

Stoltz, Carrie R - DNR

From: O'Connell, Theodore <TOConnell@trcsolutions.com>
Sent: Wednesday, September 05, 2018 11:19 AM
To: Stoltz, Carrie R - DNR
Cc: Haak, Daniel; Stehn, Andrew; Voit, Angela; DOT Hazmat Unit; Lundquist, Greer I - DOT
Subject: WisDOT - Northwoods Laundry Site Update (BRRTS #02-44-000517, WISDOT # 0656-50-31)
Attachments: 2985260000-017.pdf; 298526-025.pdf; 298526-022.pdf; 298526-021.pdf; 2985260000-018.pdf

Follow Up Flag: Follow up
Due By: Thursday, September 06, 2018 7:30 AM
Flag Status: Completed

Carrie,

TRC was in Minocqua on July 23 and 24 to complete resampling at select properties for the Northwoods Laundry Project, as outlined in the below email correspondence. As we previously communicated to you in the July 19 email, the results from five of the samples analyzed by Pace on July 5 (515-IA, 515-SS, Outdoor 1, Outdoor 2, and DUP-01 [duplicate of 300-SS]) did not appear to be valid. The samples contained nearly identical concentrations for PCE (~30 ug/m³), TCE (~10 ug/m³), and cis-1,2-DCE (1 -2 ug/m³), despite differences in locations, sample type (indoor, sub-slab, outdoor), and sample date. Therefore, resampling was recommended at those locations.

The following samples were recollected in July 2018:

- **515 Chippewa Street:** indoor air (515-IA) and sub-slab vapor (515-SS)
- **300 Front Street:** indoor air (300-IA) and sub-slab vapor (300-SS)
- **Outdoor Air Samples:** concurrent with the indoor air monitoring in and adjacent to 515 Chippewa Street (Outdoor-1) and 300 Front Street (Outdoor-2)
- **313 Front Street:** Once again, a sub-slab sample could not be collected from 313 Front Street during the July sampling event due to the presence of storm water immediately below the slab and within the sampling port.

Samples were analyzed by Pace Analytical on August 1, 2018. Attached are the updated analytical summary table and laboratory report containing the results for each sample collected in July 2018.

The results from these new samples appear to be valid and consistent with the March sampling event results. All site concentrations of PCE and TCE were below the screening criteria for indoor air and/or sub-slab vapor, which indicates there is not a risk from vapor intrusion. Based on the two rounds of monitoring, TRC believes the vapor intrusion risk has been assessed and that a third round of monitoring is not necessary.

The hotel was not contacted/included in the VI assessment as it does not overly the ES GW plume.

Also, attached is the groundwater summary table that has been updated to include the sampling completed in May and July, 2018. Concentrations at all of the wells are either stable or decreasing. Draft isoconcentration maps for PCE and TCE for July 2018 are also attached, and show that the plume has not expanded/advanced. Groundwater results confirm that the VI investigation performed to date is sufficient, and that no additional VI sampling is necessary. We recommend removing the sampling ports and proceeding with closure of the site.

Please let us know if you have any questions on the data or figures. After your initial review, we would like to discuss how to proceed with closure for this site (as this was a previously closed site).

Thanks,
Andy and Ted

Ted O'Connell
Project Manager



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From: Stoltz, Carrie R - DNR <Carrie.Stoltz@wisconsin.gov>
Sent: Tuesday, August 14, 2018 8:51 AM
To: O'Connell, Theodore <TOConnell@trcsolutions.com>
Subject: Northwoods Laundry VI/investigation comments

Hi Ted, I reviewed the VI results., which look good. Please refresh my memory though, buildings 15 & 16 (hotel) did not give permission-correct? And, do you feel the VI sampling is complete or should we step out further? The only remediation at the site was an excavation of source soils. There is a PZ (35') near the source and another PZ (35') by TW-12 downgradient. PZ-3 is current greater than PALs with increasing trends. I know the site has been monitored for quite some time, and the numbers are going down, but the PZs have only been sampled for 2 rounds. Do you think the plume is diving and additional PZs are needed? As a reminder, the final report should include all historic results for each MW/PZ. I am in today and Thursday if you wish to discuss. Thanks, Carrie

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Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Carrie Stoltz

Hydrogeologist-Remediation and Redevelopment, AWARE Division

Wisconsin Department of Natural Resources

107 Sutliff Avenue, Rhinelander, WI 54501

Phone: (715)365-8942

Fax: (715)365-8932

Carrie.Stoltz@Wisconsin.gov



Table 2
Indoor Air/Sub-slab Vapor Sampling Analytical Summary Table
Former Northwoods Laundry (BRRTS #02-44-000517, WISDOT #0656-50-31)
Minocqua, Oneida County, Wisconsin
TRC Project # 298526.0000.0000

