



5/7/2024

Jane K. Pfeiffer  
Project Manager  
Remediation & Redevelopment Program  
Department of Natural Resources  
1027 W. Saint Paul Avenue  
Milwaukee, WI 53233

Subject: Technical Response to the January 5, 2024 WDNR Letter  
Martinos Master Drycleaners, 7513 41<sup>st</sup> Avenue, Kenosha, WI 53142  
BRRTS #02-30-552188, FID #230067090

Dear Ms. Pfeiffer:

Thank you for your Technical Assistance Response letter dated January 5, 2024. This response letter provided feedback and requested additional sampling and analysis. This response letter also concluded that a long-term monitoring plan (LTMP) should be submitted to the WDNR for review and that this LTMP should include a contingency plan if the use of natural attenuation is not feasible remedial action for the residual groundwater contamination. A review of the historical dataset would indicate that the case for natural attenuation has already been made and the need for additional extensive sampling is unwarranted.

Below in blue italics are the WDNR's comments followed by each of our responses.

***1) Based on the information received by the DNR to-date, no additional soil investigation is required at this time.***

Understood

***2) Collect additional monitored natural attenuation (MNA) parameters and CVOC data from monitoring well locations MW-1, MW-3, MW-6, MW-5, MW-10, MW-11, and MW-12 to support the use of natural attenuation as a remedy for groundwater contamination to satisfy case closure requirements in Wis. Admin. Code § 726.05(6)(b). In addition to the MNA parameters that have been measured in the past groundwater monitoring events, as outlined in the Remediation Site Operation, Maintenance, Monitoring and Optimization Report submitted to the DNR on January 21, 2022, magnesium, iron, and hydrogen sulfide should be measured.***

The presence of petroleum hydrocarbons in groundwater from monitoring well MW-8 is evidence of an upgradient petroleum source. Dissolved phase petroleum hydrocarbons can act

as a carbon source and an electron donor for dehalococoides (DHC) bacteria to break down cVOC compounds by reductive dechlorination (ERD). As the petroleum hydrocarbon plume and the cVOC plume comingle and migrate downgradient, this process of reductive dechlorination continues. Evidence of this reductive pathway can be seen by looking at the ratio of the parent product (PCE) to the corresponding breakdown products (TCE, DCE, VC). The near source area groundwater concentrations are characterized by a ratio of 45% parent product (PCE) to 55% breakdown products (TCE, DCE, VC). At the point where petroleum comingles with the cVOC plume (MW-6) the ratios are 18% parent to 82% breakdown and further downgradient is 0% parent to 100% breakdown product. Evidence that the reductive dechlorination pathway is successfully dechlorinating the cVOCs is evidenced by the historical concentrations of ethene detected in groundwater at the Site and the statistically decreasing concentration of PCE without a corresponding increasing trend in breakdown product concentrations.

Monitored natural attenuation (MNA) data was collected from 2014 to 2021 (7 years). In general, the data showed that a majority (15 out of 19) of the wells had negative ORPs indicating reduced conditions. In addition, wells had concentrations of soluble iron and methane which are indicative of a highly reduced geochemical environment. The geochemical environment is conducive to ERD as long as there are DHC bacteria present. The above contaminant trends indicate that DHC bacteria are present and will continue to break down the cVOCs. Continued monitoring of geochemical indicators of reductive dechlorination will not provide stronger evidence than the existing dataset. We respectfully request that the WDNR evaluate this summary of the historical sampling results, geochemical data, and ERD supportive trends in support of the MNA determination.

***3. Future groundwater monitoring reports should include the following documentation:***

- a. Separate groundwater contour maps showing the primary contaminants of concern and their breakdown products.***
- b. Graphical displays of the VOC data.***
- c. Table(s) showing the MNA data alongside the CVOC data.***
- d. Comprehensive data tables showing all CVOC and MNA data collected to-date.***
- e. Discussion of the MNA data and whether it indicates natural attenuation is occurring.***

Although this specific comment relates to future groundwater monitoring reports, for clarification items a to d have been included with this response. Item e is addressed above in the discussion of MNA data.

***4) PCE has been identified greater than its Wis. Admin. Code ch. NR 140 preventive action limit (PAL) and/or enforcement standard at source well MW-1 since 2018. PCE was not detected at MW-1 during groundwater sampling that occurred from 2011 - 2016. In your next***

***submittal for this site, discuss this increasing trend of the parent product PCE at MW-1. Specifically indicate whether this is representative of a new hazardous substance discharge event.***

The increase in PCE at MW-1 is not significant or abrupt as would be expected from a new release. This is likely a localized condition as the nearest down-gradient monitoring well (MW-3s) continues to show a decreasing contaminant concentration trend. A slow upward concentration from 2020 is not indicative of a long-term increasing trend, and is instead likely attributable to slight changes to the subsurface environment and the discontinuation of the on-site Soil Vapor Extraction (SVE) system. If significant concentration increases indicative of a new release of PCE are observed at this well, additional response actions will be evaluated.

***5) One round of groundwater sampling for PFAS has occurred at MW-3, MW-8, and MW-12 in August 2023. Perfluorooctanoic acid (PFOA) was detected greater than its proposed preventive action limit (PAL). The Report indicates that, since PFAS were detected at the upgradient monitoring well location MW-8, the source of the PFAS groundwater contamination is unclear. However, based on the information presented to the DNR to-date, the PFAS groundwater contamination identified must be investigated as a part of the Wis. Admin. Code NR 700 process for the subject site. Collect an additional round of PFAS sampling to demonstrate that the PFAS groundwater contamination plume is stable or receding, per Wis. Admin. Code § NR 726.05(6)(c).***

Low level (below enforcement standard) concentrations were detected in all three (3) wells sampled in August of 2023. These wells represented an upgradient location (MW-8) impacted by an upgradient petroleum source, an on-Site well near cVOC impacts (MW-3), and a down gradient well located within the cVOC plume but near an active sewer line (MW-12). Given the low-level presence of PFOA in all three (3) locations, the presence of this compound is ubiquitous and does not appear to be sourced by the release of cVOCs at the Site. To demand further investigation of a compound below the ES, present at similar concentrations across the Site, and from a likely alternate source as part of the Wis. Admin. Code NR 700 process does not seem reasonable. Additionally, a second round of PFOA sampling will not produce enough data points to provide an accurate trend determination. We understand that the WDNR will continue exploring the release mechanism for the PFOA detected in groundwater throughout this area, and we hope the data collected at this Site is helpful in identifying the responsible party(ies) for these groundwater impacts.

***6) Based on the information received by the DNR to-date, no additional vapor investigation is required at this time.***

Understood

**7) The Report was not presented with Wis. Admin Code ch NR 712 certification(s) and signature(s). Provided this required documentation in future reports, as may be appropriate.**

Understood

We hope that the above information may clarify some of your inquiries. Again, we look forward to discussing this Site with you. If you have any questions regarding this correspondence, please contact me.

Sincerely,

A handwritten signature in blue ink that reads "Brad K. Lewis".

Brad K. Lewis  
Principal Scientist  
blewis@enviroforensics.com  
(317) 696-7409

### **Attachments**

Certifications Page

### **Figures**

Figure 1 PCE in Groundwater Isoconcentration Map

Figure 2 TCE in Groundwater Isoconcentration Map

Figure 3 DCE in Groundwater Isoconcentration Map

Figure 4 VC in Groundwater Isoconcentration Map

### **Charts**

MW-1 cVOC Concentration Trends

MW-2 cVOC Concentration Trends

MW-3 cVOC Concentration Trends

MW-6 cVOC Concentration Trends

MW-12 cVOC Concentration Trends

### **Table**

Table 1: Dissolved Gases and REDOX Parameters in Groundwater

Table 2: MNA and cVOC Concentrations

## CERTIFICATION PAGE

Professional Engineer

"I, Scott Powell, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."



Regional Director



Signature, title and P.E. number P.E. stamp

Hydrogeologist

"I, Nicholas Hill, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."



Senior Project Manger, LPG #2011-13

Signature and title Date

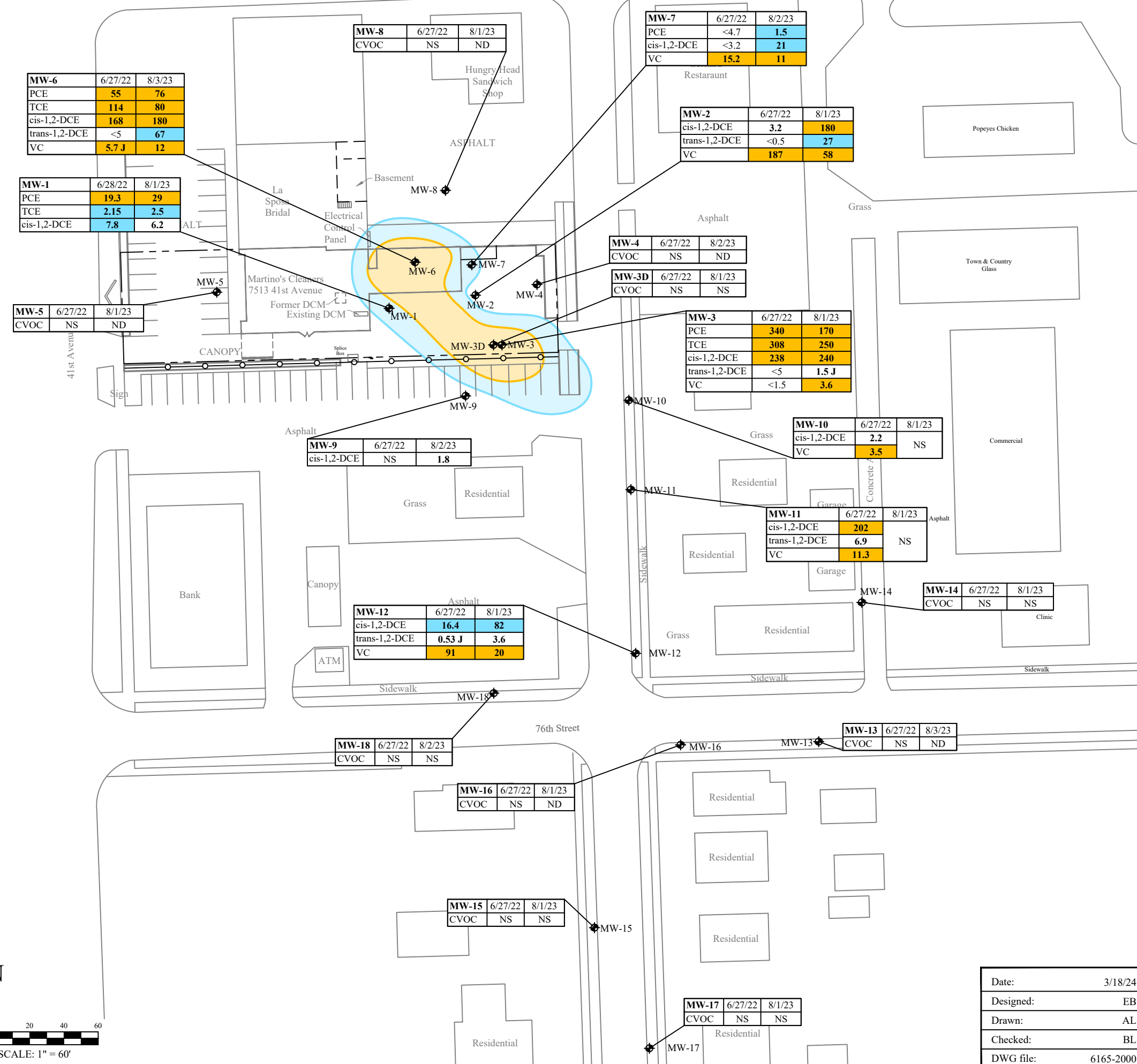
# Legend

- Property boundary
- o- Fence line
- MW-5 Monitoring well location

Analytes	Public Health	
	Enforcement Standards	Preventive Action Limit
PCE	5	0.5
TCE	5	0.5
cis-1,2-DCE	70	7
trans-1,2-DCE	100	20
VC	0.2	0.02

- Notes:
1. Bold, shaded orange values exceed Public Health Enforcement Standards
  2. Bold, shaded blue values exceed Public Health Preventive Action Limit
  3. Bold values equal or exceed laboratory detection limits
  4. Results not shown are below laboratory detection limits
  5. PCE = Tetrachloroethene
  6. TCE = Trichloroethene
  7. cis-1,2-DCE = cis-1,2-Dichloroethene
  8. trans-1,2-DCE = trans-1,2-Dichloroethene
  9. VC = Vinyl Chloride
  10. J = Analyte concentration detected between the Laboratory Reporting Limit and the laboratory Method Detection Limit
  11. ND = Compounds not detected
  12. NS = Not sampled
  13. CVOCs = Chlorinated Volatile Organic Compounds

