



# **2020 Annual Vapor Intrusion Evaluation Report**

**Wausau Water Supply NPL Site**

Wausau Group

August 25, 2021

# Contents

<b>1. Introduction</b>	<b>1</b>
1.1 Site Background	1
1.2 Site Geology and Hydrology	2
1.3 Site Contaminants of Potential Concern	2
1.4 VISL Calculator	3
<b>2. 2020 Monitoring Activities</b>	<b>3</b>
<b>3. Evaluation of Groundwater Monitoring Data</b>	<b>3</b>
3.1 West Bank	3
3.2 East Bank	4
<b>4. Summary</b>	<b>6</b>

## Figure index

Figure 1	Site Location
Figure 2	Site Plan
Figure 3	Current City Parcel Zoning
Figure 4	Simplified Current Zoning and Groundwater VISL Exceedances
Figure 5	Simplified Future Land Use and Groundwater VISL Exceedances

## Table index

Table 1	VOC Analytical Results Annual Groundwater Monitoring Event November 2020
---------	--

# 1. Introduction

GHD Services Inc. (GHD) has prepared this 2020 Annual Vapor Intrusion Evaluation Report (Annual VI 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). The Annual VI Report is being submitted in response to the United States Environmental Protection Agency's (EPA) and Wisconsin Department of Natural Resources' (WDNR) request for an annual evaluation of the ongoing vapor intrusion (VI) evaluation at the Site during a call with GHD on February 11, 2021. This report satisfies the request by outlining the VI evaluation progress including investigation results and evaluation of the 2020 annual groundwater monitoring data for potential VI concerns.

VI work conducted at the Site is done in accordance with the *Vapor Intrusion Evaluation Work Plan (Work Plan)* submitted to the EPA on February 22, 2017. The Work Plan was prepared in accordance with the EPA guidance document: "OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air (June, 2015)" and the Wisconsin Department of Natural Resources (WDNR) guidance document "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin (December 2010)".

## 1.1 Site Background

The Wausau Superfund Site is located on the north side of the City of Wausau, which is located in north-central Wisconsin along the Wisconsin River in Marathon County. Figure 1 shows the location of the Site. The Site consists of two contaminant source areas separated by the Wisconsin River. The East Bank portion of the Site is related to solvent spills that occurred on property operated by Wausau Chemical Corporation (WCC). The West Bank portion of the Site is related to the former City of Wausau landfill. The former landfill property is presently owned by Regal Beloit Corporation (formerly Marathon Electric Company). These two properties are considered source areas for contaminants in the aquifer, which is the source of drinking water for the City of Wausau. The East Bank and West Bank areas are depicted on the Site Plan, Figure 2. Current city parcel zoning is depicted on Figure 3, with simplified parcel zoning depicted on Figure 4 (current zoning) and Figure 5 (future land use.)

Groundwater and soil remediation has been ongoing at the two source areas since approximately 1985. Remedial actions by the Group were initiated 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. Remedies implemented 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).

Source area remediation was accomplished by the installation of SVE systems at Marathon Electric (West Bank) and Wausau Chemical (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 until January 2001. The East Bank source remediation was approved as complete in 2007.

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

EW1 stopped operating in July 2012 due to pump failure. Since EW1 has completed its performance goal, the Group proposed a pilot study to confirm that City wells CW6 and CW3 will effectively contain the contaminant plume without the need for pumping at EW1. The EW1 Shutdown Pilot Study Report was submitted to EPA in March 2015. The USEPA has provided verbal notice that the EW1 shutdown will be approved. Formal approval is expected imminently based on comments from the EPA during the August 12, 2021 monthly call.

Additional groundwater remediation was provided by a groundwater extraction system operated by WCC between 1985 and 1996 as an interim remediation measure. The extraction system at WCC consisted of a series of shallow wells at the south end of the WCC property. Groundwater from this system was treated by air stripping. This system was in addition to the requirements of the ROD or the CD and operation ceased in 1996.

Preliminary VI evaluation of the Site included sampling and analysis of shallow aquifer groundwater samples. These results were screened using EPA's Vapor Intrusion Screening Level (VISL) Calculator<sup>1</sup>, and WDNR's Vapor Action Levels (VALs), which indicated that additional assessment and delineation in certain areas of the Site were warranted. The objectives of this investigation were to collect additional groundwater data to better delineate the contaminant plume and to collect subsurface vapor data to determine the potential for vapor intrusion to indoor air. Specific tasks included:

- Installation of temporary wells for groundwater sampling
- Laboratory analysis of groundwater samples
- Installation of soil vapor sampling probes
- Building occupancy and construction assessments
- Installation of sub-slab vapor sampling points
- Sampling and analysis of soil vapor, indoor air, and ambient air

## 1.2 Site Geology and Hydrology

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.

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.

## 1.3 Site Contaminants of Potential Concern

Site contaminants of potential concern (COPC) are limited to the following chlorinated VOCs:

### ***East Bank***

- Tetrachloroethene (PCE)
- Trichloroethene (TCE)
- cis-1,2-Dichloroethene (c12DCE)
- Vinyl chloride

### ***West Bank***

- Trichloroethene
- cis-1,2-Dichloroethene
- Vinyl chloride
- Carbon tetrachloride (CT)
- Chloroform

---

<sup>1</sup> Vapor Intrusion Screening Level (VISL) Calculator Version 3.4, June 2015 RSLs

Significant concentrations of CT and chloroform were detected in only one well, C3S, which is a shallow well in the former City landfill. These compounds were not detected off of Marathon Electric property and are limited to the landfill.

The East Bank COPCs are related to a release of PCE, which has degraded over time to TCE, c12DCE, and low concentrations of vinyl chloride. C12DCE has no indoor air standard due to the absence of inhalation toxicity information. However, it was included in the list of analytes as an indicator of the presence of potential VOC impacts.

## 1.4 VISL Calculator

GHD used the calculator with conservative, recommended default inputs to identify potential areas of concern. Using the default parameters GHD evaluated three of the four main constituents of concern compared to both residential and commercial target carcinogenic groundwater VISLs. The Site-specific VISL for the November annual sampling data are shown below. EPA does not have a calculatable VISL for cis-1,2-Dichloroethene.

