8.9**	2.3	2.1	**6.7**	**83**	**72**	3.9	0.50 U	**32**
Vinyl chloride	ug/L	0.2	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)	ug/L	2,000	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

Note:
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 8 and 9, 2022 Laboratory Report and Data Quality Validation Memorandum

Technical Memorandum

August 30, 2022

To	OJ Ojinaga, GHD	**Tel**	612-524-6836
		Email	Grant.anderson@ghd.com
From	Grant Anderson/kg/2	**Ref. No.**	003978
Subject	Analytical Results and Reduced Validation Groundwater Sampling Event Wausau Superfund Site Wausau, Wisconsin August 2022		

1. Introduction

The following document details a reduced validation of analytical results for groundwater samples collected in support of the groundwater monitoring program at the Wausau Superfund Site in Wausau, Wisconsin during August 2022. Groundwater samples were submitted to Eurofins Environment Testing America (EETA), 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 Services, Inc. (GHD) report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spike (MS) samples, and field QA/QC samples.

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

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

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

2. Sample Holding Time

The sample holding time criteria 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 prepared and analyzed within the required holding times.

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.

Methylene chloride was detected in the method blank associated with batch 500-670614. However, all associated sample results were non-detect; therefore, no qualification of data was necessary based on compounds detected in the method blanks.

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) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

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

5. Laboratory Control Sample (LCS) Analyses

LCS 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 a known concentration of the analyte of concern and analyzed as MS/MSD samples. The relative percent difference (RPD) between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

MS/MSD analyses were performed as specified in Table 1. The laboratory performed additional MS/MSD analyses internally.

The MS/MSD samples were spiked with all compounds of interest. Table 4 lists outlying MS/MSD results. Associated sample results are qualified as noted in the table.

7. Field QA/QC Samples

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

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank sample was submitted to the laboratory for VOC analysis. Ethylbenzene and xylenes (total) were detected in the Trip Blank. Associated ethylbenzene results were non-detect. Table 5 lists the xylenes (total) detection. Associated sample data are qualified as noted in the table.

Field Blank Sample Analysis

To assess ambient conditions at the site and cleanliness of sample containers, two field blank samples were submitted for analysis, as identified in Table 1. The field blanks yielded detectable concentrations of acetone. Table 6 lists the acetone detections. Associated sample data are qualified as noted in the table.

Rinsate Blank Sample Analysis

To assess field decontamination procedures, ambient conditions at the site and cleanliness of sample containers, one rinsate blank sample was submitted for analysis, as identified in Table 1. The rinsate blank yielded detectable concentrations of acetone, benzene, ethylbenzene, toluene, trichloroethene, and xylenes (total). Associated acetone data was previously qualified based on field blank data. Table 6 lists the remaining rinsate blank detections that required qualification. Associated sample data are qualified as noted in the table.

Field Duplicate Sample Analysis

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

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 MDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the RL in Table 2.

9. Conclusion

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

Regards,

Grant Anderson
Chemist

Table 1

Sample Collection and Analysis Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2022

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters	Comments
W-220808-RA-01	E37A	water	08/08/2022	12:51	Select VOC	
W-220808-RA-02	E22A	water	08/08/2022	13:55	Select VOC	
W-220808-RA-03	WW6	water	08/08/2022	14:39	Select VOC	
W-220808-RA-04	WW4	water	08/08/2022	15:10	Select VOC	
W-220808-RA-05	WW4	water	08/08/2022	15:00	Select VOC	Field Blank
W-220808-RA-06	E21	water	08/08/2022	15:47	Select VOC	
W-220808-RA-07	E24AR	water	08/08/2022	17:03	Select VOC	
W-220808-RA-08	CW3	water	08/08/2022	12:58	Select VOC	
W-220808-RA-09	CW3	water	08/08/2022	12:58	Select VOC	Duplicate (RA-08)
W-220808-RA-10	MW10B	water	08/08/2022	17:24	Select VOC	
W-220808-RA-11	WC5A	water	08/08/2022	18:00	Select VOC	
W-220808-RA-12	WC3B	water	08/08/2022	18:18	Select VOC	
W-220808-RA-13	C2S	water	08/08/2022	16:10	Select VOC	
W-220808-RA-14	R4D	water	08/08/2022	16:25	Select VOC	
W-220808-RA-15	W55	water	08/08/2022	17:15	Select VOC	MS/MSD
W-220809-RA-16	CW6	water	08/09/2022	17:45	Select VOC	
W-220809-RA-17	C4S	water	08/09/2022	08:28	Select VOC	
W-220809-RA-18	WSWD	water	08/09/2022	09:05	Select VOC	
W-220809-RA-19	W54	water	08/09/2022	09:22	Select VOC	
W-220809-RA-20	R3D	water	08/09/2022	10:25	Select VOC	
W-220809-RA-21	R3D	water	08/09/2022	10:41	Select VOC	Rinsate Blank
W-220809-RA-22	R2D	water	08/09/2022	11:11	Select VOC	
W-220809-RA-23	R2D	water	08/09/2022	11:19	Select VOC	Duplicate (RA-22)
W-220809-RA-24	W56	water	08/09/2022	11:43	Select VOC	
W-220809-RA-25	W56	water	08/09/2022	11:37	Select VOC	Field Blank
W-220809-RA-26	MW1A	water	08/09/2022	11:25	Select VOC	
W-220809-RA-27	MW1A	water	08/09/2022	11:25	Select VOC	Duplicate (RA-26)
W-220809-RA-28	W52	water	08/09/2022	11:45	Select VOC	MS/MSD
W-220809-RA-29	W53A	water	08/09/2022	12:15	Select VOC	
W-220809-RA-30	EW1	water	08/09/2022	12:30	Select VOC	
Trip Blank	Lab	water	08/09/2022	00:00	Select VOC	Trip Blank

Notes:
VOC - Volatile Organic Compounds
MS/MSD - Matrix Spike/Matrix Spike Duplicate

Table 2

Validated Analytical Results Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2022

Location ID:		C2S	C4S	CW3	CW3	CW6	E21	E22A
Sample Name:		W-220808-RA-13	W-220809-RA-17	W-220808-RA-08	W-220808-RA-09	W-220809-RA-16	W-220808-RA-06	W-220808-RA-02
Sample Date:		08/08/2022	08/09/2022	08/08/2022	08/08/2022 Duplicate	08/09/2022	08/08/2022	08/08/2022
Parameters	**Unit**							
Volatile Organic Compounds								
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	µg/L	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	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	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	1.1	0.61 J	0.57 J	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	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
Tetrachloroethene	µg/L	1.0 U	1.0 U	0.80 J	0.72 J	1.0 U	1.0 U	15
Toluene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.98	5.1	1.2	1.2	3.0	0.50 U	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 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

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

Table 2

Validated Analytical Results Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2022

Location ID:		E24AR	E37A	EW1	MW10B	MW1A	MW1A	R2D
Sample Name:		W-220808-RA-07	W-220808-RA-01	W-220809-RA-30	W-220808-RA-10	W-220809-RA-26	W-220809-RA-27	W-220809-RA-22
Sample Date:		08/08/2022	08/08/2022	08/09/2022	08/08/2022	08/09/2022	08/09/2022 Duplicate	08/09/2022
Parameters	**Unit**							
Volatile Organic Compounds								
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	µg/L	0.50 U	0.16 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	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	µg/L	2.6	31	1.0 U	1.0 U	1.0 U	1.0 U	0.57 J
Ethylbenzene	µg/L	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
Tetrachloroethene	µg/L	0.40 J	1.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	0.50 U	0.50 U	0.21 J	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.62	1.2	0.50 U	0.50 U	3.3	3.2	8.7
Vinyl chloride	µg/L	0.56 J	1.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

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

Table 2

Validated Analytical Results Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2022

Location ID:		R2D	R3D	R4D	W52	W53A	W54	W55
Sample Name:		W-220809-RA-23	W-220809-RA-20	W-220808-RA-14	W-220809-RA-28	W-220809-RA-29	W-220809-RA-19	W-220808-RA-15
Sample Date:		08/09/2022 Duplicate	08/09/2022	08/08/2022	08/09/2022	08/09/2022	08/09/2022	08/08/2022
Parameters	**Unit**							
Volatile Organic Compounds								
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	µg/L	0.50 U	17 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	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	µg/L	0.52 J	1.0 U	14	0.47 J	1.0 U	3.7	5.7
Ethylbenzene	µg/L	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
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	0.39 J	1.0 U	1.0 U
Toluene	µg/L	0.50 U	1.2 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	8.9	2.3	2.1	6.7	83	72	3.9
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

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

Table 2

Validated Analytical Results Summary
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2022

Location ID:		W56	WC3B	WC5A	WSWD	WW4	WW6
Sample Name:		W-220809-RA-24	W-220808-RA-12	W-220808-RA-11	W-220809-RA-18	W-220808-RA-04	W-220808-RA-03
Sample Date:		08/09/2022	08/08/2022	08/08/2022	08/09/2022	08/08/2022	08/08/2022
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
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	0.52 J	1.0 U	1.0 U
Acetone	µg/L	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
Carbon tetrachloride	µg/L	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	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	0.83 J	17	1.5	1.0 U	5.9
Ethylbenzene	µg/L	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
Tetrachloroethene	µg/L	1.0 U	18	3.6	1.0 U	1.0 U	1.0 U
Toluene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.33 J	1.7	32	0.50 U	0.24 J
Vinyl chloride	µg/L	1.0 U	0.66 J	9.0	1.0 U	1.0 U	1.0 U
Xylenes (total)	µg/L	1.0 U	0.35 J	1.0 U	1.0 U	1.0 U	1.0 U

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

Table 3

Analytical Methods and Holding Time Criteria
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2022

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

Notes:

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 Outlying MS/MSD Results
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2022

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits % Recovery	Control Limits RPD	Qualified Result	Units
VOC	W-220809-RA-28	cis-1,2-Dichloroethene	74	96	25	70-125	20	0.47 J	ug/L

Notes:
MS - Matrix Spike
MSD - Matrix Spike Duplicate
RPD - Relative Percent Difference
VOC - Volatile Organic Compounds
J - Estimated concentration

Table 5

Qualified Sample Data Due to Analyte Concentrations in the Trip Blank
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2022

Parameter	Blank ID	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
VOC	Trip Blank	Xylenes (total)	2.6	W-220809-RA-26	0.46 J	1.0 U	ug/L
				W-220809-RA-27	0.50 J	1.0 U	ug/L
				W-220809-RA-28	0.37 J	1.0 U	ug/L
				W-220809-RA-30	0.34 J	1.0 U	ug/L

Notes:
VOC - Volatile Organic Comopunds
U - Not detected at the associated reporting limit
J - Estimated concentration

Table 6

Qualified Sample Data Due to Analyte Concentrations in the Field and Rinsate Blanks
Groundwater Sampling Event
Wausau Superfund Site
Wausau, Wisconsin
August 2022

Parameter	Blank ID	Blank Date (dd/mm/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
VOC	W-220808-RA-05	8/8/2022	Acetone	6.7J	W-220808-RA-12	1.8 J	10 U	ug/L
					W-220808-RA-13	4.7 J	10 U	ug/L
					W-220808-RA-15	4.4 J	10 U	ug/L
					W-220808-RA-03	5.8 J	10 U	ug/L
VOC	W-220809-RA-25	8/9/2022	Acetone	7.6J	W-220809-RA-16	4.3 J	10 U	ug/L
					W-220809-RA-26	1.9 J	10 U	ug/L
					W-220809-RA-27	7.8 J	10 U	ug/L
VOC	W-220809-RA-21	8/9/2022	Benzene	70	W-220809-RA-20	17	17 U	ug/L
VOC	W-220809-RA-21	8/9/2022	Toluene	8.7	W-220809-RA-20	1.2	1.2 U	ug/L

Notes:
VOC - Volatile Organic Compounds
U - Not detected at the associated reporting limit
J - Estimated concentration

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-220709-1
Client Project/Site: Wausau - 003978

For:
GHD Services Inc.
900 Long Lake Road
Suite 200
New Brighton, Minnesota 55112

Attn: Mr. Grant Anderson

Authorized for release by:
8/25/2022 3:34:11 PM

Richard Wright, Senior Project Manager
(708)746-0045
Richard.Wright@et.eurofinsus.com

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Case Narrative

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

Job ID: 500-220709-1

Job ID: 500-220709-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-220709-1

Receipt
The samples were received on 8/11/2022 9:15 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 3.8º C.

GC/MS VOA
Method 8260B: Acetone was detected in the following samples: W-220808-RA-03 (500-220709-3), W-220808-RA-05 (500-220709-5), W-220808-RA-12 (500-220709-12), W-220808-RA-13 (500-220709-13), W-220808-RA-15 (500-220709-15) and W-220809-RA-16 (500-220709-16). Acetone is a known lab contaminant; therefore all low level detects for this compound (less than 3 times the reporting limit) could be suspected as lab contamination.

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: 500-220709-1

Client Sample ID: W-220808-RA-01 — Lab Sample ID: 500-220709-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.16	J	0.50	0.15	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	31		1.0	0.41	ug/L	1		8260B	Total/NA
Tetrachloroethene	1.6		1.0	0.37	ug/L	1		8260B	Total/NA
Trichloroethene	1.2		0.50	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	1.4		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: W-220808-RA-02 — Lab Sample ID: 500-220709-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	15		1.0	0.37	ug/L	1		8260B	Total/NA

Client Sample ID: W-220808-RA-03 — Lab Sample ID: 500-220709-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	5.8	J	10	1.7	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	5.9		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	0.24	J	0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220808-RA-04 — Lab Sample ID: 500-220709-4

No Detections.

Client Sample ID: W-220808-RA-05 — Lab Sample ID: 500-220709-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	6.7	J	10	1.7	ug/L	1		8260B	Total/NA

Client Sample ID: W-220808-RA-06 — Lab Sample ID: 500-220709-6

No Detections.

Client Sample ID: W-220808-RA-07 — Lab Sample ID: 500-220709-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	2.6		1.0	0.41	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.40	J	1.0	0.37	ug/L	1		8260B	Total/NA
Trichloroethene	0.62		0.50	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.56	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: W-220808-RA-08 — Lab Sample ID: 500-220709-8

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.61	J	1.0	0.41	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.80	J	1.0	0.37	ug/L	1		8260B	Total/NA
Trichloroethene	1.2		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220808-RA-09 — Lab Sample ID: 500-220709-9

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.57	J	1.0	0.41	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.72	J	1.0	0.37	ug/L	1		8260B	Total/NA
Trichloroethene	1.2		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220808-RA-10 — Lab Sample ID: 500-220709-10

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Chicago

Detection Summary

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-11 — Lab Sample ID: 500-220709-11

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	17		1.0	0.41	ug/L	1		8260B	Total/NA
Tetrachloroethene	3.6		1.0	0.37	ug/L	1		8260B	Total/NA
Trichloroethene	1.7		0.50	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	9.0		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: W-220808-RA-12 — Lab Sample ID: 500-220709-12

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	1.8	J	10	1.7	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.83	J	1.0	0.41	ug/L	1		8260B	Total/NA
Tetrachloroethene	18		1.0	0.37	ug/L	1		8260B	Total/NA
Trichloroethene	0.33	J	0.50	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.66	J	1.0	0.20	ug/L	1		8260B	Total/NA
Xylenes, Total	0.35	J	1.0	0.22	ug/L	1		8260B	Total/NA

Client Sample ID: W-220808-RA-13 — Lab Sample ID: 500-220709-13

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.7	J	10	1.7	ug/L	1		8260B	Total/NA
Trichloroethene	0.98		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220808-RA-14 — Lab Sample ID: 500-220709-14

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	14		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	2.1		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220808-RA-15 — Lab Sample ID: 500-220709-15

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.4	J	10	1.7	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	5.7	F1	1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	3.9		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-16 — Lab Sample ID: 500-220709-16

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.3	J	10	1.7	ug/L	1		8260B	Total/NA
Trichloroethene	3.0		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-17 — Lab Sample ID: 500-220709-17

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.1		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	5.1		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-18 — Lab Sample ID: 500-220709-18

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethene	0.52	J	1.0	0.39	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.5		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	32		0.50	0.16	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

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

Job ID: 500-220709-1

Client Sample ID: W-220809-RA-19 — Lab Sample ID: 500-220709-19

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	3.7		1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	72		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-20 — Lab Sample ID: 500-220709-20

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Benzene	17		0.50	0.15	ug/L	1		8260B	Total/NA
Toluene	1.2		0.50	0.15	ug/L	1		8260B	Total/NA
Trichloroethene	2.3		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-21 — Lab Sample ID: 500-220709-21

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	37		10	1.7	ug/L	1		8260B	Total/NA
Benzene	70		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	0.37	J	0.50	0.18	ug/L	1		8260B	Total/NA
Toluene	8.7		0.50	0.15	ug/L	1		8260B	Total/NA
Trichloroethene	0.26	J	0.50	0.16	ug/L	1		8260B	Total/NA
Xylenes, Total	1.6		1.0	0.22	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-22 — Lab Sample ID: 500-220709-22

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.57	J	1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	8.7		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-23 — Lab Sample ID: 500-220709-23

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.52	J	1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	8.9		0.50	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-24 — Lab Sample ID: 500-220709-24

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

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

Job ID: 500-220709-1

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

Sample Summary

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

Job ID: 500-220709-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-220709-1	W-220808-RA-01	Water	08/08/22 12:51	08/11/22 09:15
500-220709-2	W-220808-RA-02	Water	08/08/22 13:55	08/11/22 09:15
500-220709-3	W-220808-RA-03	Water	08/08/22 14:39	08/11/22 09:15
500-220709-4	W-220808-RA-04	Water	08/08/22 15:10	08/11/22 09:15
500-220709-5	W-220808-RA-05	Water	08/08/22 15:00	08/11/22 09:15
500-220709-6	W-220808-RA-06	Water	08/08/22 15:47	08/11/22 09:15
500-220709-7	W-220808-RA-07	Water	08/08/22 17:03	08/11/22 09:15
500-220709-8	W-220808-RA-08	Water	08/08/22 12:58	08/11/22 09:15
500-220709-9	W-220808-RA-09	Water	08/08/22 12:58	08/11/22 09:15
500-220709-10	W-220808-RA-10	Water	08/08/22 17:24	08/11/22 09:15
500-220709-11	W-220808-RA-11	Water	08/08/22 18:00	08/11/22 09:15
500-220709-12	W-220808-RA-12	Water	08/08/22 18:18	08/11/22 09:15
500-220709-13	W-220808-RA-13	Water	08/08/22 16:10	08/11/22 09:15
500-220709-14	W-220808-RA-14	Water	08/08/22 16:25	08/11/22 09:15
500-220709-15	W-220808-RA-15	Water	08/08/22 17:15	08/11/22 09:15
500-220709-16	W-220809-RA-16	Water	08/09/22 17:45	08/11/22 09:15
500-220709-17	W-220809-RA-17	Water	08/09/22 08:28	08/11/22 09:15
500-220709-18	W-220809-RA-18	Water	08/09/22 09:05	08/11/22 09:15
500-220709-19	W-220809-RA-19	Water	08/09/22 09:22	08/11/22 09:15
500-220709-20	W-220809-RA-20	Water	08/09/22 10:25	08/11/22 09:15
500-220709-21	W-220809-RA-21	Water	08/09/22 10:41	08/11/22 09:15
500-220709-22	W-220809-RA-22	Water	08/09/22 11:11	08/11/22 09:15
500-220709-23	W-220809-RA-23	Water	08/09/22 11:19	08/11/22 09:15
500-220709-24	W-220809-RA-24	Water	08/09/22 11:43	08/11/22 09:15

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-01
Date Collected: 08/08/22 12:51
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-1
Matrix: Water