Map ID	Address	Sample Type	Sample ID	Date	Leak Check Water Dam ⁽³⁾	Shut-In Test ⁽⁴⁾	Helium Shroud Test			Vapor Results ⁽⁸⁾⁽⁹⁾⁽¹²⁾						
							Background ⁽⁵⁾	Inside Shroud ⁽⁶⁾	Sample Port ⁽⁷⁾	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chlorine		
							%	%	%	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³		
-	-	Outdoor	Outdoor - 1	3/21/18 - 3/22/2018	-	-	-	-	-	16.7	<0.39	<0.49	<0.42	<0.18		
		Outdoor		6/26/2018 - 6/27/2018 ⁽¹³⁾	-	-	-	-	-	-	-	-	-	-		
		Outdoor		7/23/2018 - 7/24/2018	-	-	-	-	-	0.91 J	<0.42	<0.53	<0.46	<0.20		
-	-	Outdoor	Outdoor - 2	3/22/2018 - 3/23/2018	-	-	-	-	-	<0.43	<0.40	<0.51	<0.44	<0.19		
		Outdoor		6/26/2018 - 6/27/2018 ⁽¹³⁾	-	-	-	-	-	-	-	-	-	-		
		Outdoor		7/23/2018 - 7/24/2018	-	-	-	-	-	<0.44	<0.41	<0.52	<0.45	<0.19		
3	405 Front Street, Minocqua, WI 54548	Sub-Slab	405-SS	3/23/2018	Pass	Pass	0	45.3	0	15.5	<0.42	<0.54	<0.47	<0.20		
		Sub-Slab		6/26/2018	Pass	Pass	0	25	0	114	<0.43	<0.55	4.5	<0.20		
4 ⁽⁸⁾	515 Chippewa St., Minocqua, WI 54548	Indoor Air	515-IA	3/21/2018 - 3/22/2018	-	-	-	-	-	<0.40	<0.38	<0.48	<0.42	<0.18		
		Indoor Air		6/26/2018 - 6/27/2018 ⁽¹³⁾	-	-	-	-	-	-	-	-	-	-		
		Indoor Air		7/23/2018 - 7/24/2018	-	-	-	-	-	<0.43	<0.40	<0.51	<0.44	<0.19		
		Sub-Slab	515-SS	3/22/2018	Pass	Pass	0	36.9	0	<0.48	<0.45	<0.57	<0.50	<0.21		
Sub-Slab	6/27/2018 ⁽¹³⁾	Pass		Pass	0	36	0	-	-	-	-	-				
5	329 E Front St., Minocqua, WI 54548	Sub-Slab	329-SS	7/24/2018	Pass	Pass	0	49	0	<0.46	<0.43	<0.55	<0.47	<0.20		
		Indoor Air		3/21/2018 - 3/22/2018	-	-	-	-	-	0.47J	<0.37	<0.47	<0.41	<0.18		
		Indoor Air	329-SS	6/26/2018	-	-	-	-	-	NS ⁽¹⁰⁾	NS ⁽¹⁰⁾	NS ⁽¹⁰⁾	NS ⁽¹⁰⁾	NS ⁽¹⁰⁾		
		Sub-Slab		3/22/2018	Pass	Pass	0	31.8	0	11.2	<0.42	<0.53	<0.46	<0.20		
7	321 E Front St., Minocqua, WI 54548	Sub-Slab	321-SS	6/27/2018	Pass	Pass	0	50	0	22.2	0.60 J	<0.57	<0.50	<0.21		
		Indoor Air		3/21/2018 - 3/22/2018	-	-	-	-	-	<0.43	<0.40	<0.51	<0.44	<0.19		
		Indoor Air	321-SS	6/26/2018 - 6/27/2018	-	-	-	-	-	<0.41	<0.39	<0.49	<0.42	<0.18		
		Sub-Slab		3/22/2018	Pass	Pass	0	43.2	0	8.5	<0.43	<0.55	<0.47	<0.20		
8	317 E Front St., Minocqua, WI 54548	Sub-Slab	317-SS	6/27/2018	Pass	Pass	0	30	0	16.1	<0.45	<0.57	<0.50	<0.21		
		Indoor Air		3/21/2018 - 3/22/2018	-	-	-	-	-	<0.43	<0.39	<0.49	<0.42	<0.18		
		Indoor Air	317-SS	6/26/2018 - 6/27/2018	-	-	-	-	-	<0.43	<0.40	<0.51	<0.44	<0.19		
		Sub-Slab		3/22/2018	Pass	Pass	0	54	0	41.9	<0.49	<0.62	<0.54	<0.23		
	315 E Front St., Minocqua, WI 54548	Sub-Slab	315-SS	6/27/2018	Pass	Pass	0	40.6	0	61.0	<0.46	<0.58	<0.50	<0.22		
		Indoor Air		3/21/2018 - 3/22/2018	-	-	-	-	-	<0.43	<0.40	<0.51	<0.44	<0.19		