The calculated VISLs at the Site are:

Constituent of Concern	Residential VISL (µg/L)	Commercial VISL (µg/L)
Trichloroethylene (TCE)	5.18	21.8
Tetrachloroethylene (PCE)	57.60	242.0
cis-1,2-Dichloroethene	--	--
Vinyl chloride	1.47	24.5

## 2. 2020 Monitoring Activities

The 2020 annual groundwater monitoring event was conducted on November 18th and 19th. The 2020 Annual Monitoring Report (AMR) was sent to the EPA and DNR on August 13, 2021 and contains water level monitoring data, groundwater sample data and associated discussion of the results. No formal VI sampling or data evaluation was conducted in 2020 due to the suspension of high-risk activities including sub-slab and indoor sampling during the COVID-19 pandemic. Although soil vapor data was not collected during 2020, this report will evaluate the 2020 groundwater monitoring data for potential VI concerns.

## 3. Evaluation of Groundwater Monitoring Data

A full evaluation and discussion of the 2020 groundwater monitoring data is included in the 2020 AMR. For the purposes of groundwater evaluation for VI concerns this report will evaluate any significant changes in the East and West Bank groundwater plumes that might indicate a new or increased VI risk to the community. The primary method of investigating Site VI risk via groundwater results in the USEPA VISL calculator.

### 3.1 West Bank

The primary chlorinated VOC found in the West Bank groundwater is TCE. TCE was detected at concentrations exceeding the commercial VISL at two of the thirteen monitoring wells and the residential VISL at an additional four monitoring wells. Table 1 includes the 2020 groundwater data compared to the USEPA VISLs. The locations of the monitoring wells are shown on Figure 2. No other constituents of concern exceeded the residential or commercial VISLs in 2020. VISL exceedances, as well as current and future land use parcel zoning are depicted on Figures 4 and 5, respectively.

Of the six monitoring wells that exceeded the residential TCE VISL, only monitoring wells R2D and W55 are located in an area of the Site that is zoned for residential use. R2D is located on the east bank of Bos Creek, across the road (East Randolph Street) from Scofield Park. The well is approximately 150 feet east and south of the nearest residences. Monitoring well W55 is located in the city right-of-way of Burns Street near East Randolph Street and directly adjacent to several residences. The remaining four locations are located on Regal Beloit property which is zoned as heavy industrial. The two monitoring wells that exceeded the commercial VISL are W54 and W53A, which are both located within the footprint of the former landfill.

The following table presents TCE concentrations from the last three annual sampling events at select West Bank monitoring wells compared to the residential and commercial VISL for TCE. These were the only monitoring wells that exceeded the residential or commercial VISL since 2018 on the West Bank.

*West Bank TCE Concentrations (µg/L)*

Year	R2D	R3D	R4D	W52	W53A	W54	W55	WSWD
2018	14	2.1	0.68	3.9	110	73	5.5	4.3
2019	10	1.1	14	6.8	82	40	7.7	6.4
2020	12	12	4.7	2.9	59	26	15	14
2018	14	2.1	0.68	3.9	110	73	5.5	4.3

**RED** = Exceeds Residential VISL (5.18 µg/L)  
**BLUE** = Exceeds Commercial VISL (21.8 µg/L)

TCE concentration trends at the monitoring wells in the footprint of the former landfill have been decreasing in recent years, although they remain above the commercial TCE VISL. The nearest receptor to these wells is the Regal Beloit manufacturing building to the north. A 2017 VI investigation indicated that there were elevated levels of TCE soil vapor in the sub-slab in this building, however paired indoor air samples indicated TCE was below the industrial indoor air action level. The 2017 VI investigation data has been previously presented to the USEPA and WDNR and will be submitted under separate cover in a Vapor Intrusion Investigation Report.

Monitoring Well R2D has varied between 10 µg/L and 14 µg/L over the last three years. These values exceed the residential VISL for TCE. The 2017 VI investigation included soil vapor probes located between R2D and the residence located directly to the west. TCE was not detected in the shallow interval (8.5-9.0 feet below ground surface [ft. bgs]) but was detected below the non-industrial screening level in the deep interval (18.5-19.0 ft bgs).

The increase of PCE in groundwater at R4D and W52 in 2019, and subsequently at R3D in 2020 may indicate a “slug” of TCE in groundwater that is trending in the direction of hydraulic capture to the north. 2021 sampling data may be able to confirm this hypothesis.

TCE concentrations in ground water collected at monitoring well W55 have been relatively stable since 2015 ranging from 4.6 µg/L to 7.7 µg/L before increasing in 2020 (15 µg/L). Upcoming groundwater data from the 2021 annual sampling event will be able to confirm if this is an upward trend. Previous VI investigations have not directly addressed the W55 area although soil vapor data from the MW1A area to the southeast indicated TCE concentrations well below the non-industrial screening level.

## 3.2 East Bank

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. In 2020, the only vinyl chloride exceeded its residential groundwater VISL and no constituent of concern exceeded the commercial groundwater VISLs. Vinyl chloride exceeded the residential VISL (1.47 µg/L) at monitoring well WC5A with a concentration of 4.2 µg/L. WC5A is east of the Wausau Chemical Building located along North River Road. This area is currently zoned for “mixed use” but the City of Wausau’s future land use zoning includes the area as

commercial. VISL exceedances, as well as current and future land use parcel zoning are depicted on Figures 4 and 5, respectively.

The following tables present VOC concentrations from the last three annual sampling events at select East Bank monitoring wells compared to the residential and commercial VISLs for PCE, TCE, and vinyl chloride. These were the only monitoring wells that exceeded the residential or commercial VISLs since 2018 on the East Bank.

*East Bank PCE Concentrations (µg/L)*

Year	WC5A	WC3B	E37A	WW6
2018	7.1	70	1.3	ND
2019	0.63 J	350	0.42 J	3.9
2020	19	7.7	0.96 J	0.91 J
<b>RED</b> = Exceeds Residential VISL (57.60 µg/L) <b>BLUE</b> = Exceeds Commercial VISL (242 µg/L)				

No East Bank well exceeded the residential or commercial VISL for PCE in 2020. Monitoring well WC3B, located to the east of the southern extent of the Wausau Chemical Building, and directly adjacent to the contaminated source soil below the building showed a significant decrease in PCE concentration from 350 µg/L in 2019, which exceeded the commercial VISL. In 2020 to concentration of PCE in WC3B dropped to 7.7 µg/L, well below the residential VISL.