- Extent of PCE impacts exceeding enforcement standards
- Extent of PCE impacts exceeding preventive action limits



<b>MW-6</b>	6/27/22	8/3/23
PCE	<b>55</b>	<b>76</b>
TCE	<b>114</b>	<b>80</b>
cis-1,2-DCE	<b>168</b>	<b>180</b>
trans-1,2-DCE	<5	<b>67</b>
VC	<b>5.7 J</b>	<b>12</b>

<b>MW-1</b>	6/28/22	8/1/23
PCE	<b>19.3</b>	<b>29</b>
TCE	<b>2.15</b>	<b>2.5</b>
cis-1,2-DCE	<b>7.8</b>	<b>6.2</b>

<b>MW-5</b>	6/27/22	8/1/23
CVOC	NS	ND

<b>MW-8</b>	6/27/22	8/1/23
PCE	<4.7	<b>1.5</b>
cis-1,2-DCE	<3.2	<b>21</b>
VC	<b>15.2</b>	<b>11</b>

<b>MW-7</b>	6/27/22	8/2/23
PCE	<4.7	<b>1.5</b>
cis-1,2-DCE	<3.2	<b>21</b>
VC	<b>15.2</b>	<b>11</b>

<b>MW-2</b>	6/27/22	8/1/23
cis-1,2-DCE	<b>3.2</b>	<b>180</b>
trans-1,2-DCE	<0.5	<b>27</b>
VC	<b>187</b>	<b>58</b>

<b>MW-4</b>	6/27/22	8/2/23
CVOC	NS	ND

<b>MW-3D</b>	6/27/22	8/1/23
CVOC	NS	NS

<b>MW-3</b>	6/27/22	8/1/23
PCE	<b>340</b>	<b>170</b>
TCE	<b>308</b>	<b>250</b>
cis-1,2-DCE	<b>238</b>	<b>240</b>
trans-1,2-DCE	<5	<b>1.5 J</b>
VC	<1.5	<b>3.6</b>

<b>MW-10</b>	6/27/22	8/1/23
cis-1,2-DCE	<b>2.2</b>	NS
VC	<b>3.5</b>	NS

<b>MW-11</b>	6/27/22	8/1/23
cis-1,2-DCE	<b>202</b>	NS
trans-1,2-DCE	<b>6.9</b>	NS
VC	<b>11.3</b>	NS

<b>MW-14</b>	6/27/22	8/1/23
CVOC	NS	NS

<b>MW-9</b>	6/27/22	8/2/23
cis-1,2-DCE	NS	<b>1.8</b>

<b>MW-12</b>	6/27/22	8/1/23
cis-1,2-DCE	<b>16.4</b>	<b>82</b>
trans-1,2-DCE	<b>0.53 J</b>	<b>3.6</b>
VC	<b>91</b>	<b>20</b>

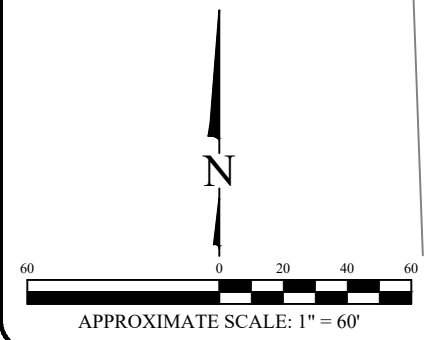
<b>MW-18</b>	6/27/22	8/2/23
CVOC	NS	NS

<b>MW-16</b>	6/27/22	8/1/23
CVOC	NS	ND

<b>MW-15</b>	6/27/22	8/1/23
CVOC	NS	NS

<b>MW-13</b>	6/27/22	8/3/23
CVOC	NS	ND

<b>MW-17</b>	6/27/22	8/1/23
CVOC	NS	NS



### TETRACHLOROETHENE GROUNDWATER ISOCONCENTRATION MAP

Martino's Cleaners  
7513 41st Avenue  
Kenosha, WI

Date: 3/18/24	Figure
Designed: EB	1
Drawn: AL	Project
Checked: BL	6165
DWG file: 6165-2000	

825 North Capitol Avenue • Indianapolis, IN 46204  
EnviroForensics.com

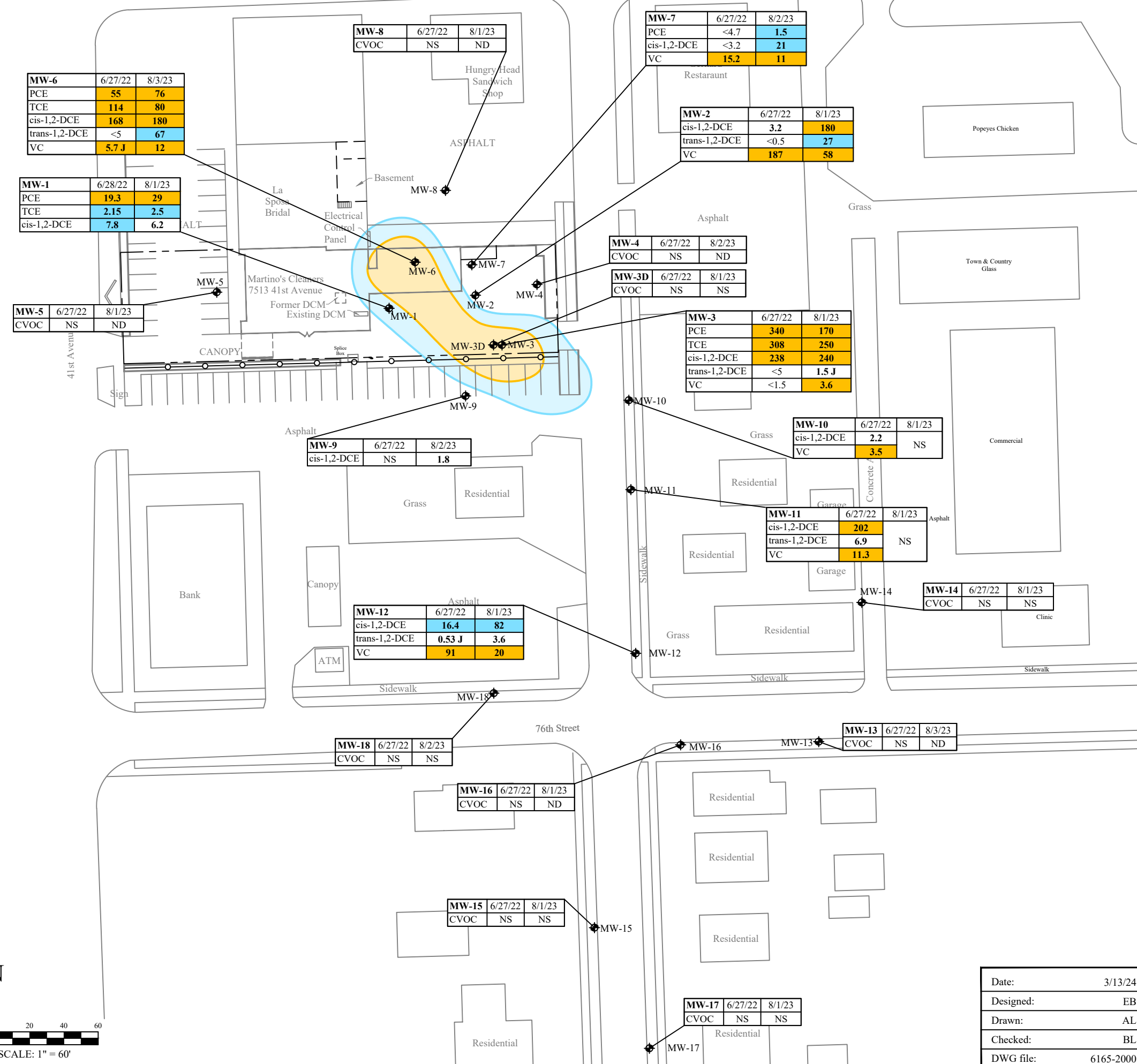
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- Property boundary
- o- Fence line
- MW-5 Monitoring well location

Analytes	Public Health	
	Enforcement Standards	Preventive Action Limit
PCE	5	0.5
TCE	5	0.5
cis-1,2-DCE	70	7
trans-1,2-DCE	100	20
VC	0.2	0.02

- Notes:
1. Bold, shaded orange values exceed Public Health Enforcement Standards
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  8. trans-1,2-DCE = trans-1,2-Dichloroethene
  9. VC = Vinyl Chloride
  10. J = Analyte concentration detected between the Laboratory Reporting Limit and the laboratory Method Detection Limit
  11. ND = Compounds not detected
  12. NS = Not sampled
  13. CVOCs = Chlorinated Volatile Organic Compounds

- Extent of TCE impacts exceeding enforcement standards
- Extent of TCE impacts exceeding preventive action limits



<b>MW-6</b>	6/27/22	8/3/23
PCE	<b>55</b>	<b>76</b>
TCE	<b>114</b>	<b>80</b>
cis-1,2-DCE	<b>168</b>	<b>180</b>
trans-1,2-DCE	<5	<b>67</b>
VC	<b>5.7 J</b>	<b>12</b>

<b>MW-1</b>	6/28/22	8/1/23
PCE	<b>19.3</b>	<b>29</b>
TCE	<b>2.15</b>	<b>2.5</b>
cis-1,2-DCE	<b>7.8</b>	<b>6.2</b>

<b>MW-5</b>	6/27/22	8/1/23
CVOC	NS	ND

<b>MW-8</b>	6/27/22	8/1/23
PCE	<4.7	<b>1.5</b>
cis-1,2-DCE	<3.2	<b>21</b>
VC	<b>15.2</b>	<b>11</b>

<b>MW-7</b>	6/27/22	8/2/23
PCE	<4.7	<b>1.5</b>
cis-1,2-DCE	<3.2	<b>21</b>
VC	<b>15.2</b>	<b>11</b>

<b>MW-2</b>	6/27/22	8/1/23
cis-1,2-DCE	<b>3.2</b>	<b>180</b>
trans-1,2-DCE	<0.5	<b>27</b>
VC	<b>187</b>	<b>58</b>

<b>MW-4</b>	6/27/22	8/2/23
CVOC	NS	ND

<b>MW-3D</b>	6/27/22	8/1/23
CVOC	NS	NS

<b>MW-3</b>	6/27/22	8/1/23
PCE	<b>340</b>	<b>170</b>
TCE	<b>308</b>	<b>250</b>
cis-1,2-DCE	<b>238</b>	<b>240</b>
trans-1,2-DCE	<5	<b>1.5 J</b>
VC	<1.5	<b>3.6</b>

<b>MW-10</b>	6/27/22	8/1/23
cis-1,2-DCE	<b>2.2</b>	NS
VC	<b>3.5</b>	NS

<b>MW-11</b>	6/27/22	8/1/23
cis-1,2-DCE	<b>202</b>	NS
trans-1,2-DCE	<b>6.9</b>	NS
VC	<b>11.3</b>	NS

<b>MW-14</b>	6/27/22	8/1/23
CVOC	NS	NS

<b>MW-9</b>	6/27/22	8/2/23
cis-1,2-DCE	NS	<b>1.8</b>

<b>MW-12</b>	6/27/22	8/1/23
cis-1,2-DCE	<b>16.4</b>	<b>82</b>
trans-1,2-DCE	<b>0.53 J</b>	<b>3.6</b>
VC	<b>91</b>	<b>20</b>

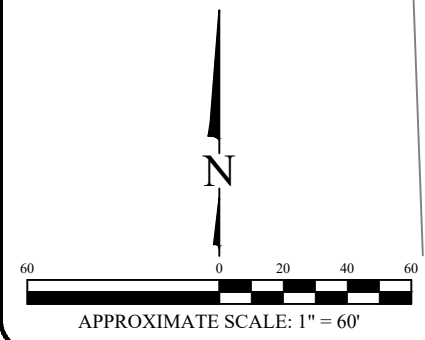
<b>MW-18</b>	6/27/22	8/2/23
CVOC	NS	NS

<b>MW-16</b>	6/27/22	8/1/23
CVOC	NS	ND

<b>MW-15</b>	6/27/22	8/1/23
CVOC	NS	NS


<b>MW-13</b>	6/27/22	8/3/23
CVOC	NS	ND

<b>MW-17</b>	6/27/22	8/1/23
CVOC	NS	NS



TRICHLOROETHENE GROUNDWATER  
ISOCONCENTRATION MAP

Martino's Cleaners  
7513 41st Avenue  
Kenosha, WI

Date:	3/13/24	 825 North Capitol Avenue • Indianapolis, IN 46204 EnviroForensics.com	Figure
Designed:	EB		2
Drawn:	AL		Project
Checked:	BL		6165
DWG file:	6165-2000		