Method: 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			08/17/22 15:26	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 15:26	1
Acetone	<1.7		10	1.7	ug/L			08/17/22 15:26	1
Benzene	**0.16**	**J**	0.50	0.15	ug/L			08/17/22 15:26	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 15:26	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 15:26	1
cis-1,2-Dichloroethene	**31**		1.0	0.41	ug/L			08/17/22 15:26	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 15:26	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 15:26	1
Tetrachloroethene	**1.6**		1.0	0.37	ug/L			08/17/22 15:26	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 15:26	1
Trichloroethene	**1.2**		0.50	0.16	ug/L			08/17/22 15:26	1
Vinyl chloride	**1.4**		1.0	0.20	ug/L			08/17/22 15:26	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 15:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*08/17/22 15:26*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*08/17/22 15:26*	*1*
Dibromofluoromethane	*107*		*75 - 120*		*08/17/22 15:26*	*1*
Toluene-d8 (Surr)	*89*		*75 - 120*		*08/17/22 15:26*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-02
Date Collected: 08/08/22 13:55
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-2
Matrix: Water

Method: 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			08/17/22 15:53	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 15:53	1
Acetone	<1.7		10	1.7	ug/L			08/17/22 15:53	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 15:53	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 15:53	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 15:53	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/17/22 15:53	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 15:53	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 15:53	1
Tetrachloroethene	**15**		1.0	0.37	ug/L			08/17/22 15:53	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 15:53	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/17/22 15:53	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 15:53	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*08/17/22 15:53*	*1*
4-Bromofluorobenzene (Surr)	*92*		*72 - 124*		*08/17/22 15:53*	*1*
Dibromofluoromethane	*107*		*75 - 120*		*08/17/22 15:53*	*1*
Toluene-d8 (Surr)	*90*		*75 - 120*		*08/17/22 15:53*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-03

Date Collected: 08/08/22 14:39
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-3

Matrix: Water

Method: 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			08/17/22 16:19	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 16:19	1
Acetone	**5.8**	**J**	10	1.7	ug/L			08/17/22 16:19	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 16:19	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 16:19	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 16:19	1
cis-1,2-Dichloroethene	**5.9**		1.0	0.41	ug/L			08/17/22 16:19	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 16:19	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 16:19	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/17/22 16:19	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 16:19	1
Trichloroethene	**0.24**	**J**	0.50	0.16	ug/L			08/17/22 16:19	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 16:19	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 16:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*08/17/22 16:19*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*08/17/22 16:19*	*1*
Dibromofluoromethane	*107*		*75 - 120*		*08/17/22 16:19*	*1*
Toluene-d8 (Surr)	*91*		*75 - 120*		*08/17/22 16:19*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-04
Date Collected: 08/08/22 15:10
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-4
Matrix: Water

Method: 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			08/17/22 16:46	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 16:46	1
Acetone	<1.7		10	1.7	ug/L			08/17/22 16:46	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 16:46	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 16:46	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 16:46	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/17/22 16:46	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 16:46	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 16:46	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/17/22 16:46	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 16:46	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/17/22 16:46	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 16:46	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 16:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*08/17/22 16:46*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*		*08/17/22 16:46*	*1*
Dibromofluoromethane	*109*		*75 - 120*		*08/17/22 16:46*	*1*
Toluene-d8 (Surr)	*90*		*75 - 120*		*08/17/22 16:46*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-05

Date Collected: 08/08/22 15:00
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-5

Matrix: Water

Method: 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			08/17/22 17:13	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 17:13	1
Acetone	6.7	J	10	1.7	ug/L			08/17/22 17:13	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 17:13	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 17:13	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 17:13	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/17/22 17:13	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 17:13	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 17:13	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/17/22 17:13	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 17:13	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/17/22 17:13	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 17:13	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 17:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*08/17/22 17:13*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*08/17/22 17:13*	*1*
Dibromofluoromethane	*107*		*75 - 120*		*08/17/22 17:13*	*1*
Toluene-d8 (Surr)	*90*		*75 - 120*		*08/17/22 17:13*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-06

Date Collected: 08/08/22 15:47
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-6

Matrix: Water

Method: 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			08/17/22 17:39	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 17:39	1
Acetone	<1.7		10	1.7	ug/L			08/17/22 17:39	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 17:39	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 17:39	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 17:39	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/17/22 17:39	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 17:39	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 17:39	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/17/22 17:39	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 17:39	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/17/22 17:39	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 17:39	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 17:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*08/17/22 17:39*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*08/17/22 17:39*	*1*
Dibromofluoromethane	*111*		*75 - 120*		*08/17/22 17:39*	*1*
Toluene-d8 (Surr)	*89*		*75 - 120*		*08/17/22 17:39*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-07
Date Collected: 08/08/22 17:03
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-7
Matrix: Water

Method: 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			08/17/22 18:06	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 18:06	1
Acetone	<1.7		10	1.7	ug/L			08/17/22 18:06	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 18:06	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 18:06	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 18:06	1
cis-1,2-Dichloroethene	**2.6**		1.0	0.41	ug/L			08/17/22 18:06	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 18:06	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 18:06	1
Tetrachloroethene	**0.40**	**J**	1.0	0.37	ug/L			08/17/22 18:06	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 18:06	1
Trichloroethene	**0.62**		0.50	0.16	ug/L			08/17/22 18:06	1
Vinyl chloride	**0.56**	**J**	1.0	0.20	ug/L			08/17/22 18:06	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 18:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*08/17/22 18:06*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*08/17/22 18:06*	*1*
Dibromofluoromethane	*112*		*75 - 120*		*08/17/22 18:06*	*1*
Toluene-d8 (Surr)	*88*		*75 - 120*		*08/17/22 18:06*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-08

Date Collected: 08/08/22 12:58
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-8

Matrix: Water

Method: 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			08/17/22 18:33	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 18:33	1
Acetone	<1.7		10	1.7	ug/L			08/17/22 18:33	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 18:33	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 18:33	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 18:33	1
cis-1,2-Dichloroethene	**0.61**	**J**	1.0	0.41	ug/L			08/17/22 18:33	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 18:33	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 18:33	1
Tetrachloroethene	**0.80**	**J**	1.0	0.37	ug/L			08/17/22 18:33	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 18:33	1
Trichloroethene	**1.2**		0.50	0.16	ug/L			08/17/22 18:33	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 18:33	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 18:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*08/17/22 18:33*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*08/17/22 18:33*	*1*
Dibromofluoromethane	*112*		*75 - 120*		*08/17/22 18:33*	*1*
Toluene-d8 (Surr)	*90*		*75 - 120*		*08/17/22 18:33*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-09

Date Collected: 08/08/22 12:58
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-9

Matrix: Water

Method: 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			08/17/22 18:59	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 18:59	1
Acetone	<1.7		10	1.7	ug/L			08/17/22 18:59	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 18:59	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 18:59	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 18:59	1
cis-1,2-Dichloroethene	**0.57**	**J**	1.0	0.41	ug/L			08/17/22 18:59	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 18:59	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 18:59	1
Tetrachloroethene	**0.72**	**J**	1.0	0.37	ug/L			08/17/22 18:59	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 18:59	1
Trichloroethene	**1.2**		0.50	0.16	ug/L			08/17/22 18:59	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 18:59	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 18:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*08/17/22 18:59*	*1*
4-Bromofluorobenzene (Surr)	*96*		*72 - 124*		*08/17/22 18:59*	*1*
Dibromofluoromethane	*110*		*75 - 120*		*08/17/22 18:59*	*1*
Toluene-d8 (Surr)	*89*		*75 - 120*		*08/17/22 18:59*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-10

Date Collected: 08/08/22 17:24
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-10

Matrix: Water

Method: 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			08/17/22 19:26	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 19:26	1
Acetone	<1.7		10	1.7	ug/L			08/17/22 19:26	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 19:26	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 19:26	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 19:26	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/17/22 19:26	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 19:26	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 19:26	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/17/22 19:26	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 19:26	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/17/22 19:26	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 19:26	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 19:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*08/17/22 19:26*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*08/17/22 19:26*	*1*
Dibromofluoromethane	*111*		*75 - 120*		*08/17/22 19:26*	*1*
Toluene-d8 (Surr)	*90*		*75 - 120*		*08/17/22 19:26*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-11

Date Collected: 08/08/22 18:00
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-11

Matrix: Water

Method: 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			08/17/22 19:53	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 19:53	1
Acetone	<1.7		10	1.7	ug/L			08/17/22 19:53	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 19:53	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 19:53	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 19:53	1
cis-1,2-Dichloroethene	**17**		1.0	0.41	ug/L			08/17/22 19:53	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 19:53	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 19:53	1
Tetrachloroethene	**3.6**		1.0	0.37	ug/L			08/17/22 19:53	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 19:53	1
Trichloroethene	**1.7**		0.50	0.16	ug/L			08/17/22 19:53	1
Vinyl chloride	**9.0**		1.0	0.20	ug/L			08/17/22 19:53	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 19:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*08/17/22 19:53*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*08/17/22 19:53*	*1*
Dibromofluoromethane	*111*		*75 - 120*		*08/17/22 19:53*	*1*
Toluene-d8 (Surr)	*90*		*75 - 120*		*08/17/22 19:53*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-12
Date Collected: 08/08/22 18:18
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-12
Matrix: Water

Method: 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			08/17/22 20:19	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 20:19	1
Acetone	**1.8**	**J**	10	1.7	ug/L			08/17/22 20:19	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 20:19	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 20:19	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 20:19	1
cis-1,2-Dichloroethene	**0.83**	**J**	1.0	0.41	ug/L			08/17/22 20:19	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 20:19	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 20:19	1
Tetrachloroethene	**18**		1.0	0.37	ug/L			08/17/22 20:19	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 20:19	1
Trichloroethene	**0.33**	**J**	0.50	0.16	ug/L			08/17/22 20:19	1
Vinyl chloride	**0.66**	**J**	1.0	0.20	ug/L			08/17/22 20:19	1
Xylenes, Total	**0.35**	**J**	1.0	0.22	ug/L			08/17/22 20:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*08/17/22 20:19*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*08/17/22 20:19*	*1*
Dibromofluoromethane	*111*		*75 - 120*		*08/17/22 20:19*	*1*
Toluene-d8 (Surr)	*89*		*75 - 120*		*08/17/22 20:19*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-13

Date Collected: 08/08/22 16:10
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-13

Matrix: Water

Method: 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			08/17/22 20:46	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 20:46	1
Acetone	**4.7**	**J**	10	1.7	ug/L			08/17/22 20:46	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 20:46	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 20:46	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 20:46	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/17/22 20:46	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 20:46	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 20:46	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/17/22 20:46	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 20:46	1
Trichloroethene	**0.98**		0.50	0.16	ug/L			08/17/22 20:46	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 20:46	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 20:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*08/17/22 20:46*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*		*08/17/22 20:46*	*1*
Dibromofluoromethane	*115*		*75 - 120*		*08/17/22 20:46*	*1*
Toluene-d8 (Surr)	*89*		*75 - 120*		*08/17/22 20:46*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-14

Date Collected: 08/08/22 16:25
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-14

Matrix: Water

Method: 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			08/17/22 21:12	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 21:12	1
Acetone	<1.7		10	1.7	ug/L			08/17/22 21:12	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 21:12	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 21:12	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 21:12	1
cis-1,2-Dichloroethene	**14**		1.0	0.41	ug/L			08/17/22 21:12	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 21:12	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 21:12	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/17/22 21:12	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 21:12	1
Trichloroethene	**2.1**		0.50	0.16	ug/L			08/17/22 21:12	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 21:12	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 21:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*08/17/22 21:12*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*		*08/17/22 21:12*	*1*
Dibromofluoromethane	*110*		*75 - 120*		*08/17/22 21:12*	*1*
Toluene-d8 (Surr)	*90*		*75 - 120*		*08/17/22 21:12*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-15

Date Collected: 08/08/22 17:15
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-15

Matrix: Water

Method: 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			08/17/22 21:39	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 21:39	1
Acetone	**4.4**	**J**	10	1.7	ug/L			08/17/22 21:39	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 21:39	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 21:39	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 21:39	1
cis-1,2-Dichloroethene	**5.7**	**F1**	1.0	0.41	ug/L			08/17/22 21:39	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 21:39	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 21:39	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/17/22 21:39	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 21:39	1
Trichloroethene	**3.9**		0.50	0.16	ug/L			08/17/22 21:39	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 21:39	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 21:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*08/17/22 21:39*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*		*08/17/22 21:39*	*1*
Dibromofluoromethane	*112*		*75 - 120*		*08/17/22 21:39*	*1*
Toluene-d8 (Surr)	*91*		*75 - 120*		*08/17/22 21:39*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220809-RA-16

Date Collected: 08/09/22 17:45
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-16

Matrix: Water

Method: 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			08/18/22 12:39	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 12:39	1
Acetone	**4.3**	**J**	10	1.7	ug/L			08/18/22 12:39	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 12:39	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 12:39	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 12:39	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 12:39	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 12:39	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 12:39	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 12:39	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 12:39	1
Trichloroethene	**3.0**		0.50	0.16	ug/L			08/18/22 12:39	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 12:39	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 12:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*08/18/22 12:39*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*08/18/22 12:39*	*1*
Dibromofluoromethane	*105*		*75 - 120*		*08/18/22 12:39*	*1*
Toluene-d8 (Surr)	*90*		*75 - 120*		*08/18/22 12:39*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220809-RA-17

Date Collected: 08/09/22 08:28
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-17

Matrix: Water

Method: 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			08/18/22 13:06	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 13:06	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 13:06	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 13:06	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 13:06	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 13:06	1
cis-1,2-Dichloroethene	**1.1**		1.0	0.41	ug/L			08/18/22 13:06	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 13:06	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 13:06	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 13:06	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 13:06	1
Trichloroethene	**5.1**		0.50	0.16	ug/L			08/18/22 13:06	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 13:06	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 13:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*08/18/22 13:06*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*08/18/22 13:06*	*1*
Dibromofluoromethane	*106*		*75 - 120*		*08/18/22 13:06*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*08/18/22 13:06*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220809-RA-18

Date Collected: 08/09/22 09:05
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-18

Matrix: Water

Method: 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			08/18/22 13:33	1
1,1-Dichloroethene	**0.52**	**J**	1.0	0.39	ug/L			08/18/22 13:33	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 13:33	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 13:33	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 13:33	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 13:33	1
cis-1,2-Dichloroethene	**1.5**		1.0	0.41	ug/L			08/18/22 13:33	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 13:33	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 13:33	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 13:33	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 13:33	1
Trichloroethene	**32**		0.50	0.16	ug/L			08/18/22 13:33	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 13:33	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*08/18/22 13:33*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*		*08/18/22 13:33*	*1*
Dibromofluoromethane	*105*		*75 - 120*		*08/18/22 13:33*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*08/18/22 13:33*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220809-RA-19
Date Collected: 08/09/22 09:22
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-19
Matrix: Water

Method: 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			08/18/22 14:00	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 14:00	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 14:00	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 14:00	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 14:00	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 14:00	1
cis-1,2-Dichloroethene	**3.7**		1.0	0.41	ug/L			08/18/22 14:00	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 14:00	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 14:00	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 14:00	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 14:00	1
Trichloroethene	**72**		0.50	0.16	ug/L			08/18/22 14:00	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 14:00	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 14:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*08/18/22 14:00*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*08/18/22 14:00*	*1*
Dibromofluoromethane	*107*		*75 - 120*		*08/18/22 14:00*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*08/18/22 14:00*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220809-RA-20

Date Collected: 08/09/22 10:25
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-20

Matrix: Water

Method: 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			08/18/22 14:26	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 14:26	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 14:26	1
Benzene	**17**		0.50	0.15	ug/L			08/18/22 14:26	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 14:26	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 14:26	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 14:26	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 14:26	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 14:26	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 14:26	1
Toluene	**1.2**		0.50	0.15	ug/L			08/18/22 14:26	1
Trichloroethene	**2.3**		0.50	0.16	ug/L			08/18/22 14:26	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 14:26	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 14:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*		*08/18/22 14:26*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*08/18/22 14:26*	*1*
Dibromofluoromethane	*104*		*75 - 120*		*08/18/22 14:26*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*08/18/22 14:26*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220809-RA-21
Date Collected: 08/09/22 10:41
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-21
Matrix: Water

Method: 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			08/18/22 14:53	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 14:53	1
Acetone	**37**		10	1.7	ug/L			08/18/22 14:53	1
Benzene	**70**		0.50	0.15	ug/L			08/18/22 14:53	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 14:53	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 14:53	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 14:53	1
Ethylbenzene	**0.37**	**J**	0.50	0.18	ug/L			08/18/22 14:53	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 14:53	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 14:53	1
Toluene	**8.7**		0.50	0.15	ug/L			08/18/22 14:53	1
Trichloroethene	**0.26**	**J**	0.50	0.16	ug/L			08/18/22 14:53	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 14:53	1
Xylenes, Total	**1.6**		1.0	0.22	ug/L			08/18/22 14:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 126*		*08/18/22 14:53*	*1*
4-Bromofluorobenzene (Surr)	*98*		*72 - 124*		*08/18/22 14:53*	*1*
Dibromofluoromethane	*102*		*75 - 120*		*08/18/22 14:53*	*1*
Toluene-d8 (Surr)	*91*		*75 - 120*		*08/18/22 14:53*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220809-RA-22

Date Collected: 08/09/22 11:11
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-22

Matrix: Water

Method: 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			08/18/22 15:19	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 15:19	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 15:19	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 15:19	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 15:19	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 15:19	1
cis-1,2-Dichloroethene	**0.57**	**J**	1.0	0.41	ug/L			08/18/22 15:19	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 15:19	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 15:19	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 15:19	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 15:19	1
Trichloroethene	**8.7**		0.50	0.16	ug/L			08/18/22 15:19	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 15:19	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 15:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*08/18/22 15:19*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*		*08/18/22 15:19*	*1*
Dibromofluoromethane	*108*		*75 - 120*		*08/18/22 15:19*	*1*
Toluene-d8 (Surr)	*91*		*75 - 120*		*08/18/22 15:19*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220809-RA-23

Date Collected: 08/09/22 11:19
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-23

Matrix: Water

Method: 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			08/18/22 15:46	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 15:46	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 15:46	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 15:46	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 15:46	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 15:46	1
cis-1,2-Dichloroethene	**0.52**	**J**	1.0	0.41	ug/L			08/18/22 15:46	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 15:46	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 15:46	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 15:46	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 15:46	1
Trichloroethene	**8.9**		0.50	0.16	ug/L			08/18/22 15:46	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 15:46	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 15:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 126*		*08/18/22 15:46*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*08/18/22 15:46*	*1*
Dibromofluoromethane	*108*		*75 - 120*		*08/18/22 15:46*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*08/18/22 15:46*	*1*

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

Job ID: 500-220709-1

Client Sample ID: W-220809-RA-24
Date Collected: 08/09/22 11:43
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-24
Matrix: Water

Method: 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			08/18/22 16:12	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 16:12	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 16:12	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 16:12	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 16:12	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 16:12	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 16:12	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 16:12	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 16:12	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 16:12	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 16:12	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/18/22 16:12	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 16:12	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 16:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 126*		*08/18/22 16:12*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*08/18/22 16:12*	*1*
Dibromofluoromethane	*110*		*75 - 120*		*08/18/22 16:12*	*1*
Toluene-d8 (Surr)	*91*		*75 - 120*		*08/18/22 16:12*	*1*

Definitions/Glossary

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

Job ID: 500-220709-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	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

GC/MS VOA

Analysis Batch: 670452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220709-1	W-220808-RA-01	Total/NA	Water	8260B	
500-220709-2	W-220808-RA-02	Total/NA	Water	8260B	
500-220709-3	W-220808-RA-03	Total/NA	Water	8260B	
500-220709-4	W-220808-RA-04	Total/NA	Water	8260B	
500-220709-5	W-220808-RA-05	Total/NA	Water	8260B	
500-220709-6	W-220808-RA-06	Total/NA	Water	8260B	
500-220709-7	W-220808-RA-07	Total/NA	Water	8260B	
500-220709-8	W-220808-RA-08	Total/NA	Water	8260B	
500-220709-9	W-220808-RA-09	Total/NA	Water	8260B	
500-220709-10	W-220808-RA-10	Total/NA	Water	8260B	
500-220709-11	W-220808-RA-11	Total/NA	Water	8260B	
500-220709-12	W-220808-RA-12	Total/NA	Water	8260B	
500-220709-13	W-220808-RA-13	Total/NA	Water	8260B	
500-220709-14	W-220808-RA-14	Total/NA	Water	8260B	
500-220709-15	W-220808-RA-15	Total/NA	Water	8260B	
MB 500-670452/6	Method Blank	Total/NA	Water	8260B	
LCS 500-670452/4	Lab Control Sample	Total/NA	Water	8260B	
500-220709-15 MS	W-220808-RA-15	Total/NA	Water	8260B	
500-220709-15 MSD	W-220808-RA-15	Total/NA	Water	8260B	