*East Bank TCE Concentrations (µg/L)*

Year	WC5A	WC3B	E37A	WW6
2018	0.60	1.4	0.81	2.2
2019	0.48 J	44	0.65	11
2020	0.30 J	0.55	0.39 J	ND
<b>RED</b> = Exceeds Residential VISL (5.18 µg/L) <b>BLUE</b> = Exceeds Commercial VISL (21.8 µg/L)				

No East Bank well exceeded the residential or commercial VISL for TCE in 2020. As with its PCE concentration, monitoring well WC3B showed a significant decrease in TCE concentration from 44 µg/L in 2019, which exceeded the commercial VISL to 0.55 µg/L in 2020. Monitoring well WW6 decreased from 11 µg/L in 2019, which exceeded the residential VISL, to not detected in 2020. WW6 is located in the alleyway between the Wausau Music Center and the Wausau Chemical Building located on East Wausau Avenue. This area is zoned for heavy industrial use but is located across the street from areas zoned for urban mixed use and residential. The nearest residential receptor is 2108 North Third Street. Previous sub-slab and indoor air samples collected from this residence do not indicate a VI issue. This data has been previously presented to the USEPA and WDNR and will be formally included in the upcoming Vapor Intrusion Investigation Report.

*East Bank Vinyl Chloride Concentrations (µg/L)*

Year	WC5A	WC3B	E37A	WW6
2018	30	ND	2.3	ND
2019	ND	10	ND	ND
2020	4.2	ND	0.39 J	ND
<b>RED</b> = Exceeds Residential VISL (1.47 µg/L) <b>BLUE</b> = Exceeds Commercial VISL (24.5 µg/L)				

The only location to exceed a residential or commercial VISL for vinyl chloride in 2020 was monitoring well WC5A located directly next to the southeast corner of the Wausau Chemical Building located along North River Road. The area is zoned for heavy industrial use. The nearest residential receptor is approximately 350 feet to the east of WC5A.

## 4. Summary

No formal VI sampling or data evaluation was conducted in 2020 due to the suspension of high-risk activities including sub-slab and indoor sampling during the COVID-19 pandemic. Site constituents of concern were run through the EPA VISL calculator and 2020 groundwater monitoring data was screened for potential VI concerns. Only TCE on the West Bank and vinyl chloride on the East Bank exceeded the groundwater VISLs in 2020.

Six wells on the West Bank exceeded the residential TCE groundwater VISL and two of those locations, located at the Regal Beloit property (zoned heavy industrial) exceeded the commercial groundwater VISL. Of the remaining four locations, two of the exceedances were located in areas zoned for residential use. These locations have had historically elevated levels of TCE that have fluctuated in concentration since the 1990s.

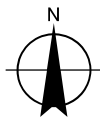
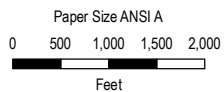
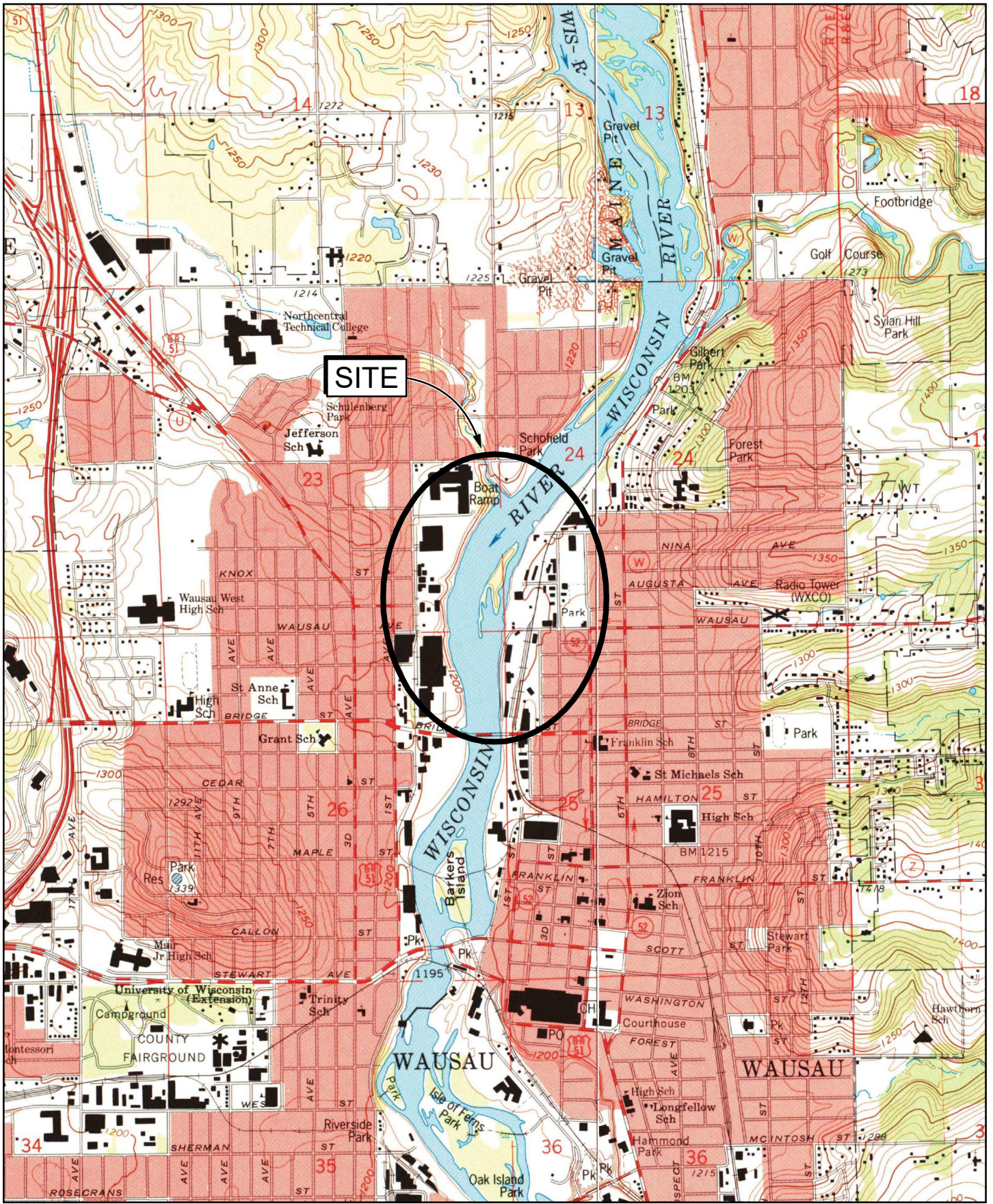
Monitoring well WC5A, located directly east of the Wausau Chemical Building located along North River Road, was the only East Bank well to exceed a groundwater VISL by having a vinyl chloride concentration of 4.2 µg/L, exceeding the residential VISL.