		Indoor Air	315-SS	6/26/2018 - 6/27/2018	-	-	-	-	-	<0.43	<0.40	<0.51	<0.44	<0.19		
		Sub-Slab		3/22/2018	Pass	Pass	0	23.1	0	2.7	<0.42	<0.54	<0.47	<0.20		
		Sub-Slab	313-SS	6/27/2018	Pass	Pass	0	30	0	<0.48	<0.45	<0.57	<0.50	<0.21		
		Indoor Air		3/21/2018 - 3/22/2018	-	-	-	-	-	0.93J	<0.42	<0.53	<0.46	<0.20		
		Indoor Air	313-SS	6/26/2018 - 6/27/2018	-	-	-	-	-	<0.44	<0.41	<0.52	<0.45	<0.19		
		Sub-Slab		3/22/2018	Pass	Pass	0	46.4	0	2.4	<0.43	<0.55	<0.47	<0.20		
9 & 10	301 - 307 E Front St., Minocqua, WI 54548 & 524 Oneida St., Minocqua, WI 54548	Sub-Slab	301-307-SS-3	6/27/2018	Pass	Pass	0	38	0	515	<0.46	<0.58	<0.50	<0.22		
		Indoor Air		3/22/2018 - 3/23/2018	-	-	-	-	-	0.55J	<0.42	<0.53	<0.46	<0.20		
		Indoor Air	301-307-SS-2	6/26/2018 - 6/27/2018	-	-	-	-	-	<0.44	<0.41	<0.52	<0.45	<0.19		
		Indoor Air		3/21/2018 - 3/22/2018	-	-	-	-	-	1.4	<0.53	<0.67	<0.58	<0.25		
		Indoor Air	301-307-SS-1	6/26/2018 - 6/27/2018	-	-	-	-	-	11.9	<0.41	<0.52	<0.45	<0.19		
		Sub-Slab		3/22/2018	Pass	Pass	0	46.1	0.12	4.2	<0.43	<0.55	<0.47	<0.20		
		Sub-Slab	301-307-SS-2	6/27/2018	Pass	Pass	0	42	0.14	24.6	<0.45	<0.57	<0.50	<0.21		
		Sub-Slab		3/22/2018	Pass	Pass	0	46.2	0	10.9	3.4	2.1	1.8	1.8		
		Sub-Slab	301-307-SS-3	6/27/2018	Pass	Pass	0	49	0.05	29.3	<0.45	<0.57	<0.50	<0.21		
		Sub-Slab		3/22/2018	Pass	Pass	0	42.4	0	308	<0.60	<0.77	<0.66	<0.28		
		11	527 Oneida St., Minocqua, WI 54548	Sub-Slab	527-SS	6/27/2018	Pass	Pass	0	37	0	9.6	<0.43	<0.55	<0.47	<0.20
				Sub-Slab		3/23/2018	Pass	Pass	0	22	0.01	13.4	<0.44	<0.56	<0.48	<0.21
Indoor Air	527-IA			3/22/2018 - 3/23/2018	-	-	-	-	-	<0.42	<0.39	<0.50	<0.43	<0.18		
Indoor Air				6/26/2018 - 6/27/2018	-	-	-	-	-	<0.44	<0.41	<0.52	<0.45	<0.19		
13	300 E Front St., Minocqua, WI 54548	Indoor Air	300-IA	3/22/2018 - 3/23/2018	-	-	-	-	-	<0.42	<0.39	<0.50	<0.43	<0.18		
		Indoor Air		6/26/2018 - 6/27/2018 ⁽¹³⁾	-	-	-	-	-	-	-	-	-	-		
		Indoor Air		7/23/2018 - 7/24/2018	-	-	-	-	-	<0.43	<0.40	<0.51	<0.44	<0.19		
		Sub-Slab	300-SS	3/23/2018	Pass	Pass	0	21.1	0	<0.44	<0.42	<0.53	<0.46	<0.20		
		Duplicate		DUP-01	3/23/2018	Pass	Pass	0	44	0	<0.44	<0.42	<0.53	<0.46	<0.20	
		Sub-Slab	300-SS	6/27/2018 ⁽¹³⁾	Pass	Pass	0	40	0	-	-	-	-	-		
		Duplicate		DUP-01	6/27/2018 ⁽¹³⁾	Pass	Pass	0	44	0	-	-	-	-	-	
Sub-Slab	300-SS	7/24/2018	Pass	Pass	0	44	0	<0.46	<0.43	<0.55	<0.47	<0.20				
Residential ⁽⁸⁾					Indoor Vapor Action Level ⁽¹⁾					42	2.1	--	--	1.7		
					Sub-Slab Vapor Screening Level ⁽²⁾					1,400	70	--	--	57		
Small Commercial ⁽⁹⁾					Indoor Vapor Action Level ⁽¹⁾					180	8.8	--	--	28		
					Sub-Slab Vapor Screening Level ⁽²⁾					6,000	290	--	--	930		