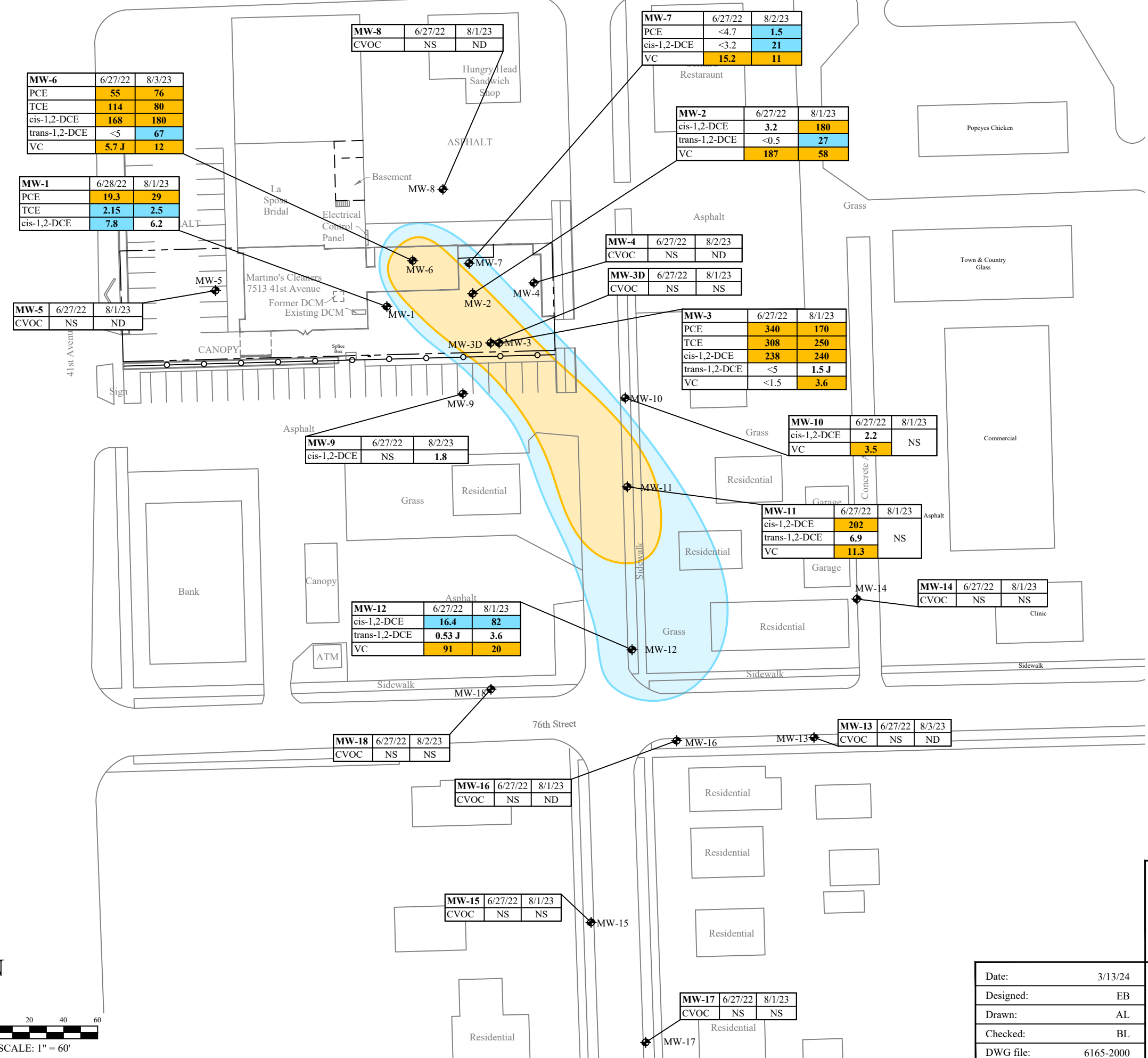
# Legend

- Property boundary
- o- Fence line
- MW-5 Monitoring well location

Analytes	Public Health	
	Enforcement Standards	Preventive Action Limit
PCE	5	0.5
TCE	5	0.5
cis-1,2-DCE	70	7
trans-1,2-DCE	100	20
VC	0.2	0.02

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  9. VC = Vinyl Chloride
  10. J = Analyte concentration detected between the Laboratory Reporting Limit and the laboratory Method Detection Limit
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  13. CVOCs = Chlorinated Volatile Organic Compounds

- Extent of DCE impacts exceeding enforcement standards
- Extent of DCE impacts exceeding preventive action limits



MW-6	6/27/22	8/3/23
PCE	55	76
TCE	114	80
cis-1,2-DCE	168	180
trans-1,2-DCE	<5	67
VC	5.7 J	12

MW-1	6/28/22	8/1/23
PCE	19.3	29
TCE	2.15	2.5
cis-1,2-DCE	7.8	6.2

MW-5	6/27/22	8/1/23
CVOC	NS	ND

MW-8	6/27/22	8/1/23
PCE	<4.7	1.5
cis-1,2-DCE	<3.2	21
VC	15.2	11

MW-7	6/27/22	8/2/23
PCE	<4.7	1.5
cis-1,2-DCE	<3.2	21
VC	15.2	11

MW-2	6/27/22	8/1/23
cis-1,2-DCE	3.2	180
trans-1,2-DCE	<0.5	27
VC	187	58

MW-4	6/27/22	8/2/23
CVOC	NS	ND

MW-3D	6/27/22	8/1/23
CVOC	NS	NS

MW-3	6/27/22	8/1/23
PCE	340	170
TCE	308	250
cis-1,2-DCE	238	240
trans-1,2-DCE	<5	1.5 J
VC	<1.5	3.6

MW-10	6/27/22	8/1/23
cis-1,2-DCE	2.2	NS
VC	3.5	NS

MW-11	6/27/22	8/1/23
cis-1,2-DCE	202	NS
trans-1,2-DCE	6.9	NS
VC	11.3	NS

MW-9	6/27/22	8/2/23
cis-1,2-DCE	NS	1.8

MW-12	6/27/22	8/1/23
cis-1,2-DCE	16.4	82
trans-1,2-DCE	0.53 J	3.6
VC	91	20

MW-14	6/27/22	8/1/23
CVOC	NS	NS

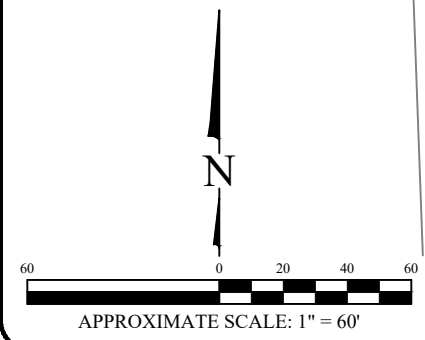
MW-18	6/27/22	8/2/23
CVOC	NS	NS

MW-16	6/27/22	8/1/23
CVOC	NS	ND

MW-15	6/27/22	8/1/23
CVOC	NS	NS

MW-13	6/27/22	8/3/23
CVOC	NS	ND

MW-17	6/27/22	8/1/23
CVOC	NS	NS



DICHLOROETHENE GROUNDWATER  
ISOCONCENTRATION MAP

Martino's Cleaners  
7513 41st Avenue  
Kenosha, WI

<p>Date: 3/13/24</p> <p>Designed: EB</p> <p>Drawn: AL</p> <p>Checked: BL</p> <p>DWG file: 6165-2000</p>	<p>825 North Capitol Avenue • Indianapolis, IN 46204 EnviroForensics.com</p>
	<p>Figure 3</p> <p>Project 6165</p>



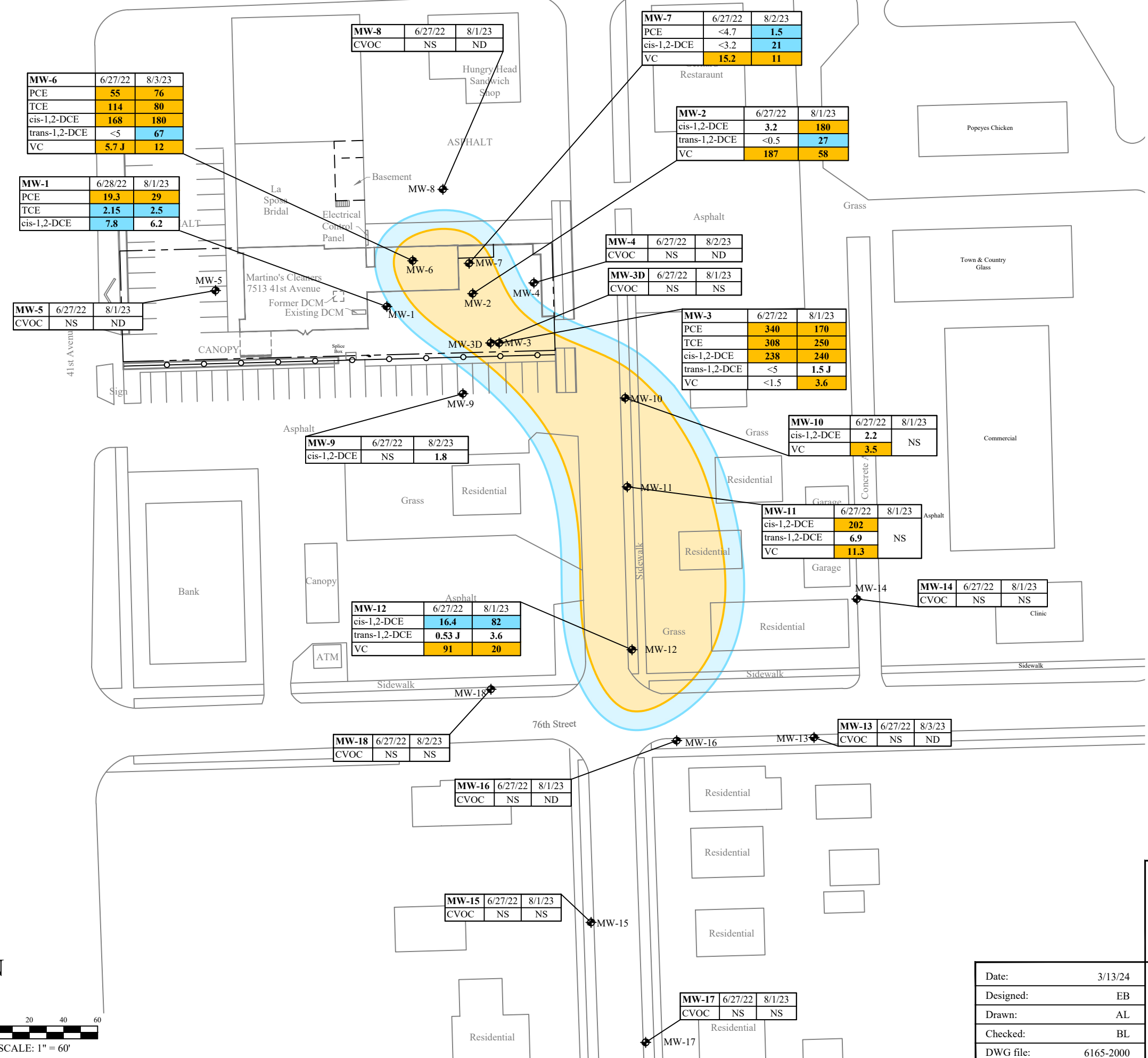
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- Extent of VC impacts exceeding enforcement standards
- Extent of VC impacts exceeding preventive action limits



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PCE	55	76
TCE	114	80
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trans-1,2-DCE	<5	67
VC	5.7 J	12

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PCE	19.3	29
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cis-1,2-DCE	7.8	6.2

MW-5	6/27/22	8/1/23
CVOC	NS	ND

MW-8	6/27/22	8/1/23
PCE	<4.7	1.5
cis-1,2-DCE	<3.2	21
VC	15.2	11

MW-7	6/27/22	8/2/23
PCE	<4.7	1.5
cis-1,2-DCE	<3.2	21
VC	15.2	11

MW-2	6/27/22	8/1/23
cis-1,2-DCE	3.2	180
trans-1,2-DCE	<0.5	27
VC	187	58

MW-4	6/27/22	8/2/23
CVOC	NS	ND

MW-3D	6/27/22	8/1/23
CVOC	NS	NS

MW-3	6/27/22	8/1/23
PCE	340	170
TCE	308	250
cis-1,2-DCE	238	240
trans-1,2-DCE	<5	1.5 J
VC	<1.5	3.6