There were no new VI risks identified in 2020 based on comparison of 2020 groundwater sample data screened against the EPA VISL calculator values. No further VI sampling is anticipated in 2021 due to the ongoing COVID-19 pandemic. The Group plans to submit to the USEPA and WDNR a Vapor Intrusion Investigation Report which will summarize VI activities and findings at the Site, to date. This report will also include conclusions and recommendations for the path forward for VI evaluation at the Site. This report is expected to be submitted in late 2021 or early 2022.

The 2021 Annual VI Report will be submitted to the USEPA and WDNR in the first quarter of 2022.



# Figures



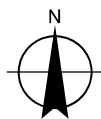
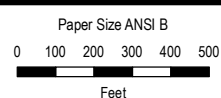
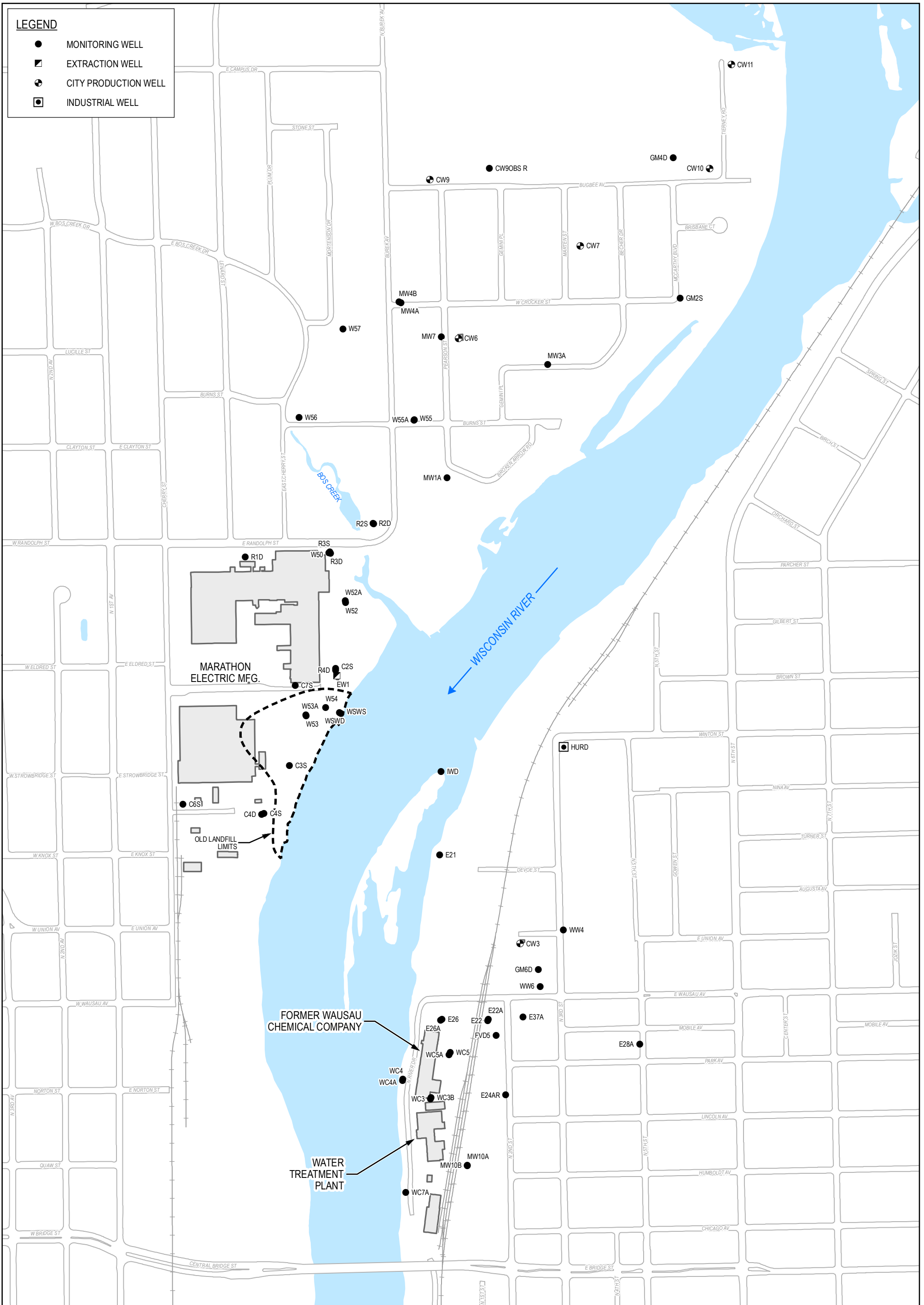
Map Projection: Lambert Conformal Conic  
Horizontal Datum: North American 1983 HARN  
Grid: NAD 1983 HARN WISCRS Marathon County Feet