Notes:

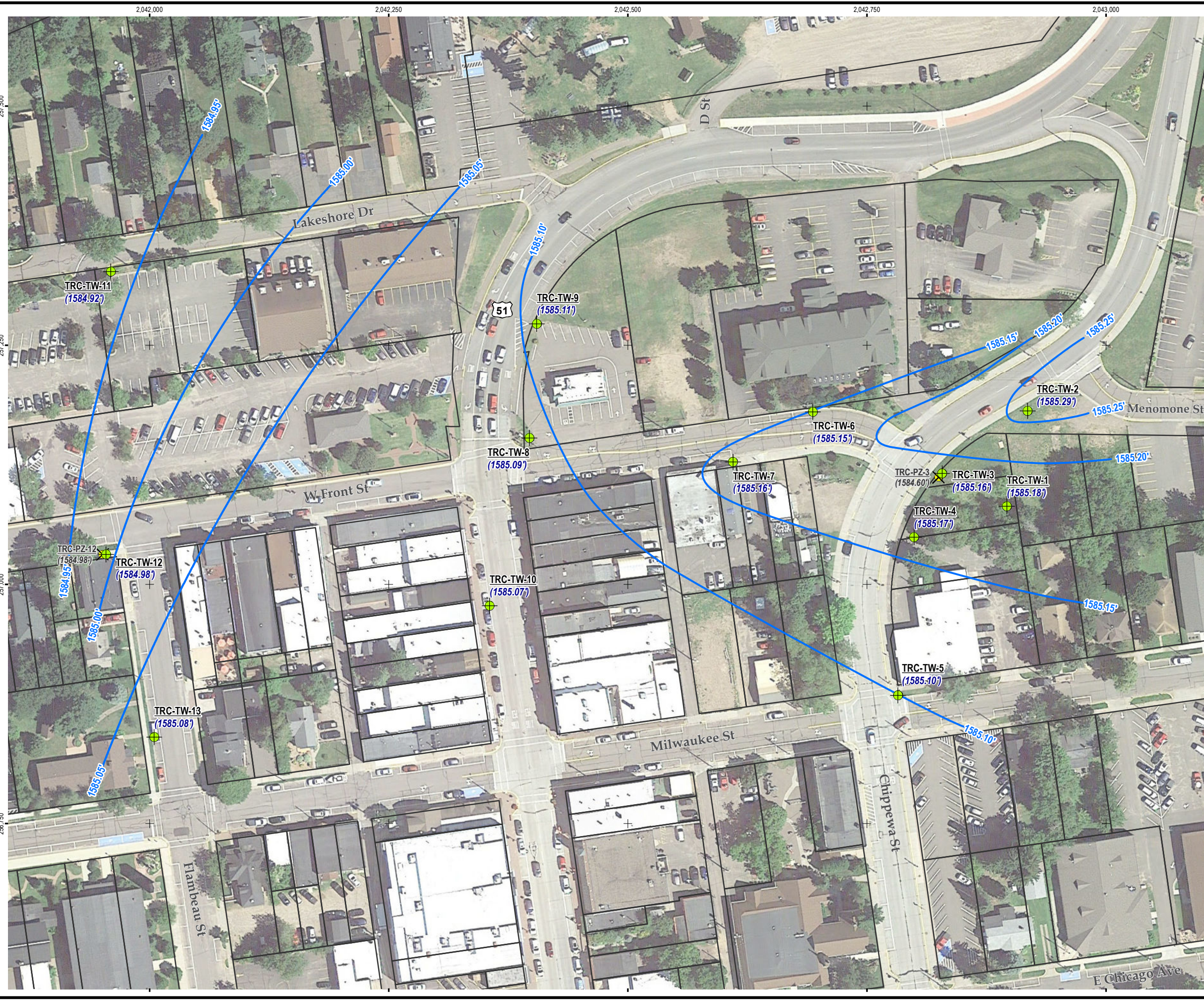
- VAL = Vapor Action Level
- VSL = Vapor Screening Level
- NS = No sample collected
- = not applicable
- = no standard developed for this parameter
- J = Estimated concentration at or above the laboratory limit of detection and below the laboratory limit of quantitation.
- µg/m³ = micrograms per cubic meter
- Bold text** indicates an exceedance of an Indoor Vapor Action Level or Sub-Slab Vapor Screening Level

Footnotes:

- (1) VALs for Indoor Air from Regional Screening Tables: <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017>. Uses a 1-in-100,000 excess lifetime cancer risk and HI=1 for screening indoor air.
- (2) An attenuation factor of 0.03 (dilution factor of 33) is applied to the Indoor VALs to determine the VSLs for Sub-Slab Vapor for residential/small commercial buildings.
- (3) Water dam was created by pouring water around the Cox-Colvin Vapor Pin™ sample port. If water maintained constant head, then tight seal was verified at the port.
- (4) A vacuum was applied to the sample train and allowed to sit for at least 5 minutes. If there was no noticeable change in the vacuum, the shut-in test passed.
- (5) A helium meter was connected to the vapor probe and the sub-slab vapors were tested to obtain a background concentration prior to the helium test being completed.
- (6) A shroud was installed around the vapor pin and filled with helium at a concentration between 20% and 50% by volume.
- (7) While helium at a concentration between 20% and 50% by volume was maintained in the shroud, sub-slab vapors were retested using the helium meter. If the concentration was less than 5% by volume, the helium test passed and a sample was collected.
- (8) 515 Chippewa Street is a residential home currently used for storage for the adjacent business located at 329 E Front Street. This property was evaluated using the Residential VAL and VSL.
- (9) Results were compared to the Small Commercial VAL and VSL, with the exception of the property at 515 Chippewa Street.

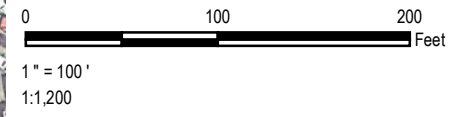
Updated by: Alia Enright 8/7/2018
Checked by: Lydia Auner 8/7/2018