MW-10	6/27/22	8/1/23
cis-1,2-DCE	2.2	NS
VC	3.5	NS

MW-11	6/27/22	8/1/23
cis-1,2-DCE	202	NS
trans-1,2-DCE	6.9	NS
VC	11.3	NS

MW-9	6/27/22	8/2/23
cis-1,2-DCE	NS	1.8

MW-12	6/27/22	8/1/23
cis-1,2-DCE	16.4	82
trans-1,2-DCE	0.53 J	3.6
VC	91	20

MW-14	6/27/22	8/1/23
CVOC	NS	NS

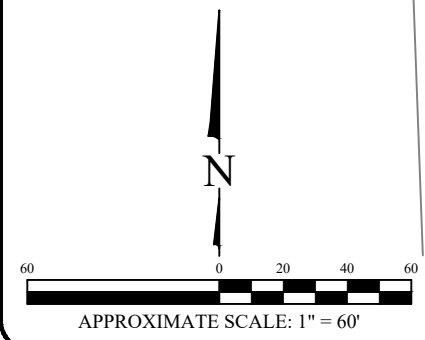
MW-18	6/27/22	8/2/23
CVOC	NS	NS

MW-16	6/27/22	8/1/23
CVOC	NS	ND

MW-15	6/27/22	8/1/23
CVOC	NS	NS

MW-13	6/27/22	8/3/23
CVOC	NS	ND

MW-17	6/27/22	8/1/23
CVOC	NS	NS

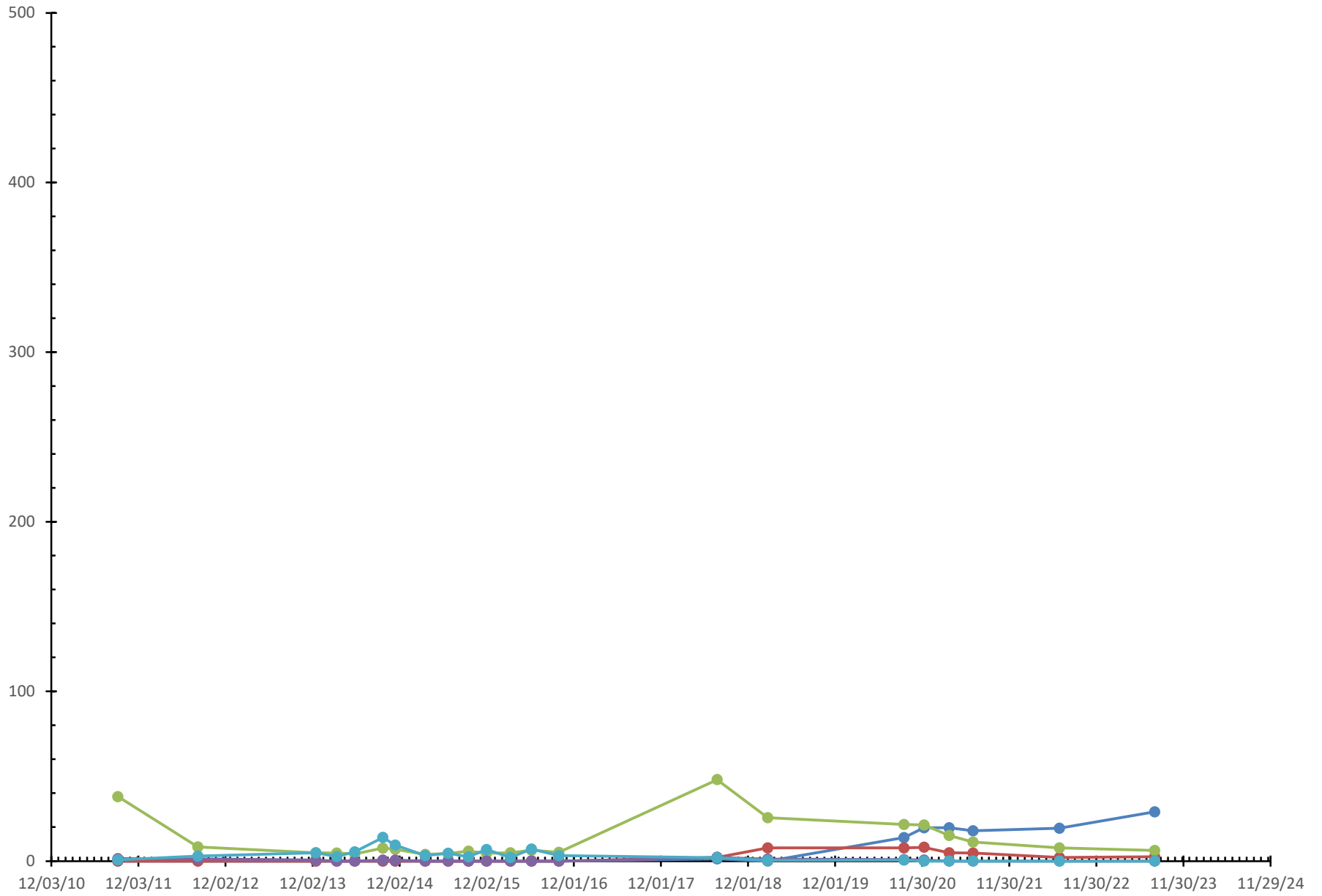


VINYL CHLORIDE GROUNDWATER ISOCONCENTRATION MAP

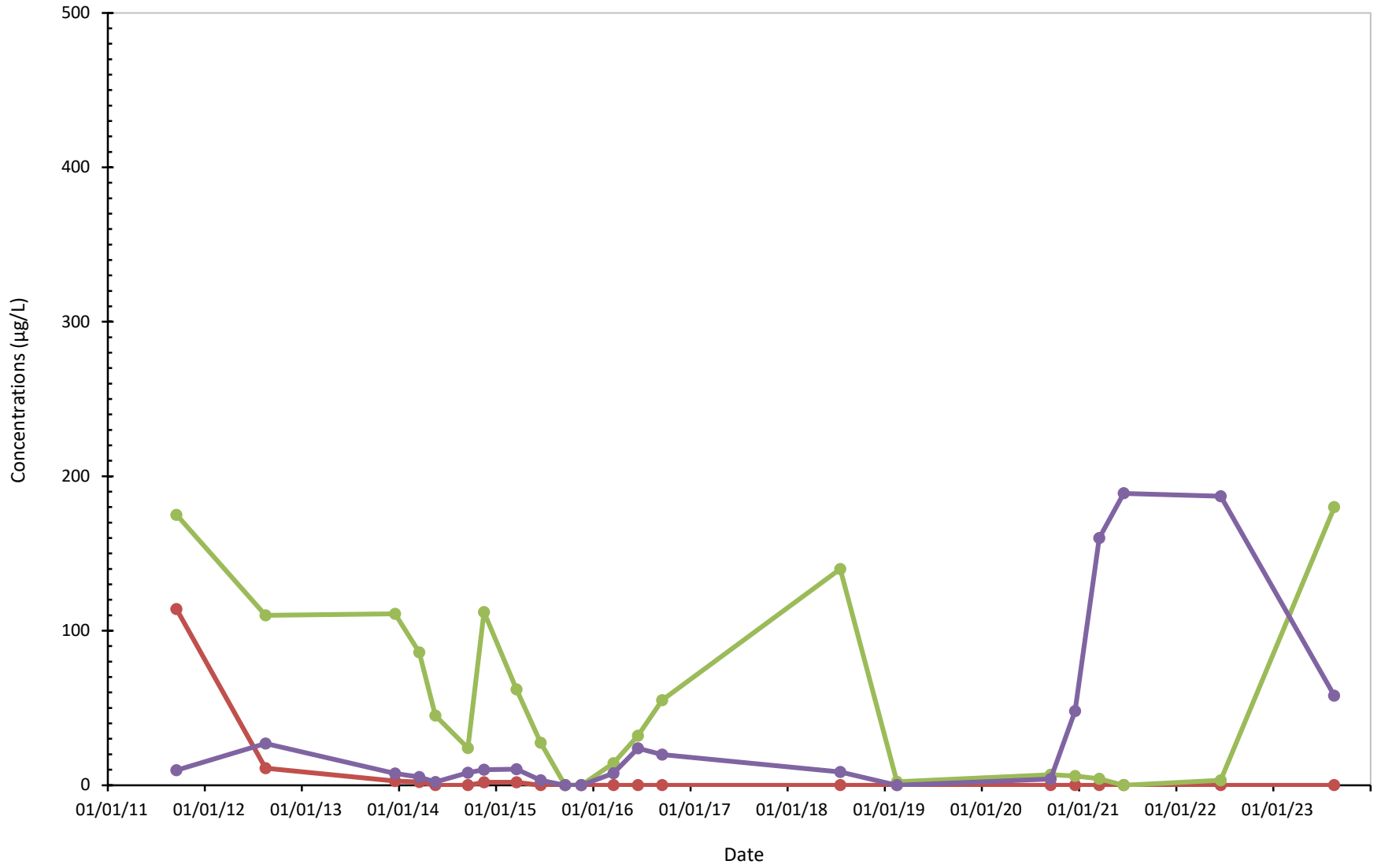
Martino's Cleaners  
7513 41st Avenue  
Kenosha, WI

<p>Date: 3/13/24</p> <p>Designed: EB</p> <p>Drawn: AL</p> <p>Checked: BL</p> <p>DWG file: 6165-2000</p>	<p>825 North Capitol Avenue • Indianapolis, IN 46204 EnviroForensics.com</p>	<p>Figure</p> <p>4</p> <p>Project</p> <p>6165</p>
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### MW-1 cVOC Concentration Trends