Analysis Batch: 670614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220709-16	W-220809-RA-16	Total/NA	Water	8260B	
500-220709-17	W-220809-RA-17	Total/NA	Water	8260B	
500-220709-18	W-220809-RA-18	Total/NA	Water	8260B	
500-220709-19	W-220809-RA-19	Total/NA	Water	8260B	
500-220709-20	W-220809-RA-20	Total/NA	Water	8260B	
500-220709-21	W-220809-RA-21	Total/NA	Water	8260B	
500-220709-22	W-220809-RA-22	Total/NA	Water	8260B	
500-220709-23	W-220809-RA-23	Total/NA	Water	8260B	
500-220709-24	W-220809-RA-24	Total/NA	Water	8260B	
MB 500-670614/6	Method Blank	Total/NA	Water	8260B	
LCS 500-670614/4	Lab Control Sample	Total/NA	Water	8260B	

Surrogate Summary

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

Job ID: 500-220709-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(75-126)	(72-124)	(75-120)	(75-120)
500-220709-1	W-220808-RA-01	100	93	107	89
500-220709-2	W-220808-RA-02	99	92	107	90
500-220709-3	W-220808-RA-03	99	93	107	91
500-220709-4	W-220808-RA-04	99	94	109	90
500-220709-5	W-220808-RA-05	99	93	107	90
500-220709-6	W-220808-RA-06	102	93	111	89
500-220709-7	W-220808-RA-07	100	93	112	88
500-220709-8	W-220808-RA-08	102	95	112	90
500-220709-9	W-220808-RA-09	100	96	110	89
500-220709-10	W-220808-RA-10	102	93	111	90
500-220709-11	W-220808-RA-11	100	93	111	90
500-220709-12	W-220808-RA-12	101	93	111	89
500-220709-13	W-220808-RA-13	102	94	115	89
500-220709-14	W-220808-RA-14	100	94	110	90
500-220709-15	W-220808-RA-15	99	94	112	91
500-220709-15 MS	W-220808-RA-15	88	92	95	94
500-220709-15 MSD	W-220808-RA-15	85	93	93	94
500-220709-16	W-220809-RA-16	95	95	105	90
500-220709-17	W-220809-RA-17	95	95	106	92
500-220709-18	W-220809-RA-18	99	94	105	92
500-220709-19	W-220809-RA-19	100	93	107	92
500-220709-20	W-220809-RA-20	97	95	104	92
500-220709-21	W-220809-RA-21	93	98	102	91
500-220709-22	W-220809-RA-22	99	94	108	91
500-220709-23	W-220809-RA-23	98	95	108	92
500-220709-24	W-220809-RA-24	98	95	110	91
LCS 500-670452/4	Lab Control Sample	84	94	92	95
LCS 500-670614/4	Lab Control Sample	84	95	90	95
MB 500-670452/6	Method Blank	94	97	101	92
MB 500-670614/6	Method Blank	97	97	105	90

Surrogate Legend

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

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

Lab Sample ID: MB 500-670452/6
Matrix: Water
Analysis Batch: 670452

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			08/17/22 13:13	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/17/22 13:13	1
Acetone	<1.7		10	1.7	ug/L			08/17/22 13:13	1
Benzene	<0.15		0.50	0.15	ug/L			08/17/22 13:13	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/17/22 13:13	1
Chloroform	<0.37		2.0	0.37	ug/L			08/17/22 13:13	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/17/22 13:13	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/17/22 13:13	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/17/22 13:13	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/17/22 13:13	1
Toluene	<0.15		0.50	0.15	ug/L			08/17/22 13:13	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/17/22 13:13	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/17/22 13:13	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/17/22 13:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 126*		*08/17/22 13:13*	*1*
4-Bromofluorobenzene (Surr)	*97*		*72 - 124*		*08/17/22 13:13*	*1*
Dibromofluoromethane	*101*		*75 - 120*		*08/17/22 13:13*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*08/17/22 13:13*	*1*

Lab Sample ID: LCS 500-670452/4
Matrix: Water
Analysis Batch: 670452

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichloroethane	40.0	33.6		ug/L		84	71 - 130
1,1-Dichloroethene	40.0	30.5		ug/L		76	67 - 122
Acetone	40.0	24.0		ug/L		60	40 - 143
Benzene	40.0	32.1		ug/L		80	70 - 120
Carbon tetrachloride	40.0	32.0		ug/L		80	59 - 133
Chloroform	40.0	31.2		ug/L		78	70 - 120
cis-1,2-Dichloroethene	40.0	32.3		ug/L		81	70 - 125
Ethylbenzene	40.0	35.9		ug/L		90	70 - 123
Methylene Chloride	40.0	31.3		ug/L		78	69 - 125
Tetrachloroethene	40.0	38.8		ug/L		97	70 - 128
Toluene	40.0	35.3		ug/L		88	70 - 125
Trichloroethene	40.0	35.4		ug/L		88	70 - 125
Vinyl chloride	40.0	39.6		ug/L		99	64 - 126
Xylenes, Total	80.0	66.0		ug/L		82	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*75 - 126*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*
Dibromofluoromethane	*92*		*75 - 120*
Toluene-d8 (Surr)	*95*		*75 - 120*

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

Lab Sample ID: 500-220709-15 MS
Matrix: Water
Analysis Batch: 670452

Client Sample ID: W-220808-RA-15
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		40.0	42.0		ug/L		105	71 - 130
1,1-Dichloroethene	<0.39		40.0	37.0		ug/L		93	67 - 122
Acetone	4.4	J	40.0	26.6		ug/L		56	40 - 143
Benzene	<0.15		40.0	40.0		ug/L		100	70 - 120
Carbon tetrachloride	<0.38		40.0	39.3		ug/L		98	59 - 133
Chloroform	<0.37		40.0	39.4		ug/L		99	70 - 120
cis-1,2-Dichloroethene	5.7	F1	40.0	59.6	F1	ug/L		135	70 - 125
Ethylbenzene	<0.18		40.0	43.5		ug/L		109	70 - 123
Methylene Chloride	<1.6		40.0	38.9		ug/L		97	69 - 125
Tetrachloroethene	<0.37		40.0	46.6		ug/L		116	70 - 128
Toluene	<0.15		40.0	43.0		ug/L		108	70 - 125
Trichloroethene	3.9		40.0	53.6		ug/L		124	70 - 125
Vinyl chloride	<0.20		40.0	39.3		ug/L		98	64 - 126
Xylenes, Total	<0.22		80.0	79.5		ug/L		99	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*75 - 126*
4-Bromofluorobenzene (Surr)	*92*		*72 - 124*
Dibromofluoromethane	*95*		*75 - 120*
Toluene-d8 (Surr)	*94*		*75 - 120*

Lab Sample ID: 500-220709-15 MSD
Matrix: Water
Analysis Batch: 670452

Client Sample ID: W-220808-RA-15
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		40.0	39.7		ug/L		99	71 - 130	6	20
1,1-Dichloroethene	<0.39		40.0	36.7		ug/L		92	67 - 122	1	20
Acetone	4.4	J	40.0	24.8		ug/L		51	40 - 143	7	20
Benzene	<0.15		40.0	38.8		ug/L		97	70 - 120	3	20
Carbon tetrachloride	<0.38		40.0	37.8		ug/L		95	59 - 133	4	20
Chloroform	<0.37		40.0	38.0		ug/L		95	70 - 120	4	20
cis-1,2-Dichloroethene	5.7	F1	40.0	50.9		ug/L		113	70 - 125	16	20
Ethylbenzene	<0.18		40.0	41.3		ug/L		103	70 - 123	5	20
Methylene Chloride	<1.6		40.0	37.7		ug/L		94	69 - 125	3	20
Tetrachloroethene	<0.37		40.0	45.0		ug/L		113	70 - 128	3	20
Toluene	<0.15		40.0	41.4		ug/L		104	70 - 125	4	20
Trichloroethene	3.9		40.0	49.0		ug/L		113	70 - 125	9	20
Vinyl chloride	<0.20		40.0	35.5		ug/L		89	64 - 126	10	20
Xylenes, Total	<0.22		80.0	76.7		ug/L		96	70 - 125	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*85*		*75 - 126*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*
Dibromofluoromethane	*93*		*75 - 120*
Toluene-d8 (Surr)	*94*		*75 - 120*

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

Lab Sample ID: MB 500-670614/6
Matrix: Water
Analysis Batch: 670614

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			08/18/22 11:46	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 11:46	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 11:46	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 11:46	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 11:46	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 11:46	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 11:46	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 11:46	1
Methylene Chloride	2.10	J	5.0	1.6	ug/L			08/18/22 11:46	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 11:46	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 11:46	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/18/22 11:46	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 11:46	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 11:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*		*08/18/22 11:46*	*1*
4-Bromofluorobenzene (Surr)	*97*		*72 - 124*		*08/18/22 11:46*	*1*
Dibromofluoromethane	*105*		*75 - 120*		*08/18/22 11:46*	*1*
Toluene-d8 (Surr)	*90*		*75 - 120*		*08/18/22 11:46*	*1*

Lab Sample ID: LCS 500-670614/4
Matrix: Water
Analysis Batch: 670614

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichloroethane	40.0	40.9		ug/L		102	71 - 130
1,1-Dichloroethene	40.0	41.0		ug/L		102	67 - 122
Acetone	40.0	23.9		ug/L		60	40 - 143
Benzene	40.0	40.8		ug/L		102	70 - 120
Carbon tetrachloride	40.0	41.2		ug/L		103	59 - 133
Chloroform	40.0	38.8		ug/L		97	70 - 120
cis-1,2-Dichloroethene	40.0	41.7		ug/L		104	70 - 125
Ethylbenzene	40.0	44.5		ug/L		111	70 - 123
Methylene Chloride	40.0	42.8		ug/L		107	69 - 125
Tetrachloroethene	40.0	49.8		ug/L		124	70 - 128
Toluene	40.0	43.9		ug/L		110	70 - 125
Trichloroethene	40.0	45.9		ug/L		115	70 - 125
Vinyl chloride	40.0	41.0		ug/L		102	64 - 126
Xylenes, Total	80.0	80.6		ug/L		101	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*75 - 126*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*
Dibromofluoromethane	*90*		*75 - 120*
Toluene-d8 (Surr)	*95*		*75 - 120*

Lab Chronicle

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-01
Lab Sample ID: 500-220709-1
Date Collected: 08/08/22 12:51
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 15:26

Client Sample ID: W-220808-RA-02
Lab Sample ID: 500-220709-2
Date Collected: 08/08/22 13:55
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 15:53

Client Sample ID: W-220808-RA-03
Lab Sample ID: 500-220709-3
Date Collected: 08/08/22 14:39
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 16:19

Client Sample ID: W-220808-RA-04
Lab Sample ID: 500-220709-4
Date Collected: 08/08/22 15:10
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 16:46

Client Sample ID: W-220808-RA-05
Lab Sample ID: 500-220709-5
Date Collected: 08/08/22 15:00
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 17:13

Client Sample ID: W-220808-RA-06
Lab Sample ID: 500-220709-6
Date Collected: 08/08/22 15:47
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 17:39

Client Sample ID: W-220808-RA-07
Lab Sample ID: 500-220709-7
Date Collected: 08/08/22 17:03
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 18:06

Lab Chronicle

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-08
Lab Sample ID: 500-220709-8
Date Collected: 08/08/22 12:58
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 18:33

Client Sample ID: W-220808-RA-09
Lab Sample ID: 500-220709-9
Date Collected: 08/08/22 12:58
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 18:59

Client Sample ID: W-220808-RA-10
Lab Sample ID: 500-220709-10
Date Collected: 08/08/22 17:24
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 19:26

Client Sample ID: W-220808-RA-11
Lab Sample ID: 500-220709-11
Date Collected: 08/08/22 18:00
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 19:53

Client Sample ID: W-220808-RA-12
Lab Sample ID: 500-220709-12
Date Collected: 08/08/22 18:18
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 20:19

Client Sample ID: W-220808-RA-13
Lab Sample ID: 500-220709-13
Date Collected: 08/08/22 16:10
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 20:46

Client Sample ID: W-220808-RA-14
Lab Sample ID: 500-220709-14
Date Collected: 08/08/22 16:25
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 21:12

Lab Chronicle

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

Job ID: 500-220709-1

Client Sample ID: W-220808-RA-15
Lab Sample ID: 500-220709-15
Date Collected: 08/08/22 17:15
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670452	PSP	EET CHI	08/17/22 21:39

Client Sample ID: W-220809-RA-16
Lab Sample ID: 500-220709-16
Date Collected: 08/09/22 17:45
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 12:39

Client Sample ID: W-220809-RA-17
Lab Sample ID: 500-220709-17
Date Collected: 08/09/22 08:28
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 13:06

Client Sample ID: W-220809-RA-18
Lab Sample ID: 500-220709-18
Date Collected: 08/09/22 09:05
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 13:33

Client Sample ID: W-220809-RA-19
Lab Sample ID: 500-220709-19
Date Collected: 08/09/22 09:22
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 14:00

Client Sample ID: W-220809-RA-20
Lab Sample ID: 500-220709-20
Date Collected: 08/09/22 10:25
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 14:26

Client Sample ID: W-220809-RA-21
Lab Sample ID: 500-220709-21
Date Collected: 08/09/22 10:41
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 14:53

Lab Chronicle

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

Job ID: 500-220709-1

Client Sample ID: W-220809-RA-22
Date Collected: 08/09/22 11:11
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-22
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 15:19

Client Sample ID: W-220809-RA-23
Date Collected: 08/09/22 11:19
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-23
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 15:46

Client Sample ID: W-220809-RA-24
Date Collected: 08/09/22 11:43
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-24
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 16:12

Laboratory References:

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

Accreditation/Certification Summary

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

Job ID: 500-220709-1

Laboratory: Eurofins Chicago

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-22

Chain of Custody Record

541596

eurofins

Environment Testing
TestAmerica

MKE 232

Address _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TAL-8210

Client Contact	Project Manager: OJ Ojinaga	Site Contact: Grant Anderson	Date: 8/10/22	COC No
Company Name: GHD	Tel/Email:	Lab Contact	Carrier	1 of 3 COCs
Address: 900 Long Lake Rd	Analysis Turnaround Time			Sampler:
City/State/Zip: St Paul MN 55112	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only
Phone: 651 639-0913	TAT if different from Below _____			Walk-in Client
Fax	☐ 2 weeks			Lab Sampling
Project Name: Wausau	☐ 1 week			
Site: 003978-**	☐ 2 days			Job / SDG No: 500-220709
P O #	☐ 1 day			

500-220709 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 VOCs	Sample Specific Notes
1	W-220808-RA-01	8/8/22	12:51	G	WG	3			Y	
2	W-220808-RA-02	8/8/22	13:55	G	WG	3			Y	
3	W-220808-RA-03	8/8/22	14:39	G	WG	3			Y	
4	W-220808-RA-04	8/8/22	15:10	G	WG	3			Y	
5	W-220808-RA-05	8/8/22	15:00	G	WG	3			Y	
6	W-220808-RA-06	8/8/22	15:47	G	WG	3			Y	
7	W-220808-RA-07	8/8/22	17:03	G	WG	3			Y	
8	W-220808-RA-08	8/8/22	12:58	G	WG	3			Y	
9	W-220808-RA-09	8/8/22	12:58	G	WG	3			Y	
10	W-220808-RA-10	8/8/22	17:24	G	WG	3			Y	
11	W-220808-RA-11	8/8/22	18:00	G	WG	3			Y	
12	W-220808-RA-12	8/8/22	18:18	G	WG	3			Y	

See attached sheet

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

☐ Non Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

5838

Custody Seals Intact ☐ Yes ☐ No	Custody Seal No	Cooler Temp (°C) Obs'd _____ Corr'd _____	Therm ID No _____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	GHD	8/10/22 1400			
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time
			Stephanie Hernandez	EETA	8/11/22 0915

Chain of Custody Record

541597 eurofins

Environment Testing TestAmerica

MKE 232

Address _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TAL-8210

Client Contact	Project Manager:	Site Contact	Date:	COC No
Company Name	Tel/Email:	Lab Contact	Carrier	2 of 3 COCs
Address	Analysis Turnaround Time			Sampler:
City/State/Zip	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only
Phone Same	TAT if different from Below _____			Walk-in Client
Fax	☐ 2 weeks			Lab Sampling
Project Name	☐ 1 week			
Site	☐ 2 days			Job / SDG No
P O #	☐ 1 day			500-220709

	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 VOCs	see attached sheet	Sample Specific Notes
13	W-220808-RA-13	8/8/22	16:10	G	WG	3			Y		
14	W-220808-RA-14	8/8/22	16:25	G	WG	3			Y		
15	W-220808-RA-15	8/8/22	17:15	G	WG	9		X	Y		
16	W-220809-RA-16	8/9/22	7:45	G	WG	3			Y		
17	W-220809-RA-17	8/9/22	8:28	G	WG	3			Y		
18	W-220809-RA-18	8/9/22	9:05	G	WG	3			Y		
19	W-220809-RA-19	8/9/22	9:22	G	WG	3			Y		
20	W-220809-RA-20	8/9/22	10:25	G	WG	3			Y		
21	W-220809-RA-21	8/9/22	10:41	G	WG	3			Y		
22	W-220809-RA-22	8/9/22	11:11	G	WG	3			Y		
23	W-220809-RA-23	8/9/22	11:19	G	WG	3			Y		
24	W-220809-RA-24	8/9/22	11:43	G	WG	3			Y		

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

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd _____ Corr'd _____ Therm ID No _____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
	GAD	8/10/22 1400			
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time
			Stephanie Hernandez	EETA	8/11/22 0915

2022 Groundwater Monitoring Plan
Wausau Water Supply NPL Site
Wausau, Wisconsin

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

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-220709-1

Login Number: 220709
List Number: 1
Creator: Hernandez, Stephanie

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	3.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-220709-2
Client Project/Site: Wausau - 003978

For:
GHD Services Inc.
900 Long Lake Road
Suite 200
New Brighton, Minnesota 55112

Attn: Mr. Grant Anderson

Authorized for release by:
8/25/2022 3:35:43 PM

Richard Wright, Senior Project Manager
(708)746-0045
Richard.Wright@et.eurofinsus.com

Table of Contents

Job ID: 500-220709-2

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-220709-2

Receipt
The samples were received on 8/11/2022 9:15 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 3.8º C.

GC/MS VOA
Method 8260B: Acetone was detected in the following samples: W-220809-RA-25 (500-220709-25), W-220809-RA-26 (500-220709-26) and W-220809-RA-27 (500-220709-27). Acetone is a known lab contaminant; therefore all low level detects for this compound (less than 3 times the reporting limit) could be suspected as lab contamination.