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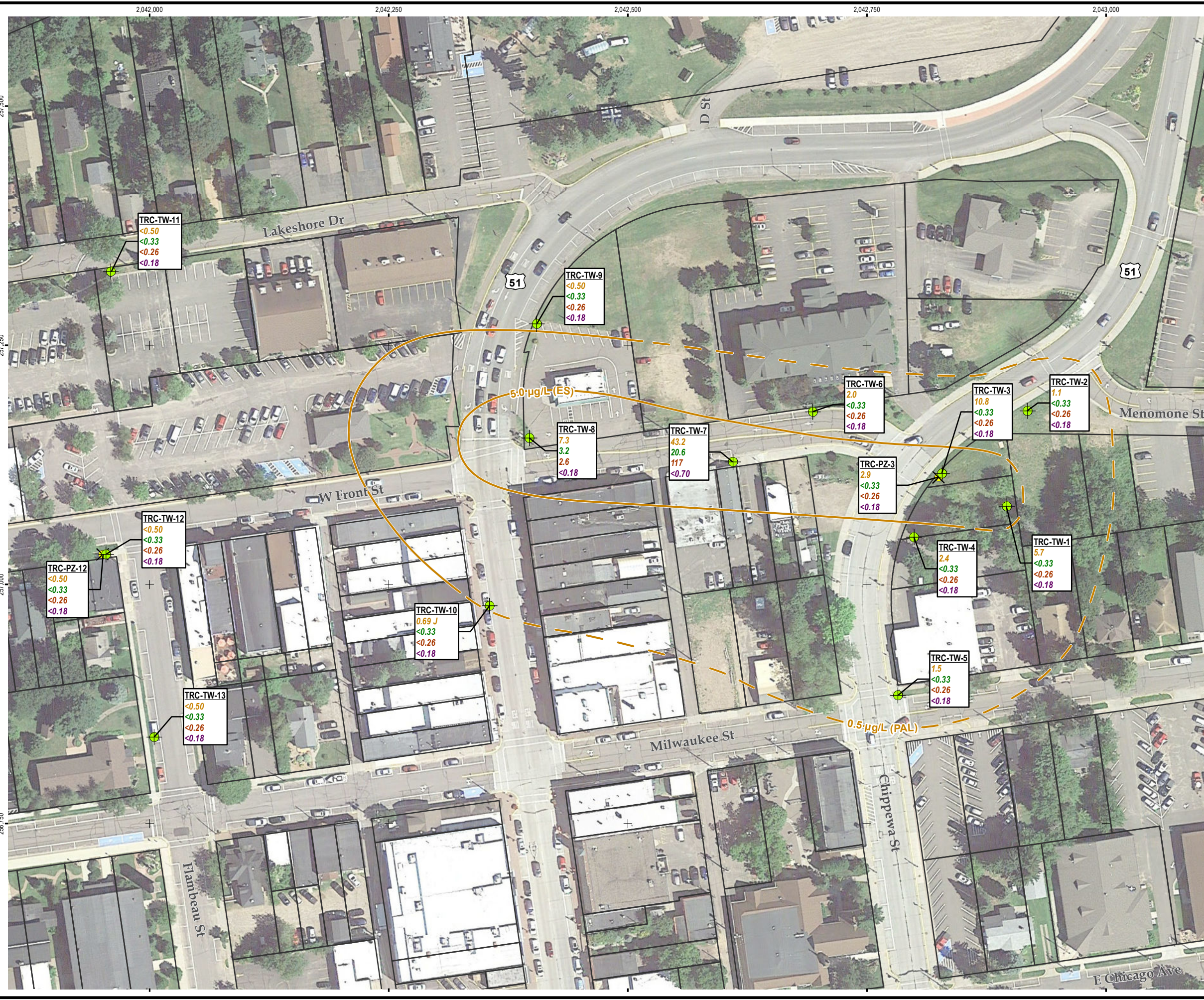
- LEGEND**
- TRC TEMPORARY PIEZOMETER
 - TRC TEMPORARY WATER TABLE WELL
 - GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
 - APPROXIMATE PARCEL BOUNDARY
 - (1,585.29)** GROUNDWATER ELEVATION IN FEET

- NOTES**
1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO & PARTNERS, JULY 2015.
 2. MAP PROJECTION AND GRID COORDINATES ARE NAD83 STATE PLANE WISCONSIN- NORTH (US SURVEY FEET).
 3. TRC TEMPORARY WELLS AND PIEZOMETERS INSTALLED MAY 25TH AND 26TH, 2017.
 4. PARCEL DATA ACQUIRED FROM WISCONSIN STATE CARTOGRAPHER'S OFFICE. LOCATIONS ARE APPROXIMATE.
 5. GROUNDWATER ELEVATIONS MEASURED ON JULY 11TH, 2018.



PROJECT:		WISDOT ID# 0656-50-31 FORMER NORTHWOODS LAUNDRY MINOCQUA, ONEIDA COUNTY, WISCONSIN	
TITLE:		GROUNDWATER ELEVATION MAP <i>WORK COPY</i>	
DRAWN BY:	R. SUEMNICHT	PROJ NO.:	271793
CHECKED BY:		FIGURE 4	
APPROVED BY:			
DATE:	AUGUST 2018		
		708 Heartland Trail, Suite 3000 Madison, WI 53717 Phone: 608.826.3600 www.trcsolutions.com	
FILE NO.:		298526-025.mxd	

TRC - GIS
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LEGEND

- ✕ TRC TEMPORARY PIEZOMETER
- ⊕ TRC TEMPORARY WATER TABLE WELL
- JULY 2018 PCE ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)
- APPROXIMATE PARCEL BOUNDARY

WELL ID

PCE
 TCE
 cis-1,2-DCE
 VC

CONCENTRATIONS OF CVOCS (µg/L)

- NOTES**
1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO & PARTNERS, JULY 2015.
 2. MAP PROJECTION AND GRID COORDINATES ARE NAD83 STATE PLANE WISCONSIN- NORTH (US SURVEY FEET).
 3. TRC TEMPORARY WELLS AND PIEZOMETERS INSTALLED MAY 25TH AND 26TH, 2017.
 4. PARCEL DATA ACQUIRED FROM WISCONSIN STATE CARTOGRAPHER'S OFFICE. LOCATIONS ARE APPROXIMATE.
 5. SAMPLES COLLECTED DURING JULY 11TH AND JULY 12TH, 2018.
 6. "J" ESTIMATED CONCENTRATION ABOVE THE ADJUSTED METHOD DETECTION LIMIT AND BELOW THE ADJUSTED REPORTING LIMIT.