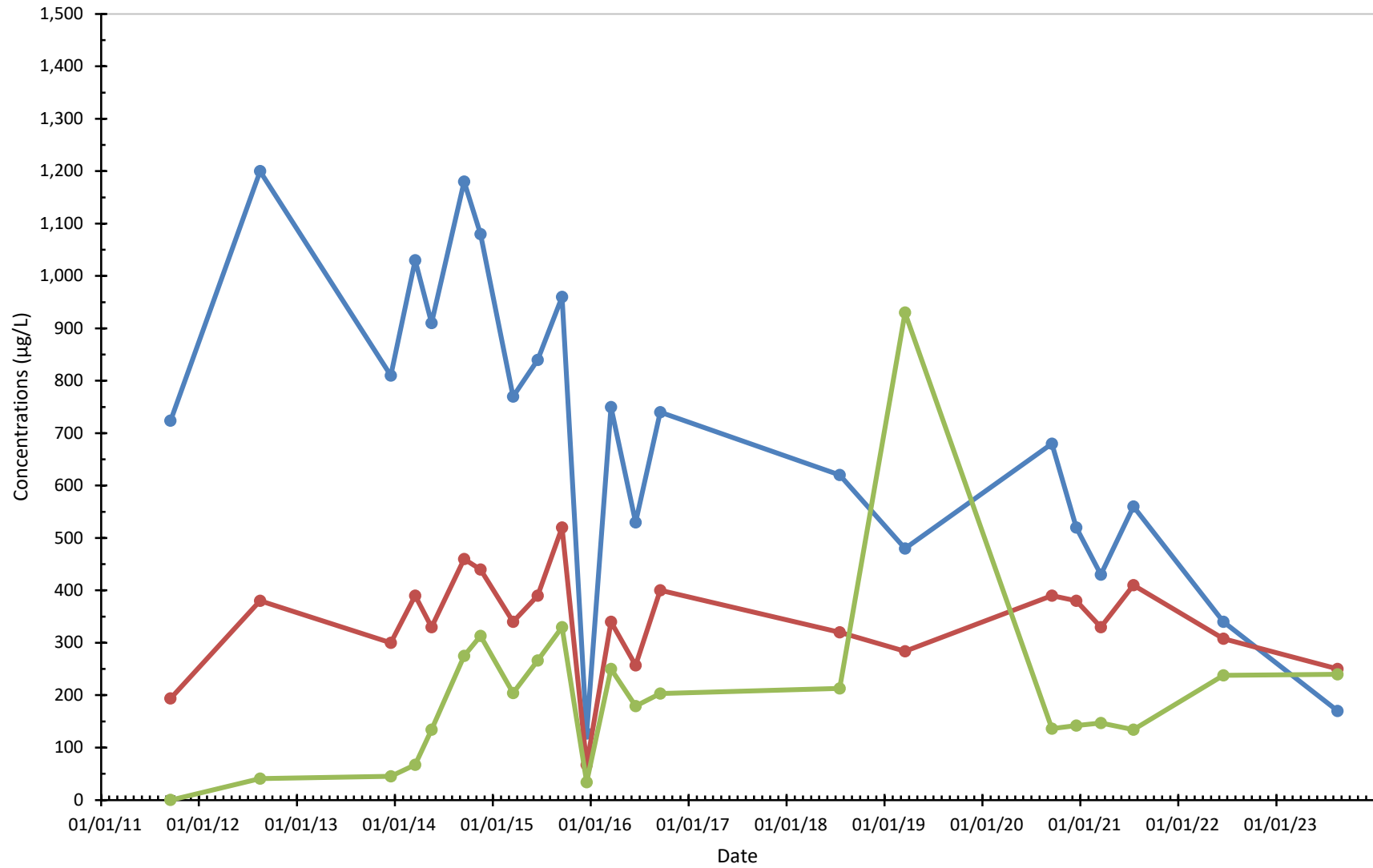


### MW-2 cVOC Concentration Trends



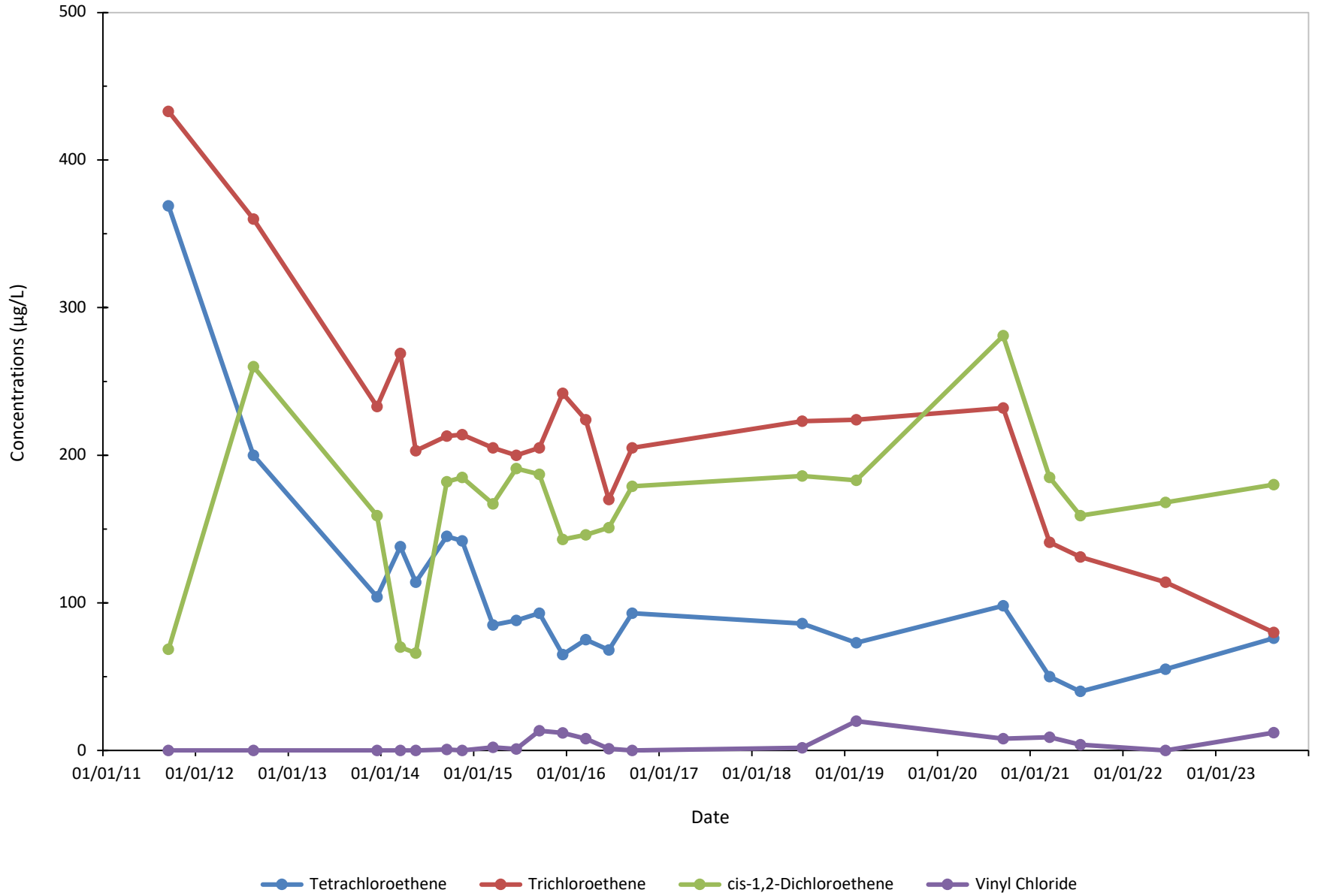
Trichloroethene    cis-1,2-Dichloroethene    Vinyl Chloride

### MW-3 cVOC Concentrations Trends

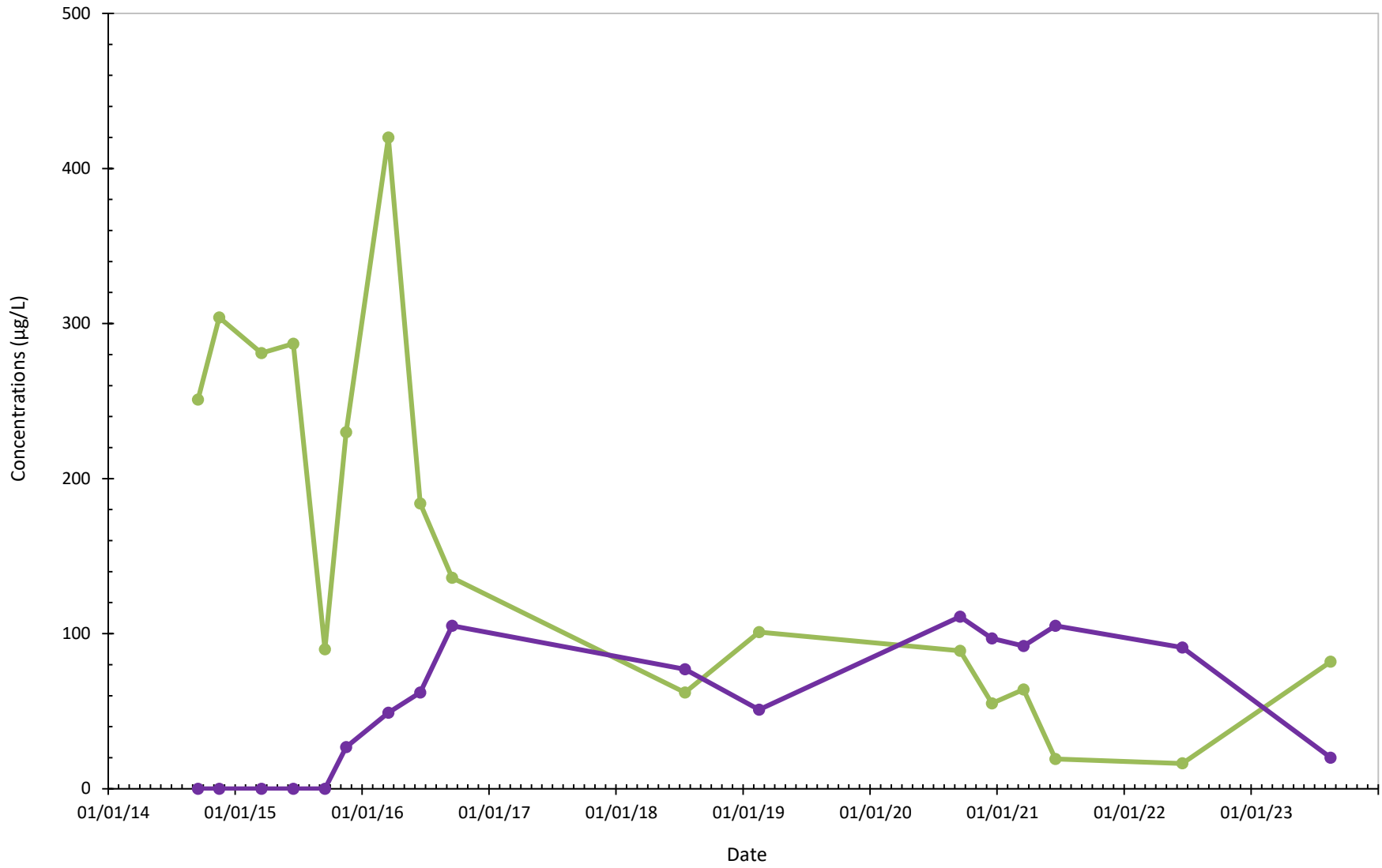


● Tetrachloroethene    ● Trichloroethene    ● cis-1,2-Dichloroethene

### MW-6 cVOC Concentration Trends



### MW-12 cVOC Concentration Trends



— cis-1,2-Dichloroethene — Vinyl Chloride

**TABLE 1**  
**DISSOLVED GASES AND REDOX PARAMETERS IN GROUNDWATER**  
Martino's Master Drycleaners  
7513 41st Avenue, Kenosha, Wisconsin

Monitoring Well Identification	Sample Date	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Iron (mg/L)	Manganese (ug/L)	Chloride (mg/L)	Nitrite plus Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (TOC) (mg/L)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)
MW-1	03/13/14	--	--	--	--	--	--	--	--	--	0.00	-109
	05/28/14	--	--	--	--	--	--	--	--	--	7.31	-52
	09/23/14	1.4 J	<0.5	34.7	6.52	290	--	<0.15	365	3.5	0.00	-98
	11/14/14	<0.5	<0.5	25.8	6.46	300	2,420	<0.15	377	3.5	8.37	-44
	03/19/15	<0.5	<0.5	30.9	5.37	319	2,290	0.28	474	5.8	0.58	-24
	06/23/15	<0.5	<0.5	13.6	5.88	289	2,870	<0.13	263	4	0.02	-61
	09/17/15	<0.5	<0.5	26.0	5.22	242	2,400	<0.13	234	4.17	0.00	-40
	12/01/15	0.68 J	<0.5	139	4.57	216	1,910	<0.1	231	2.88	3.04	-48
	09/15/20	--	--	--	--	--	--	--	--	--	0.05	-35
	12/08/20	<0.5	<0.5	38	--	--	--	--	--	--	0.20	-27
03/23/21	<0.5	<0.5	17.2	--	--	--	--	--	--	2.97	-60	
07/01/21	<0.5	<0.5	24.1	--	--	--	--	--	--	1.10	-33	
08/01/23	--	--	--	--	--	--	--	--	--	1.07	-38	
MW-2	03/13/14	--	--	--	--	--	--	--	--	--	0.11	-156
	05/28/14	--	--	--	--	--	--	--	--	--	0.00	-83
	09/23/14	0.65 J	1.6	1,390	1.97	129	--	<0.15	240	12	0.00	-51
	11/14/14	1.0 J	1,790	1,080	5.07	214	848	<0.15	277	7.4	5.93	-62
	03/20/15	<1	<1	2,160	2.32	127	10	0.19	242	12	1.58	-36
	06/23/15	<2.5	<2.5	1,090	0.13 J	42.8	435	0.800	242	7.6	0.21	37
	09/18/15	<0.5	<0.5	<1	0.03 J	<4.5	81.7	6.32	446	6.82	0.00	247
	11/30/15	<1	<1	1,620	0.04 J	<4.5	916	2.51	329	5.52	3.95	85
	09/15/20	--	--	--	--	--	--	--	--	--	0.03	-12
	12/08/20	<0.5	31.9	3,680	--	--	--	--	--	--	0.17	16
	03/23/21	23.4	5.78	1,890	--	--	--	--	--	--	6.32	28
06/30/21	6.94	2.39	1,890	--	--	--	--	--	--	3.17	52	
08/11/23	--	--	--	--	--	--	--	--	--	0.00	-58	
MW-3	03/12/14	--	--	--	--	--	--	--	--	--	0.00	-92
	05/28/14	--	--	--	--	--	--	--	--	--	0.00	-48
	09/23/14	<0.5	<0.5	62.3	3.90	226	--	0.23	464	3.7	0.00	-90
	11/13/14	<0.5	<0.5	80.4	4.63	233	1,790	<0.15	355	1,790	2.78	-39
	03/20/15	<0.5	<0.5	83.5	4.38	249	2,180	0.63	474	4.7	0.87	-28
	06/23/15	<0.5	0.55 J	171	4.33	254	2,330	<0.13	289	3.6	0.00	-53
	09/17/15	<0.5	0.51 J	68.8	4.68	203	2,290	<0.13	258	4.53	0.00	2
	12/01/15	<0.5	<0.5	1.82 J	0.82	23.9	34.7	0.14 J	14.4	1.79	0.00	-64
	09/15/20	--	--	--	--	--	--	--	--	--	0.08	-42
	12/08/20	<0.5	<0.5	562	--	--	--	--	--	--	0.31	-21
	03/24/21	<0.5	<0.5	267	--	--	--	--	--	--	0.73	-45
07/01/21	<0.5	<0.5	729	--	--	--	--	--	--	1.09	231	
08/11/23	--	--	--	--	--	--	--	--	--	Bailer Sampled		
MW-3D	03/12/14	--	--	--	--	--	--	--	--	--	0.00	-195
	05/28/14	--	--	--	--	--	--	--	--	--	0.00	-198
	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-199
	11/12/14	--	--	--	--	--	--	--	--	--	11.22 *	-125
	03/20/15	--	--	--	--	--	--	--	--	--	0.98	-68
	06/23/15	--	--	--	--	--	--	--	--	--	0.03	-150
	09/17/15	--	--	--	--	--	--	--	--	--	0.00	33
	12/01/15	--	--	--	--	--	--	--	--	--	0.00	-106

