

October 7, 2019



Wisconsin Department of Natural Resources

Attn: Ms. Carrie Stoltz
107 Sutliff Avenue
Rhineland, WI 54501



Subject:

Update Report
Thomas Service Station (Former)
51 Wisconsin Avenue
Montreal, WI
BRRTS #03-26-000788
PECFA #54550-9999-00

Dear Ms. Stoltz:

Enclosed is the Update Report for the above-mentioned site. REI has completed the approved groundwater sampling events. The soil excavation was successful in removing the identified residual soil contamination and the post excavation groundwater analytical results report minimal groundwater contamination. REI is recommending the investigation be reviewed for Case Closure consideration.

Please call me with questions or comments toll free at 877-734-7745 or contact me electronically at dlarsen@reiengineering.com.

Sincerely,
REI Engineering, Inc.

David N. Larsen, P.G.
Senior Hydrogeologist/Project Manager

Enclosure

CC: Iron County, Attn: Ms. Erika Roeder, 300 Taconite Street, Suite 115, Hurley, WI 54534



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**UPDATE REPORT
THOMAS SERVICE STATION
51 WISCONSIN AVENUE
MONTREAL, WISCONSIN**

**WDNR BRRTS #03-26-000788
PECFA #54550-9999-00
REI PROJECT #7644**



**COMPREHENSIVE
SERVICES WITH
PRACTICAL
SOLUTIONS**



UPDATE REPORT

**THOMAS SERVICE STATION
51 WISCONSIN AVENUE
MONTREAL, WI**

**BRRTS #03-26-000788
PECFA #54550-9999-00**

REI #7644



PREPARED FOR:

**Iron County
Attn: Ms. Erika Roeder
300 Taconite Street, Suite 115
Hurley, WI 54534**

OCTOBER 2019

UPDATE REPORT

**THOMAS SERVICE STATION
51 WISCONSIN AVENUE
MONTREAL, WI**

**BRRTS #03-26-000788
PECFA #54550-9999-00**

REI #7644

The recommendations contained in this report are based on the information obtained from our study of the site and were arrived at in accordance with accepted hydrogeologic and engineering practices at this time and location.

"I, David N. Larsen, 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. Admn. Code, and that to the best of my knowledge, all 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."



Hydrogeologist

October 7, 2019
Date

"I, Brian J. Bailey, hereby certify that I am a scientist as that term is defined in s. NR 712.03 (3), Wis. Adm. Code, and that, to the best of my knowledge, all 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."



Environmental Scientist

October 7, 2019
Date

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UPDATE REPORT

THOMAS SERVICE STATION 51 WISCONSIN AVENUE MONTREAL, WI

**BRRTS #03-26-000788
PECFA #54550-9999-00**

REI #7644

1.0 INTRODUCTION

1.1 Purpose

This report presents a summary of the completion of the post excavation groundwater sampling from former Thomas Service Station site in Montreal, Wisconsin. The site location is shown on Figure 1.

2.0 SITE BACKGROUND AND HISTORY

The former Thomas Service Station site is located in the SE $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 27, Township 46 North, Range 02 East, in the City of Montreal, Iron County, Wisconsin (Figure 1). The site address is 51 Wisconsin Avenue, Montreal, Wisconsin 54550. Wisconsin Transverse Mercator (WTM) coordinates are 502429, 662035. A site map documenting previous investigative site work is included in Figure 2.

3.0 SUMMARY OF WORK

3.1 Groundwater Monitoring and Analytical Results

REI personnel were onsite on May 16, 2019 and September 10, 2019 to complete the approved groundwater sampling. Depth to groundwater was measured in each well prior to sampling. Table 1 presents the depth to groundwater and groundwater elevations for this investigation.

Groundwater samples were collected and submitted to Pace Analytical, Green Bay, WI for analysis of PVOOC and naphthalene compounds. Groundwater analytical results are summarized in Tables 2a-j. A copy of the laboratory analytical reports is included in Appendix A.

Analysis of the groundwater analytical data collected on September 10, 2019 indicated minimal presence of petroleum compounds above NR 140.10 Groundwater Quality Enforcement Standard (ES) and/or Preventive Action Limits (PAL). No ES exceedances were reported in any of the monitoring points and the PAL was exceeded at MW4R for benzene, trimethylbenzenes and naphthalene.

4.0 CONCLUSION AND RECOMMENDATIONS

The former Thomas Service site had significant levels of petroleum related soil contamination and minimal concentrations of petroleum related groundwater contamination. The completed soil excavation was successful in removing the known areas of petroleum related soil contamination and eliminated the direct contact threat from the shallow soil contamination beneath the former Thomas Service site.

The post soil excavation groundwater sampling event results were consistent with historical groundwater sampling results and minimal petroleum related groundwater contamination was reported in the wells. REI is recommending the investigation be reviewed for case closure consideration.

Table 1
Depth to Water and Water Table Elevations
Thomas Service
Montreal, Wisconsin

Depth to Water (feet) below Reference Elevation

Date	<u>MW1</u>	<u>MW2</u>	<u>MW3</u>	<u>MW4</u>	<u>MW4R</u>	<u>MW5</u>	<u>MW6</u>	<u>MW7</u>	<u>MW8</u>
9/21/2011	7.18	4.33	5.29	4.11					
8/27/2012	7.31	4.40	5.37	4.08					
6/21/2017	6.55	3.73	4.52	3.32		3.38		5.26	7.57
7/6/2017	6.29	3.73	4.53	3.32		3.43	5.11	5.03	7.54
8/30/2017	6.58	3.91	4.80	3.44		3.51	5.49	5.04	7.53
8/27/2018	5.93	3.49	4.26	3.15		3.34	4.97	4.66	7.41
11/26/2018	5.92	3.03	3.91	Abandoned	2.94	3.12	4.94	5.53	dry
5/16/2019	5.5	2.86	3.66		2.67	3.00	4.69	4.42	7.17
9/10/2019	6.78	3.74	4.75		3.70	3.61	5.88	5.03	dry

Measuring Point Elevations

Elevations referenced to a U.S.G.S. Datum (feet MSL)

Top of Casing Elevation

Initial Survey	103.38	98.99	99.71	99.86					
7/6/2017	1,461.01	1,456.58	1,457.32	1,457.48		1,457.52	1,460.65	1,456.19	1,456.41
9/26/2018					1,457.24				

Ground Surface Elevation

Initial Survey	100.47	99.41	100.01	100.13					
7/6/2017	1,458.03	1,457.00	1,457.56	1,457.73		1,457.79	1,457.49	1,456.85	1,456.66
9/26/2018					1,457.59				

Depth to Water (feet) below Ground Surface

Average	3.31	3.92	4.65	3.58		3.34	5.18	5.00	7.44
Maximum	3.87	4.33	5.10	3.71		3.61	5.88	5.53	7.57
Minimum	2.59	3.28	3.96	3.42		3.00	4.69	4.42	7.17
Range	1.28	1.05	1.14	0.29		0.61	1.19	1.11	0.40

Water Level Elevation (feet MSL)

Date	<u>MW1</u>	<u>MW2</u>	<u>MW3</u>	<u>MW4</u>		<u>MW5</u>	<u>MW6</u>	<u>MW7</u>	<u>MW8</u>
9/21/2011	96.20	94.66	94.42	95.75					0.00
8/27/2012	96.07	94.59	94.34	95.78					0.00
6/21/2017	1,454.46	1,452.85	1,452.80	1,454.16		1,454.14		1,450.93	1,448.84
7/6/2017	1,454.72	1,452.85	1,452.79	1,454.16		1,454.09	1,455.54	1,451.16	1,448.87
8/30/2017	1,454.43	1,452.67	1,452.52	1,454.04		1,454.01	1,455.16	1,451.15	1,448.88
8/27/2018	1,455.08	1,453.09	1,453.06	1,454.33		1,454.18	1,455.68	1,451.53	1,449.00
11/26/2018	1,455.09	1,453.55	1,453.41		1,454.30	1,454.40	1,455.71	1,450.66	

Table 2a
Summary of Groundwater Analytical Results
Soil Borings
Thomas Service
Montreal, Wisconsin