0 100 200 Feet

1" = 100'
 1:1,200

PROJECT: **WISDOT ID# 0656-50-31
 FORMER NORTHWOODS LAUNDRY
 MINOCQUA, ONEIDA COUNTY, WISCONSIN**

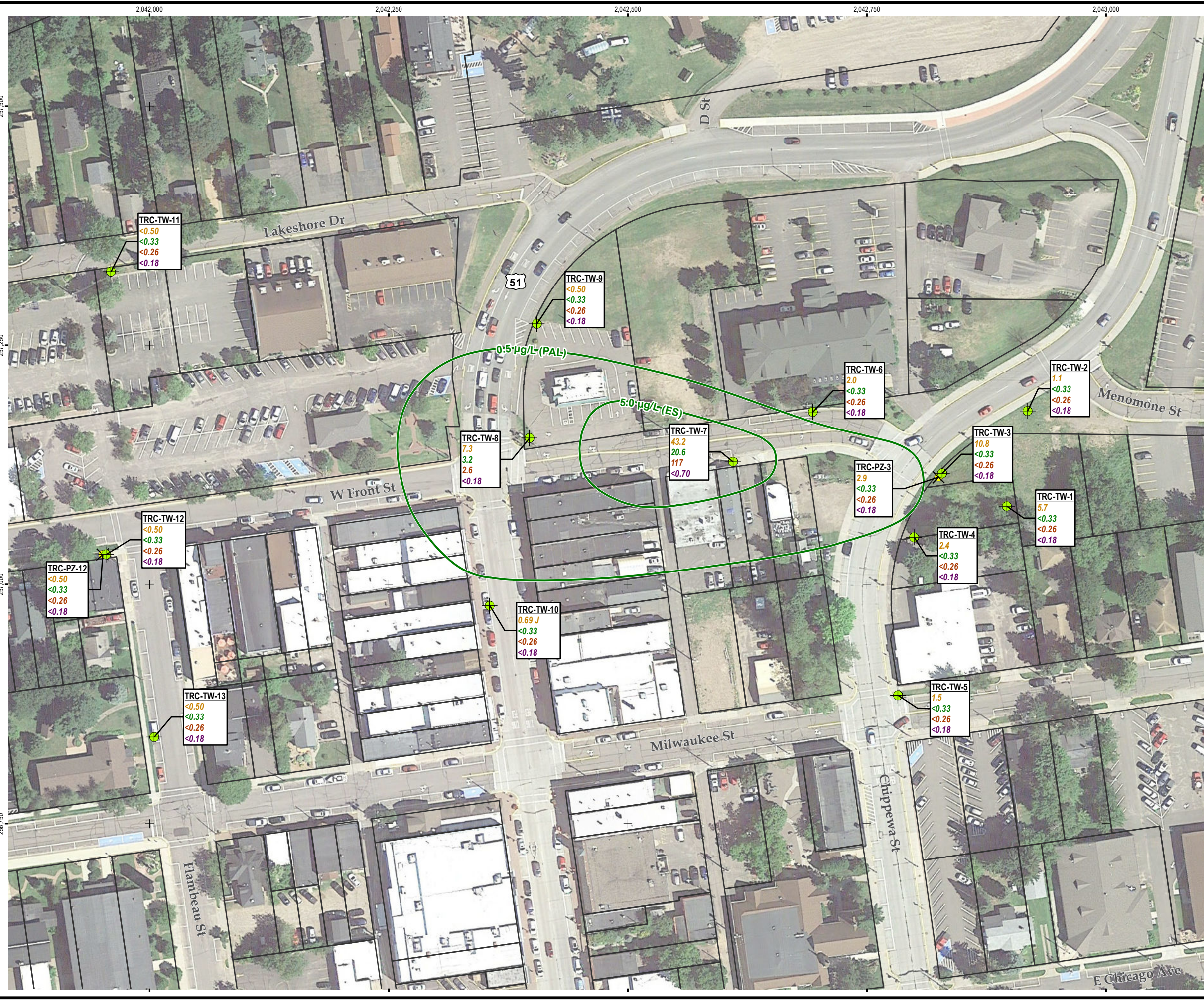
TITLE: **PCE ISOCONCENTRATION MAP
 JULY 2018**

DRAWN BY: R. SUEMNIHT PROJ NO: 271793
 CHECKED BY: W. BRAGA
 APPROVED BY: **FIGURE 5**
 DATE: AUGUST 2018

TRC 708 Heartland Trail, Suite 3000
 Madison, WI 53717
 Phone: 608.826.3600
 www.trcsolutions.com

FILE NO: 298526-022.mxd

TRC - GIS
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LEGEND

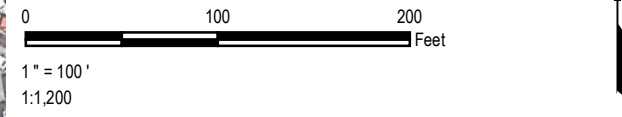
- ✕ TRC TEMPORARY PIEZOMETER
- ⊕ TRC TEMPORARY WATER TABLE WELL
- ~ JULY 2018 TCE ISOCONCENTRATION CONTOUR
- APPROXIMATE PARCEL BOUNDARY

WELL ID

PCE
 TCE
 cis-1,2-DCE
 VC

CONCENTRATIONS OF CVOCs (µg/L)

- NOTES**
1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO & PARTNERS, JULY 2015.
 2. MAP PROJECTION AND GRID COORDINATES ARE NAD83 STATE PLANE WISCONSIN- NORTH (US SURVEY FEET).
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 5. SAMPLES COLLECTED DURING JULY 11TH AND JULY 12TH, 2018.
 6. "J" ESTIMATED CONCENTRATION ABOVE THE ADJUSTED METHOD DETECTION LIMIT AND BELOW THE ADJUSTED REPORTING LIMIT.