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

Project No. 003978-00  
Revision No. -  
Date 08/18/2021

**SITE LOCATION**

**FIGURE 1**



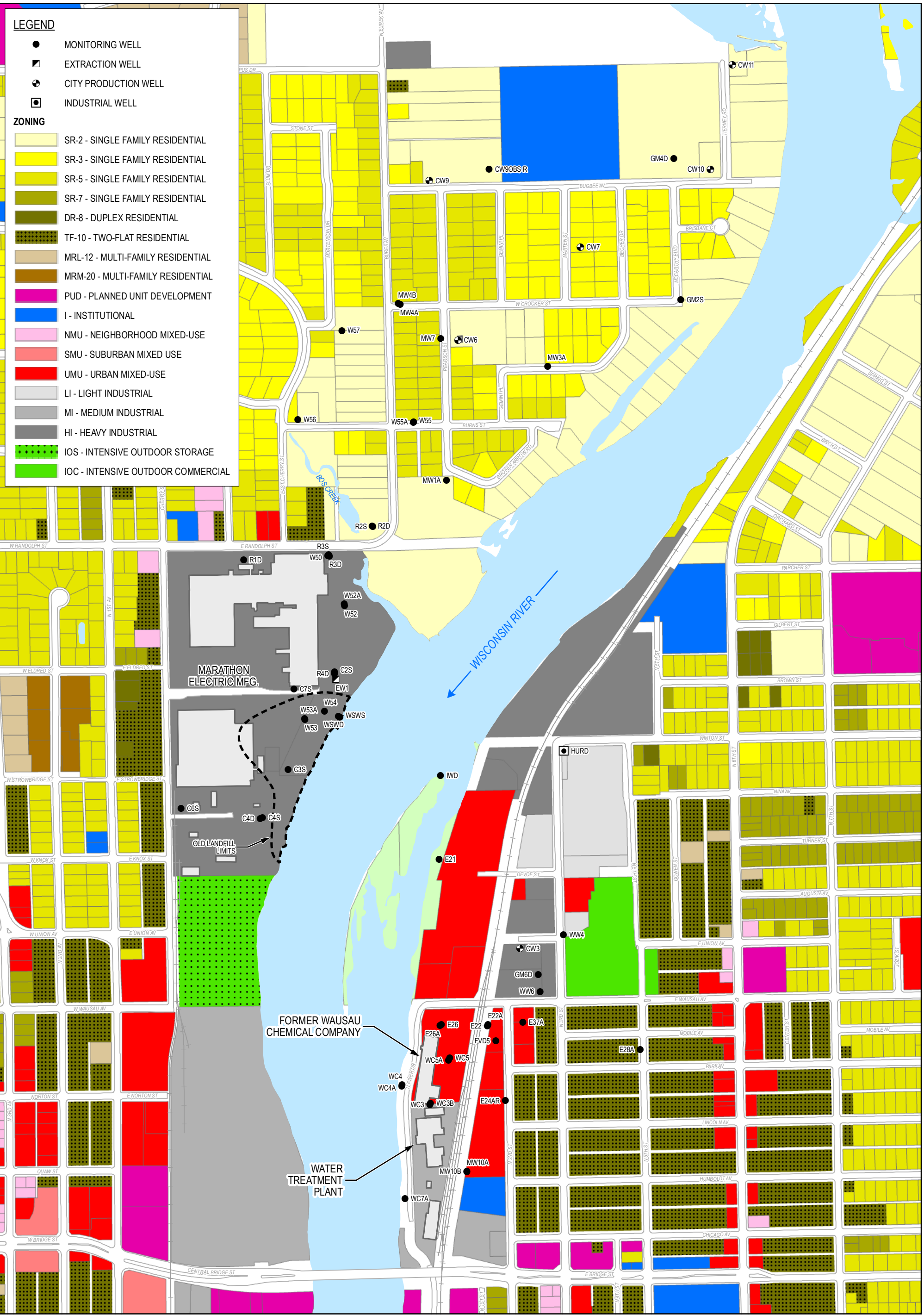
**WAUSAU WATER SUPPLY NPL SITE  
WAUSAU, WISCONSIN**

Project No. 003978-00  
Revision No. -  
Date 08/18/2021

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

**SITE PLAN**

**FIGURE 2**

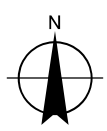
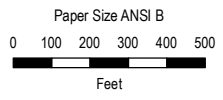


**LEGEND**

- MONITORING WELL
- ▣ EXTRACTION WELL
- ⊕ CITY PRODUCTION WELL
- ⊠ INDUSTRIAL WELL

**ZONING**

- SR-2 - SINGLE FAMILY RESIDENTIAL
- SR-3 - SINGLE FAMILY RESIDENTIAL
- SR-5 - SINGLE FAMILY RESIDENTIAL
- SR-7 - SINGLE FAMILY RESIDENTIAL
- DR-8 - DUPLEX RESIDENTIAL
- TF-10 - TWO-FLAT RESIDENTIAL
- MRL-12 - MULTI-FAMILY RESIDENTIAL
- MRM-20 - MULTI-FAMILY RESIDENTIAL
- PUD - PLANNED UNIT DEVELOPMENT
- I - INSTITUTIONAL
- NMU - NEIGHBORHOOD MIXED-USE
- SMU - SUBURBAN MIXED USE
- UMU - URBAN MIXED-USE
- LI - LIGHT INDUSTRIAL
- MI - MEDIUM INDUSTRIAL
- HI - HEAVY INDUSTRIAL
- IOS - INTENSIVE OUTDOOR STORAGE
- IOC - INTENSIVE OUTDOOR COMMERCIAL