Sample Location ->				Collected by EnviroScience							
				SB-6		MW1A		MW2A		MW3A	
Date ->				5/25/1994	5/4/1995	6/26/1995	5/4/1995	6/26/1995	5/4/1995	6/26/1995	
Detected VOC Parameters	ES	PAL	Units								
Benzene	5	0.5	µg/l	< 1.0	< 0.4	< 1.0	< 0.4	< 1.0	< 0.4	< 1.0	
Toluene	800	160	µg/l	< 1.0	< 0.6	< 1.0	< 0.6	< 1.0	< 0.6	< 1.0	
Ethylbenzene	700	140	µg/l	< 1.0	< 0.8	< 1.0	< 0.8	< 1.0	< 0.8	< 1.0	
Xylenes (mixed isomers)	2,000	400	µg/l	< 1.0	< 1.3	< 2.0	< 1.3	< 2.0	< 1.3	< 2.0	
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 1.0	< 1.0	< 4.0	< 1.0	< 4.0	< 1.0	< 4.0	
Trimethylbenzenes (mixed isomers)	480	96	µg/l	< 1.0	< 0.7	< 1.0	< 0.7	< 1.0	< 0.7	< 1.0	
Naphthalene	100	10	µg/l	NA	< 1.6	NA	< 1.6	NA	< 1.6	NA	
Diesel Range Organics (DRO)			mg/l	NA	< 0.1	< 0.1	< 0.1	< 0.1	0.29	< 0.1	
Gasoline Range Organics (GRO)			mg/l	NA	NA	< 50	NA	< 50	NA	< 50	
PAH Parameters											
Acenaphthene			µg/l	NA	< 2.0	NA	< 2.0	NA	< 2.0	NA	
Acenaphthylene			µg/l	NA	< 1.5	NA	< 1.5	NA	< 1.5	NA	
Anthracene	3,000	600	µg/l	NA	< 0.05	NA	< 0.05	NA	< 0.05	NA	
Benzo(a)Anthracene			µg/l	NA	< 0.10	NA	< 0.10	NA	< 0.10	NA	
Benzo(a)Pyrene	0.2	0.02	µg/l	NA	< 0.10	NA	< 0.10	NA	< 0.10	NA	
Benzo(b)Fluoranthene	0.2	0.02	µg/l	NA	< 0.20	NA	< 0.20	NA	< 0.20	NA	
Benzo(ghi)Perylene			µg/l	NA	< 0.20	NA	< 0.20	NA	< 0.20	NA	
Benzo(k)Fluoranthene			µg/l	NA	< 0.05	NA	< 0.05	NA	< 0.05	NA	
Chrysene	0.2	0.02	µg/l	NA	< 0.10	NA	< 0.10	NA	< 0.10	NA	
Dibenzo(a,h)anthracene			µg/l	NA	< 0.20	NA	< 0.20	NA	< 0.20	NA	
Fluoranthene	400	80	µg/l	NA	< 0.30	NA	< 0.30	NA	< 0.30	NA	
Fluorene	400	80	µg/l	NA	< 0.31	NA	< 0.31	NA	< 0.31	NA	
Indeno(1,2,3-cd)Pyrene			µg/l	NA	< 0.20	NA	< 0.20	NA	< 0.20	NA	
1-Methyl Naphthalene			µg/l	NA	< 1.5	NA	< 1.5	NA	< 1.5	NA	
2-Methyl Naphthalene			µg/l	NA	< 1.5	NA	< 1.5	NA	< 1.5	NA	
Naphthalene	100	10	µg/l	NA	< 1.5	NA	< 1.5	NA	< 1.5	NA	
Phenanthrene			µg/l	NA	< 0.20	NA	< 0.20	NA	< 0.20	NA	
Pyrene	250	50	µg/l	NA	< 0.10	NA	< 0.10	NA	< 0.10	NA	

Notes:

ES = NR140.10 Enforcement Standards

PAL = NR140.10 Preventive Action Limits

Enforcement Standard exceeded

Preventive Action Limit exceeded

NA = Not Analyzed

NS = Not Sampled

J = Estimated value, concentration between the Limit of Detection and the Limit of Quantitation

BOLD
<i>Italics</i>

Table 2b
Summary of Groundwater Analytical Results
Soil Borings
Thomas Service
Montreal, Wisconsin

				Collected by Coleman Engineering			
Sample Location ->				Tank Pit	B-1 (well)	B-6 (well)	B-7 (well)
Date ->				9/16/2010	11/17/2010	11/17/2010	11/17/2010
Detected VOC Parameters	ES	PAL	Units				
Benzene	5	0.5	µg/l	1.5	31.9	< 7.8	4.6
Toluene	800	160	µg/l	7.5	35.5	17.6 ^J	< 0.42
Ethylbenzene	700	140	µg/l	8.4	444	27.4	< 0.41
Xylenes (mixed isomers)	2,000	400	µg/l	54.7	2,521	43 ^J	< 1.0
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 0.38	11.9	55.1	< 0.38
Trimethylbenzenes (mixed isomers)	480	96	µg/l	5.1	1,800	71.2	< 0.43
Naphthalene	100	10	µg/l	NA	132	30.1	< 0.40
PAH Parameters							
Acenaphthene			µg/l	NA	NA	NA	NA
Acenaphthylene			µg/l	NA	NA	NA	NA
Anthracene	3,000	600	µg/l	NA	NA	NA	NA
Benzo(a)Anthracene			µg/l	NA	NA	NA	NA
Benzo(a)Pyrene	0.2	0.02	µg/l	NA	NA	NA	NA
Benzo(b)Fluoranthene	0.2	0.02	µg/l	NA	NA	NA	NA
Benzo(ghi)Perylene			µg/l	NA	NA	NA	NA
Benzo(k)Fluoranthene			µg/l	NA	NA	NA	NA
Chrysene	0.2	0.02	µg/l	NA	NA	NA	NA
Dibenzo(a,h)anthracene			µg/l	NA	NA	NA	NA
Fluoranthene	400	80	µg/l	NA	NA	NA	NA
Fluorene	400	80	µg/l	NA	NA	NA	NA
Indeno(1,2,3-cd)Pyrene			µg/l	NA	NA	NA	NA
1-Methyl Naphthalene			µg/l	NA	NA	NA	NA
2-Methyl Naphthalene			µg/l	NA	NA	NA	NA
Naphthalene	100	10	µg/l	NA	NA	NA	NA
Phenanthrene			µg/l	NA	NA	NA	NA
Pyrene	250	50	µg/l	NA	NA	NA	NA

Notes:

ES = NR140.10 Enforcement Standards

PAL = NR140.10 Preventive Action Limits

Enforcement Standard exceeded

Preventive Action Limit exceeded

NA = Not Analyzed

NS = Not Sampled

^J = Estimated value, concentration between the Limit of Detection and the Limit of Quantitation

BOLD

<i>Italics</i>

Table 2c
Summary of Groundwater Analytical Results
MW1
Thomas Service
Montreal, Wisconsin

Samples Collected By ->				Coleman					REI				
Date ->				9/21/2011	8/27/2012	4/27/2017	6/21/2017	8/27/2018	9/17/2018	11/26/2018	5/16/2019	9/10/2019	
Detected VOC Parameters	ES	PAL	Units										
Benzene	5	0.5	µg/l	1.6	< 0.39	<0.40	<0.50	< 0.31		< 0.31	< 0.25	< 0.25	
Toluene	800	160	µg/l	1.9	< 0.42	<0.39	<0.50	< 0.49		< 0.49	< 0.17	< 0.17	
Ethylbenzene	700	140	µg/l	0.54 ^J	< 0.41	<0.39	<0.50	< 0.33		< 0.33	< 0.22	< 0.22	
Xylenes (mixed isomers)	2,000	400	µg/l	0.83 ^J	< 0.87	<0.80	<1.0	< 0.66		< 0.66	< 0.47	< 0.47	
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 0.38	< 0.38	<0.48	<0.17	< 0.32		< 0.32	< 1.2	< 1.2	
Trimethylbenzenes (mixed isomers)	480	96	µg/l	3.3	< 0.43	<0.42	<0.50	< 0.34		< 0.34	< 0.87	< 0.87	
Naphthalene	100	10	µg/l	0.99 ^J	NA	<0.42	<2.5	< 0.51		< 0.51	< 1.2	< 1.2	
PAH Parameters													
Acenaphthene			µg/l	NA	0.025 ^J	NA	0.014 ^J	NA		NA	NA	NA	
Acenaphthylene			µg/l	NA	0.006 ^J	NA	0.010 ^J	NA		NA	NA	NA	
Anthracene	3,000	600	µg/l	NA	0.0098 ^J	NA	0.017 ^J	NA		NA	NA	NA	
Benzo(a)Anthracene			µg/l	NA	< 0.0042	NA	0.016 ^J	NA		NA	NA	NA	
Benzo(a)Pyrene	0.2	0.02	µg/l	NA	< 0.0042	NA	0.011 ^J	NA		NA	NA	NA	
Benzo(b)Fluoranthene	0.2	0.02	µg/l	NA	< 0.0045	NA	0.014 ^J	NA		NA	NA	NA	
Benzo(ghi)Perylene			µg/l	NA	< 0.0053	NA	0.019 ^J	NA		NA	NA	NA	
Benzo(k)Fluoranthene			µg/l	NA	< 0.0047	NA	0.0078 ^J	NA	Soil Excavation	NA	NA	NA	
Chrysene	0.2	0.02	µg/l	NA	0.0061 ^J	NA	0.026 ^J	NA		NA	NA	NA	
Dibenzo(a,h)anthracene			µg/l	NA	< 0.0089	NA	<0.0096	NA		NA	NA	NA	
Fluoranthene	400	80	µg/l	NA	0.0094 ^J	NA	0.043 ^J	NA		NA	NA	NA	
Fluorene	400	80	µg/l	NA	0.043 ^J	NA	0.045	NA		NA	NA	NA	
Indeno(1,2,3-cd)Pyrene			µg/l	NA	< 0.0052	NA	<0.017	NA		NA	NA	NA	
1-Methyl Naphthalene			µg/l	NA	0.0092 ^J	NA	<0.0057	NA		NA	NA	NA	
2-Methyl Naphthalene			µg/l	NA	< 0.0046	NA	0.0053 ^J	NA		NA	NA	NA	
Naphthalene	100	10	µg/l	NA	0.032 ^J	NA	<0.018	NA		NA	NA	NA	
Phenanthrene			µg/l	NA	0.0098 ^J	NA	<0.013	NA		NA	NA	NA	
Pyrene	250	50	µg/l	NA	0.018 ^J	NA	0.095	NA		NA	NA	NA	
Field Measurements													
Temperature			°F	NA	NA	NA	NA	57.9			44.1	44.9	56.0
Conductivity			µS/cm	NA	NA	NA	NA	1,275		1,341	1,178	1,605	
pH				NA	NA	NA	NA	6.46		6.70	7.40	6.40	
Dissolved Oxygen			mg/l	NA	NA	NA	NA	0.31		1.86	0.32	0.61	
ORP			mV	NA	NA	NA	NA	-10.1		66.1	-115.2	-12.3	

Notes:

- ES = NR140.10 Enforcement Standards
- PAL = NR140.10 Preventive Action Limits
- Enforcement Standard exceeded
- Preventive Action Limit exceeded
- NA = Not Analyzed
- NS = Not Sampled
- ^J = Estimated value, concentration between the Limit of Detection and the Limit of Quantitation