Method 8260B: The following sample is a labeled trip blank which was analyzed twice. Both vials had detects above their reporting limit. The trip blank was likely prepared when the laboratory was having water quality issues, which have since resolved.Trip Blank (500-220709-31)

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: 500-220709-2

Client Sample ID: W-220809-RA-25 — Lab Sample ID: 500-220709-25

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	7.6	J	10	1.7	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-26 — Lab Sample ID: 500-220709-26

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	1.9	J	10	1.7	ug/L	1		8260B	Total/NA
Trichloroethene	3.3		0.50	0.16	ug/L	1		8260B	Total/NA
Xylenes, Total	0.46	J	1.0	0.22	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-27 — Lab Sample ID: 500-220709-27

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Acetone	7.8	J	10	1.7	ug/L	1		8260B	Total/NA
Trichloroethene	3.2		0.50	0.16	ug/L	1		8260B	Total/NA
Xylenes, Total	0.50	J	1.0	0.22	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-28 — Lab Sample ID: 500-220709-28

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.47	J F2	1.0	0.41	ug/L	1		8260B	Total/NA
Trichloroethene	6.7	F1 F2	0.50	0.16	ug/L	1		8260B	Total/NA
Xylenes, Total	0.37	J F1 F2	1.0	0.22	ug/L	1		8260B	Total/NA

Client Sample ID: W-220809-RA-29 — Lab Sample ID: 500-220709-29

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.39	J	1.0	0.37	ug/L	1		8260B	Total/NA
Trichloroethene - DL	83		5.0	1.6	ug/L	10		8260B	Total/NA

Client Sample ID: W-220809-RA-30 — Lab Sample ID: 500-220709-30

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.21	J	0.50	0.15	ug/L	1		8260B	Total/NA
Xylenes, Total	0.34	J	1.0	0.22	ug/L	1		8260B	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 500-220709-31

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.39	J	0.50	0.18	ug/L	1		8260B	Total/NA
Xylenes, Total	2.6		1.0	0.22	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

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

Job ID: 500-220709-2

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

Sample Summary

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

Job ID: 500-220709-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-220709-25	W-220809-RA-25	Water	08/09/22 11:37	08/11/22 09:15
500-220709-26	W-220809-RA-26	Water	08/09/22 11:25	08/11/22 09:15
500-220709-27	W-220809-RA-27	Water	08/09/22 11:25	08/11/22 09:15
500-220709-28	W-220809-RA-28	Water	08/09/22 11:45	08/11/22 09:15
500-220709-29	W-220809-RA-29	Water	08/09/22 12:15	08/11/22 09:15
500-220709-30	W-220809-RA-30	Water	08/09/22 12:30	08/11/22 09:15
500-220709-31	Trip Blank	Water	08/09/22 00:00	08/11/22 09:15

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

Job ID: 500-220709-2

Client Sample ID: W-220809-RA-25
Date Collected: 08/09/22 11:37
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-25
Matrix: Water

Method: 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			08/18/22 16:39	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 16:39	1
Acetone	7.6	J	10	1.7	ug/L			08/18/22 16:39	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 16:39	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 16:39	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 16:39	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 16:39	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 16:39	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 16:39	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 16:39	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 16:39	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/18/22 16:39	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 16:39	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 16:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 126*		*08/18/22 16:39*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*08/18/22 16:39*	*1*
Dibromofluoromethane	*107*		*75 - 120*		*08/18/22 16:39*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*08/18/22 16:39*	*1*

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

Job ID: 500-220709-2

Client Sample ID: W-220809-RA-26

Date Collected: 08/09/22 11:25
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-26

Matrix: Water

Method: 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			08/18/22 17:06	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 17:06	1
Acetone	**1.9**	**J**	10	1.7	ug/L			08/18/22 17:06	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 17:06	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 17:06	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 17:06	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 17:06	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 17:06	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 17:06	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 17:06	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 17:06	1
Trichloroethene	**3.3**		0.50	0.16	ug/L			08/18/22 17:06	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 17:06	1
Xylenes, Total	**0.46**	**J**	1.0	0.22	ug/L			08/18/22 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*08/18/22 17:06*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*08/18/22 17:06*	*1*
Dibromofluoromethane	*110*		*75 - 120*		*08/18/22 17:06*	*1*
Toluene-d8 (Surr)	*91*		*75 - 120*		*08/18/22 17:06*	*1*

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

Job ID: 500-220709-2

Client Sample ID: W-220809-RA-27

Date Collected: 08/09/22 11:25
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-27

Matrix: Water

Method: 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			08/18/22 17:33	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 17:33	1
Acetone	**7.8**	**J**	10	1.7	ug/L			08/18/22 17:33	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 17:33	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 17:33	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 17:33	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 17:33	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 17:33	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 17:33	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 17:33	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 17:33	1
Trichloroethene	**3.2**		0.50	0.16	ug/L			08/18/22 17:33	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 17:33	1
Xylenes, Total	**0.50**	**J**	1.0	0.22	ug/L			08/18/22 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*08/18/22 17:33*	*1*
4-Bromofluorobenzene (Surr)	*96*		*72 - 124*		*08/18/22 17:33*	*1*
Dibromofluoromethane	*112*		*75 - 120*		*08/18/22 17:33*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*08/18/22 17:33*	*1*

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

Job ID: 500-220709-2

Client Sample ID: W-220809-RA-28

Date Collected: 08/09/22 11:45
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-28

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35	F2	1.0	0.35	ug/L			08/18/22 17:59	1
1,1-Dichloroethene	<0.39	F2	1.0	0.39	ug/L			08/18/22 17:59	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 17:59	1
Benzene	<0.15	F2	0.50	0.15	ug/L			08/18/22 17:59	1
Carbon tetrachloride	<0.38	F2	1.0	0.38	ug/L			08/18/22 17:59	1
Chloroform	<0.37	F1 F2	2.0	0.37	ug/L			08/18/22 17:59	1
cis-1,2-Dichloroethene	**0.47**	**J F2**	1.0	0.41	ug/L			08/18/22 17:59	1
Ethylbenzene	<0.18	F1 F2	0.50	0.18	ug/L			08/18/22 17:59	1
Methylene Chloride	<1.6	F2	5.0	1.6	ug/L			08/18/22 17:59	1
Tetrachloroethene	<0.37	F2	1.0	0.37	ug/L			08/18/22 17:59	1
Toluene	<0.15	F2	0.50	0.15	ug/L			08/18/22 17:59	1
Trichloroethene	**6.7**	**F1 F2**	0.50	0.16	ug/L			08/18/22 17:59	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 17:59	1
Xylenes, Total	**0.37**	**J F1 F2**	1.0	0.22	ug/L			08/18/22 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*08/18/22 17:59*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*08/18/22 17:59*	*1*
Dibromofluoromethane	*109*		*75 - 120*		*08/18/22 17:59*	*1*
Toluene-d8 (Surr)	*91*		*75 - 120*		*08/18/22 17:59*	*1*

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

Job ID: 500-220709-2

Client Sample ID: W-220809-RA-29

Date Collected: 08/09/22 12:15
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-29

Matrix: Water

Method: 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			08/18/22 18:26	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 18:26	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 18:26	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 18:26	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 18:26	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 18:26	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 18:26	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 18:26	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 18:26	1
Tetrachloroethene	**0.39**	**J**	1.0	0.37	ug/L			08/18/22 18:26	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 18:26	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 18:26	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 18:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*08/18/22 18:26*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*08/18/22 18:26*	*1*
Dibromofluoromethane	*110*		*75 - 120*		*08/18/22 18:26*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*08/18/22 18:26*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**83**		5.0	1.6	ug/L			08/19/22 19:17	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*75 - 126*		*08/19/22 19:17*	*10*
4-Bromofluorobenzene (Surr)	*85*		*72 - 124*		*08/19/22 19:17*	*10*
Dibromofluoromethane	*95*		*75 - 120*		*08/19/22 19:17*	*10*
Toluene-d8 (Surr)	*96*		*75 - 120*		*08/19/22 19:17*	*10*

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

Job ID: 500-220709-2

Client Sample ID: W-220809-RA-30
Date Collected: 08/09/22 12:30
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-30
Matrix: Water

Method: 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			08/18/22 18:53	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 18:53	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 18:53	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 18:53	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 18:53	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 18:53	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 18:53	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 18:53	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 18:53	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 18:53	1
Toluene	**0.21**	**J**	0.50	0.15	ug/L			08/18/22 18:53	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/18/22 18:53	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 18:53	1
Xylenes, Total	**0.34**	**J**	1.0	0.22	ug/L			08/18/22 18:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*08/18/22 18:53*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*		*08/18/22 18:53*	*1*
Dibromofluoromethane	*108*		*75 - 120*		*08/18/22 18:53*	*1*
Toluene-d8 (Surr)	*90*		*75 - 120*		*08/18/22 18:53*	*1*

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

Job ID: 500-220709-2

Client Sample ID: Trip Blank

Date Collected: 08/09/22 00:00
Date Received: 08/11/22 09:15

Lab Sample ID: 500-220709-31

Matrix: Water

Method: 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			08/18/22 12:13	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 12:13	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 12:13	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 12:13	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 12:13	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 12:13	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 12:13	1
Ethylbenzene	**0.39**	**J**	0.50	0.18	ug/L			08/18/22 12:13	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/18/22 12:13	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 12:13	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 12:13	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/18/22 12:13	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 12:13	1
Xylenes, Total	**2.6**		1.0	0.22	ug/L			08/18/22 12:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 126*		*08/18/22 12:13*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*08/18/22 12:13*	*1*
Dibromofluoromethane	*102*		*75 - 120*		*08/18/22 12:13*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*08/18/22 12:13*	*1*

Definitions/Glossary

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

Job ID: 500-220709-2

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD 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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	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: 500-220709-2

GC/MS VOA

Analysis Batch: 670614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220709-25	W-220809-RA-25	Total/NA	Water	8260B	
500-220709-26	W-220809-RA-26	Total/NA	Water	8260B	
500-220709-27	W-220809-RA-27	Total/NA	Water	8260B	
500-220709-28	W-220809-RA-28	Total/NA	Water	8260B	
500-220709-29	W-220809-RA-29	Total/NA	Water	8260B	
500-220709-30	W-220809-RA-30	Total/NA	Water	8260B	
500-220709-31	Trip Blank	Total/NA	Water	8260B	
MB 500-670614/6	Method Blank	Total/NA	Water	8260B	
LCS 500-670614/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 670826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220709-29 - DL	W-220809-RA-29	Total/NA	Water	8260B	
MB 500-670826/6	Method Blank	Total/NA	Water	8260B	
LCS 500-670826/4	Lab Control Sample	Total/NA	Water	8260B	
500-220709-28 MS	W-220809-RA-28	Total/NA	Water	8260B	
500-220709-28 MSD	W-220809-RA-28	Total/NA	Water	8260B	

Surrogate Summary

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

Job ID: 500-220709-2

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(75-126)	(72-124)	(75-120)	(75-120)
500-220709-25	W-220809-RA-25	98	95	107	92
500-220709-26	W-220809-RA-26	101	95	110	91
500-220709-27	W-220809-RA-27	102	96	112	92
500-220709-28	W-220809-RA-28	100	95	109	91
500-220709-28 MS	W-220809-RA-28	84	88	95	99
500-220709-28 MSD	W-220809-RA-28	86	91	95	99
500-220709-29	W-220809-RA-29	101	95	110	92
500-220709-29 - DL	W-220809-RA-29	87	85	95	96
500-220709-30	W-220809-RA-30	101	94	108	90
500-220709-31	Trip Blank	96	95	102	93
LCS 500-670614/4	Lab Control Sample	84	95	90	95
LCS 500-670826/4	Lab Control Sample	79	91	89	102
MB 500-670614/6	Method Blank	97	97	105	90
MB 500-670826/6	Method Blank	82	88	90	99

Surrogate Legend

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

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

Lab Sample ID: MB 500-670614/6
Matrix: Water
Analysis Batch: 670614

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			08/18/22 11:46	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/18/22 11:46	1
Acetone	<1.7		10	1.7	ug/L			08/18/22 11:46	1
Benzene	<0.15		0.50	0.15	ug/L			08/18/22 11:46	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/18/22 11:46	1
Chloroform	<0.37		2.0	0.37	ug/L			08/18/22 11:46	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/18/22 11:46	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/18/22 11:46	1
Methylene Chloride	2.10	J	5.0	1.6	ug/L			08/18/22 11:46	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/18/22 11:46	1
Toluene	<0.15		0.50	0.15	ug/L			08/18/22 11:46	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/18/22 11:46	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/18/22 11:46	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/18/22 11:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*		*08/18/22 11:46*	*1*
4-Bromofluorobenzene (Surr)	*97*		*72 - 124*		*08/18/22 11:46*	*1*
Dibromofluoromethane	*105*		*75 - 120*		*08/18/22 11:46*	*1*
Toluene-d8 (Surr)	*90*		*75 - 120*		*08/18/22 11:46*	*1*

Lab Sample ID: LCS 500-670614/4
Matrix: Water
Analysis Batch: 670614

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichloroethane	40.0	40.9		ug/L		102	71 - 130
1,1-Dichloroethene	40.0	41.0		ug/L		102	67 - 122
Acetone	40.0	23.9		ug/L		60	40 - 143
Benzene	40.0	40.8		ug/L		102	70 - 120
Carbon tetrachloride	40.0	41.2		ug/L		103	59 - 133
Chloroform	40.0	38.8		ug/L		97	70 - 120
cis-1,2-Dichloroethene	40.0	41.7		ug/L		104	70 - 125
Ethylbenzene	40.0	44.5		ug/L		111	70 - 123
Methylene Chloride	40.0	42.8		ug/L		107	69 - 125
Tetrachloroethene	40.0	49.8		ug/L		124	70 - 128
Toluene	40.0	43.9		ug/L		110	70 - 125
Trichloroethene	40.0	45.9		ug/L		115	70 - 125
Vinyl chloride	40.0	41.0		ug/L		102	64 - 126
Xylenes, Total	80.0	80.6		ug/L		101	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*75 - 126*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*
Dibromofluoromethane	*90*		*75 - 120*
Toluene-d8 (Surr)	*95*		*75 - 120*

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

Lab Sample ID: MB 500-670826/6
Matrix: Water
Analysis Batch: 670826

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			08/19/22 11:35	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			08/19/22 11:35	1
Acetone	<1.7		10	1.7	ug/L			08/19/22 11:35	1
Benzene	<0.15		0.50	0.15	ug/L			08/19/22 11:35	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			08/19/22 11:35	1
Chloroform	<0.37		2.0	0.37	ug/L			08/19/22 11:35	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			08/19/22 11:35	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			08/19/22 11:35	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			08/19/22 11:35	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			08/19/22 11:35	1
Toluene	<0.15		0.50	0.15	ug/L			08/19/22 11:35	1
Trichloroethene	<0.16		0.50	0.16	ug/L			08/19/22 11:35	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			08/19/22 11:35	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			08/19/22 11:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*82*		*75 - 126*		*08/19/22 11:35*	*1*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*		*08/19/22 11:35*	*1*
Dibromofluoromethane	*90*		*75 - 120*		*08/19/22 11:35*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*08/19/22 11:35*	*1*

Lab Sample ID: LCS 500-670826/4
Matrix: Water
Analysis Batch: 670826

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1,2-Trichloroethane			50.0	44.5		ug/L		89	71 - 130		
1,1-Dichloroethene			50.0	47.0		ug/L		94	67 - 122		
Acetone			50.0	31.9		ug/L		64	40 - 143		
Benzene			50.0	47.8		ug/L		96	70 - 120		
Carbon tetrachloride			50.0	45.7		ug/L		91	59 - 133		
Chloroform			50.0	42.9		ug/L		86	70 - 120		
cis-1,2-Dichloroethene			50.0	45.8		ug/L		92	70 - 125		
Ethylbenzene			50.0	45.1		ug/L		90	70 - 123		
Methylene Chloride			50.0	44.2		ug/L		88	69 - 125		
Tetrachloroethene			50.0	56.1		ug/L		112	70 - 128		
Toluene			50.0	46.5		ug/L		93	70 - 125		
Trichloroethene			50.0	47.2		ug/L		94	70 - 125		
Vinyl chloride			50.0	34.8		ug/L		70	64 - 126		
Xylenes, Total			100	92.9		ug/L		93	70 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*79*		*75 - 126*
4-Bromofluorobenzene (Surr)	*91*		*72 - 124*
Dibromofluoromethane	*89*		*75 - 120*
Toluene-d8 (Surr)	*102*		*75 - 120*

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

Lab Sample ID: 500-220709-28 MS
Matrix: Water
Analysis Batch: 670826

Client Sample ID: W-220809-RA-28
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	F2	50.0	36.4		ug/L		73	71 - 130
1,1-Dichloroethene	<0.39	F2	50.0	36.9		ug/L		74	67 - 122
Acetone	<1.7		50.0	34.1		ug/L		68	40 - 143
Benzene	<0.15	F2	50.0	36.5		ug/L		73	70 - 120
Carbon tetrachloride	<0.38	F2	50.0	34.0		ug/L		68	59 - 133
Chloroform	<0.37	F1 F2	50.0	34.3	F1	ug/L		69	70 - 120
cis-1,2-Dichloroethene	0.47	J F2	50.0	37.7		ug/L		74	70 - 125
Ethylbenzene	<0.18	F1 F2	50.0	33.2	F1	ug/L		66	70 - 123
Methylene Chloride	<1.6	F2	50.0	37.3		ug/L		75	69 - 125
Tetrachloroethene	<0.37	F2	50.0	39.9		ug/L		80	70 - 128
Toluene	<0.15	F2	50.0	35.0		ug/L		70	70 - 125
Trichloroethene	6.7	F1 F2	50.0	40.1	F1	ug/L		67	70 - 125
Vinyl chloride	<0.20		50.0	41.4		ug/L		83	64 - 126
Xylenes, Total	0.37	J F1 F2	100	68.9	F1	ug/L		68	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*75 - 126*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*
Dibromofluoromethane	*95*		*75 - 120*
Toluene-d8 (Surr)	*99*		*75 - 120*

Lab Sample ID: 500-220709-28 MSD
Matrix: Water
Analysis Batch: 670826

Client Sample ID: W-220809-RA-28
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	F2	50.0	49.2	F2	ug/L		98	71 - 130	30	20
1,1-Dichloroethene	<0.39	F2	50.0	48.1	F2	ug/L		96	67 - 122	27	20
Acetone	<1.7		50.0	34.4		ug/L		69	40 - 143	1	20
Benzene	<0.15	F2	50.0	48.8	F2	ug/L		98	70 - 120	29	20
Carbon tetrachloride	<0.38	F2	50.0	43.8	F2	ug/L		88	59 - 133	25	20
Chloroform	<0.37	F1 F2	50.0	45.6	F2	ug/L		91	70 - 120	28	20
cis-1,2-Dichloroethene	0.47	J F2	50.0	48.4	F2	ug/L		96	70 - 125	25	20
Ethylbenzene	<0.18	F1 F2	50.0	44.5	F2	ug/L		89	70 - 123	29	20
Methylene Chloride	<1.6	F2	50.0	48.7	F2	ug/L		97	69 - 125	27	20
Tetrachloroethene	<0.37	F2	50.0	53.3	F2	ug/L		107	70 - 128	29	20
Toluene	<0.15	F2	50.0	46.2	F2	ug/L		92	70 - 125	28	20
Trichloroethene	6.7	F1 F2	50.0	52.6	F2	ug/L		92	70 - 125	27	20
Vinyl chloride	<0.20		50.0	39.6		ug/L		79	64 - 126	5	20
Xylenes, Total	0.37	J F1 F2	100	92.2	F2	ug/L		92	70 - 125	29	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*86*		*75 - 126*
4-Bromofluorobenzene (Surr)	*91*		*72 - 124*
Dibromofluoromethane	*95*		*75 - 120*
Toluene-d8 (Surr)	*99*		*75 - 120*

Lab Chronicle

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

Job ID: 500-220709-2

Client Sample ID: W-220809-RA-25
Lab Sample ID: 500-220709-25
Date Collected: 08/09/22 11:37
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 16:39

Client Sample ID: W-220809-RA-26
Lab Sample ID: 500-220709-26
Date Collected: 08/09/22 11:25
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 17:06

Client Sample ID: W-220809-RA-27
Lab Sample ID: 500-220709-27
Date Collected: 08/09/22 11:25
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 17:33

Client Sample ID: W-220809-RA-28
Lab Sample ID: 500-220709-28
Date Collected: 08/09/22 11:45
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 17:59

Client Sample ID: W-220809-RA-29
Lab Sample ID: 500-220709-29
Date Collected: 08/09/22 12:15
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B	DL	10	670826	PSP	EET CHI	08/19/22 19:17
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 18:26

Client Sample ID: W-220809-RA-30
Lab Sample ID: 500-220709-30
Date Collected: 08/09/22 12:30
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 18:53

Client Sample ID: Trip Blank
Lab Sample ID: 500-220709-31
Date Collected: 08/09/22 00:00
Matrix: Water
Date Received: 08/11/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	670614	PMF	EET CHI	08/18/22 12:13

Lab Chronicle

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

Job ID: 500-220709-2

Laboratory References:

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

Accreditation/Certification Summary

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

Job ID: 500-220709-2

Laboratory: Eurofins Chicago

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-22

Chain of Custody Record

541598 eurofins Environment Testing TestAmerica

MKE 232

TAL-8210

Address _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Client Contact	Project Manager	Site Contact	Date	COC No
Company Name	Tel/Email:	Lab Contact	Carrier	3 of 3 COCs
Address	Analysis Turnaround Time			Sampler
City/State/Zip	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only
Phone Same	TAT if different from Below _____			Walk-in Client
Fax	☐ 2 weeks			Lab Sampling
Project Name	☐ 1 week			
Site	☐ 2 days			Job / SDG No
P O #	☐ 1 day			500-220709

	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 VOCs	See attached sheet	Sample Specific Notes
25	W-220809-RA-25	8/9/22	11:37	G	WG	3			X		
26	W-220809-RA-26	8/9/22	11:25	G	WG	3			X		
27	W-220809-RA-27	8/9/22	11:25	G	WG	3			X		
28	W-220809-RA-28	8/9/22	1145	G	WG	9		X	X		
29	W-220809-RA-29	8/9/22	12:15	G	WG	3			X		
30	W-220809-RA-30	8/9/22	12:30	G	WG	3			X		
31	trip blank								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

Non Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd _____ Corr'd _____ Therm ID No _____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	GTO	8/10/22 1400			
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time
			Stephanie Hernandez	EETA	8/11/22 0915

2022 Groundwater Monitoring Plan
Wausau Water Supply NPL Site
Wausau, Wisconsin

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

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-220709-2

Login Number: 220709
List Number: 1
Creator: Hernandez, Stephanie

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	3.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix B

Wausau Chemical Pavement Inspection Report

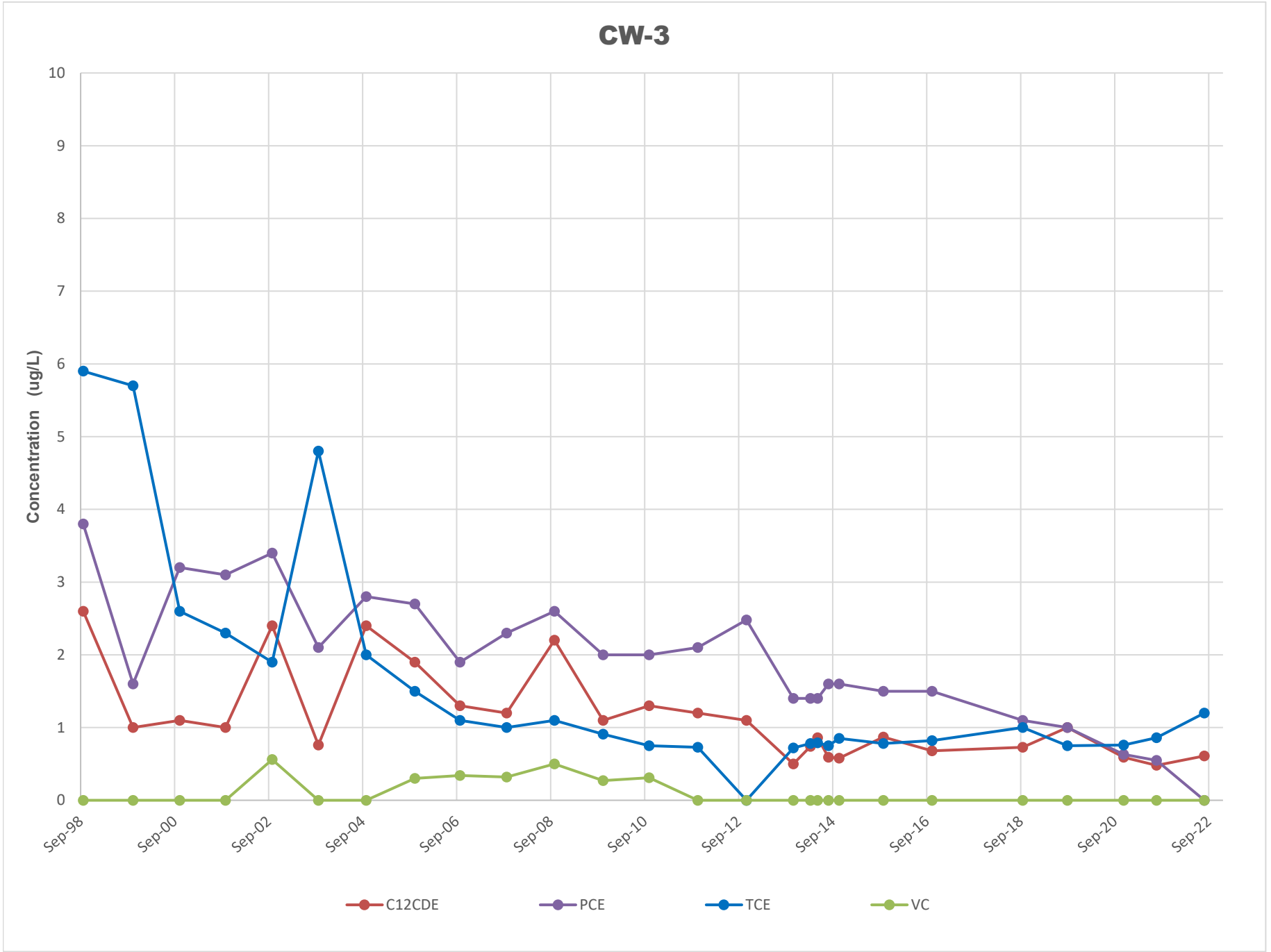
Appendix B - Table 1

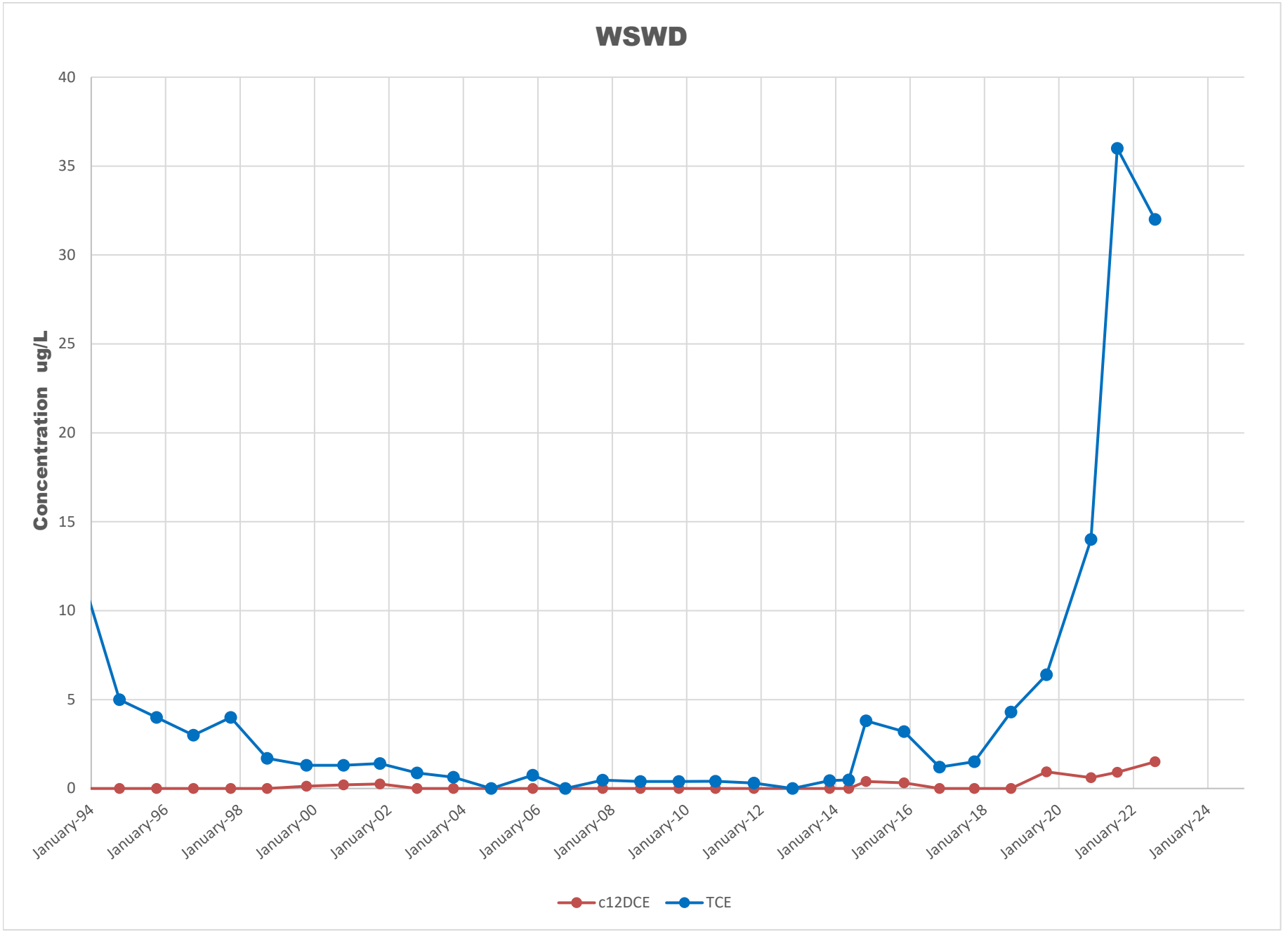
Pavement Barrier Inspection Log
Former Wausau Chemical Corporation

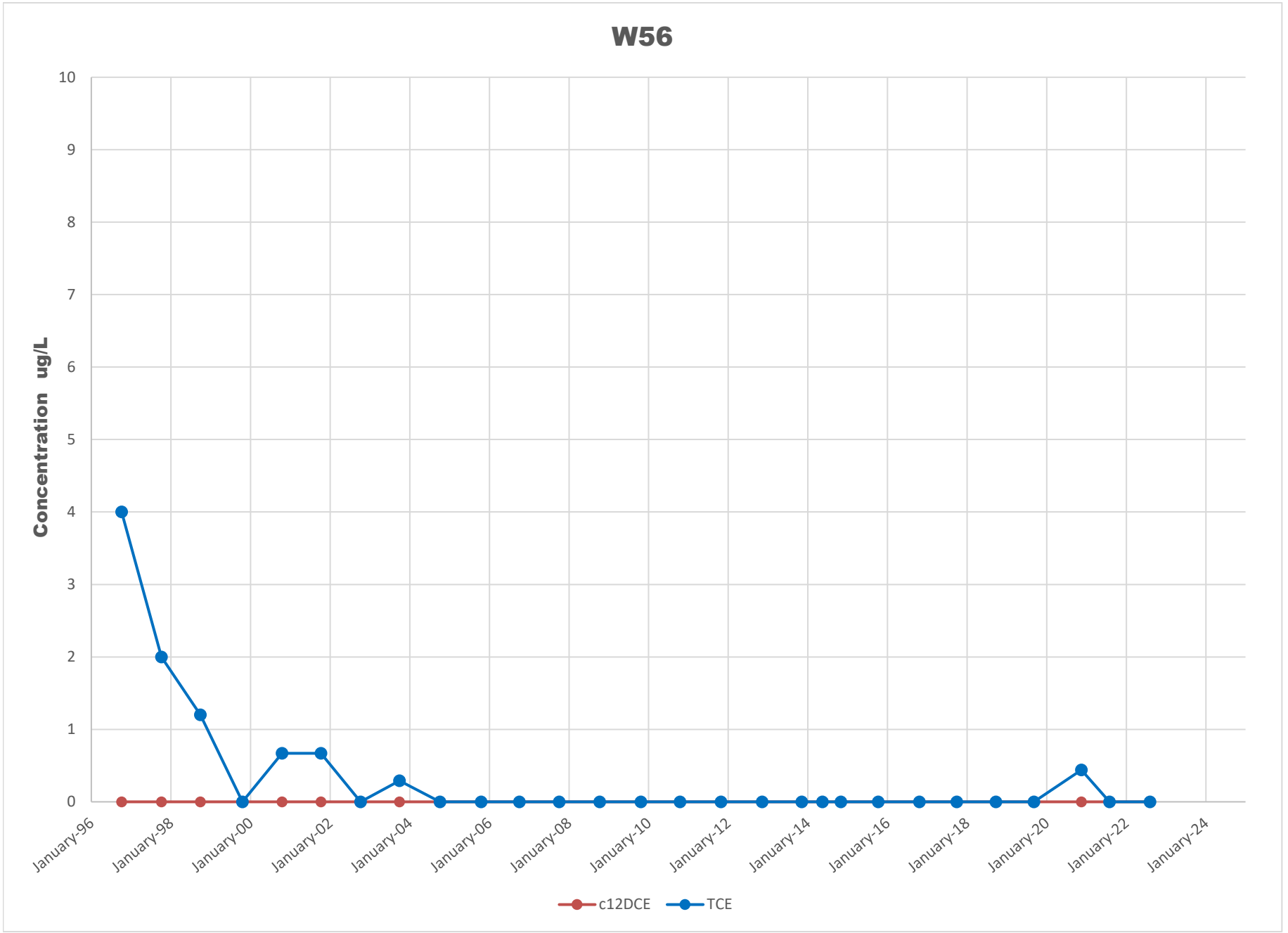
Inspection Date	Inspector	Condition of Cap	Recommendations	Have Recommendations From Previous Inspection Been Implemented?
8/29/2011	Rob Flashinski	Pavement was completely replaced in 2009. Three cracks starting to form, but have not penetrated.	No action required.	Yes.
7/2/2012	Rob Flashinski	Overall 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

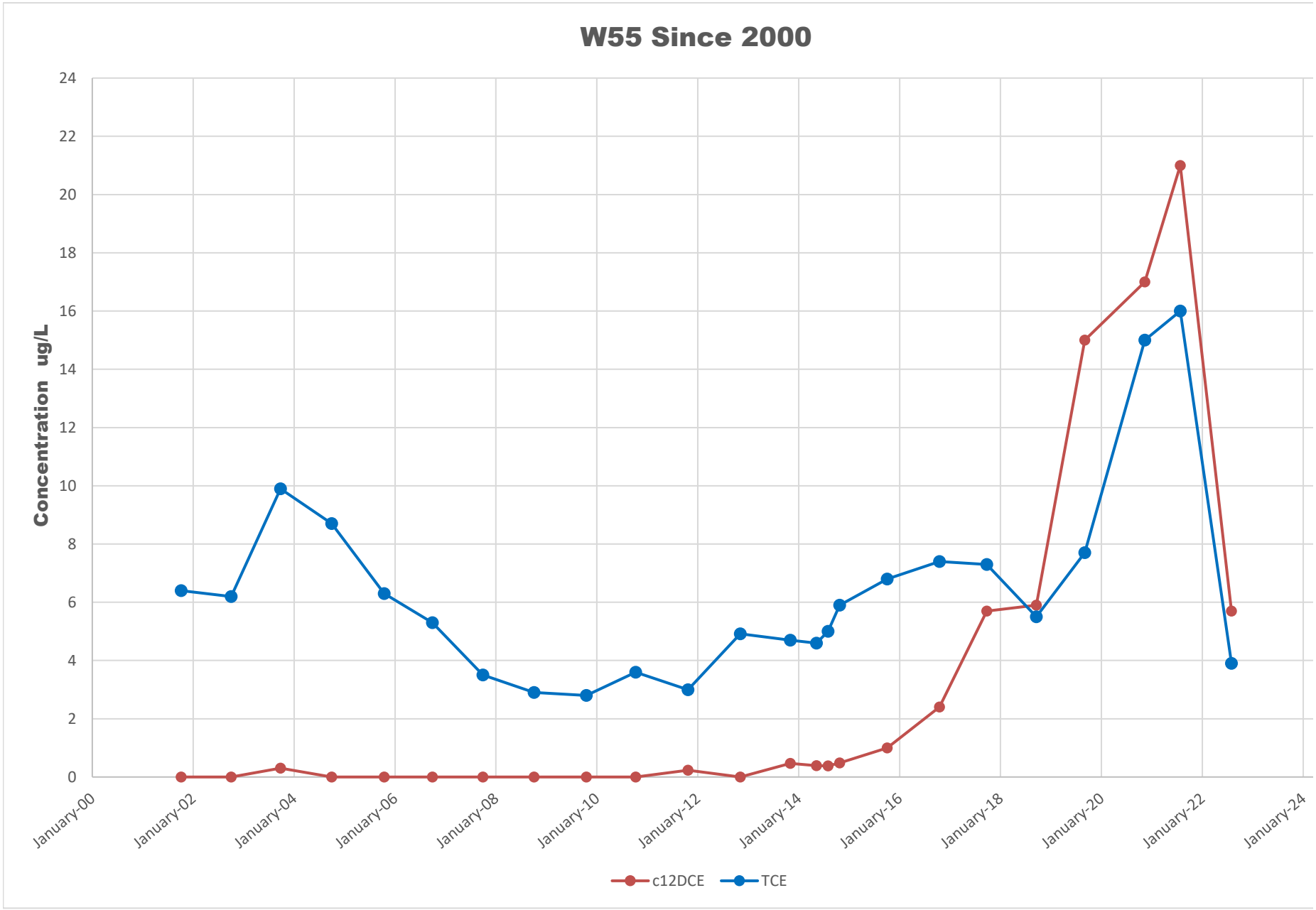
Appendix C

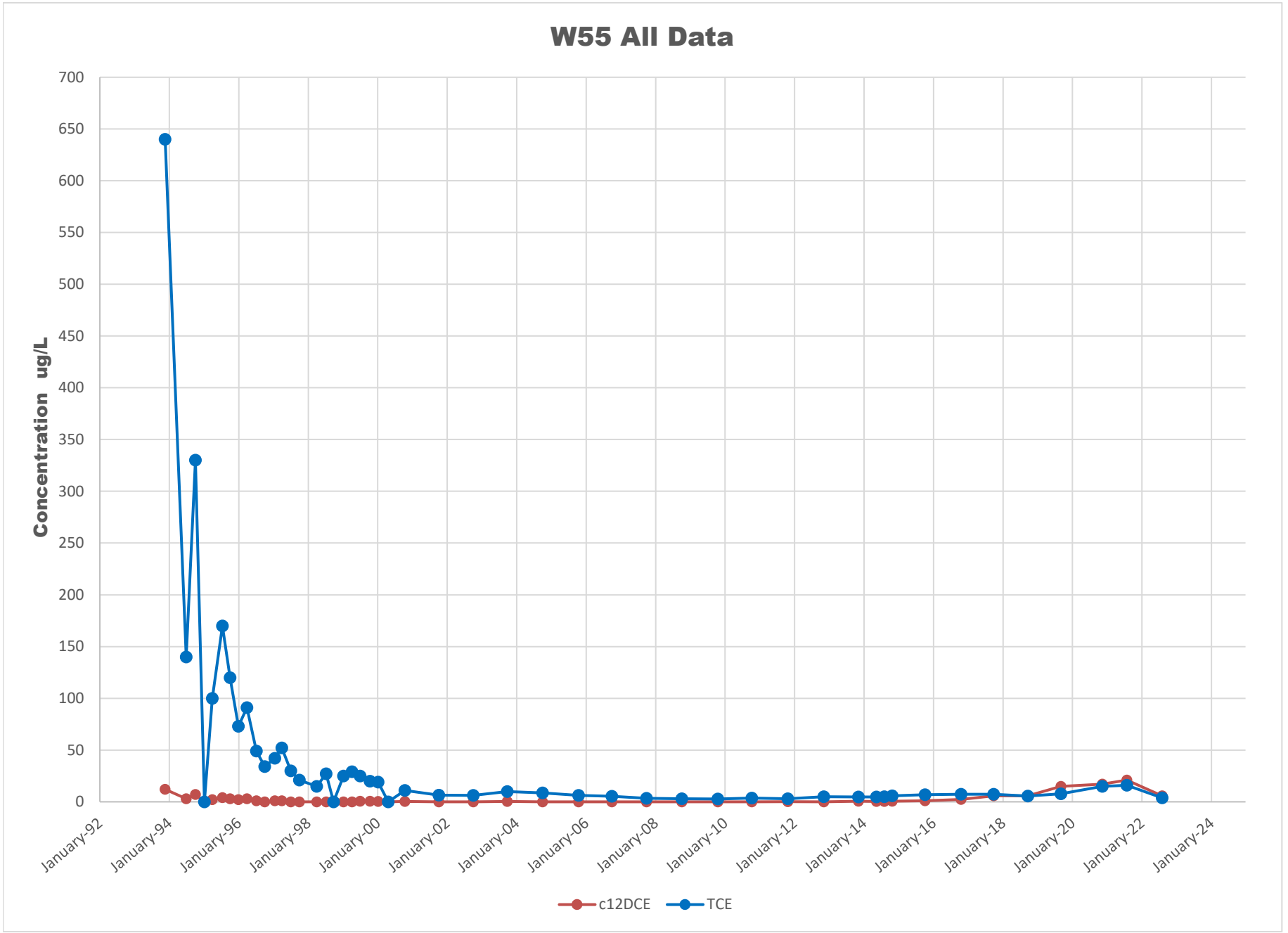
Total Chlorinated VOC Concentration Charts