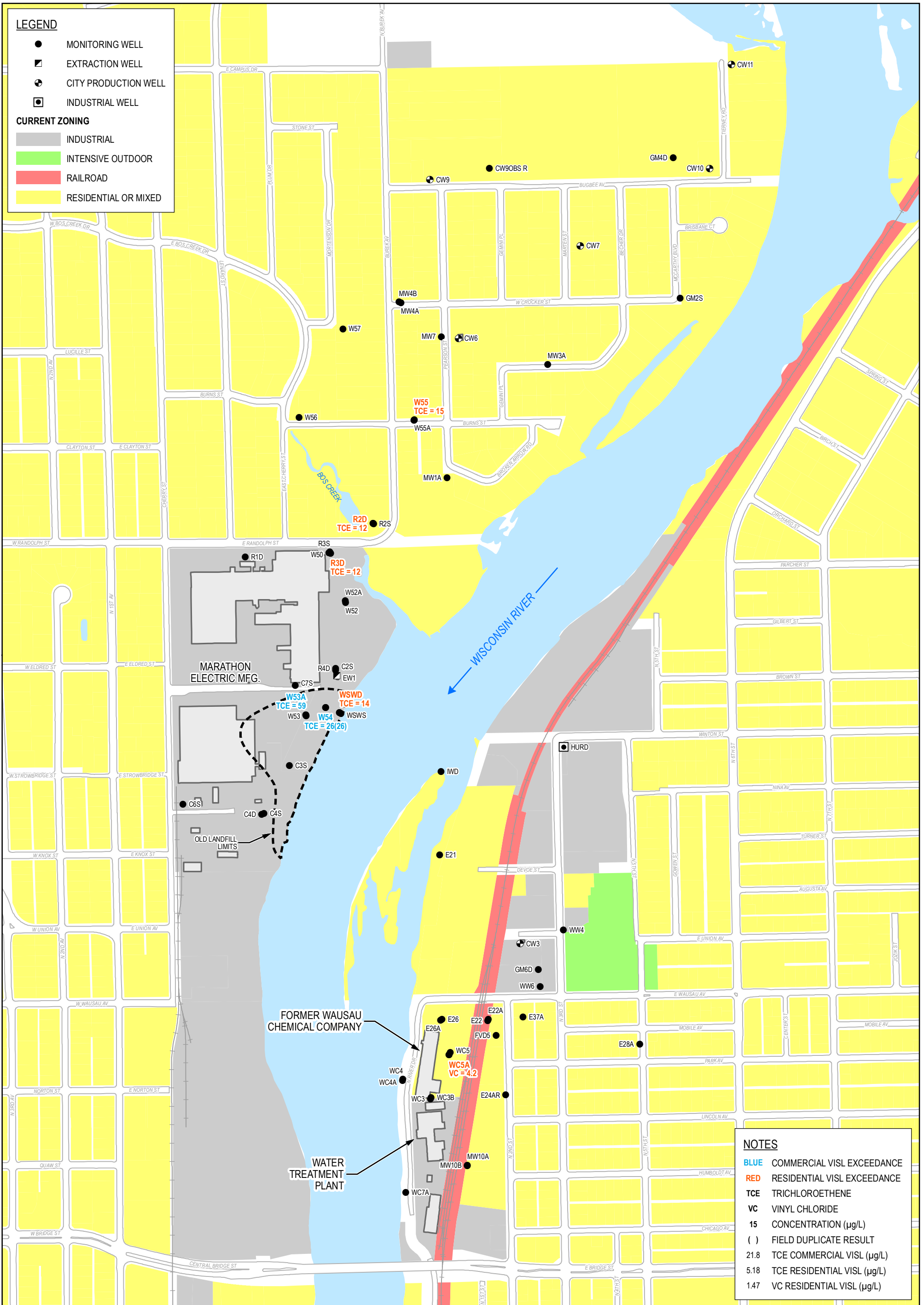
Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983 HARN  
 Grid: NAD 1983 HARN WISCONSIN Marathon County Feet

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

**CURRENT ZONING**

Project No. 003978-00  
 Revision No. -  
 Date 08/18/2021

**FIGURE 3**



**LEGEND**

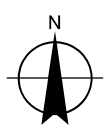
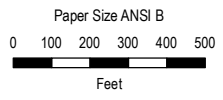
- MONITORING WELL
- ◻ EXTRACTION WELL
- ⊙ CITY PRODUCTION WELL
- ◻ INDUSTRIAL WELL

**CURRENT ZONING**

- INDUSTRIAL
- INTENSIVE OUTDOOR
- RAILROAD
- RESIDENTIAL OR MIXED

**NOTES**

- BLUE COMMERCIAL VISL EXCEEDANCE
- RED RESIDENTIAL VISL EXCEEDANCE
- TCE TRICHLOROETHENE
- VC VINYL CHLORIDE
- 15 CONCENTRATION (µg/L)
- ( ) FIELD DUPLICATE RESULT
- 21.8 TCE COMMERCIAL VISL (µg/L)
- 5.18 TCE RESIDENTIAL VISL (µg/L)
- 1.47 VC RESIDENTIAL VISL (µg/L)