BOLD
<i>Italics</i>

Table 2d
Summary of Groundwater Analytical Results
MW2
Thomas Service
Montreal, Wisconsin

Samples Collected By ->	Coleman		REI									
	ES	PAL	Date ->	9/21/2011	8/27/2012	4/27/2017	6/21/2017	8/27/2018	9/17/2018	11/26/2018	5/16/2019	9/10/2019
Detected VOC Parameters			Units									
Benzene	5	0.5	µg/l	< 0.39	< 0.39	22.8	10.6	< 0.31		0.67 ^J	< 0.25	< 0.25
Toluene	800	160	µg/l	< 0.42	< 0.42	3.5	0.94 ^J	< 0.49		< 0.49	< 0.17	< 0.17
Ethylbenzene	700	140	µg/l	< 0.41	< 0.41	80.4	28.4	< 0.33		< 0.33	< 0.22	< 0.22
Xylenes (mixed isomers)	2,000	400	µg/l	< 0.87	< 0.87	82.7	20.4	< 0.66		< 0.66	< 0.47	< 0.47
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	< 0.38	< 0.38	2.6	<0.17	< 0.32		< 0.32	< 1.2	< 1.2
Trimethylbenzenes (mixed isomers)	480	96	µg/l	< 0.43	< 0.43	87.7	22.9	< 0.34		< 0.34	< 0.87	< 0.87
Naphthalene	100	10	µg/l	< 0.40	NA	22.1	2.6 ^J	< 0.51		< 0.51	< 1.2	< 1.2
PAH Parameters												
Acenaphthene			µg/l	NA	0.0057 ^J	NA	0.069	NA		NA	NA	NA
Acenaphthylene			µg/l	NA	< 0.0029	NA	0.031	NA		NA	NA	NA
Anthracene	3,000	600	µg/l	NA	< 0.0026	NA	0.012 ^J	NA		NA	NA	NA
Benzo(a)Anthracene			µg/l	NA	< 0.0042	NA	<0.0069	NA		NA	NA	NA
Benzo(a)Pyrene	0.2	0.02	µg/l	NA	< 0.0042	NA	<0.0096	NA		NA	NA	NA
Benzo(b)Fluoranthene	0.2	0.02	µg/l	NA	< 0.0045	NA	<0.0052	NA		NA	NA	NA
Benzo(ghi)Perylene			µg/l	NA	< 0.0053	NA	<0.0062	NA		NA	NA	NA
Benzo(k)Fluoranthene			µg/l	NA	< 0.0047	NA	<0.0069	NA		NA	NA	NA
Chrysene	0.2	0.02	µg/l	NA	< 0.0046	NA	<0.012	NA	Soil Excavation	NA	NA	NA
Dibenzo(a,h)anthracene			µg/l	NA	< 0.0089	NA	<0.0091	NA		NA	NA	NA
Fluoranthene	400	80	µg/l	NA	0.0036 ^J	NA	<0.0097	NA		NA	NA	NA
Fluorene	400	80	µg/l	NA	< 0.0029	NA	0.074	NA		NA	NA	NA
Indeno(1,2,3-cd)Pyrene			µg/l	NA	< 0.0052	NA	<0.016	NA		NA	NA	NA
1-Methyl Naphthalene			µg/l	NA	< 0.0044	NA	3.6	NA		NA	NA	NA
2-Methyl Naphthalene			µg/l	NA	0.0047 ^J	NA	0.88	NA		NA	NA	NA
Naphthalene	100	10	µg/l	NA	0.032 ^J	NA	6.1	NA		NA	NA	NA
Phenanthrene			µg/l	NA	0.0088 ^J	NA	0.077	NA		NA	NA	NA
Pyrene	250	50	µg/l	NA	0.0055 ^J	NA	0.013 ^J	NA		NA	NA	NA
Field Measurements												
Temperature			°F	NA	NA	NA	NA	67.3		45.0	46.2	63.9
Conductivity			µS/cm	NA	NA	NA	NA	1,731		820	833	667
pH				NA	NA	NA	NA	6.72		7.64	7.58	6.79
Dissolved Oxygen			mg/l	NA	NA	NA	NA	0.49		0.73	0.55	
ORP			mV	NA	NA	NA	NA	-62.3		-79.1	-212.4	28.9

Notes:

- ES = NR140.10 Enforcement Standards
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- Enforcement Standard exceeded
- Preventive Action Limit exceeded
- NA = Not Analyzed
- NS = Not Sampled

BOLD
<i>Italics</i>

^J = Estimated value, concentration between the Limit of Detection and the Limit of Quantitation

Table 2e
Summary of Groundwater Analytical Results
MW3
Thomas Service
Montreal, Wisconsin

Detected VOC Parameters	Samples Collected By ->			Coleman		REI								
	ES	PAL	Units	Date ->	9/21/2011	8/27/2012	4/27/2017	6/21/2017	8/27/2018	9/17/2018	11/29/2018	5/16/2019	9/10/2019	
Benzene	5	0.5	µg/l		< 0.39	< 0.39	<0.40	<0.50	< 0.31		< 0.31	< 0.25	< 0.25	
Toluene	800	160	µg/l		< 0.42	< 0.42	<0.39	<0.50	< 0.49		< 0.49	< 0.17	< 0.17	
Ethylbenzene	700	140	µg/l		< 0.41	< 0.41	<0.39	<0.50	< 0.33		< 0.33	< 0.22	< 0.22	
Xylenes (mixed isomers)	2,000	400	µg/l		< 0.87	< 0.87	<0.80	<1.0	< 0.66		< 0.66	< 0.47	< 0.47	
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l		< 0.38	< 0.38	<0.48	<0.17	< 0.32		< 0.32	< 1.2	< 1.2	
Trimethylbenzenes (mixed isomers)	480	96	µg/l		< 0.43	< 0.43	<0.42	<0.50	< 0.34		< 0.34	< 0.87	< 0.87	
Naphthalene	100	10	µg/l		< 0.40	NA	<0.42	<2.5	< 0.51		< 0.51	< 1.2	< 1.2	
PAH Parameters														
Acenaphthene			µg/l		NA	0.0045 ^J	NA	<0.0058	NA	Soil Excavation	NA	NA	NA	
Acenaphthylene			µg/l		NA	< 0.0029	NA	0.0049 ^J	NA		NA	NA	NA	NA
Anthracene	3,000	600	µg/l		NA	0.0044 ^J	NA	0.011 ^J	NA		NA	NA	NA	NA
Benzo(a)Anthracene			µg/l		NA	< 0.0042	NA	<0.0072	NA		NA	NA	NA	NA
Benzo(a)Pyrene	0.2	0.02	µg/l		NA	< 0.0042	NA	<0.010	NA		NA	NA	NA	NA
Benzo(b)Fluoranthene	0.2	0.02	µg/l		NA	< 0.0045	NA	<0.0055	NA		NA	NA	NA	NA
Benzo(ghi)Perylene			µg/l		NA	< 0.0053	NA	<0.0065	NA		NA	NA	NA	NA
Benzo(k)Fluoranthene			µg/l		NA	< 0.0047	NA	<0.0072	NA		NA	NA	NA	NA
Chrysene	0.2	0.02	µg/l		NA	< 0.0046	NA	<0.012	NA		NA	NA	NA	NA
Dibenzo(a,h)anthracene			µg/l		NA	< 0.0089	NA	<0.0095	NA		NA	NA	NA	NA
Fluoranthene	400	80	µg/l		NA	0.0093 ^J	NA	0.020 ^J	NA		NA	NA	NA	NA
Fluorene	400	80	µg/l		NA	0.000 ^J	NA	0.042	NA		NA	NA	NA	NA
Indeno(1,2,3-cd)Pyrene			µg/l		NA	< 0.0052	NA	<0.017	NA		NA	NA	NA	NA
1-Methyl Naphthalene			µg/l		NA	< 0.0044	NA	<0.0056	NA		NA	NA	NA	NA
2-Methyl Naphthalene			µg/l		NA	< 0.0046	NA	0.0060 ^J	NA		NA	NA	NA	NA
Naphthalene	100	10	µg/l		NA	0.021 ^J	NA	<0.017	NA		NA	NA	NA	NA
Phenanthrene			µg/l		NA	< 0.0081	NA	<0.013	NA		NA	NA	NA	NA
Pyrene	250	50	µg/l		NA	0.030 ^J	NA	0.056	NA	NA	NA	NA	NA	
Field Measurements														
Temperature			°F		NA	NA	NA	NA	57.3		44.2	43.3	56.4	
Conductivity			µS/cm		NA	NA	NA	NA	236.1		223.8	536.1	1,552	
pH					NA	NA	NA	NA	5.74		5.94	7.11	6.25	
Dissolved Oxygen			mg/l		NA	NA	NA	NA	2.82		1.04	0.77		
ORP			mV		NA	NA	NA	NA	118.4		207.6	-137.6	12.0	

Notes:

ES = NR140.10 Enforcement Standards

PAL = NR140.10 Preventive Action Limits

Enforcement Standard exceeded

Preventive Action Limit exceeded

NA = Not Analyzed

NS = Not Sampled

^J = Estimated value, concentration between the Limit of Detection and the Limit of Quantitation

BOLD
<i>Italics</i>

Table 2f
Summary of Groundwater Analytical Results
MW4/MW4R
Thomas Service
Montreal, Wisconsin