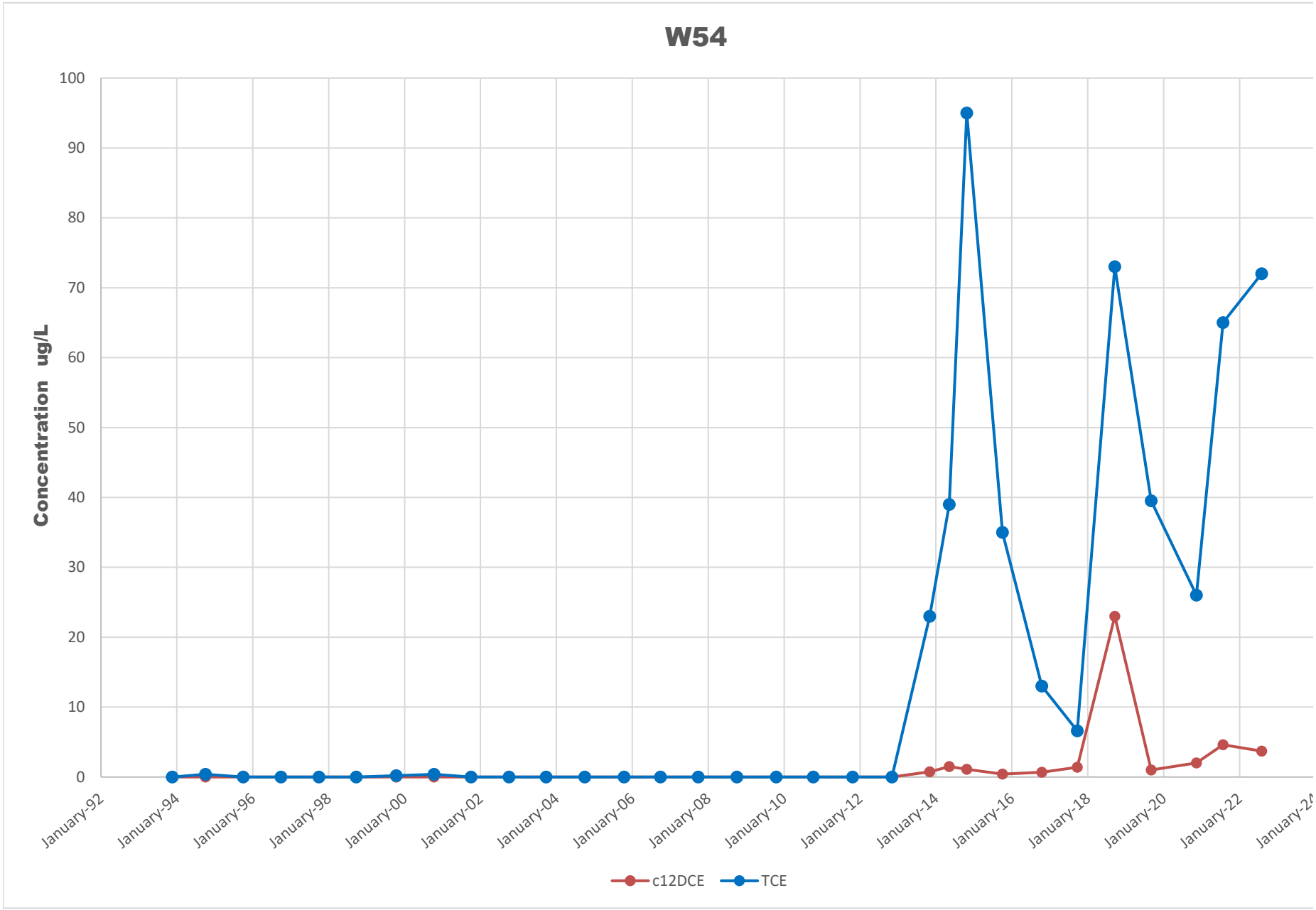

CW-3
Concentration (ug/L)
10
9
8
7
6
5
4
3
2
1
0
Sep-98
Sep-00
Sep-02
Sep-04
Sep-06
Sep-08
Sep-10
Sep-12
Sep-14
Sep-16
Sep-18
Sep-20
Sep-22
C12CDE
PCE
TCE
VC

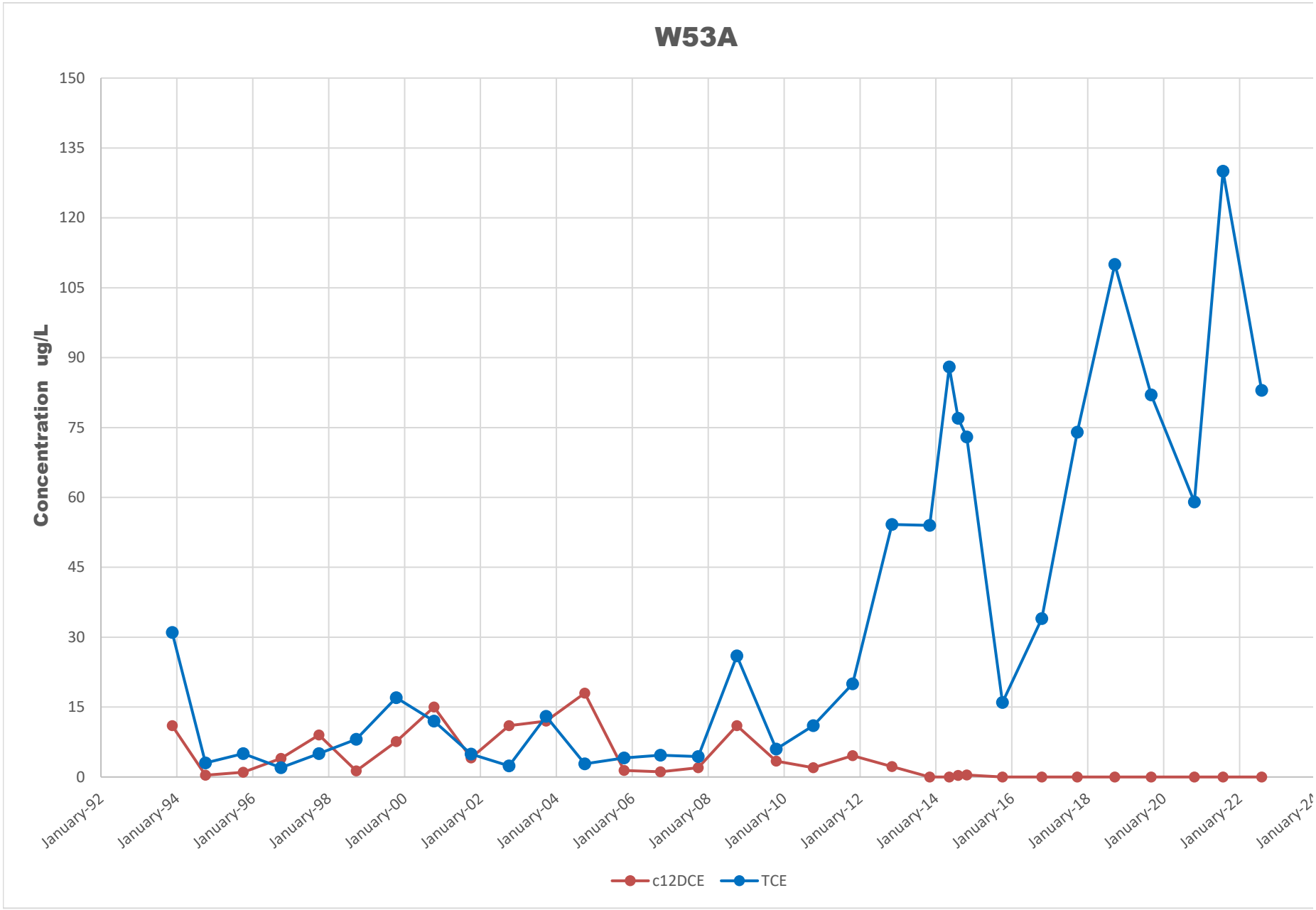

WSWD
Concentration ug/L
40
35
30
25
20
15
10
5
0
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
January-24
c12DCE
TCE

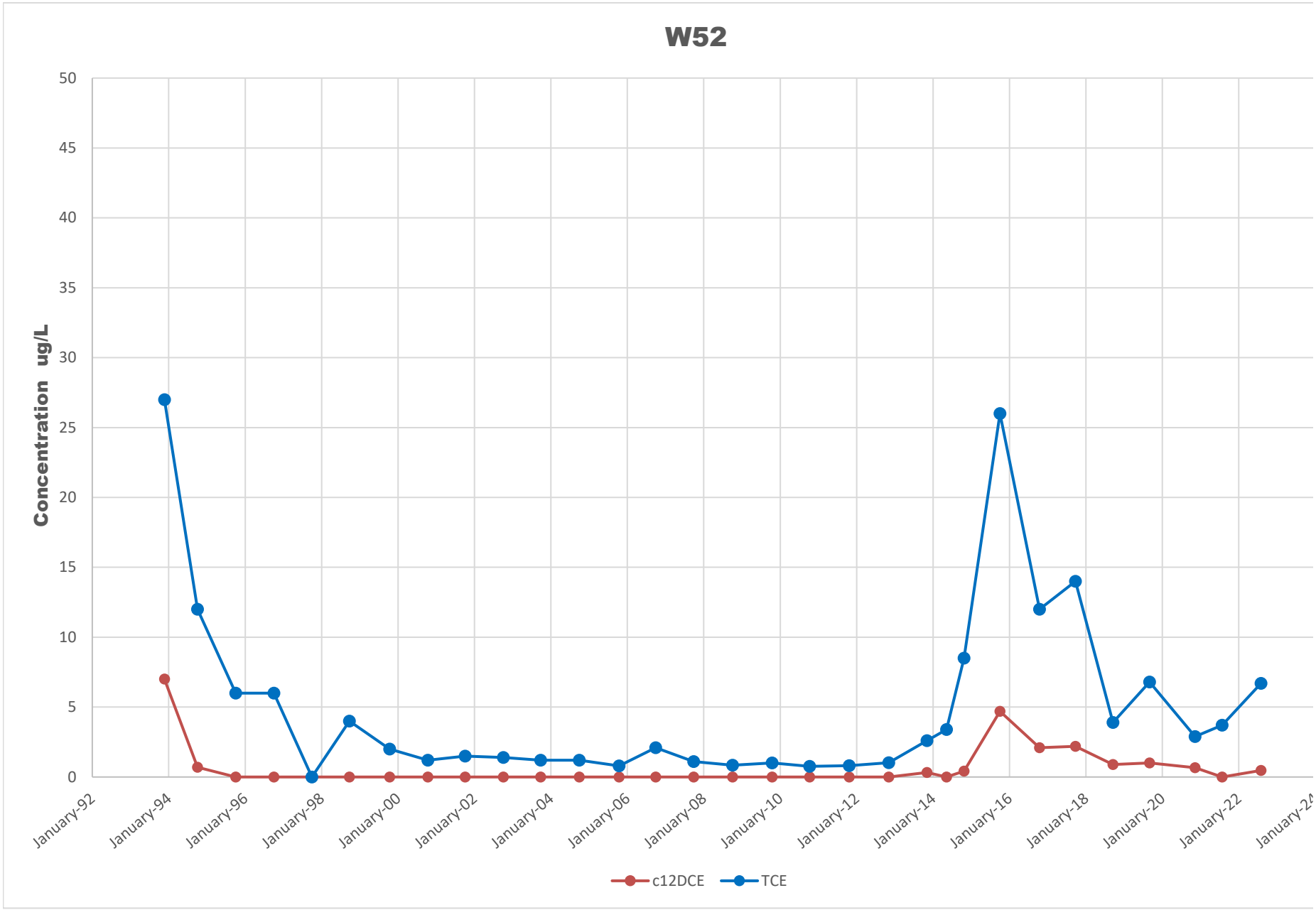

W56
Concentration ug/L
10
9
8
7
6
5
4
3
2
1
0
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
January-24
c12DCE
TCE

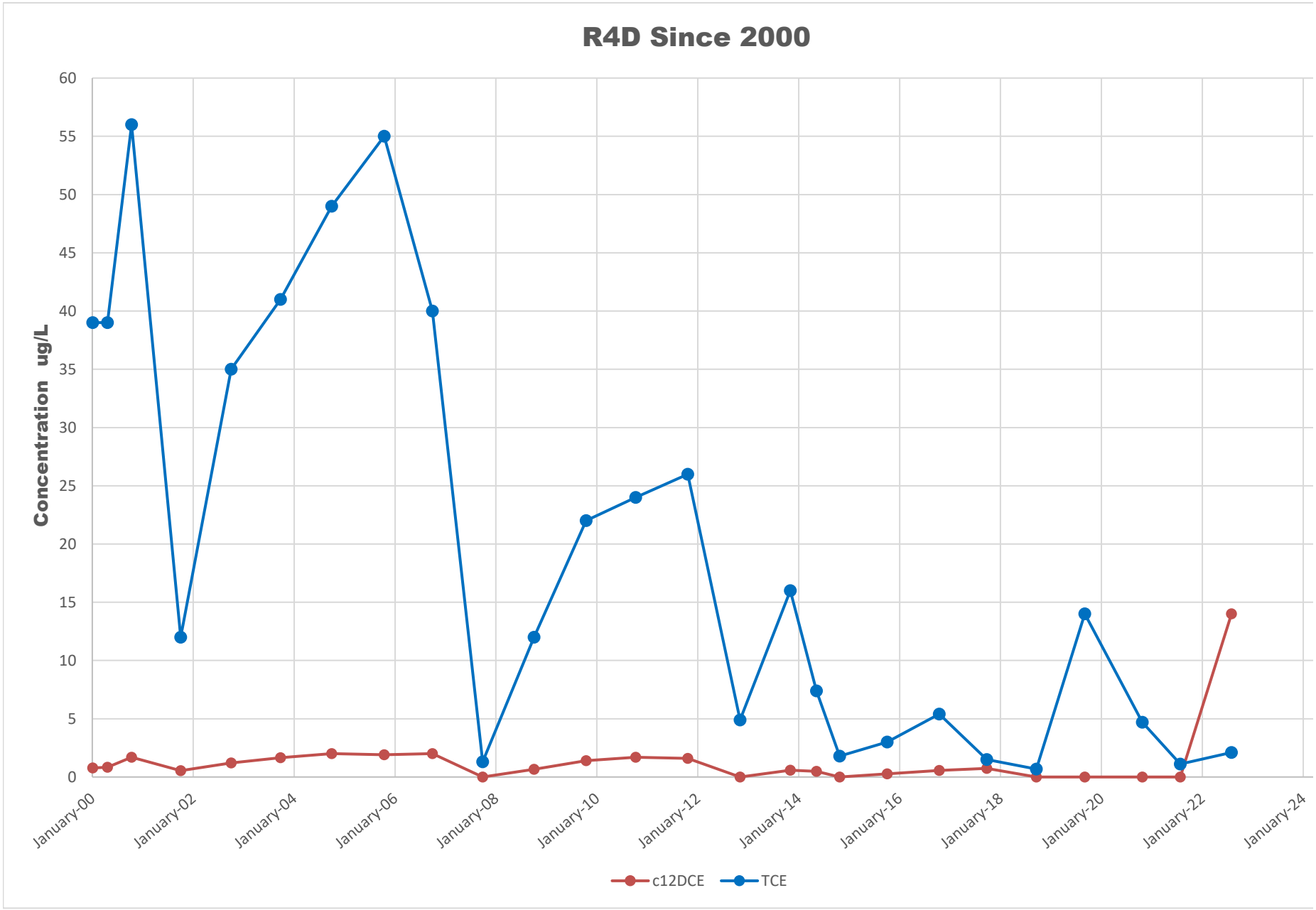

W55 Since 2000
Concentration ug/L
24
22
20
18
16
14
12
10
8
6
4
2
0
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
January-24
c12DCE
TCE

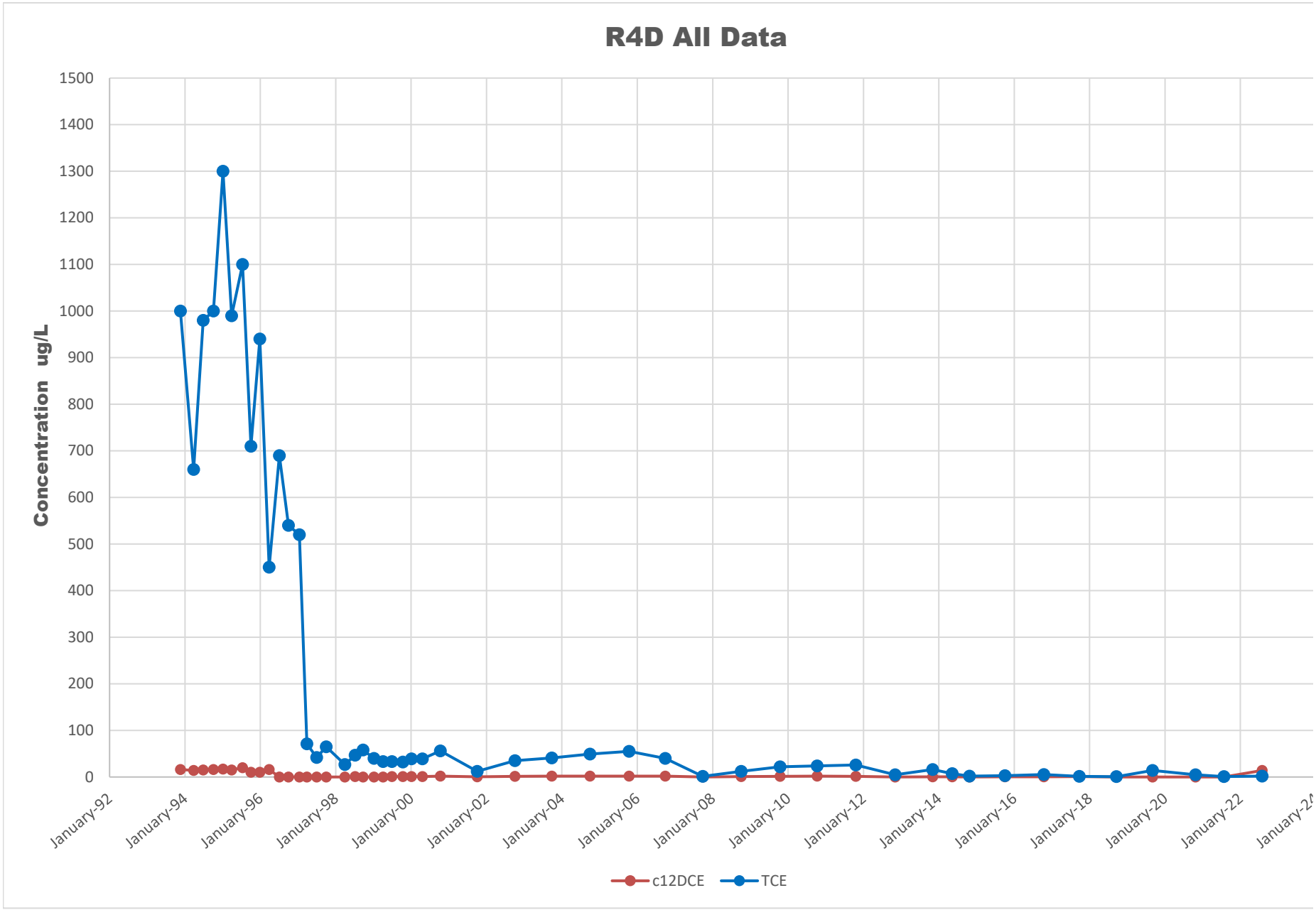

W55 All Data
Concentration ug/L
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
January-24
c12DCE
TCE