PROJECT: **WISDOT ID# 0656-50-31
 FORMER NORTHWOODS LAUNDRY
 MINOCQUA, ONEIDA COUNTY, WISCONSIN**

TITLE: **TCE ISOCONCENTRATION MAP
 JULY 2018**

DRAWN BY: R. SUEMNICHT PROJ NO.: 298526

CHECKED BY: _____

APPROVED BY: _____

DATE: AUGUST 2018

FIGURE 6

TRC

708 Heartland Trail, Suite 3000
 Madison, WI 53717
 Phone: 608.826.3600
 www.trcsolutions.com

FILE NO.: 298526-021.mxd

Table 1
Groundwater Analytical Results
Former Northwoods Laundry (BRRTS #02-44-000517, WISDOT #0656-50-31)
Minocqua, Oneida County, Wisconsin

PARAMETER	NR140 GROUNDWATER STANDARDS		TRC-TW-1				TRC-TW-2					TRC-TW-3					TRC-PZ-3				TRC-TW-4						
			18.34	18.60	19.39	18.62	17.10	17.33	18.11	17.30	DUP-01	13.13	18.29	DUP-01	19.12	DUP-01	18.37	18.43	18.73	19.23	18.97	18.27	18.39	19.22	18.43		
DATE	ES	PAL	5/26/2017	11/30/2017	5/2/2018	7/11/2018	5/25/2017	11/30/2017	5/2/2018	7/11/2018	5/25/2017	11/30/2017	5/2/2018	7/11/2018	5/25/2017	11/30/2017	5/2/2018	7/11/2018	5/25/2017	11/30/2017	5/2/2018	7/11/2018	5/26/2017	11/30/2017	5/2/2018	7/12/2018	
PVOCs																											
Benzene	5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Butylbenzene	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
sec-Butylbenzene	-	-	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
tert-Butylbenzene	-	-	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Chloroform	6	0.6	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Chloromethane	30	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	700	140	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Isopropylbenzene (Cumene)	-	-	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
p-Isopropyltoluene	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	100	10	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
n-Propylbenzene	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	800	160	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trimethylbenzene	480 ⁽¹⁾	96 ⁽¹⁾	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3,5-Trimethylbenzene			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m&p-Xylene	2,000 ⁽²⁾	400 ⁽²⁾	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
o-Xylene			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
CVOCs																											
cis-1,2-Dichloroethene	70	7	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
trans-1,2-Dichloroethene	100	20	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Tetrachloroethene	5	0.5	5.0	6.1	6.7	5.7	<i>0.94 J</i>	<i>1.9</i>	<i>1.2</i>	<i>1.1</i>	<i>0.88J</i>	10.7	9.9	10.3	11.7	10.0	10.8	<i>3.0</i>	<i>3.7</i>	<i>3.0</i>	<i>2.9</i>	<i>3.0</i>	<i>1.9</i>	<i>2.7</i>	<i>2.4</i>	<i>2.4</i>	<i>2.4</i>
Trichloroethene	5	0.5	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Vinyl chloride	0.2	0.02	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18

Notes:

ft from toc = feet from top of casing

ES = NR140 Enforcement Standard

PAL = NR140 Preventative Action Limit

J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

Italic = indicates that the analyte exceeds the WDNR NR140 PAL

Bold = indicates that the analyte exceeds the WDNR NR140 ES

Only parameters detected in at least one sample are shown in this table.

Footnotes:

⁽¹⁾ Standards are for combined trimethylbenzene.

⁽²⁾ Standards are for combined xylene.

Created by: A. Schroeder 6/13/17

Checked by: B. Perk 6/13/17

Updated by: B. Wachholz 12/14/2017

Checked by: T. O'Connell 12/15/17

Updated by: W. Braga 8/7/2018

Checked by: T. Perkins 8/15/2018

Table 1 (continued)
 Groundwater Analytical Results
 Former Northwoods Laundry (BRRTS #02-44-000517, WISDOT #0656-50-31)
 Minocqua, Oneida County, Wisconsin