Well ->				MW4					MW4R				
Samples Collected By ->				Coleman		REI							
Date ->				9/21/2011	8/27/2012	4/27/2017	6/21/2017	8/27/2018	9/17/2018	9/29/2018	11/29/2018	5/16/2019	9/10/2019
Detected VOC Parameters	ES	PAL	Units										
Benzene	5	0.5	µg/l	18.8	7.4	7.8	<i>2.2</i>	<i>3.1</i>	Soil Excavation and MW4 Abandoned	18.4	<i>2.4</i>	<i>0.48^J</i>	<i>0.54^J</i>
Toluene	800	160	µg/l	6.3	<i>0.74^J</i>	2.5	<0.50	<i>1.1^J</i>		<i>211</i>	2.1	< 0.17	<i>0.49^J</i>
Ethylbenzene	700	140	µg/l	99.5	37.5	34.6	15.5	17.4		<i>218</i>	67.2	21.1	43.8
Xylenes (mixed isomers)	2,000	400	µg/l	<i>505</i>	60.1	118.8	12.5	55		2,770	186.1	43.5	73.6
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	7.1	<i>0.58^J</i>	2.7	<0.17	<i>0.66^J</i>		<i>< 3.2</i>	3.8	< 1.2	< 1.2
Trimethylbenzenes (mixed isomers)	480	96	µg/l	<i>380</i>	55.7	48.8	57.3	38.9		1,226	552	<i>139.9</i>	<i>118</i>
Naphthalene	100	10	µg/l	<i>36.3</i>	NA	7.2	<i>2.9^J</i>	4.6		134	<i>52.1</i>	<i>14.6</i>	<i>26.1</i>
PAH Parameters													
Acenaphthene			µg/l	NA	<i>0.030^J</i>	NA	0.034	NA		NA	NA	NA	NA
Acenaphthylene			µg/l	NA	< 0.029	NA	<i>0.013^J</i>	NA		NA	NA	NA	NA
Anthracene	3,000	600	µg/l	NA	< 0.026	NA	<0.0094	NA		NA	NA	NA	NA
Benzo(a)Anthracene			µg/l	NA	< 0.042	NA	<0.0068	NA		NA	NA	NA	NA
Benzo(a)Pyrene	0.2	0.02	µg/l	NA	< 0.042	NA	<0.0095	NA		NA	NA	NA	NA
Benzo(b)Fluoranthene	0.2	0.02	µg/l	NA	< 0.045	NA	<0.0052	NA		NA	NA	NA	NA
Benzo(ghi)Perylene			µg/l	NA	< 0.053	NA	<0.0061	NA		NA	NA	NA	NA
Benzo(k)Fluoranthene			µg/l	NA	< 0.047	NA	<0.0068	NA		NA	NA	NA	NA
Chrysene	0.2	0.02	µg/l	NA	< 0.046	NA	<0.012	NA		NA	NA	NA	NA
Dibenzo(a,h)anthracene			µg/l	NA	< 0.089	NA	<0.0090	NA	NA	NA	NA	NA	
Fluoranthene	400	80	µg/l	NA	<i>0.0036^J</i>	NA	<i>0.010^J</i>	NA	NA	NA	NA	NA	
Fluorene	400	80	µg/l	NA	< 0.029	NA	0.047	NA	NA	NA	NA	NA	
Indeno(1,2,3-cd)Pyrene			µg/l	NA	< 0.052	NA	<0.016	NA	NA	NA	NA	NA	
1-Methyl Naphthalene			µg/l	NA	1.2	NA	0.75	NA	NA	NA	NA	NA	
2-Methyl Naphthalene			µg/l	NA	0.99	NA	0.13	NA	NA	NA	NA	NA	
Naphthalene	100	10	µg/l	NA	3.4	NA	1.4	NA	NA	NA	NA	NA	
Phenanthrene			µg/l	NA	< 0.081	NA	<i>0.023^J</i>	NA	NA	NA	NA	NA	
Pyrene	250	50	µg/l	NA	< 0.041	NA	<i>0.021^J</i>	NA	NA	NA	NA	NA	
Field Measurements													
Temperature			°F	NA	NA	NA	NA	63.7	NA	37.7	47.4	61.2	
Conductivity			µS/cm	NA	NA	NA	NA	1,529	NA	1,192	1,271.0	1,833	
pH				NA	NA	NA	NA	6.79	NA	7.03	7.72	6.46	
Dissolved Oxygen			mg/l	NA	NA	NA	NA	0.83	NA	3.02	0.45	0.56	
ORP			mV	NA	NA	NA	NA	-112	NA	143.8	-214.8	-2.2	

Notes:

- ES = NR140.10 Enforcement Standards
- PAL = NR140.10 Preventive Action Limits
- Enforcement Standard exceeded
- Preventive Action Limit exceeded
- NA = Not Analyzed
- NS = Not Sampled

BOLD
<i>Italics</i>

^J = Estimated value, concentration between the Limit of Detection and the Limit of Quantitation

Table 2g
Summary of Groundwater Analytical Results
MW5
Thomas Service
Montreal, Wisconsin

Detected VOC Parameters	Samples Collected By ->			REI						
	ES	PAL	Units	Date ->	6/21/2017	8/27/2018	9/17/2018	11/29/2018	5/16/2019	9/10/2019
Benzene	5	0.5	µg/l		<0.50	< 0.31		< 0.31	< 0.25	< 0.25
Toluene	800	160	µg/l		<0.50	< 0.49		< 0.49	< 0.17	< 0.17
Ethylbenzene	700	140	µg/l		<0.50	< 0.33		< 0.33	< 0.22	< 0.22
Xylenes (mixed isomers)	2,000	400	µg/l		<1.0	< 0.66		< 0.66	< 0.47	< 0.47
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l		<0.17	< 0.32		< 0.32	< 1.2	< 1.2
Trimethylbenzenes (mixed isomers)	480	96	µg/l		1.9 ^J	< 0.34		< 0.34	< 0.87	< 0.87
Naphthalene	100	10	µg/l		<2.5	< 0.51		< 0.51	< 1.2	< 1.2
n-Propylbenzene	NS	NS	ug/l		0.88 ^J	NA		NA	NA	NA
Isopropylbenzene	NS	NS	ug/l		0.86 ^J	NA		NA	NA	NA
PAH Parameters										
Acenaphthene			µg/l		0.0089 ^J	NA		NA	NA	NA
Acenaphthylene			µg/l		<0.0046	NA		NA	NA	NA
Anthracene	3,000	600	µg/l		<0.0097	NA		NA	NA	NA
Benzo(a)Anthracene			µg/l		<0.0070	NA		NA	NA	NA
Benzo(a)Pyrene	0.2	0.02	µg/l		<0.0098	NA		NA	NA	NA
Benzo(b)Fluoranthene	0.2	0.02	µg/l		<0.0053	NA		NA	NA	NA
Benzo(ghi)Perylene			µg/l		<0.0063	NA		NA	NA	NA
Benzo(k)Fluoranthene			µg/l		<0.0070	NA		NA	NA	NA
Chrysene	0.2	0.02	µg/l		<0.012	NA		NA	NA	NA
Dibenzo(a,h)anthracene			µg/l		<0.0093	NA		NA	NA	NA
Fluoranthene	400	80	µg/l		<0.0099	NA		NA	NA	NA
Fluorene	400	80	µg/l		0.011 ^J	NA		NA	NA	NA
Indeno(1,2,3-cd)Pyrene			µg/l		<0.016	NA		NA	NA	NA
1-Methyl Naphthalene			µg/l		0.12	NA		NA	NA	NA
2-Methyl Naphthalene			µg/l		0.099	NA		NA	NA	NA
Naphthalene	100	10	µg/l		0.041 ^J	NA		NA	NA	NA
Phenanthrene			µg/l		0.018 ^J	NA		NA	NA	NA
Pyrene	250	50	µg/l		<0.0071	NA		NA	NA	NA
Field Measurements										
Temperature			°F		NA	64.1		46.0	45.60	60.70
Conductivity			µS/cm		NA	2,116		1,008	1,236	1,579
pH					NA	6.92		7.37	7.4	6.7
Dissolved Oxygen			mg/l		NA	0.95		6.24	3.21	2.92
ORP			mV		NA	142.4		77.7	178.8	152.2

Notes:

ES = NR140.10 Enforcement Standards
PAL = NR140.10 Preventive Action Limits
Enforcement Standard exceeded
Preventive Action Limit exceeded
NA = Not Analyzed
NS = Not Sampled

BOLD
<i>Italics</i>

^J = Estimated value, concentration between the Limit of Detection and the Limit of Quantitation

Table 2h
Summary of Groundwater Analytical Results
MW6
Thomas Service
Montreal, Wisconsin