**TABLE 1**  
**DISSOLVED GASES AND REDOX PARAMETERS IN GROUNDWATER**  
 Martino's Master Drycleaners  
 7513 41st Avenue, Kenosha, Wisconsin

Monitoring Well Identification	Sample Date	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Iron (mg/L)	Manganese (ug/L)	Chloride (mg/L)	Nitrite plus Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (TOC) (mg/L)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)
MW-4	03/12/14	--	--	--	--	--	--	--	--	--	0.00	-111
	05/28/14	--	--	--	--	--	--	--	--	--	6.67	-51
	09/22/14	--	--	--	--	--	--	--	--	--	10.71 *	-84
	11/12/14	--	--	--	--	--	--	--	--	--	8.78	-33
	03/18/15	--	--	--	--	--	--	--	--	--	0.00	-36
	06/23/15	--	--	--	--	--	--	--	--	--	5.25	-7
	09/17/15	--	--	--	--	--	--	--	--	--	0.00	-20
	11/30/15	--	--	--	--	--	--	--	--	--	4.54	-29
08/02/23	--	--	--	--	--	--	--	--	--	--	0.00	-83
MW-5	03/13/14	--	--	--	--	--	--	--	--	--	6.22	-95
	05/29/14	--	--	--	--	--	--	--	--	--	0.00	-27
	09/23/14	<0.5	<0.5	5.4	4.79	289	--	0.43	286	3.2	0.00	-79
	11/14/14	<0.5	<0.5	10.8	4.81	324	3,140	<0.15	249	2.9	0.57	-41
	03/19/15	<0.5	<0.5	20.3	3.94	314	3,600	0.4	258	5.1	0.52	-7
	06/23/15	<0.5	<0.5	5.26	3.3	246	3,620	<0.13	255	3.9	0.05	-37
	09/18/15	<0.5	<0.5	8.21	3.75	249	3,200	<0.13	201	3.91	7.30	96
	12/02/15	<0.5	<0.5	11.8	3.98	271	3,300	<0.1	232	2.80	0.05	-38
08/01/23	--	--	--	--	--	--	--	--	--	--	0.19	-55
MW-6	03/12/14	--	--	--	--	--	--	--	--	--	6.22	-95
	05/28/14	--	--	--	--	--	--	--	--	--	6.63	-45
	09/23/14	<0.5	0.78 J	187	3.06	195	--	<0.15	549	5.2	0.00	-89
	11/13/14	<0.5	<0.5	124	3.73	210	1,410	<0.15	714	5.1	0.00	-47
	03/19/15	<0.5	1.1 J	704	3.49	224	1,980	0.46	232	6.0	0.00	-33
	6/23/15	<0.5	<0.5	26.1	3.86	255	2,300	0.284 J	166	4.3	0.06	-45
	09/17/15	<0.5	0.81 J	115	3.98	191	2,200	<0.13	200	4.59	0.00	-43
	12/01/15	<0.5	<0.5	64.6	3.85	175	2,400	<0.1	215	3.12	0.00	-77
	09/15/20	--	--	--	--	--	--	--	--	--	0.06	-50
	03/24/21	<0.5	<0.5	1,080	--	--	--	--	--	--	0.26	-56
	07/01/21	<0.5	<0.5	1,310	--	--	--	--	--	--	0.26	-44
08/01/23	--	--	--	--	--	--	--	--	--	Bailer Sampled		
MW-7	03/13/14	--	--	--	--	--	--	--	--	--	0.00	-142
	05/28/14	--	--	--	--	--	--	--	--	--	0.00	-156
	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-146
	11/12/14	--	--	--	--	--	--	--	--	--	0.16	-100
	03/20/15	--	--	--	--	--	--	--	--	--	1.10	-76
	06/23/15	--	--	--	--	--	--	--	--	--	1.50	-102
	09/18/15	--	--	--	--	--	--	--	--	--	0.00	-37
	12/01/15	--	--	--	--	--	--	--	--	--	0.00	-119
	09/15/20	--	--	--	--	--	--	--	--	--	0.03	-190
	03/23/21	--	--	--	--	--	--	--	--	--	5.94	-198
08/01/23	--	--	--	--	--	--	--	--	--	0.22	-93	
MW-8	03/12/14	--	--	--	--	--	--	--	--	--	0.00	-118
	05/29/14	--	--	--	--	--	--	--	--	--	0.00	-60
	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-107
	11/13/14	--	--	--	--	--	--	--	--	--	2.57	-26
	03/20/15	--	--	--	--	--	--	--	--	--	1.13	-39
	06/22/15	--	--	--	--	--	--	--	--	--	1.33	-63
	09/18/15	--	--	--	--	--	--	--	--	--	0.36	-79
	12/02/15	--	--	--	--	--	--	--	--	--	4.94	-22
	09/15/20	--	--	--	--	--	--	--	--	--	0.05	-67
	03/24/21	--	--	--	--	--	--	--	--	--	1.69	-34
08/01/23	--	--	--	--	--	--	--	--	--	Bailer Sampled		



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**DISSOLVED GASES AND REDOX PARAMETERS IN GROUNDWATER**  
Martino's Master Drycleaners  
7513 41st Avenue, Kenosha, Wisconsin

Monitoring Well Identification	Sample Date	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Iron (mg/L)	Manganese (ug/L)	Chloride (mg/L)	Nitrite plus Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (TOC) (mg/L)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)
MW-9	03/12/14	--	--	--	--	--	--	--	--	--	0.00	-79
	05/29/14	--	--	--	--	--	--	--	--	--	0.00	-40
	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-84
	11/12/14	--	--	--	--	--	--	--	--	--	10.14 *	-39
	03/18/15	--	--	--	--	--	--	--	--	--	0.15	-46
	06/22/15	--	--	--	--	--	--	--	--	--	0.10	-41
	09/18/15	--	--	--	--	--	--	--	--	--	1.49	-52
	12/02/15	--	--	--	--	--	--	--	--	--	0.00	-22
	09/15/20	--	--	--	--	--	--	--	--	--	0.09	-21
	12/08/20	--	--	--	--	--	--	--	--	--	1.08	-22
03/22/21	--	--	--	--	--	--	--	--	--	0.12	-40	
08/01/23	--	--	--	--	--	--	--	--	--	0.39	-28	
MW-10	NI	--	--	--	--	--	--	--	--	--	--	--
	NI	--	--	--	--	--	--	--	--	--	--	--
	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-126
	11/13/14	--	--	--	--	--	--	--	--	--	0.11	-42
	03/18/15	--	--	--	--	--	--	--	--	--	0.67	-20
	06/22/15	--	--	--	--	--	--	--	--	--	0.02	-62
	09/18/15	--	--	--	--	--	--	--	--	--	0.21	-88
	12/01/15	--	--	--	--	--	--	--	--	--	0.05	4
	09/15/20	--	--	--	--	--	--	--	--	--	0.07	-42
	12/08/20	1.83	1.56	2,660	--	--	--	--	--	--	2.15	-27
03/23/21	<0.5	<0.5	1,490	--	--	--	--	--	--	2.31	-52	
06/30/21	<0.5	1.61	3,200	--	--	--	--	--	--	0.46	-60	
MW-11	09/23/14	<0.5	2.2	95.5	4.99	196	--	0.15	561	4.6	0.00	-99
	11/14/14	<0.5	0.92 J	110	4.77	179	1,150	<0.15	364	1,150	0.09	-50
	03/18/15	<0.5	1.0 J	85.4	5.69	206	1,470	0.2	439	5.5	0.96	-30
	06/23/15	<0.5	0.51 J	99.8	4.43	191	1,240	0.201 J	52.5 J	4.2	0.19	-42
	09/18/15	<0.5	<0.5	36.3	2.72	145	1,490	0.999	405	4.58	3.06	140
	12/01/15	<0.5	<0.5	75.6	4.88	169	1,340	<0.1	437	3.83	4.60	-43
	09/15/20	--	--	--	--	--	--	--	--	--	0.07	-45
	12/07/20	<0.5	<0.5	41.0	--	--	--	--	--	--	1.42	-10
	03/23/21	<0.5	<0.5	655	--	--	--	--	--	--	0.72	24
06/30/21	2.13	<0.5	1,870	--	--	--	--	--	--	1.28	-15	
MW-12	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-72
	11/13/14	--	--	--	--	--	--	--	--	--	10.86 *	-38
	03/18/15	--	--	--	--	--	--	--	--	--	0.90	-24
	06/22/15	--	--	--	--	--	--	--	--	--	0.79	-53
	09/18/15	--	--	--	--	--	--	--	--	--	1.08	190
	11/30/15	--	--	--	--	--	--	--	--	--	5.74	-48
	09/15/20	--	--	--	--	--	--	--	--	--	0.11	-49
	12/07/20	<0.5	5.39	1,130	--	--	--	--	--	--	0.69	-56
	03/23/21	6.86	<0.5	572	--	--	--	--	--	--	1.74	-72
06/30/21	26.8	<0.5	612	--	--	--	--	--	--	0.98	-37	
08/01/23	--	--	--	--	--	--	--	--	--	Bailer Sampled		
MW-13	09/23/14	<0.5	<0.5	28.1	0.63	130	--	<0.15	326	1.1	0.00	-62
	11/13/14	<0.5	<0.5	31.4	0.61	118	273	<0.15	372	273	0.00	-5
	03/19/15	<0.5	<0.5	17.3	0.54	120	205	0.17	431	3.6	1.03	92
	06/22/15	<0.5	<0.5	10.3	0.63 J	102	246	<0.13	312	1.2	0.00	-7
	09/18/15	<0.5	<0.5	16.9	0.62 J	89.2	286	<0.13	302	1.12	1.40	181
	11/30/15	<0.5	<0.5	8.41	0.52	76.9	338	<0.1	277	<1	7.07	-18
08/01/23	--	--	--	--	--	--	--	--	--	0.00	-19	

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**DISSOLVED GASES AND REDOX PARAMETERS IN GROUNDWATER**  
 Martino's Master Drycleaners  
 7513 41st Avenue, Kenosha, Wisconsin

Monitoring Well Identification	Sample Date	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Iron (mg/L)	Manganese (ug/L)	Chloride (mg/L)	Nitrite plus Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (TOC) (mg/L)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)
MW-14	09/22/14	--	--	--	--	--	--	--	--	--	8.79	-119
	11/13/14	--	--	--	--	--	--	--	--	--	11.23 *	-42
	03/18/15	--	--	--	--	--	--	--	--	--	0.50	-42
	06/22/15	--	--	--	--	--	--	--	--	--	7.25	-50
	09/18/15	--	--	--	--	--	--	--	--	--	0.33	-78
	11/30/15	--	--	--	--	--	--	--	--	--	0.42	-83
MW-15	09/15/20	--	--	--	--	--	--	--	--	--	0.06	-49
	12/07/20	--	--	--	--	--	--	--	--	--	0.76	-50
	03/22/21	--	--	--	--	--	--	--	--	--	0.97	-59
MW-16	09/15/20	--	--	--	--	--	--	--	--	--	0.04	-31
	12/07/20	--	--	--	--	--	--	--	--	--	1.07	-43
	03/22/21	--	--	--	--	--	--	--	--	--	0.18	-46
	08/01/23	--	--	--	--	--	--	--	--	--	Not collected	
MW-17	09/15/20	--	--	--	--	--	--	--	--	--	4.60	143
	12/07/20	--	--	--	--	--	--	--	--	--	4.17	37
	03/22/21	--	--	--	--	--	--	--	--	--	4.92	53
MW-18	09/15/20	--	--	--	--	--	--	--	--	--	0.04	-8
	12/07/20	--	--	--	--	--	--	--	--	--	0.62	-2
	03/23/21	--	--	--	--	--	--	--	--	--	1.48	41
	08/01/23	--	--	--	--	--	--	--	--	--	12.90	85

**Notes:**

µg/L - micrograms per liter

mg/L = milligrams per liter

mV = millivolts

\* = Dissolved oxygen concentrations above 10 mg/L; malfunction of probe/sensor suspected.