PARAMETER	NR140 GROUNDWATER STANDARDS		TRC-TW-5				TRC-TW-6				TRC-TW-7				TRC-TW-8				TRC-TW-9										
	ES	PAL	17.84	17.93	18.88	17.99	18.84	18.76	19.64	18.84	17.65	17.71	18.61	DUP-02	17.79	DUP-02	17.52	17.56	DUP-01	18.47	17.66	16.62	16.76	17.59	16.75				
DATE			5/26/2017	11/30/2017	5/2/2018	7/12/2018	5/26/2017	12/1/2017	5/3/2018	7/12/2018	5/26/2017	12/1/2017	5/3/2018	7/12/2018	5/26/2017	12/1/2017	5/3/2018	7/12/2018	5/26/2017	11/30/2017	5/3/2018	7/12/2018	5/26/2017	11/30/2017	5/3/2018	7/12/2018			
PVOCs																													
Benzene	5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<2.0	<2.0	<0.50	<2.0	<0.50	1.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
n-Butylbenzene	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	23.4	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
sec-Butylbenzene	-	-	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<21.9	<8.7	<8.7	9.5	<8.7	7.1	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	
tert-Butylbenzene	-	-	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	2.5 J	1.5 J	1.9 J	2.2	1.7J	1.6	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	0.21 J	<0.18	<0.18	<0.18	<0.18	
Chloroform	6	0.6	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<25.0	<2.5	<2.5	<2.5	<2.5	3.8J	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
Chloromethane	30	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<2.0	<2.0	<0.50	<2.0	75.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	90.4	
Ethylbenzene	700	140	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	418	218	191	169	185	192	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Isopropylbenzene (Cumene)	-	-	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	53.7	37.3	48.2	47.8	39	44.5	2.6	0.80 J	0.80 J	0.80 J	<0.14	<0.14	0.50 J	<0.14	<0.14	0.50 J	<0.14	<0.14	
p-Isopropyltoluene	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	14.1	10.8	15.3	15.4	10.3	10.9	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.72 J	<0.50	<0.50	
Naphthalene	100	10	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	173	86.2	67.2	58.5	49.0	51.2	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
n-Propylbenzene	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	85.6	68.4	83.1	83.1	64.9	72.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Toluene	800	160	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	176	61.7	64.0	57.2	49.8	51.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
1,2,4-Trimethylbenzene	480 ⁽¹⁾	96 ⁽¹⁾	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	557	296	286	248	230	244	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.6	<0.50	
1,3,5-Trimethylbenzene			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	222	152	206	189	147	158	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	4.5	<0.50	<0.50	
m&p-Xylene	2,000 ⁽²⁾	400 ⁽²⁾	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1,390	580	599	508	529	564	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
o-Xylene			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	333	79.6	86.6	84.2	81.7	88.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
CVOCs																													
cis-1,2-Dichloroethene	70	7	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	167	162	109	95.8	117	126	14.9	5.7	5.7	0.77J	2.6	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	
trans-1,2-Dichloroethene	100	20	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<2.6	<1.0	<1.0	<0.26	<1.0	<0.26	0.29 J	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Tetrachloroethene	5	0.5	2.8	2.1	2.0	1.5	1.9	1.3	1.8	2.0	225	46.5	59.6	52.1	43.2	45.2	22.8	15.5	15.5	4.3	7.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Trichloroethene	5	0.5	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	54.4	16.2	21.6	19.6	20.6	21.2	14.2	7.0	7.0	1.7	3.2	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	
Vinyl chloride	0.2	0.02	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<1.8	<0.70	<0.70	<0.18	<0.70	<0.18	1.5	0.21 J	0.21 J	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	

Notes:
 ft from toc = feet from top of casing
 ES = NR140 Enforcement Standard
 PAL = NR140 Preventative Action Limit
 J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
Italic = indicates that the analyte exceeds the WDNR NR140 PAL
Bold = indicates that the analyte exceeds the WDNR NR140 ES
 Only parameters detected in at least one sample are shown in this table.

Footnotes:
⁽¹⁾ Standards are for combined trimethylbene.
⁽²⁾ Standards are for combined xylene.

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Table 1 (continued)
 Groundwater Analytical Results
 Former Northwoods Laundry (BRRTS #02-44-000517, WISDOT #0656-50-31)
 Minocqua, Oneida County, Wisconsin

PARAMETER	NR140 GROUNDWATER STANDARDS		TRC-TW-10				TRC-TW-11				TRC-TW-12				TRC-PZ-12				TRC-TW-13			
	ES	PAL	17.16	17.19	18.09	17.28	15.90	16.17	16.88	16.09	16.75	16.92	17.73	16.93	16.72	16.88	17.71	16.90	15.60	15.74	16.63	16.75
DTW (ft from toc)			5/26/2017	12/1/2017	5/2/2018	7/12/2018	5/26/2017	11/30/2017	5/2/2018	7/11/2018	5/26/2017	11/30/2017	5/2/2018	7/11/2018	5/26/2017	11/30/2017	5/2/2018	7/11/2018	5/26/2017	11/30/2017	5/2/2018	7/11/2018
PVOCs																						
Benzene	5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Butylbenzene	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
sec-Butylbenzene	-	-	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
tert-Butylbenzene	-	-	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Chloroform	6	0.6	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Chloromethane	30	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	700	140	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Isopropylbenzene (Cumene)	-	-	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
p-Isopropyltoluene	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	100	10	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
n-Propylbenzene	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	800	160	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trimethylbenzene	480 ⁽¹⁾	96 ⁽¹⁾	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3,5-Trimethylbenzene			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m&p-Xylene	2,000 ⁽²⁾	400 ⁽²⁾	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
o-Xylene			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
CVOCs																						
cis-1,2-Dichloroethene	70	7	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
trans-1,2-Dichloroethene	100	20	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Tetrachloroethene	5	0.5	<i>0.56 J</i>	<0.50	<i>0.83 J</i>	<i>0.69 J</i>	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene	5	0.5	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Vinyl chloride	0.2	0.02	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18

Notes:

ft from toc = feet from top of casing
 ES = NR140 Enforcement Standard
 PAL = NR140 Preventative Action Limit
 J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
italic = indicates that the analyte exceeds the WDNR NR140 PAL
Bold = indicates that the analyte exceeds the WDNR NR140 ES
 Only parameters detected in at least one sample are shown in this table.

Footnotes:

⁽¹⁾ Standards are for combined trimethylbenzene.
⁽²⁾ Standards are for combined xylene.

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