Detected VOC Parameters	Samples Collected By ->			REI							
	ES	PAL	Units	Date ->	6/21/2017	8/27/2018	9/17/2018	11/29/2018	5/16/2019	9/10/2019	
Benzene	5	0.5	µg/l		<0.50	< 0.31		< 0.31	< 0.25	< 0.25	
Toluene	800	160	µg/l		<0.50	< 0.49		< 0.49	< 0.17	< 0.17	
Ethylbenzene	700	140	µg/l		<0.50	< 0.33		< 0.33	< 0.22	< 0.22	
Xylenes (mixed isomers)	2,000	400	µg/l		<1.0	< 0.66		< 0.66	< 0.47	< 0.47	
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l		<0.17	< 0.32		< 0.32	< 1.2	< 1.2	
Trimethylbenzenes (mixed isomers)	480	96	µg/l		<0.50	< 0.34		< 0.34	< 0.87	< 0.87	
Naphthalene	100	10	µg/l		<2.5	< 0.51		< 0.51	< 1.2	< 1.2	
PAH Parameters											
Acenaphthene			µg/l		0.0099 ^j	NA		NA	NA	NA	
Acenaphthylene			µg/l		<0.0047	NA		NA	NA	NA	
Anthracene	3,000	600	µg/l		<0.0099	NA		NA	NA	NA	
Benzo(a)Anthracene			µg/l		<0.0071	NA		NA	NA	NA	
Benzo(a)Pyrene	0.2	0.02	µg/l		<0.0099	NA		NA	NA	NA	
Benzo(b)Fluoranthene	0.2	0.02	µg/l		<0.0054	NA		NA	NA	NA	
Benzo(ghi)Perylene			µg/l		<0.0064	NA		NA	NA	NA	
Benzo(k)Fluoranthene			µg/l		<0.0071	NA		NA	NA	NA	
Chrysene	0.2	0.02	µg/l		<0.012	NA	Soil Excavation	NA	NA	NA	
Dibenzo(a,h)anthracene			µg/l		<0.0095	NA		NA	NA	NA	
Fluoranthene	400	80	µg/l		<0.010	NA		NA	NA	NA	
Fluorene	400	80	µg/l		<0.0075	NA		NA	NA	NA	
Indeno(1,2,3-cd)Pyrene			µg/l		<0.017	NA		NA	NA	NA	
1-Methyl Naphthalene			µg/l		0.03	NA		NA	NA	NA	
2-Methyl Naphthalene			µg/l		0.018 ^j	NA		NA	NA	NA	
Naphthalene	100	10	µg/l		0.018 ^j	NA		NA	NA	NA	
Phenanthrene			µg/l		0.021 ^j	NA		NA	NA	NA	
Pyrene	250	50	µg/l		0.0078 ^j	NA		NA	NA	NA	
Field Measurements											
Temperature			°F		NA	60.5			42.3	50.9	58.1
Conductivity			µS/cm		NA	911			549.2	1,430	337.4
pH					NA	6.15		6.94	7.75	6.42	
Dissolved Oxygen			mg/l		NA	0.29		2.41	0.43	4.33	
ORP			mV		NA	157.4		118.0	-127.4	158.7	

Notes:

ES = NR140.10 Enforcement Standards
PAL = NR140.10 Preventive Action Limits
Enforcement Standard exceeded **BOLD**
Preventive Action Limit exceeded *Italics*
NA = Not Analyzed
NS = Not Sampled

BOLD
<i>Italics</i>

^j = Estimated value, concentration between the Limit of Detection and the Limit of Quantitation

Table 2i
Summary of Groundwater Analytical Results
MW7
Thomas Service
Montreal, Wisconsin

	Samples Collected By ->			REI					
	Date ->			6/21/2017	8/27/2018	9/17/2018	11/29/2018	5/16/2019	9/10/2019
Detected VOC Parameters	ES	PAL	Units						
Benzene	5	0.5	µg/l	<0.50	< 0.31		< 0.31	< 0.25	< 0.25
Toluene	800	160	µg/l	<0.50	< 0.49		< 0.49	< 0.17	< 0.17
Ethylbenzene	700	140	µg/l	<0.50	< 0.33		< 0.33	< 0.22	< 0.22
Xylenes (mixed isomers)	2,000	400	µg/l	<1.0	< 0.66		< 0.66	< 0.47	< 0.47
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	<0.17	< 0.32		< 0.32	< 1.2	< 1.2
Trimethylbenzenes (mixed isomers)	480	96	µg/l	<0.50	< 0.34		< 0.34	< 0.87	< 0.87
Naphthalene	100	10	µg/l	<2.5	< 0.51		< 0.51	< 1.2	< 1.2
PAH Parameters									
Acenaphthene			µg/l	<0.0065	NA		NA	NA	NA
Acenaphthylene			µg/l	<0.0054	NA		NA	NA	NA
Anthracene	3,000	600	µg/l	<0.011	NA		NA	NA	NA
Benzo(a)Anthracene			µg/l	<0.0081	NA		NA	NA	NA
Benzo(a)Pyrene	0.2	0.02	µg/l	<0.011	NA		NA	NA	NA
Benzo(b)Fluoranthene	0.2	0.02	µg/l	<0.0062	NA		NA	NA	NA
Benzo(ghi)Perylene			µg/l	<0.0073	NA		NA	NA	NA
Benzo(k)Fluoranthene			µg/l	<0.0081	NA		NA	NA	NA
Chrysene	0.2	0.02	µg/l	<0.014	NA	Soil Excavation	NA	NA	NA
Dibenzo(a,h)anthracene			µg/l	<0.011	NA		NA	NA	NA
Fluoranthene	400	80	µg/l	<0.011	NA		NA	NA	NA
Fluorene	400	80	µg/l	<0.0086	NA		NA	NA	NA
Indeno(1,2,3-cd)Pyrene			µg/l	<0.019	NA		NA	NA	NA
1-Methyl Naphthalene			µg/l	0.34	NA		NA	NA	NA
2-Methyl Naphthalene			µg/l	0.48	NA		NA	NA	NA
Naphthalene	100	10	µg/l	0.16	NA		NA	NA	NA
Phenanthrene			µg/l	0.020 ^J	NA		NA	NA	NA
Pyrene	250	50	µg/l	0.011 ^J	NA		NA	NA	NA
Field Measurements									
Temperature			°F	NA	61.4		46.5	43.0	58.9
Conductivity			µS/cm	NA	1,298		988	1,403	891
pH				NA	5.97		6.67	7.53	6.50
Dissolved Oxygen			mg/l	NA	0.96		1.76	0.63	
ORP			mV	NA	207.6		186.4	-194.1	71.0

Notes:

ES = NR140.10 Enforcement Standards

PAL = NR140.10 Preventive Action Limits

Enforcement Standard exceeded

Preventive Action Limit exceeded

NA = Not Analyzed

NS = Not Sampled

^J = Estimated value, concentration between the Limit of Detection and the Limit of Quantitation

BOLD
<i>Italics</i>

Table 2j
Summary of Groundwater Analytical Results
MW8
Thomas Service
Montreal, Wisconsin

Samples Collected By ->	REI								
	Date ->			6/21/2017	8/27/2018	9/17/2018	11/29/2018	5/16/2019	9/10/2019
Detected VOC Parameters	ES	PAL	Units						
Benzene	5	0.5	µg/l	<0.50	< 0.31			< 0.25	
Toluene	800	160	µg/l	<0.50	< 0.49			< 0.17	
Ethylbenzene	700	140	µg/l	<0.50	< 0.33			< 0.22	
Xylenes (mixed isomers)	2,000	400	µg/l	<1.0	< 0.66			< 0.47	
Methyl tert-Butyl Ether (MTBE)	60	12	µg/l	<0.17	< 0.32			< 1.2	
Trimethylbenzenes (mixed isomers)	480	96	µg/l	<0.50	< 0.34			< 0.87	
Naphthalene	100	10	µg/l	<2.5	< 0.51			< 1.2	
PAH Parameters									
Acenaphthene			µg/l	NA	NA			NA	
Acenaphthylene			µg/l	NA	NA			NA	
Anthracene	3,000	600	µg/l	NA	NA			NA	
Benzo(a)Anthracene			µg/l	NA	NA			NA	
Benzo(a)Pyrene	0.2	0.02	µg/l	NA	NA			NA	
Benzo(b)Fluoranthene	0.2	0.02	µg/l	NA	NA			NA	
Benzo(ghi)Perylene			µg/l	NA	NA			NA	
Benzo(k)Fluoranthene			µg/l	NA	NA			NA	
Chrysene	0.2	0.02	µg/l	NA	NA	Soil Excavation	Well Dry Not Sampled	NA	Well Dry Not Sampled
Dibenzo(a,h)anthracene			µg/l	NA	NA			NA	
Fluoranthene	400	80	µg/l	NA	NA			NA	
Fluorene	400	80	µg/l	NA	NA			NA	
Indeno(1,2,3-cd)Pyrene			µg/l	NA	NA			NA	
1-Methyl Naphthalene			µg/l	NA	NA			NA	
2-Methyl Naphthalene			µg/l	NA	NA			NA	
Naphthalene	100	10	µg/l	NA	NA			NA	
Phenanthrene			µg/l	NA	NA			NA	
Pyrene	250	50	µg/l	NA	NA			NA	
Field Measurements									
Temperature			°F	NA	61.9			46.1	
Conductivity			µS/cm	NA	3,370			4,536	
pH				NA	6.76			7.03	
Dissolved Oxygen			mg/l	NA	2.75			7.54	
ORP			mV	NA	161.3			-128.7	

Notes:

ES = NR140.10 Enforcement Standards

PAL = NR140.10 Preventive Action Limits

Enforcement Standard exceeded

BOLD

Preventive Action Limit exceeded

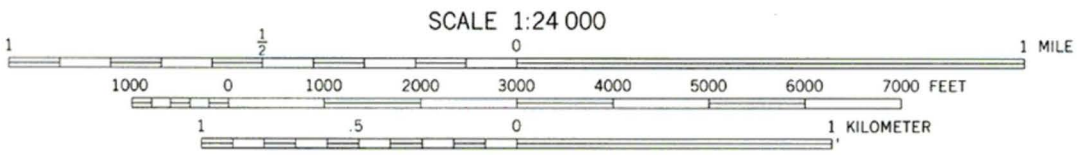
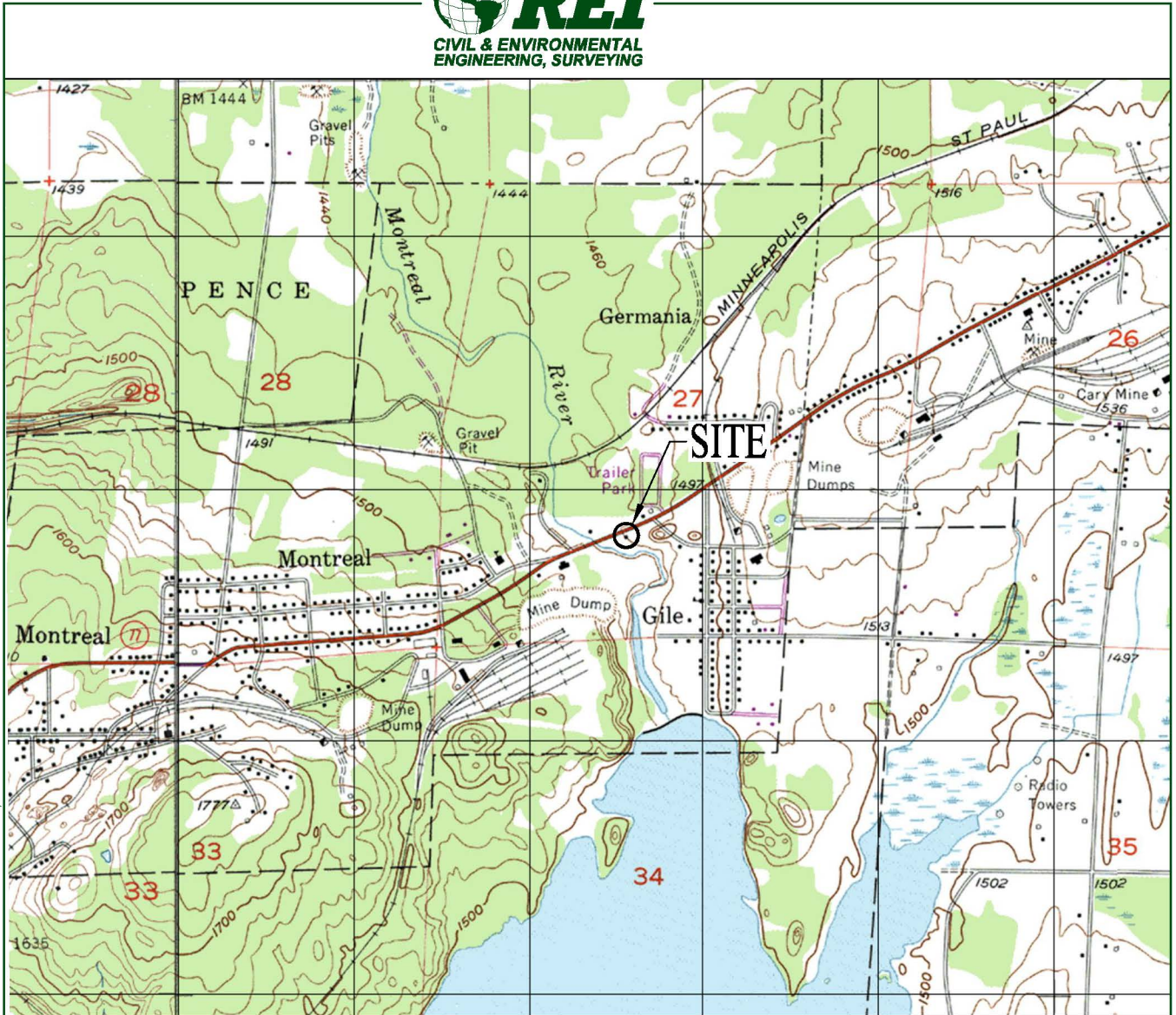
Italics

NA = Not Analyzed

NS = Not Sampled

J = Estimated value, concentration between the Limit of Detection and the Limit of Quantitation

DRAWING FILE: P:\7600-7699\7644 - THOMAS SERVICE\DWG\7644-VICN.DWG LAYOUT: VICN PLOTTED: JAN 17, 2019 - 2:28PM PLOTTED BY: MATTM



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



UTM GRID AND 1975 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

IRONWOOD, MICH.-WIS.

NW/4 IRONWOOD 15' QUADRANGLE
N4622.5-W9007.5
PHOTOINSPECTED 1981
1955
PHOTOREVISED 1975
AMS 2976 I NW-SERIES V861

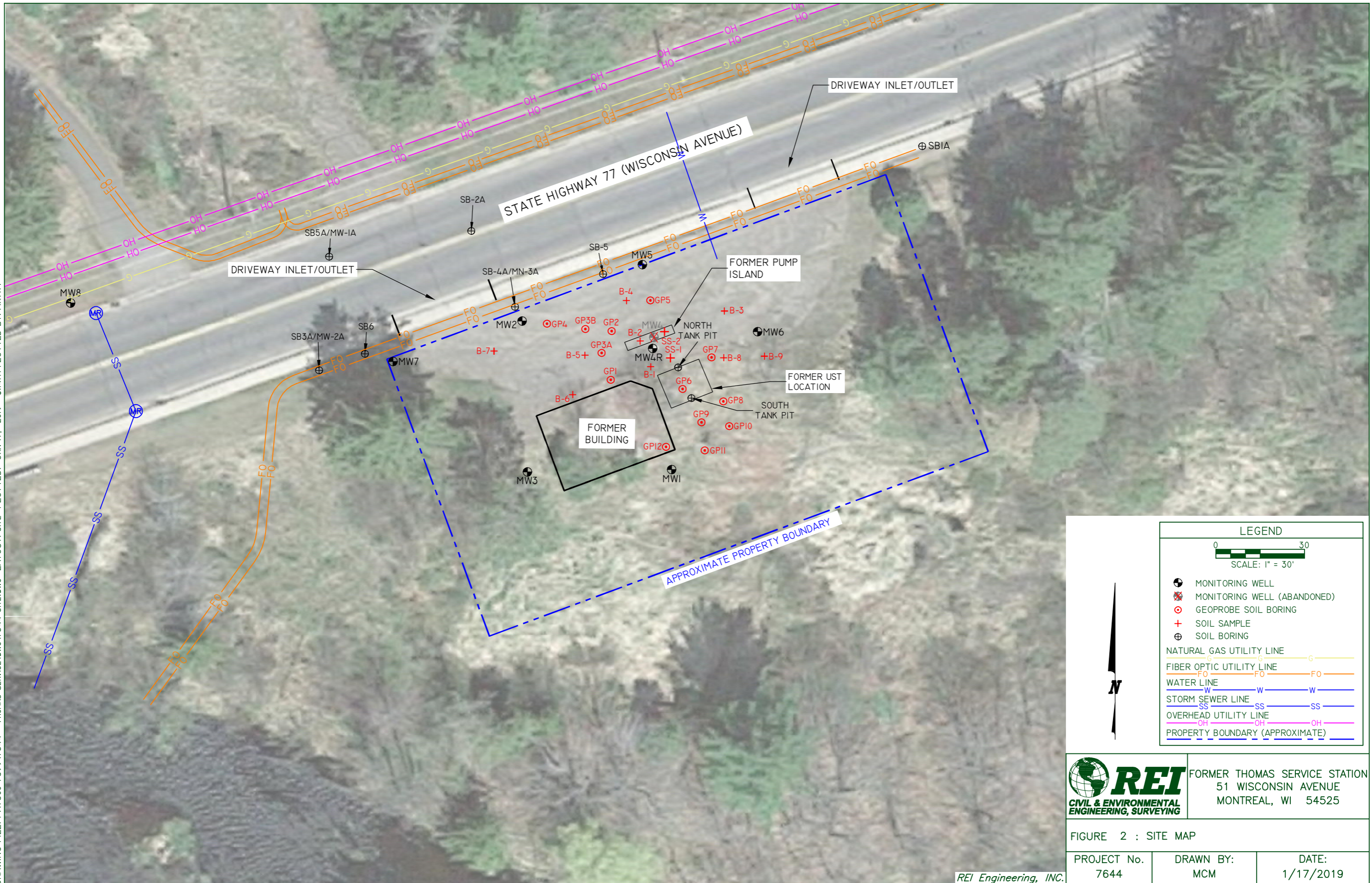
REI Engineering, INC.

FORMER THOMAS SERVICE STATION
51 WISCONSIN AVENUE
MONTREAL, WI 54525

FIGURE 1 : SITE VICINITY MAP

PROJECT NO.	7644	DRAWN BY:	MCM	DATE:	1/17/2019
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DRAWING FILE: P:\7600-7699\7644 - THOMAS SERVICE.DWG\7644-SITE.DWG LAYOUT: SITE PLOTTED: JAN 17, 2019 - 3:14:PM PLOTTED BY: MATTM



LEGEND

0 30
SCALE: 1" = 30'

- MONITORING WELL
- MONITORING WELL (ABANDONED)
- GEOPROBE SOIL BORING
- SOIL SAMPLE
- SOIL BORING
- NATURAL GAS UTILITY LINE
- FIBER OPTIC UTILITY LINE
- WATER LINE
- STORM SEWER LINE
- OVERHEAD UTILITY LINE
- PROPERTY BOUNDARY (APPROXIMATE)

REI CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING

FORMER THOMAS SERVICE STATION
51 WISCONSIN AVENUE
MONTREAL, WI 54525

FIGURE 2 : SITE MAP

PROJECT No. 7644	DRAWN BY: MCM	DATE: 1/17/2019
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APPENDIX A

GROUNDWATER ANALYTICAL REPORTS



May 22, 2019

DAVID LARSEN
REI
4080 NORTH 20TH AVENUE
Wausau, WI 54401

RE: Project: 7644 THOMAS SERVICE
Pace Project No.: 40187900

Dear DAVID LARSEN:

Enclosed are the analytical results for sample(s) received by the laboratory on May 18, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 7644 THOMAS SERVICE

Pace Project No.: 40187900

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 7644 THOMAS SERVICE

Pace Project No.: 40187900

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40187900001	MW1	Water	05/16/19 09:50	05/18/19 08:25
40187900002	MW2	Water	05/16/19 10:15	05/18/19 08:25
40187900003	MW3	Water	05/16/19 10:00	05/18/19 08:25
40187900004	MW4R	Water	05/16/19 10:30	05/18/19 08:25
40187900005	MW5	Water	05/16/19 10:20	05/18/19 08:25
40187900006	MW6	Water	05/16/19 09:40	05/18/19 08:25
40187900007	MW7	Water	05/16/19 10:05	05/18/19 08:25
40187900008	MW8	Water	05/16/19 10:10	05/18/19 08:25