-- = Not Analyzed

J = Estimated concentration between the laboratory Reporting Limit and Method Detection Limit

**TABLE 2**  
**MNA cVOC Concentrations**  
 Martino's Master Drycleaners  
 7513 41st Avenue, Kenosha, Wisconsin

Monitoring Well Identification	Sample Date	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Iron (mg/L)	Manganese (µg/L)	Chloride (mg/L)	Nitrite plus Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (TOC) (mg/L)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride
MW-1	03/13/14	--	--	--	--	--	--	--	--	--	0.00	-109	<0.33	<0.33	4.7	<0.35	2.6
	05/28/14	--	--	--	--	--	--	--	--	--	7.31	-52	<0.33	<0.33	4.2	<0.35	5.4
	09/23/14	1.4 J	<0.5	34.7	6.52	290	--	<0.15	365	3.5	0.00	-98	<0.33	<0.33	7.6	0.55 J	13.9
	11/14/14	<0.5	<0.5	25.8	6.46	300	2,420	<0.15	377	3.5	8.37	-44	<0.33	<0.33	6.9	0.52 J	9.4
	03/19/15	<0.5	<0.5	30.9	5.37	319	2,290	0.28	474	5.8	0.58	-24	<0.74	<0.47	3.9	<0.54	3.2
	06/23/15	<0.5	<0.5	13.6	5.88	289	2,870	<0.13	263	4	0.02	-61	<0.74	<0.47	4.5	<0.54	4.6
	09/17/15	<0.5	<0.5	26.0	5.22	242	2,400	<0.13	234	4.17	0.00	-40	<0.49	<0.47	5.8	<0.54	2.57
	12/01/15	0.68 J	<0.5	139	4.57	216	1,910	<0.1	231	2.88	3.04	-48	<0.49	<0.47	4.6	<0.54	6.8
	09/15/20	--	--	--	--	--	--	--	--	--	0.05	-35	13.8	7.8	21.6	0.81 J	0.62 J
	12/08/20	<0.5	<0.5	38	--	--	--	--	--	--	0.20	-27	19.6	8.1	21.3	0.59 J	<0.2
	03/23/21	<0.5	<0.5	17.2	--	--	--	--	--	--	2.97	-60	19.6	4.9	15.1	<0.6	<0.17
07/01/21	<0.5	<0.5	24.1	--	--	--	--	--	--	1.10	-33	17.8	4.7	11.2	<0.6	<0.17	
08/01/23	--	--	--	--	--	--	--	--	--	1.07	-38	29	2.5	6.2	<1.6	<1.8	
MW-2	03/13/14	--	--	--	--	--	--	--	--	--	0.11	-156	<0.33	0.89 J	45	1.23	1.99
	05/28/14	--	--	--	--	--	--	--	--	--	0.00	-83	<0.33	<0.33	24	0.93 J	8.1
	09/23/14	0.65 J	1.6	1,390	1.97	129	--	<0.15	240	12	0.00	-51	<0.33	1.84	112	1.75	10
	11/14/14	1.0 J	1,790	1,080	5.07	214	848	<0.15	277	7.4	5.93	-62	<0.74	1.86	62	1.21 J	10.4
	03/20/15	<1	<1	2,160	2.32	127	10	0.19	242	12	1.58	-36	<0.74	<0.47	27.5	<0.54	3.12
	06/23/15	<2.5	<2.5	1,090	0.13 J	42.8	435	0.800	242	7.6	0.21	37	<0.49	<0.47	<0.45	<0.54	<0.17
	09/18/15	<0.5	<0.5	<1	0.03 J	<4.5	81.7	6.32	446	6.82	0.00	247	<0.49	<0.47	0.90 J	<0.54	<0.17
	11/30/15	<1	<1	1,620	0.04 J	<4.5	916	2.51	329	5.52	3.95	85	<0.33	1.49 J	6.8	<0.37	4
	09/15/20	--	--	--	--	--	--	--	--	--	0.03	-12	<0.33	<0.47	6	0.47 J	48
	12/08/20	<0.5	31.9	3,680	--	--	--	--	--	--	0.17	16	<0.54	<0.47	4.1	<0.6	160
	03/23/21	23.4	5.78	1,890	--	--	--	--	--	--	6.32	28	<1.08	<0.94	2.58 J	<1.2	189
06/30/21	6.94	2.39	1,890	--	--	--	--	--	--	3.17	52	<0.47	<0.38	3.2	<0.5	187	
08/11/23	--	--	--	--	--	--	--	--	--	0.00	-58	<1.3	<1.4	180	27	58	
MW-3	03/12/14	--	--	--	--	--	--	--	--	--	0.00	-92	1,030	390	67	<3.5	<1.8
	05/28/14	--	--	--	--	--	--	--	--	--	0.00	-48	910	330	134	<3.5	<1.8
	09/23/14	<0.5	<0.5	62.3	3.90	226	--	0.23	464	3.7	0.00	-90	1,180	460	275	<3.5	<1.8
	11/13/14	<0.5	<0.5	80.4	4.63	233	1,790	<0.15	355	1,790	2.78	-39	1,080	440	313	<3.5	<1.8
	03/20/15	<0.5	<0.5	83.5	4.38	249	2,180	0.63	474	4.7	0.87	-28	770	340	204	<5.4	<1.7
	06/23/15	<0.5	0.55 J	171	4.33	254	2,330	<0.13	289	3.6	0.00	-53	840	390	266	<5.4	<1.7
	09/17/15	<0.5	0.51 J	68.8	4.68	203	2,290	<0.13	258	4.53	0.00	2	960	520	330	<5.4	<1.7
	12/01/15	<0.5	<0.5	1.82 J	0.82	23.9	34.7	0.14 J	14.4	1.79	0.00	-64	127	67	34	<5.4	<1.7
	09/15/20	--	--	--	--	--	--	--	--	--	0.08	-42	680	390	136	<3.7	<2
	12/08/20	<0.5	<0.5	562	--	--	--	--	--	--	0.31	-21	520	380	142	<1.85	<1
	03/24/21	<0.5	<0.5	267	--	--	--	--	--	--	0.73	-45	430	330	147	<3	<0.85
07/01/21	<0.5	<0.5	729	--	--	--	--	--	--	1.09	231	560	410	134	<6	<1.7	
08/11/23	--	--	--	--	--	--	--	--	--	Bailer Sampled		170	250	240	1.5J	3.6	
MW-3D	03/12/14	--	--	--	--	--	--	--	--	--	0.00	-195	<0.33	<0.33	<0.38	<0.35	<0.18
	05/28/14	--	--	--	--	--	--	--	--	--	0.00	-198	<0.33	<0.33	<0.38	<0.35	<0.18
	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-199	<0.33	<0.33	<0.38	<0.35	<0.18
	11/12/14	--	--	--	--	--	--	--	--	--	11.22 *	-125	<0.33	<0.33	<0.38	<0.35	<0.18
	03/20/15	--	--	--	--	--	--	--	--	--	0.98	-68	<0.74	<0.47	<0.45	<0.54	<0.17
	06/23/15	--	--	--	--	--	--	--	--	--	0.03	-150	<0.74	<0.47	<0.45	<0.54	<0.17
	09/17/15	--	--	--	--	--	--	--	--	--	0.00	33	<0.49	<0.47	<0.45	<0.54	<0.17
	12/01/15	--	--	--	--	--	--	--	--	--	0.00	-106	--	--	--	--	--
MW-4	03/12/14	--	--	--	--	--	--	--	--	--	0.00	-111	<0.33	<0.33	<0.38	<0.35	<0.18
	05/28/14	--	--	--	--	--	--	--	--	--	6.67	-51	<0.33	<0.33	<0.38	<0.35	<0.18
	09/22/14	--	--	--	--	--	--	--	--	--	10.71 *	-84	<0.33	<0.33	<0.38	<0.35	<0.18
	11/12/14	--	--	--	--	--	--	--	--	--	8.78	-33	<0.33	<0.33	<0.38	<0.35	<0.18
	03/18/15	--	--	--	--	--	--	--	--	--	0.00	-36	<0.74	<0.47	<0.45	<0.54	<0.17
	06/23/15	--	--	--	--	--	--	--	--	--	5.25	-7	<0.74	<0.47	<0.45	<0.54	<0.17
	09/17/15	--	--	--	--	--	--	--	--	--	0.00	-20	--	--	--	--	--
	11/30/15	--	--	--	--	--	--	--	--	--	4.54	-29	--	--	--	--	--
08/02/23	--	--	--	--	--	--	--	--	--	0.00	-83	--	--	--	--	--	
MW-5	03/13/14	--	--	--	--	--	--	--	--	--	6.22	-95	<0.33	<0.33	<0.38	<0.35	<0.18
	05/29/14	--	--	--	--	--	--	--	--	--	0.00	-27	<0.33	<0.33	<0.38	<0.35	<0.18
	09/23/14	<0.5	<0.5	5.4	4.79	289	--	0.43	286	3.2	0.00	-79	<0.33	<0.33	<0.38	<0.35	<0.18
	11/14/14	<0.5	<0.5	10.8	4.81	324	3,140	<0.15	249	2.9	0.57	-41	<0.33	<0.33	<0.38	<0.35	<0.18
	03/19/15	<0.5	<0.5	20.3	3.94	314	3,600	0.4	258	5.1	0.52	-7	<0.74	<0.47	<0.45	<0.54	<0.17
	06/23/15	<0.5	<0.5	5.26	3.3	246	3,620	<0.13	255	3.9	0.05	-37	<0.74	<0.47	<0.45	<0.54	<0.17
	09/18/15	<0.5	<0.5	8.21	3.75	249	3,200	<0.13	201	3.91	7.30	96	<0.49	<0.47	<0.45	<0.54	<0.17
	12/02/15	<0.5	<0.5	11.8	3.98	271	3,300	<0.1	232	2.80	0.05	-38	<0.49	<0.47	<0.45	<0.54	<0.17
08/01/23	--	--	--	--	--	--	--	--	--	0.19	-55	<1.3	<1.4	<1.4	<1.6	<1.8	