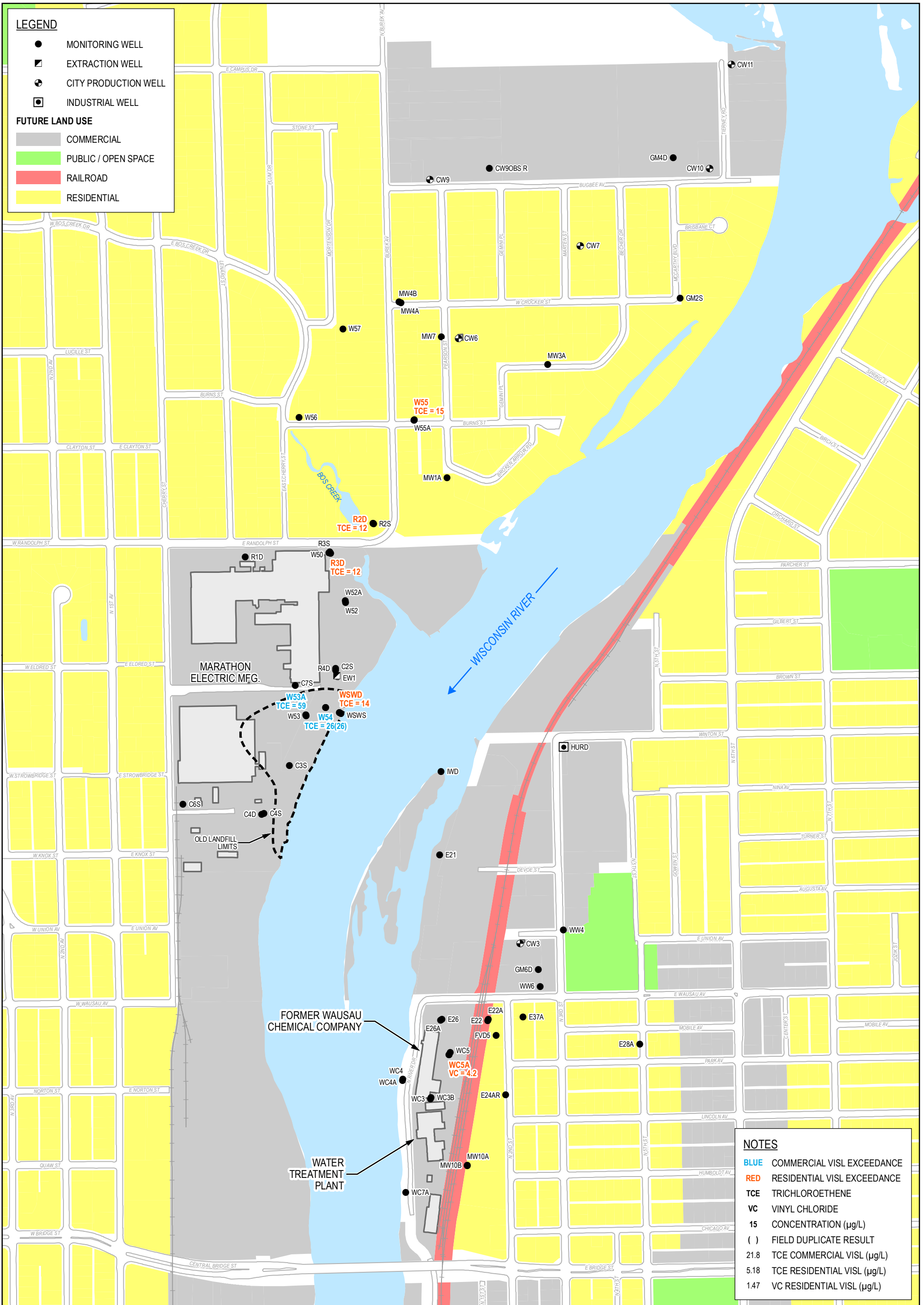


**WAUSAU WATER SUPPLY NPL SITE  
WAUSAU, WISCONSIN**

**SIMPLIFIED CURRENT ZONING  
AND GROUNDWATER  
VSL EXCEEDANCES**

Project No. 003978-00  
Revision No. -  
Date 08/18/2021

**FIGURE 4**



**LEGEND**

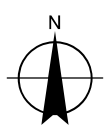
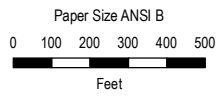
- MONITORING WELL
- ▣ EXTRACTION WELL
- ⊕ CITY PRODUCTION WELL
- ⊠ INDUSTRIAL WELL

**FUTURE LAND USE**

- COMMERCIAL
- PUBLIC / OPEN SPACE
- RAILROAD
- RESIDENTIAL

**NOTES**

- BLUE COMMERCIAL VISL EXCEEDANCE
- RED RESIDENTIAL VISL EXCEEDANCE
- TCE TRICHLOROETHENE
- VC VINYL CHLORIDE
- 15 CONCENTRATION (µg/L)
- ( ) FIELD DUPLICATE RESULT
- 21.8 TCE COMMERCIAL VISL (µg/L)
- 5.18 TCE RESIDENTIAL VISL (µg/L)
- 1.47 VC RESIDENTIAL VISL (µg/L)



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

**SIMPLIFIED FUTURE LAND USE  
AND GROUNDWATER  
VISL EXCEEDANCES**

Project No. 003978-00  
Revision No. -  
Date 08/18/2021

**FIGURE 5**

# Tables

Table 1

**Annual Groundwater Monitoring Event  
Analytical Results - September 9-10, 2019  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

**Sample Location:**  
**Sample Name:**  
**Sample Date:**

Parameters	Units	US EPA VISLs (1)		WDR ES	CW3	E21	E22A	E24AR	E37A	MW10B
		Commercial Groundwater	Residential Groundwater		W-201119-KJ-19	W-201119-KJ-25	W-201119-KJ-20	W-201119-KJ-29	W-201119-KJ-22	W-201119-KJ-28
					11/19/2020	11/19/2020	11/19/2020	11/19/2020	11/19/2020	11/19/2020
					EB	EB	EB	EB	EB	EB
<b>Volatile Organic Compounds</b>										
1,1,2-Trichloroethane	ug/L	26.0	6.19	200	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	821.0	195.00	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	94,500,000.0	22,500,000.00	9,000	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	69.3	15.90	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	ug/L	18.1	4.15	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	35.5	8.14	6	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	0.59 J	1.0 U	1.0 U	1.7	4.0	1.0 U
Ethylbenzene	ug/L	152.0	34.90	700	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	ug/L	19,800.0	4,710.00	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	242.0	57.60	5	0.63 J	1.0 U	9.6	1.4	0.96 J	1.0 U
Toluene	ug/L	80,700.0	19,200.00	800	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	21.8	5.18	5	0.76	0.50 U	0.43 J	0.77	0.30 J	0.50 U
Vinyl chloride	ug/L	24.5	1.47	0.2	1.0 U	1.0 U	1.0 U	0.50 J	0.39 J	1.0 U
Xylenes (total)	ug/L	1,620.0	385.00	2,000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

**Note:**

U - Not detected at the associated reporting limit

J - Estimated concentration

Exceeded US EPA Residential VISL

Exceeded US EPA Commercial VISL

-Detected

-Concentration exceeded WDR Enforcement Standard

EB - East Bank Well

WB - West Bank Well

(1) US EPA Vapor Intrusion Screening Levels (VISLs) are calculated at a Target Cancer Risk (TCR) and Noncancer Quotient (THQ) of 1E-05 and 1, respectively.



Table 1

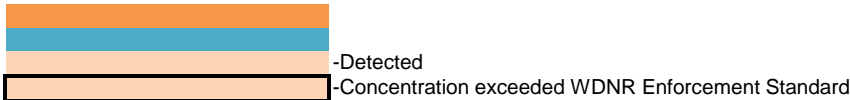
**Annual Groundwater Monitoring Event  
Analytical Results - September 9-10, 2019  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

**Sample Location:**  
**Sample Name:**  
**Sample Date:**

Parameters	Units	US EPA VISLs (1)		WDR ES	WC3B	WC5A	WW4	WW6	WW6	C2S
		Commercial	Residential		W-201119-KJ-24	W-201119-KJ-23	W-201119-KJ-18	W-201119-KJ-26	W-201119-KJ-27	W-201118-KJ-08
		Groundwater	Groundwater		11/19/2020	11/19/2020	11/19/2020	11/19/2020	11/19/2020 (Duplicate)	11/18/2020
				EB	EB	EB	EB	EB	WB	
<b>Volatile Organic Compounds</b>										
1,1,2-Trichloroethane	ug/L	26.0	6.19	200	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	821.0	195.00	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	94,500,000.0	22,500,000.00	9,000	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	69.3	15.90	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	ug/L	18.1	4.15	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	35.5	8.14	6	2.0 U	0.50 J	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	ug/L	-	-	70	1.0 U	11	1.0 U	20	15	1.0 U
Ethylbenzene	ug/L	152.0	34.90	700	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	ug/L	19,800.0	4,710.00	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	242.0	57.60	5	7.7	19	1.0 U	0.91 J	1.1	1.0 U
Toluene	ug/L	80,700.0	19,200.00	800	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	21.8	5.18	5	0.55	1.1	0.50 U	3.5	3.4	0.46 J
Vinyl chloride	ug/L	24.5	1.47	0.2	1.0 U	4.2	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	1,620.0	385.00	2,000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Note:

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



EB - East Bank Well  
WB - West Bank Well

(1) US EPA Vapor Intrusion Screening Levels (VISLs) are calculated at a Target Cancer Risk (TCR) and Noncancer Quotient (THQ) of 1E-05 and 1, respectively.