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SAMPLE ANALYTE COUNT

Project: 7644 THOMAS SERVICE

Pace Project No.: 40187900

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40187900001	MW1	EPA 8260	LAP	12
40187900002	MW2	EPA 8260	LAP	12
40187900003	MW3	EPA 8260	LAP	12
40187900004	MW4R	EPA 8260	LAP	12
40187900005	MW5	EPA 8260	LAP	12
40187900006	MW6	EPA 8260	LAP	12
40187900007	MW7	EPA 8260	LAP	12
40187900008	MW8	EPA 8260	LAP	12

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 7644 THOMAS SERVICE

Pace Project No.: 40187900

Sample: MW1 Lab ID: 40187900001 Collected: 05/16/19 09:50 Received: 05/18/19 08:25 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		05/21/19 13:34	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		05/21/19 13:34	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/21/19 13:34	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		05/21/19 13:34	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		05/21/19 13:34	108-88-3	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		05/21/19 13:34	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		05/21/19 13:34	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		05/21/19 13:34	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		05/21/19 13:34	95-47-6	
Surrogates									
Dibromofluoromethane (S)	112	%	70-130		1		05/21/19 13:34	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		05/21/19 13:34	2037-26-5	
4-Bromofluorobenzene (S)	82	%	70-130		1		05/21/19 13:34	460-00-4	

Sample: MW2 Lab ID: 40187900002 Collected: 05/16/19 10:15 Received: 05/18/19 08:25 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		05/21/19 13:56	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		05/21/19 13:56	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/21/19 13:56	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		05/21/19 13:56	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		05/21/19 13:56	108-88-3	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		05/21/19 13:56	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		05/21/19 13:56	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		05/21/19 13:56	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		05/21/19 13:56	95-47-6	
Surrogates									
Dibromofluoromethane (S)	114	%	70-130		1		05/21/19 13:56	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		05/21/19 13:56	2037-26-5	
4-Bromofluorobenzene (S)	85	%	70-130		1		05/21/19 13:56	460-00-4	

Sample: MW3 Lab ID: 40187900003 Collected: 05/16/19 10:00 Received: 05/18/19 08:25 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		05/21/19 14:18	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		05/21/19 14:18	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/21/19 14:18	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		05/21/19 14:18	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		05/21/19 14:18	108-88-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 7644 THOMAS SERVICE

Pace Project No.: 40187900

Sample: MW3 Lab ID: 40187900003 Collected: 05/16/19 10:00 Received: 05/18/19 08:25 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		05/21/19 14:18	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		05/21/19 14:18	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		05/21/19 14:18	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		05/21/19 14:18	95-47-6	
Surrogates									
Dibromofluoromethane (S)	112	%	70-130		1		05/21/19 14:18	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		05/21/19 14:18	2037-26-5	
4-Bromofluorobenzene (S)	80	%	70-130		1		05/21/19 14:18	460-00-4	

Sample: MW4R Lab ID: 40187900004 Collected: 05/16/19 10:30 Received: 05/18/19 08:25 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	0.48J	ug/L	1.0	0.25	1		05/22/19 06:36	71-43-2	
Ethylbenzene	21.1	ug/L	1.0	0.22	1		05/22/19 06:36	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/22/19 06:36	1634-04-4	
Naphthalene	14.6	ug/L	5.0	1.2	1		05/22/19 06:36	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		05/22/19 06:36	108-88-3	
1,2,4-Trimethylbenzene	85.1	ug/L	2.8	0.84	1		05/22/19 06:36	95-63-6	
1,3,5-Trimethylbenzene	54.8	ug/L	2.9	0.87	1		05/22/19 06:36	108-67-8	
m&p-Xylene	43.5	ug/L	2.0	0.47	1		05/22/19 06:36	179601-23-1	
o-Xylene	0.34J	ug/L	1.0	0.26	1		05/22/19 06:36	95-47-6	
Surrogates									
Dibromofluoromethane (S)	104	%	70-130		1		05/22/19 06:36	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		05/22/19 06:36	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		1		05/22/19 06:36	460-00-4	

Sample: MW5 Lab ID: 40187900005 Collected: 05/16/19 10:20 Received: 05/18/19 08:25 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		05/21/19 14:40	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		05/21/19 14:40	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/21/19 14:40	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		05/21/19 14:40	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		05/21/19 14:40	108-88-3	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		05/21/19 14:40	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		05/21/19 14:40	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		05/21/19 14:40	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		05/21/19 14:40	95-47-6	

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ANALYTICAL RESULTS

Project: 7644 THOMAS SERVICE

Pace Project No.: 40187900

Sample: MW5 Lab ID: 40187900005 Collected: 05/16/19 10:20 Received: 05/18/19 08:25 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
<i>Surrogates</i>									
Dibromofluoromethane (S)	111	%	70-130		1		05/21/19 14:40	1868-53-7	
Toluene-d8 (S)	103	%	70-130		1		05/21/19 14:40	2037-26-5	
4-Bromofluorobenzene (S)	85	%	70-130		1		05/21/19 14:40	460-00-4	

Sample: MW6 Lab ID: 40187900006 Collected: 05/16/19 09:40 Received: 05/18/19 08:25 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
<i>Surrogates</i>									
Benzene	<0.25	ug/L	1.0	0.25	1		05/21/19 15:02	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		05/21/19 15:02	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/21/19 15:02	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		05/21/19 15:02	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		05/21/19 15:02	108-88-3	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		05/21/19 15:02	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		05/21/19 15:02	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		05/21/19 15:02	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		05/21/19 15:02	95-47-6	
<i>Surrogates</i>									
Dibromofluoromethane (S)	112	%	70-130		1		05/21/19 15:02	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		05/21/19 15:02	2037-26-5	
4-Bromofluorobenzene (S)	82	%	70-130		1		05/21/19 15:02	460-00-4	

Sample: MW7 Lab ID: 40187900007 Collected: 05/16/19 10:05 Received: 05/18/19 08:25 Matrix: Water									
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
<i>Surrogates</i>									
Benzene	<0.25	ug/L	1.0	0.25	1		05/21/19 15:24	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		05/21/19 15:24	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/21/19 15:24	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		05/21/19 15:24	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		05/21/19 15:24	108-88-3	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		05/21/19 15:24	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		05/21/19 15:24	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		05/21/19 15:24	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		05/21/19 15:24	95-47-6	
<i>Surrogates</i>									
Dibromofluoromethane (S)	112	%	70-130		1		05/21/19 15:24	1868-53-7	
Toluene-d8 (S)	104	%	70-130		1		05/21/19 15:24	2037-26-5	
4-Bromofluorobenzene (S)	82	%	70-130		1		05/21/19 15:24	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 7644 THOMAS SERVICE

Pace Project No.: 40187900

Sample: MW8 **Lab ID: 40187900008** Collected: 05/16/19 10:10 Received: 05/18/19 08:25 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		05/21/19 15:46	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		05/21/19 15:46	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/21/19 15:46	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		05/21/19 15:46	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		05/21/19 15:46	108-88-3	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		05/21/19 15:46	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		05/21/19 15:46	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		05/21/19 15:46	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		05/21/19 15:46	95-47-6	
Surrogates									
Dibromofluoromethane (S)	114	%	70-130		1		05/21/19 15:46	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		05/21/19 15:46	2037-26-5	
4-Bromofluorobenzene (S)	84	%	70-130		1		05/21/19 15:46	460-00-4	

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QUALITY CONTROL DATA

Project: 7644 THOMAS SERVICE
Pace Project No.: 40187900

QC Batch: 321768 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40187900001, 40187900002, 40187900003, 40187900004, 40187900005, 40187900006, 40187900007, 40187900008

METHOD BLANK: 1869037 Matrix: Water
Associated Lab Samples: 40187900001, 40187900002, 40187900003, 40187900004, 40187900005, 40187900006, 40187900007, 40187900008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	0.84	05/21/19 06:38	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	0.87	05/21/19 06:38	
Benzene	ug/L	<0.25	1.0	0.25	05/21/19 06:38	
Ethylbenzene	ug/L	<0.22	1.0	0.22	05/21/19 06:38	
m&p-Xylene	ug/L	<0.47	2.0	0.47	05/21/19 06:38	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	1.2	05/21/19 06:38	
Naphthalene	ug/L	<1.2	5.0	1.2	05/21/19 06:38	
o-Xylene	ug/L	<0.26	1.0	0.26	05/21/19 06:38	
Toluene	ug/L	<0.17	5.0	0.17	05/21/19 06:38	
4-Bromofluorobenzene (S)	%	89	70-130		05/21/19 06:38	
Dibromofluoromethane (S)	%	108	70-130		05/21/19 06:38	
Toluene-d8 (S)	%	104	70-130		05/21/19 06:38	

LABORATORY CONTROL SAMPLE: 1869038

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	57.3	115	70-130	
Ethylbenzene	ug/L	50	57.1	114	80-124	
m&p-Xylene	ug/L	100	117	117	70-130	
Methyl-tert-butyl ether	ug/L	50	54.8	110	54-137	
o-Xylene	ug/L	50	57.4	115	70-130	
Toluene	ug/L	50	55.8	112	80-126	
4-Bromofluorobenzene (S)	%			100	70-130	
Dibromofluoromethane (S)	%			107	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1869457 1869458