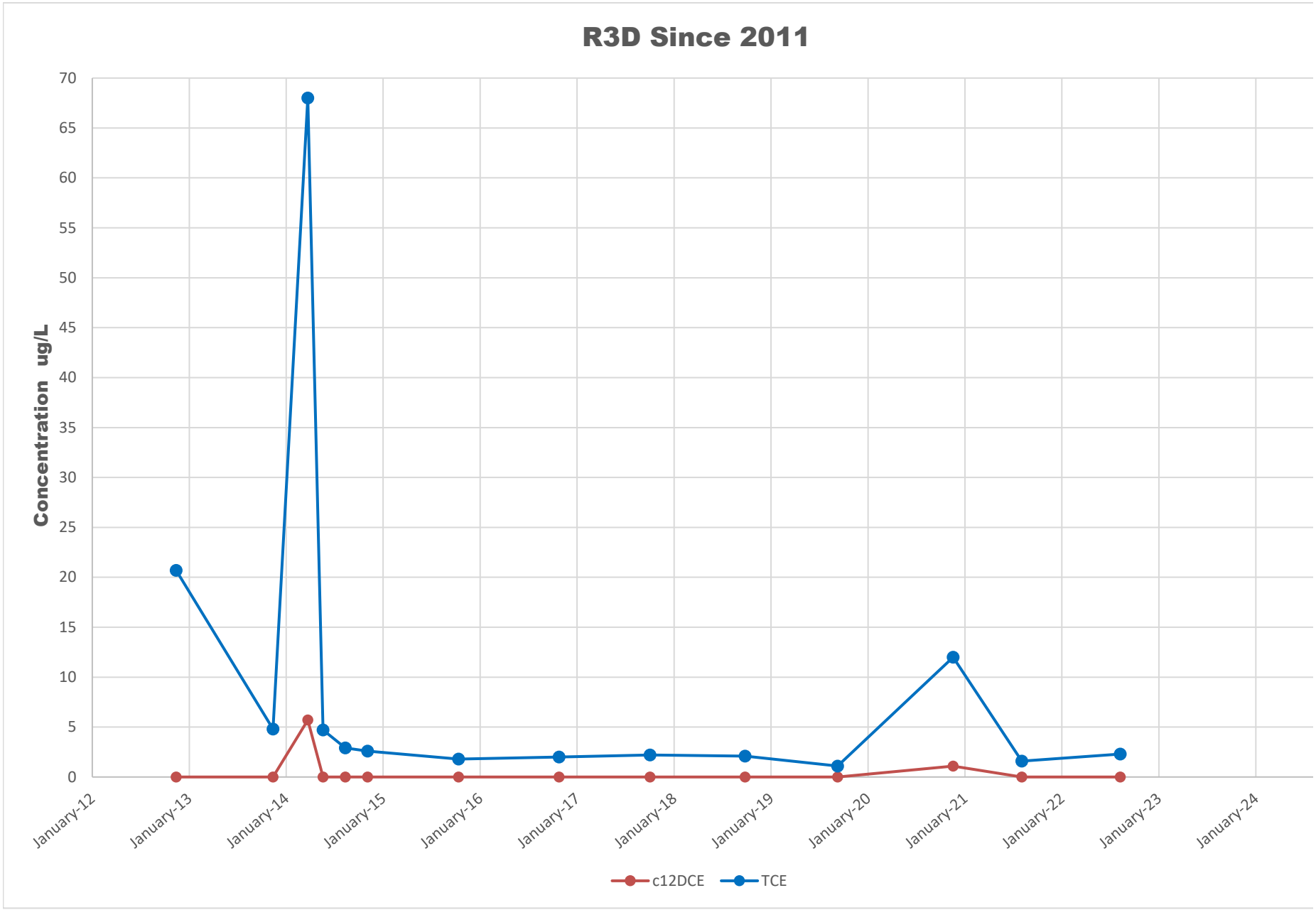

W54
Concentration ug/L
100
90
80
70
60
50
40
30
20
10
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
c12DCE
TCE

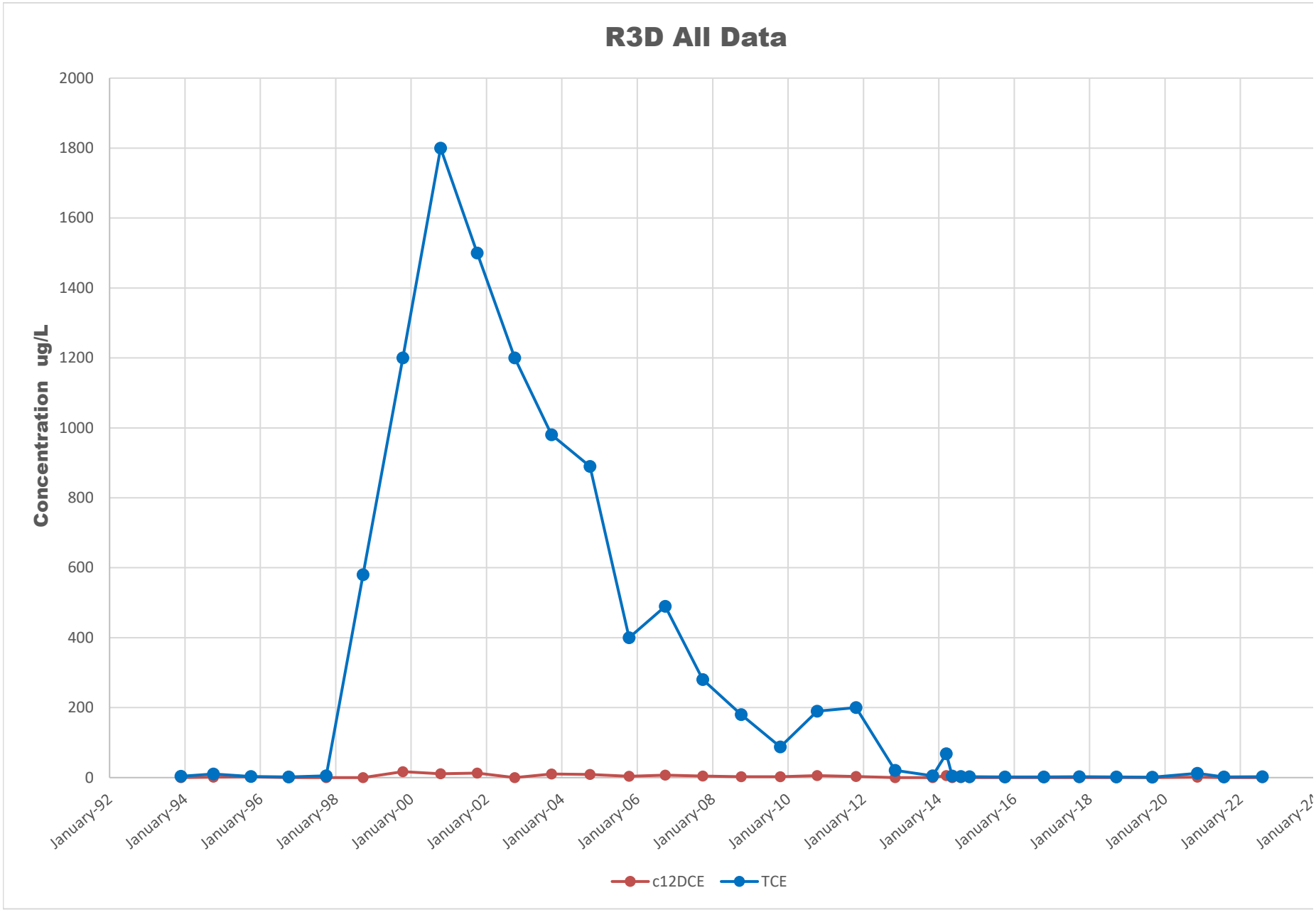

W53A
Concentration ug/L
150
135
120
105
90
75
60
45
30
15
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
c12DCE
TCE

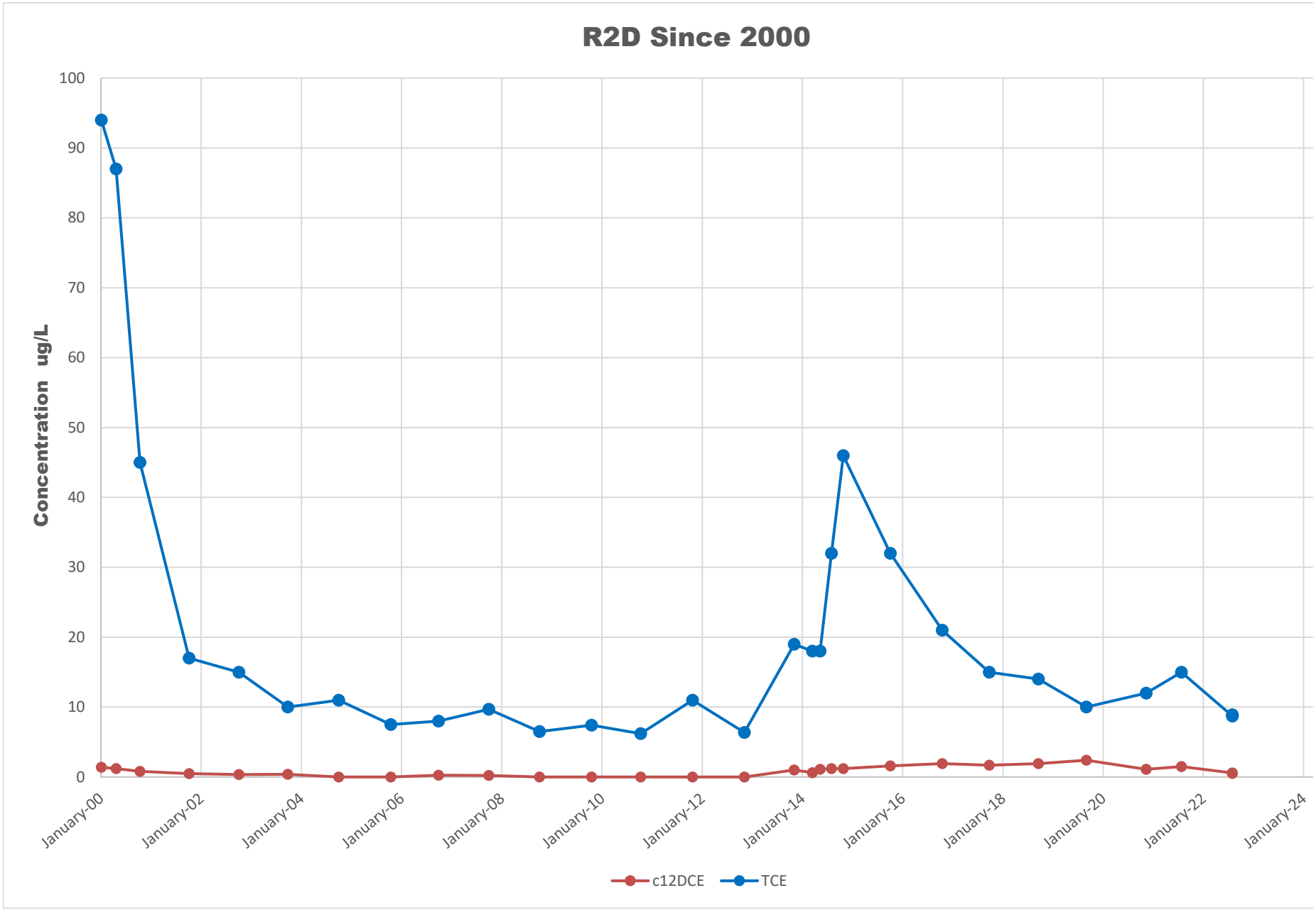

W52
Concentration ug/L
50
45
40
35
30
25
20
15
10
5
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
c12DCE
TCE

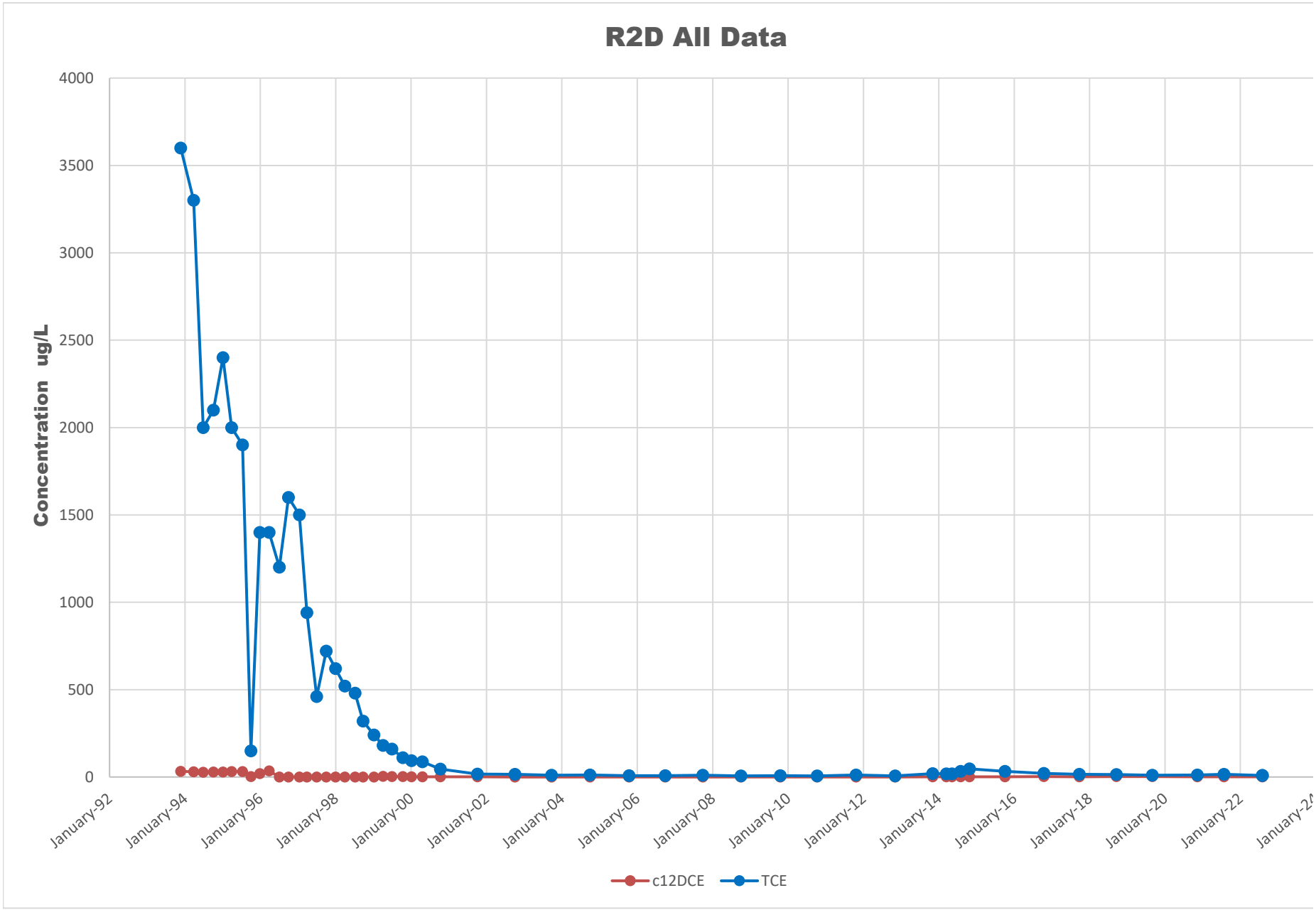

R4D Since 2000
Concentration ug/L
60
55
50
45
40
35
30
25
20
15
10
5
0
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
January-24
c12DCE
TCE

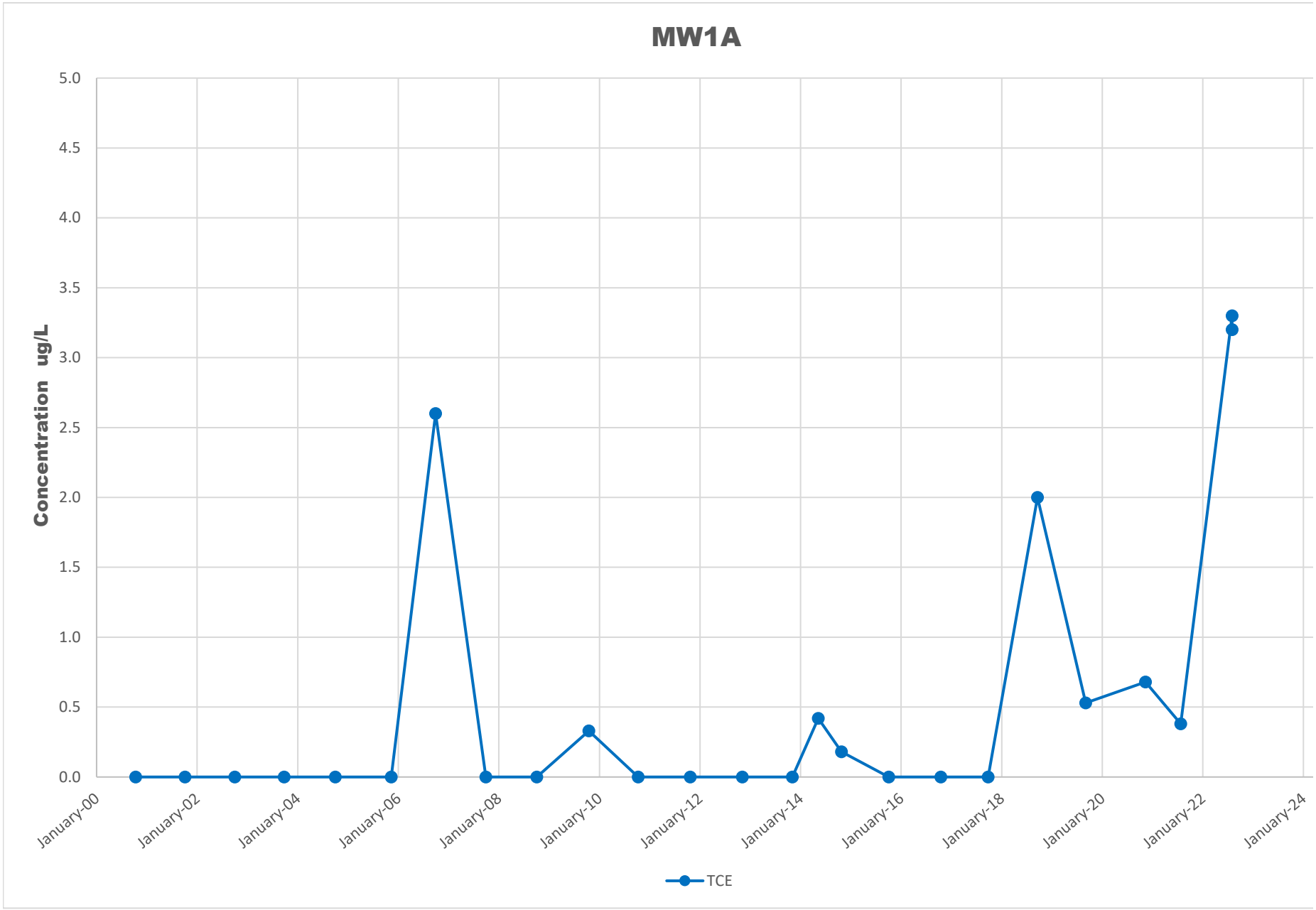

R4D All Data
Concentration ug/L
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
c12DCE
TCE