**TABLE 2**  
**MNA cVOC Concentrations**  
Martino's Master Drycleaners  
7513 41st Avenue, Kenosha, Wisconsin

Monitoring Well Identification	Sample Date	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Iron (mg/L)	Manganese (µg/L)	Chloride (mg/L)	Nitrite plus Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (TOC) (mg/L)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride
MW-6	03/12/14	--	--	--	--	--	--	--	--	--	6.22	-95	138	269	70	<1.75	<0.90
	05/28/14	--	--	--	--	--	--	--	--	--	6.63	-45	114	203	66	<1.75	<0.90
	09/23/14	<0.5	0.78 J	187	3.06	195	--	<0.15	549	5.2	0.00	-89	145	213	182	<0.35	0.58
	11/13/14	<0.5	<0.5	124	3.73	210	1,410	<0.15	714	5.1	0.00	-47	142	214	185	1.65	0.21 J
	03/19/15	<0.5	1.1 J	704	3.49	224	1,980	0.46	232	6.0	0.00	-33	85	205	167	2.28	2.08
	6/23/15	<0.5	<0.5	26.1	3.86	255	2,300	0.284 J	166	4.3	0.06	-45	88	200	191	2.21	1.02
	09/17/15	<0.5	0.81 J	115	3.98	191	2,200	<0.13	200	4.59	0.00	-43	93	205	187	2.1	13.3
	12/01/15	<0.5	<0.5	64.6	3.85	175	2,400	<0.1	215	3.12	0.00	-77	65	242	143	<5.4	11.8
	09/15/20	--	--	--	--	--	--	--	--	--	0.06	-50	98	232	281	<1.85	7.9
	03/24/21	<0.5	<0.5	1,080	--	--	--	--	--	--	0.26	-56	50	141	185	<3	9.0
07/01/21	<0.5	<0.5	1,310	--	--	--	--	--	--	0.26	-44	40	131	159	<3	3.9	
08/01/23	--	--	--	--	--	--	--	--	--	Bailer Sampled		76	80	180	67	12	
MW-7	03/13/14	--	--	--	--	--	--	--	--	--	0.00	-142	<1.65	<1.65	<1.9	<1.75	<0.9
	05/28/14	--	--	--	--	--	--	--	--	--	0.00	-156	<3.3	<3.3	<3.8	<3.5	<1.8
	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-146	<3.3	<3.3	<3.8	<3.5	<1.8
	11/12/14	--	--	--	--	--	--	--	--	--	0.16	-100	<3.3	<3.3	<3.8	<3.5	<1.8
	03/20/15	--	--	--	--	--	--	--	--	--	1.10	-76	<7.4	<4.7	<4.5	<5.4	<1.7
	06/23/15	--	--	--	--	--	--	--	--	--	1.50	-102	<7.4	<4.7	<4.5	<5.4	<1.7
	09/18/15	--	--	--	--	--	--	--	--	--	0.00	-37	<4.9	<4.7	<4.5	<5.4	<1.7
	12/01/15	--	--	--	--	--	--	--	--	--	0.00	-119	<4.9	<4.7	<4.5	<5.4	<1.7
	09/15/20	--	--	--	--	--	--	--	--	--	0.03	-190	<3.3	<4.7	5.2 J	<3.7	32
	03/23/21	--	--	--	--	--	--	--	--	--	5.94	-198	<0.54	<0.47	<0.39	<0.6	6.5
08/01/23	--	--	--	--	--	--	--	--	--	0.22	-93	1.5	<1.4	21	<4.6	11	
MW-8	03/12/14	--	--	--	--	--	--	--	--	--	0.00	-118	<0.33	<0.33	<0.38	<0.35	<0.18
	05/29/14	--	--	--	--	--	--	--	--	--	0.00	-60	<0.33	<0.33	<0.38	<0.35	<0.18
	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-107	<0.33	<0.33	<0.38	<0.35	<0.18
	11/13/14	--	--	--	--	--	--	--	--	--	2.57	-26	<0.33	<0.33	<0.38	<0.35	1.28
	03/20/15	--	--	--	--	--	--	--	--	--	1.13	-39	<0.74	<0.47	<0.45	<0.54	0.99
	06/22/15	--	--	--	--	--	--	--	--	--	1.33	-63	<0.74	<0.47	<0.45	<0.54	2.47
	09/18/15	--	--	--	--	--	--	--	--	--	0.36	-79	<0.49	<0.47	<0.45	<0.54	1.32
	12/02/15	--	--	--	--	--	--	--	--	--	4.94	-22	<0.49	<0.47	<0.45	<0.54	<0.17
	09/15/20	--	--	--	--	--	--	--	--	--	0.05	-67	<0.33	<0.47	<0.39	<0.37	3.13
	03/24/21	--	--	--	--	--	--	--	--	--	1.69	-34	<0.54	<0.47	<0.39	<0.6	<0.17
08/01/23	--	--	--	--	--	--	--	--	--	Bailer Sampled		<1.3	<1.4	<1.4	<1.6	<1.8	
MW-9	03/12/14	--	--	--	--	--	--	--	--	--	0.00	-79	<0.33	<0.33	<0.38	<0.35	<0.18
	05/29/14	--	--	--	--	--	--	--	--	--	0.00	-40	<0.33	<0.33	0.60 J	<0.35	0.59
	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-84	<0.33	<0.33	0.71 J	<0.35	0.34 J
	11/12/14	--	--	--	--	--	--	--	--	--	10.14 *	-39	<0.33	<0.33	0.69 J	<0.35	0.51 J
	03/18/15	--	--	--	--	--	--	--	--	--	0.15	-46	<0.74	<0.47	0.58 J	<0.54	0.95
	06/22/15	--	--	--	--	--	--	--	--	--	0.10	-41	<0.74	<0.47	0.65 J	<0.54	1.35
	09/18/15	--	--	--	--	--	--	--	--	--	1.49	-52	<0.49	<0.47	0.73 J	<0.54	0.70
	12/02/15	--	--	--	--	--	--	--	--	--	0.00	-22	<0.49	<0.47	0.80 J	<0.54	3.01
	09/15/20	--	--	--	--	--	--	--	--	--	0.09	-21	<0.33	<0.47	<0.39	<0.37	<0.2
	12/08/20	--	--	--	--	--	--	--	--	--	1.08	-22	<0.33	<0.47	<0.39	<0.37	<0.2
03/22/21	--	--	--	--	--	--	--	--	--	0.12	-40	<0.54	<0.47	<0.39	<0.6	<0.17	
08/01/23	--	--	--	--	--	--	--	--	--	0.39	-28	<1.3	<1.4	1.8	<1.6	<1.8	
MW-10	NI	--	--	--	--	--	--	--	--	--	--	--					
	NI	--	--	--	--	--	--	--	--	--	--	--					
	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-126	<0.33	<0.33	0.52 J	<0.35	2.04
	11/13/14	--	--	--	--	--	--	--	--	--	0.11	-42	<0.33	<0.33	0.58 J	<0.35	2.56
	03/18/15	--	--	--	--	--	--	--	--	--	0.67	-20	<0.74	<0.47	0.51 J	<0.54	1.69
	06/22/15	--	--	--	--	--	--	--	--	--	0.02	-62	<0.74	<0.47	0.82 J	<0.54	1.73
	09/18/15	--	--	--	--	--	--	--	--	--	0.21	-88					
	12/01/15	--	--	--	--	--	--	--	--	--	0.05	4	<0.49	<0.47	0.66 J	<0.54	0.55
	09/15/20	--	--	--	--	--	--	--	--	--	0.07	-42	<0.33	<0.47	2.13	<0.37	9.6
	12/08/20	1.83	1.56	2,660	--	--	--	--	--	--	2.15	-27	<0.33	<0.47	1.7	<0.37	4.9
03/23/21	<0.5	<0.5	1,490	--	--	--	--	--	--	2.31	-52	<0.54	<0.47	1.26 J	<0.6	4.0	
06/30/21	<0.5	1.61	3,200	--	--	--	--	--	--	0.46	-60	<0.54	<0.47	1.48 J	<0.6	4.1	
MW-11	09/23/14	<0.5	2.2	95.5	4.99	196	--	0.15	561	4.6	0.00	-99	<0.33	<0.33	157	5.3	11.9
	11/14/14	<0.5	0.92 J	110	4.77	179	1,150	<0.15	364	1,150	0.09	-50	<0.33	<0.33	151	5.1	11
	03/18/15	<0.5	1.0 J	85.4	5.69	206	1,470	0.2	439	5.5	0.96	-30	<0.74	<0.47	109	3.7	7.1
	06/23/15	<0.5	0.51 J	99.8	4.43	191	1,240	0.201 J	52.5 J	4.2	0.19	-42	<0.74	<0.47	139	5.8	6.2
	09/18/15	<0.5	<0.5	36.3	2.72	145	1,490	0.999	405	4.58	3.06	140	<0.49	<0.47	94	2.96	2.45
	12/01/15	<0.5	<0.5	75.6	4.88	169	1,340	<0.1	437	3.83	4.60	-43	<0.49	<0.47	163	4.6	3.6
	09/15/20	--	--	--	--	--	--	--	--	--	0.07	-45	<0.33	<0.47	247	8.4	19.8
	12/07/20	<0.5	<0.5	41.0	--	--	--	--	--	--	1.42	-10	<0.66	<0.94	139	7.2	0.82 J
	03/23/21	<0.5	<0.5	655	--	--	--	--	--	--	0.72	24	<0.54	<0.47	121	6.5	5.9
06/30/21	2.13	<0.5	1,870	--	--	--	--	--	--	1.28	-15	<1.08	<0.94	202	6.9	11.3	

**TABLE 2**  
**MNA cVOC Concentrations**  
Martino's Master Drycleaners  
7513 41st Avenue, Kenosha, Wisconsin

Monitoring Well Identification	Sample Date	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Iron (mg/L)	Manganese (ug/L)	Chloride (mg/L)	Nitrite plus Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (TOC) (mg/L)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride
MW-12	09/22/14	--	--	--	--	--	--	--	--	--	0.00	-72	<3.3	<3.3	251	9.8 J	<1.8
	11/13/14	--	--	--	--	--	--	--	--	--	10.86 *	-38	<1.65	<1.65	304	14.6	<0.9
	03/18/15	--	--	--	--	--	--	--	--	--	0.90	-24	<0.74	<0.47	281	13.2	<0.17
	06/22/15	--	--	--	--	--	--	--	--	--	0.79	-53	<7.4	<4.7	287	17.7	2.8 J
	09/18/15	--	--	--	--	--	--	--	--	--	1.08	190	<0.49	<0.47	90	4.2 J	1.6 J
	11/30/15	--	--	--	--	--	--	--	--	--	5.74	-48	<2.45	<2.35	230	13.7	26.9
	09/15/20	--	--	--	--	--	--	--	--	--	0.11	-49	<0.33	<0.47	89	4	111
	12/07/20	<0.5	5.39	1,130	--	--	--	--	--	--	0.69	-56	<0.33	<0.47	55	1.4	97
	03/23/21	6.86	<0.5	572	--	--	--	--	--	--	1.74	-72	<0.54	<0.47	64	1.88 J	92
	06/30/21	26.8	<0.5	612	--	--	--	--	--	--	0.98	-37	<1.08	<0.94	19.2	<1.2	105
08/01/23	--	--	--	--	--	--	--	--	--	Bailer Sampled		<1.3	<1.4	82	3.6	20	
MW-13	09/23/14	<0.5	<0.5	28.1	0.63	130	--	<0.15	326	1.1	0.00	-62	<0.33	<0.33	<0.38	<0.35	<0.18
	11/13/14	<0.5	<0.5	31.4	0.61	118	273	<0.15	372	273	0.00	-5	<0.33	<0.33	<0.38	<0.35	<0.18
	03/19/15	<0.5	<0.5	17.3	0.54	120	205	0.17	431	3.6	1.03	92	<0.74	<0.47	<0.45	<0.54	<0.17
	06/22/15	<0.5	<0.5	10.3	0.63 J	102	246	<0.13	312	1.2	0.00	-7	<0.74	<0.47	<0.45	<0.54	<0.17
	09/18/15	<0.5	<0.5	16.9	0.62 J	89.2	286	<0.13	302	1.12	1.40	181	<0.49	<0.47	<0.45	<0.54	<0.17
	11/30/15	<0.5	<0.5	8.41	0.52	76.9	338	<0.1	277	<1	7.07	-18	<0.49	<0.47	<0.45	<0.54	<0.17
08/01/23	--	--	--	--	--	--	--	--	--	0.00	-19	<1.3	<1.4	<1.4	<1.6	<1.8	
MW-14	09/22/14	--	--	--	--	--	--	--	--	--	8.79	-119	<0.33	<0.33	<0.38	<0.35	<0.18
	11/13/14	--	--	--	--	--	--	--	--	--	11.23 *	-42	<0.33	<0.33	<0.38	<0.35	<0.18
	03/18/15	--	--	--	--	--	--	--	--	--	0.50	-42	<0.74	<0.47	<0.45	<0.54	<0.17
	06/22/15	--	--	--	--	--	--	--	--	--	7.25	-50	<0.74	<0.47	<0.45	<0.54	<0.17
	09/18/15	--	--	--	--	--	--	--	--	--	0.33	-78	<0.49	<0.47	<0.45	<0.54	<0.17
	11/30/15	--	--	--	--	--	--	--	--	--	0.42	-83	<0.49	<0.47	<0.45	<0.54	<0.17
MW-15	09/15/20	--	--	--	--	--	--	--	--	--	0.06	-49	<0.33	<0.47	<0.39	<0.37	<0.2
	12/07/20	--	--	--	--	--	--	--	--	--	0.76	-50	<0.33	<0.47	<0.39	<0.37	<0.2
	03/22/21	--	--	--	--	--	--	--	--	--	0.97	-59	<0.54	<0.47	<0.39	<0.6	<0.17
MW-16	09/15/20	--	--	--	--	--	--	--	--	--	0.04	-31	<0.33	<0.47	<0.39	<0.37	<0.2
	12/07/20	--	--	--	--	--	--	--	--	--	1.07	-43	<0.33	<0.47	<0.39	<0.37	<0.2
	03/22/21	--	--	--	--	--	--	--	--	--	0.18	-46	<0.54	<0.47	<0.39	<0.6	<0.17
	08/01/23	--	--	--	--	--	--	--	--	--	Not collected		<1.3	<1.4	<1.4	<1.6	<1.8
MW-17	09/15/20	--	--	--	--	--	--	--	--	--	4.60	143	<0.33	<0.47	<0.39	<0.37	<0.2
	12/07/20	--	--	--	--	--	--	--	--	--	4.17	37	<0.33	<0.47	<0.39	<0.37	<0.2
	03/22/21	--	--	--	--	--	--	--	--	--	4.92	53	<0.54	<0.47	<0.39	<0.6	<0.17
MW-18	09/15/20	--	--	--	--	--	--	--	--	--	0.04	-8	<0.33	<0.47	<0.39	<0.37	<0.2
	12/07/20	--	--	--	--	--	--	--	--	--	0.62	-2	<0.33	<0.47	<0.39	<0.37	<0.2
	03/23/21	--	--	--	--	--	--	--	--	--	1.48	41	<0.54	<0.47	<0.39	<0.6	<0.17
	08/01/23	--	--	--	--	--	--	--	--	--	12.90	85	<1.3	<1.4	<1.4	<1.6	<1.8

**Notes:**  
µg/L - micrograms per liter  
mg/L = milligrams per liter  
mV = millivolts  
\* = Dissolved oxygen concentrations above 10 mg/L; malfunction of probe/sensor suspected.  
-- = Not Analyzed  
J = Estimated concentration between the laboratory Reporting Limit and Method Detection Limit