Table 1

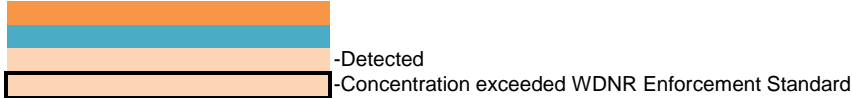
**Annual Groundwater Monitoring Event  
Analytical Results - September 9-10, 2019  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

**Sample Location:**  
**Sample Name:**  
**Sample Date:**

Parameters	Units	US EPA VISLs (1)		WDR ES	C4S	CW6	EW1	MW1A	R2D	R3D
		Commercial	Residential		W-201119-KJ-30	W-201118-KJ-01	W-201119-KJ-17	W-201119-KJ-14	W-201118-KJ-06	W-201118-KJ-04
		Groundwater	Groundwater		11/19/2020	11/18/2020	11/19/2020	11/19/2020	11/18/2020	11/18/2020
					WB	WB	WB	WB	WB	WB
<b>Volatile Organic Compounds</b>										
1,1,2-Trichloroethane	ug/L	26.0	6.19	200	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	821.0	195.00	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	94,500,000.0	22,500,000.00	9,000	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	69.3	15.90	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	ug/L	18.1	4.15	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	35.5	8.14	6	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	1.0 U	1.0 U	1.0 U	1.1	1.1
Ethylbenzene	ug/L	152.0	34.90	700	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	ug/L	19,800.0	4,710.00	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	242.0	57.60	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	80,700.0	19,200.00	800	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	21.8	5.18	5	2.3	2.0	0.50 U	0.68	12	12
Vinyl chloride	ug/L	24.5	1.47	0.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	1,620.0	385.00	2,000	1.0 U	1.0 U	1.0 U	0.47 J	1.0 U	1.0 U

Note:

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



EB - East Bank Well  
WB - West Bank Well

(1) US EPA Vapor Intrusion Screening Levels (VISLs) are calculated at a Target Cancer Risk (TCR) and Noncancer Quotient (THQ) of 1E-05 and 1, respectively.

Table 1

**Annual Groundwater Monitoring Event  
Analytical Results - September 9-10, 2019  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

**Sample Location:**  
**Sample Name:**  
**Sample Date:**

Parameters	Units	US EPA VISLs (1)		WDNR ES	R4D	W52	W53A	W54	W54	W55
		Commercial	Residential		W-201118-KJ-09	W-201118-KJ-10	W-201118-KJ-11	W-201119-KJ-15	W-201119-KJ-16	W-201119-KJ-12
		Groundwater	Groundwater		11/18/2020	11/18/2020	11/18/2020	11/19/2020	11/19/2020 (Duplicate)	11/19/2020
					WB	WB	WB	WB	WB	WB
<b>Volatile Organic Compounds</b>										
1,1,2-Trichloroethane	ug/L	26.0	6.19	200	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	821.0	195.00	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	ug/L	94,500,000.0	22,500,000.00	9,000	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	ug/L	69.3	15.90	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	ug/L	18.1	4.15	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	35.5	8.14	6	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	0.67 J	1.0 U	2.0	1.8	17
Ethylbenzene	ug/L	152.0	34.90	700	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	ug/L	19,800.0	4,710.00	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	242.0	57.60	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	80,700.0	19,200.00	800	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	21.8	5.18	5	4.7	2.9	59	26	26	15
Vinyl chloride	ug/L	24.5	1.47	0.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	1,620.0	385.00	2,000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

**Note:**

U - Not detected at the associated reporting limit

J - Estimated concentration



-Detected

-Concentration exceeded WDNR Enforcement Standard

EB - East Bank Well

WB - West Bank Well

(1) US EPA Vapor Intrusion Screening Levels (VISLs) are calculated at a Target Cancer Risk (TCR) and Noncancer Quotient (THQ) of 1E-05 and 1, respectively.

Table 1

**Annual Groundwater Monitoring Event  
Analytical Results - September 9-10, 2019  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Sample Location: Sample Name: Sample Date:	Units	US EPA VISLs (1)		WDNR ES	W56	W56	WSWD
		Commercial Groundwater	Residential Groundwater		W-201118-KJ-02 11/18/2020	W-201118-KJ-03 11/18/2020 (Duplicate)	W-201118-KJ-07 11/18/2020
Parameters					WB	WB	WB
<b>Volatile Organic Compounds</b>							
1,1,2-Trichloroethane	ug/L	26.0	6.19	200	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	821.0	195.00	7	1.0 U	1.0 U	1.0 U
Acetone	ug/L	94,500,000.0	22,500,000.00	9,000	10 U	10 U	10 U
Benzene	ug/L	69.3	15.90	5	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	ug/L	18.1	4.15	5	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	35.5	8.14	6	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	ug/L	-	-	70	1.0 U	1.0 U	0.61 J
Ethylbenzene	ug/L	152.0	34.90	700	0.50 U	0.50 U	0.50 U
Methylene chloride	ug/L	19,800.0	4,710.00	5	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	242.0	57.60	5	1.0 U	1.0 U	1.0 U
Toluene	ug/L	80,700.0	19,200.00	800	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	21.8	5.18	5	0.44 J	0.50 U	14
Vinyl chloride	ug/L	24.5	1.47	0.2	1.0 U	1.0 U	1.0 U
Xylenes (total)	ug/L	1,620.0	385.00	2,000	1.0 U	1.0 U	1.0 U

Note:

U - Not detected at the associated reporting limit

J - Estimated concentration



-Detected

-Concentration exceeded WDNR Enforcement Standard

EB - East Bank Well

WB - West Bank Well

(1) US EPA Vapor Intrusion Screening Levels (VISLs) are calculated at a Target Cancer Risk (TCR) and Noncancer Quotient (THQ) of 1E-05 and 1, respectively.