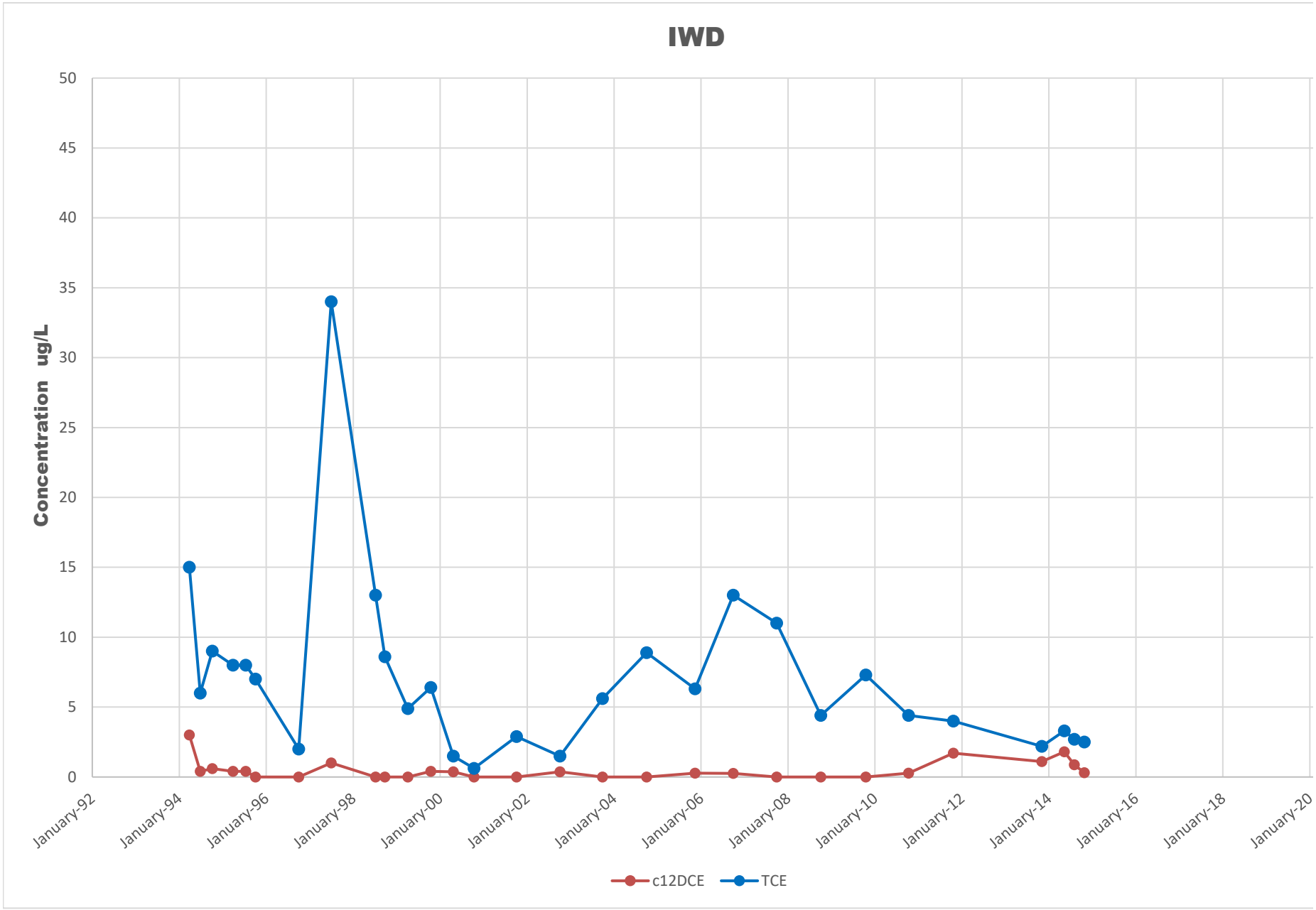

R3D Since 2011
Concentration ug/L
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
January-12
January-13
January-14
January-15
January-16
January-17
January-18
January-19
January-20
January-21
January-22
January-23
January-24
c12DCE
TCE

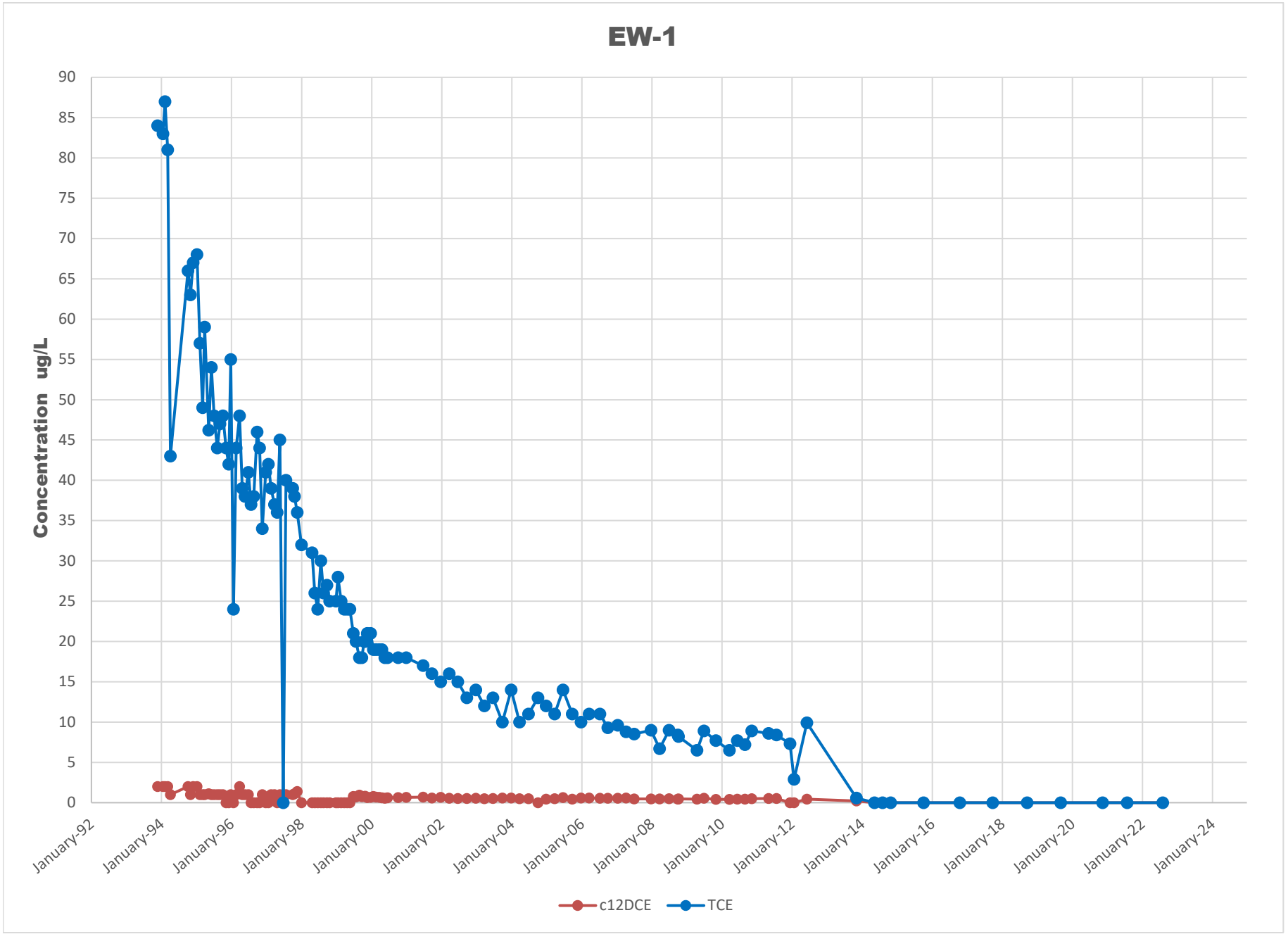

R3D All Data
Concentration ug/L
2000
1800
1600
1400
1200
1000
800
600
400
200
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
c12DCE
TCE

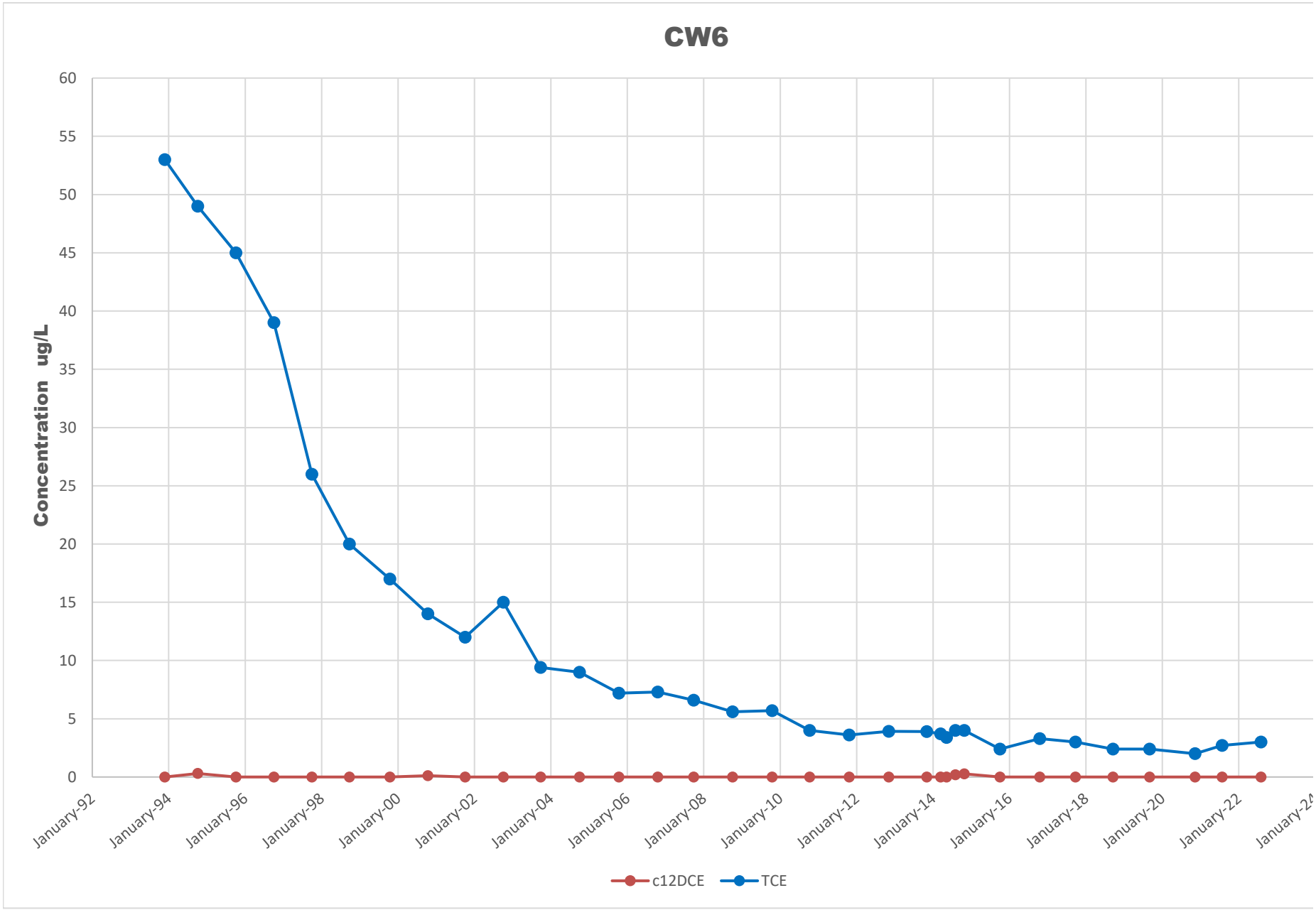

R2D Since 2000
Concentration ug/L
100
90
80
70
60
50
40
30
20
10
0
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
January-24
c12DCE
TCE

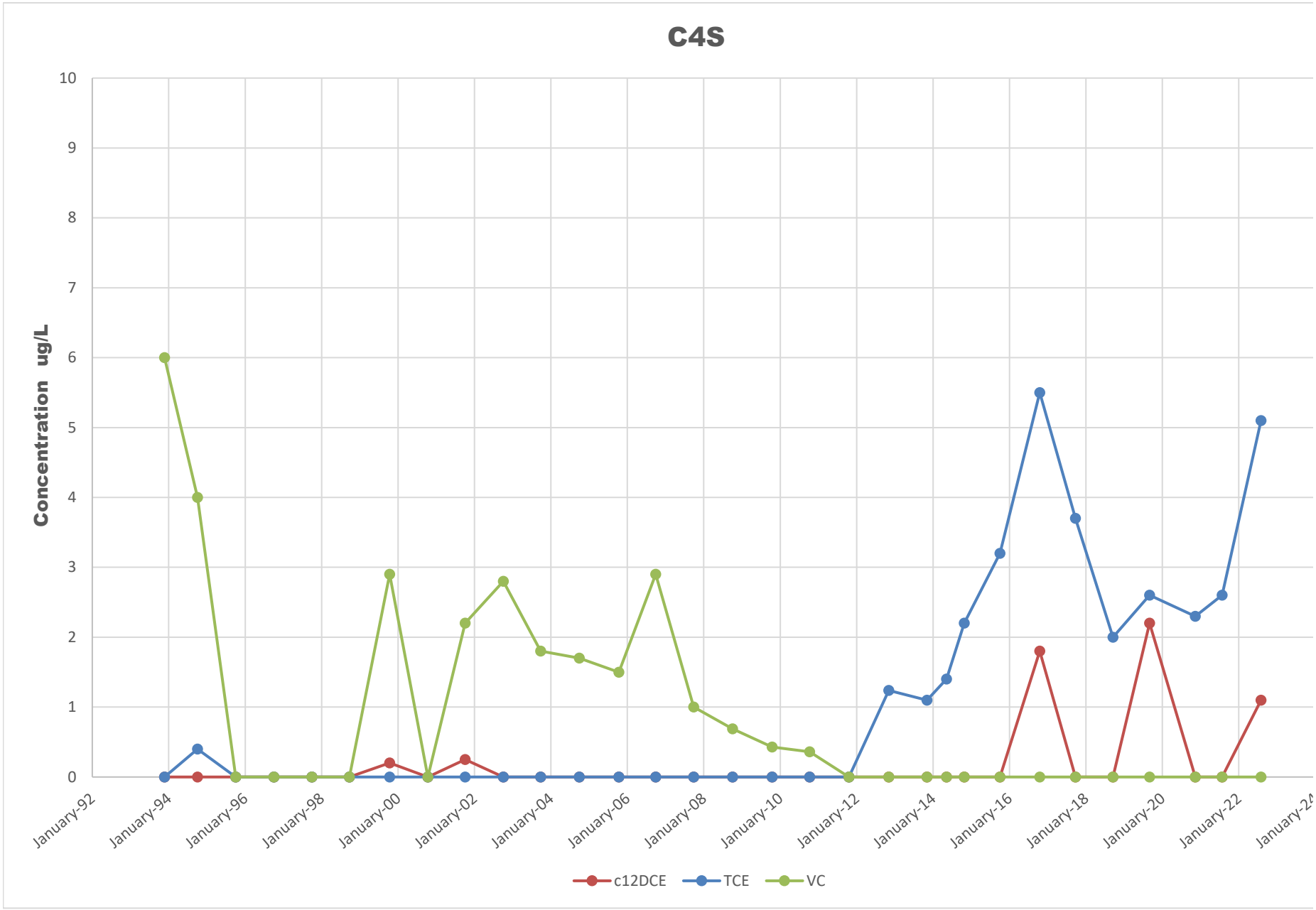

R2D All Data
Concentration ug/L
4000
3500
3000
2500
2000
1500
1000
500
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
c12DCE
TCE

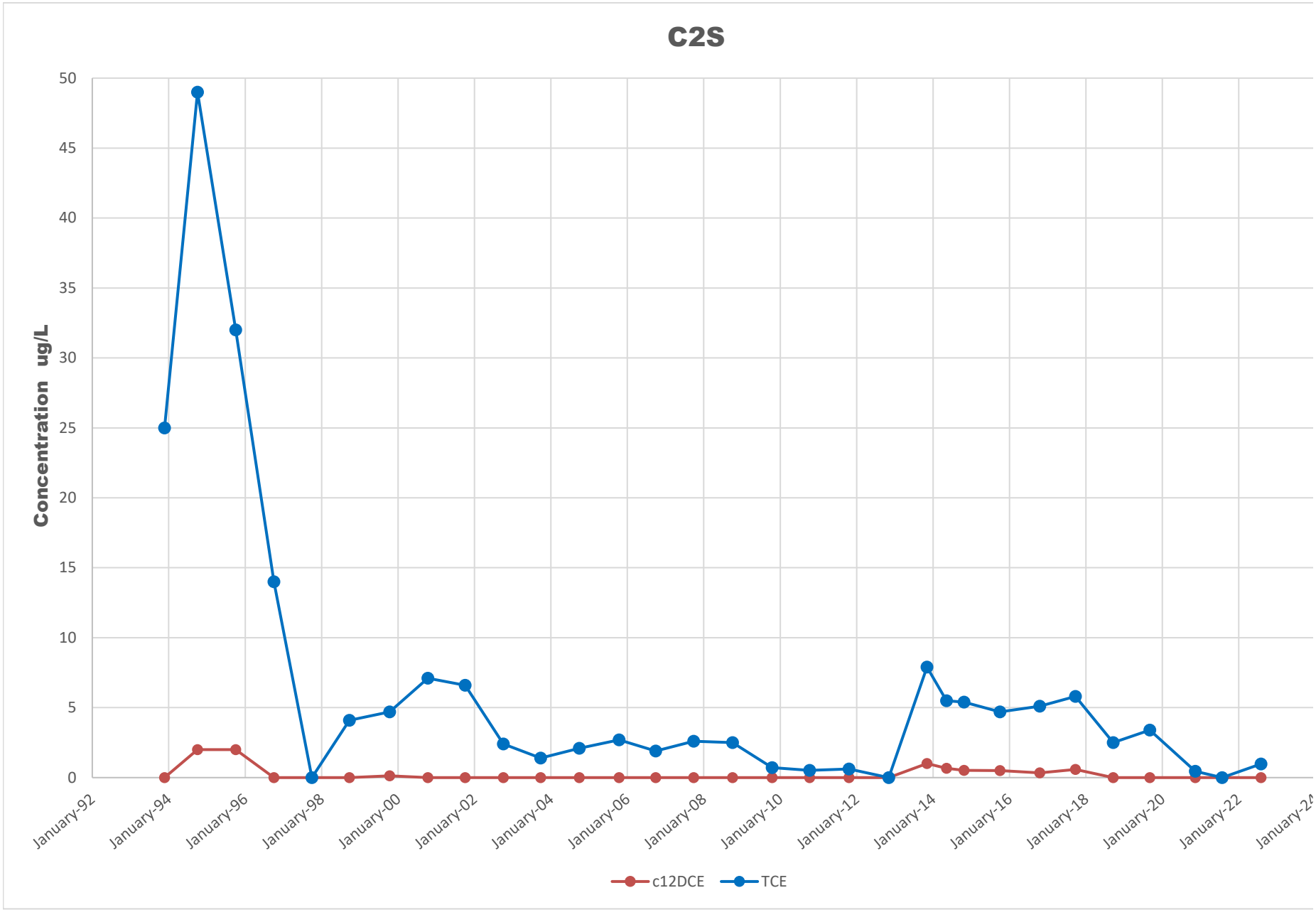

MW1A
Concentration ug/L
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
January-24
TCE


IWD
Concentration ug/L
50
45
40
35
30
25
20
15
10
5
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
c12DCE
TCE


EW-1
Concentration ug/L
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
January-24
c12DCE
TCE


CW6
Concentration ug/L
60
55
50
45
40
35
30
25
20
15
10
5
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
c12DCE
TCE


C4S
Concentration ug/L
10
9
8
7
6
5
4
3
2
1
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
c12DCE
TCE
VC


C2S
Concentration ug/L
50
45
40
35
30
25
20
15
10
5
0
January-92
January-94
January-96
January-98
January-00
January-02
January-04
January-06
January-08
January-10
January-12
January-14
January-16
January-18
January-20
January-22
c12DCE
TCE