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40187898010 Result	Spike Conc.	Spike Conc.	MS Result								
Benzene	ug/L	1.1	50	50	56.9	59.5	112	117	70-130	4	20		
Ethylbenzene	ug/L	<0.22	50	50	56.1	57.5	112	115	80-125	2	20		
m&p-Xylene	ug/L	1.3J	100	100	112	120	110	119	70-130	7	20		
Methyl-tert-butyl ether	ug/L	<1.2	50	50	52.6	54.3	105	109	51-145	3	20		
o-Xylene	ug/L	0.89J	50	50	56.6	59.7	111	118	70-130	5	20		
Toluene	ug/L	0.67J	50	50	55.4	55.8	109	110	80-131	1	20		
4-Bromofluorobenzene (S)	%						100	101	70-130				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 7644 THOMAS SERVICE

Pace Project No.: 40187900

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1869457 1869458												
Parameter	Units	40187898010 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Dibromofluoromethane (S)	%							109	111	70-130		
Toluene-d8 (S)	%							102	103	70-130		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: 7644 THOMAS SERVICE

Pace Project No.: 40187900

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 7644 THOMAS SERVICE

Pace Project No.: 40187900

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40187900001	MW1	EPA 8260	321768		
40187900002	MW2	EPA 8260	321768		
40187900003	MW3	EPA 8260	321768		
40187900004	MW4R	EPA 8260	321768		
40187900005	MW5	EPA 8260	321768		
40187900006	MW6	EPA 8260	321768		
40187900007	MW7	EPA 8260	321768		
40187900008	MW8	EPA 8260	321768		

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(Please Print Clearly)

Company Name: REI
 Branch/Location: Wausan
 Project Contact: Dave Larson
 Phone: 715-675-9784
 Project Number: 7644
 Project Name: Thomas Service
 Project State: WI MI
 Sampled By (Print): Ryan Resch
 Sampled By (Sign): Ryan Resch
 PO #:



UPPER MIDWEST REGION
 MN: 612-607-1700 WI: 920-469-2436

C/0187900

CHAIN OF CUSTODY

Preservation Codes
 A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED?
(YES/NO)
 PRESERVATION
(CODE)*

Y/N	Pick Letter	Analysis Requested	DATE	TIME	MATRIX
N	B	PVOC + Naphthalene	5/16/19	9:50	GW
				10:15	
				10:00	
				10:30	
				10:20	
				9:40	
				10:05	
				10:10	

Quote #:
 Mail To Contact: Dave Larson
 Mail To Company: REI
 Mail To Address: DLarsen@enviroengineering.com
 Invoice To Contact: SAA
 Invoice To Company: I
 Invoice To Address: I
 Invoice To Phone:
 CLIENT COMMENTS:
 LAB COMMENTS (Lab Use Only):
 Profile #:

Data Package Options (billable)
 EPA Level III
 EPA Level IV

MS/MSD
 On your sample (billable)
 NOT needed on your sample

Matrix Codes
 A = Air W = Water
 B = Biota DW = Drinking Water
 C = Charcoal GW = Ground Water
 O = Oil SW = Surface Water
 S = Soil WW = Waste Water
 SI = Sludge WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
001	MW1	5/16/19	9:50	GW
002	MW2		10:15	
003	MW3		10:00	
004	MW4R		10:30	
005	MW5		10:20	
006	MW6		9:40	
007	MW7		10:05	
008	MW8		10:10	

JU

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:	Relinquished By: Ryan Resch Date/Time: 5/17/19 4:00 pm	Received By: Date/Time:	PACE Project No. C/0187900 Receipt Temp = 4.5 °C Sample Receipt pH OK / Adjusted Cooler Custody Seal Present / Not Present Intact / Not Intact
	Relinquished By: Date/Time: 5/17/19 08:25	Received By: Ryan Resch Date/Time: 5/18/19 08:25	
	Relinquished By: Date/Time:	Received By: Date/Time:	
	Relinquished By: Date/Time:	Received By: Date/Time:	

Sample Preservation Receipt Form

Pace Analytical Services, LLC
1241 Bellevue Street, Suite 98
Green Bay, WI 54304

Client Name: REI Thomas

Project # 40157900

All containers needing preservation have been checked and noted below: Yes No N/A

Lab Lot# of pH paper:

Lab Std #ID of preservation (if pH adjusted):


Initial when completed:

Date/Time:

Pace Lab #	Glass							Plastic							Vials				Jars			General			VOA Vials (>6mm) *	H2SO4 pH ≤	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤	pH after adjusted	Volume (mL)						
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU	WPFU	SP5T								ZPLC	GN				
001																																					2.5 / 5 / 10
002																																					2.5 / 5 / 10
003																																					2.5 / 5 / 10
004																																					2.5 / 5 / 10
005																																					2.5 / 5 / 10
006																																					2.5 / 5 / 10
007																																					2.5 / 5 / 10
008																																					2.5 / 5 / 10
009																																					2.5 / 5 / 10
010																																					2.5 / 5 / 10
011																																					2.5 / 5 / 10
012																																					2.5 / 5 / 10
013																																					2.5 / 5 / 10
014																																					2.5 / 5 / 10
015																																					2.5 / 5 / 10
016																																					2.5 / 5 / 10
017																																					2.5 / 5 / 10
018																																					2.5 / 5 / 10
019																																					2.5 / 5 / 10
020																																					2.5 / 5 / 10

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WIDRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm): Yes No N/A *If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	DG9A	40 mL amber ascorbic	JGFU	4 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP2N	500 mL plastic HNO3	DG9T	40 mL amber Na Thio	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH, Znact	VG9U	40 mL clear vial unpres	WPFU	4 oz plastic jar unpres
AG4U	120 mL amber glass unpres	BP3U	250 mL plastic unpres	VG9H	40 mL clear vial HCL		
AG5U	100 mL amber glass unpres	BP3B	250 mL plastic NaOH	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres	BP3S	250 mL plastic H2SO4			GN:	

 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 25Apr2018
	Document No.: F-GB-C-031-Rev.07	Issuing Authority: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project # _____

 Client Name: REI
WO#: 40187900

 Courier: CS Logistics Fed Ex Speedee UPS Waltco
 Client Pace Other: _____

 Tracking #: 2060822-1

 Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

 Custody Seal on Samples Present: yes no Seals intact: yes no

 Packing Material: Bubble Wrap Bubble Bags None Other Paper

 Thermometer Used SR-30 Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

 Cooler Temperature Uncorr: 4.5 / Corr: 4.5

 Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Person examining contents: Date: <u>5/18/19</u> Initials: <u>PG</u>

 Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time: _____
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

 Client Notification/ Resolution: _____ If checked, see attached form for additional comments
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

 Project Manager Review: [Signature]

 Date: 5-20-19

September 17, 2019

DAVID LARSEN
REI
4080 NORTH 20TH AVENUE
Wausau, WI 54401

RE: Project: 7644 THOMAS SERVICE
Pace Project No.: 40195076

Dear DAVID LARSEN:

Enclosed are the analytical results for sample(s) received by the laboratory on September 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 7644 THOMAS SERVICE

Pace Project No.: 40195076

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

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SAMPLE SUMMARY

Project: 7644 THOMAS SERVICE

Pace Project No.: 40195076

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40195076001	MW1	Water	09/10/19 11:30	09/13/19 09:10
40195076002	MW6	Water	09/10/19 10:45	09/13/19 09:10
40195076003	MW3	Water	09/10/19 11:45	09/13/19 09:10
40195076004	MW4R	Water	09/10/19 12:15	09/13/19 09:10
40195076005	MW5	Water	09/10/19 11:15	09/13/19 09:10
40195076006	MW2	Water	09/10/19 11:35	09/13/19 09:10
40195076007	MW7	Water	09/10/19 12:00	09/13/19 09:10

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SAMPLE ANALYTE COUNT

Project: 7644 THOMAS SERVICE

Pace Project No.: 40195076

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40195076001	MW1	EPA 8260	LAP	12
40195076002	MW6	EPA 8260	LAP	12
40195076003	MW3	EPA 8260	LAP	12
40195076004	MW4R	EPA 8260	LAP	12
40195076005	MW5	EPA 8260	LAP	12
40195076006	MW2	EPA 8260	LAP	12
40195076007	MW7	EPA 8260	LAP	12

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 7644 THOMAS SERVICE

Pace Project No.: 40195076

Sample: MW1 Lab ID: 40195076001 Collected: 09/10/19 11:30 Received: 09/13/19 09:10 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		09/16/19 19:43	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		09/16/19 19:43	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		09/16/19 19:43	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		09/16/19 19:43	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		09/16/19 19:43	108-88-3	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		09/16/19 19:43	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		09/16/19 19:43	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		09/16/19 19:43	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		09/16/19 19:43	95-47-6	
Surrogates									
Dibromofluoromethane (S)	104	%	70-130		1		09/16/19 19:43	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		09/16/19 19:43	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		1		09/16/19 19:43	460-00-4	

Sample: MW6 Lab ID: 40195076002 Collected: 09/10/19 10:45 Received: 09/13/19 09:10 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		09/16/19 20:05	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		09/16/19 20:05	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		09/16/19 20:05	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		09/16/19 20:05	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		09/16/19 20:05	108-88-3	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		09/16/19 20:05	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		09/16/19 20:05	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		09/16/19 20:05	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		09/16/19 20:05	95-47-6	
Surrogates									
Dibromofluoromethane (S)	101	%	70-130		1		09/16/19 20:05	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		09/16/19 20:05	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		1		09/16/19 20:05	460-00-4	

Sample: MW3 Lab ID: 40195076003 Collected: 09/10/19 11:45 Received: 09/13/19 09:10 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		09/16/19 20:28	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		09/16/19 20:28	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		09/16/19 20:28	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		09/16/19 20:28	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		09/16/19 20:28	108-88-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 7644 THOMAS SERVICE

Pace Project No.: 40195076

Sample: MW3 Lab ID: 40195076003 Collected: 09/10/19 11:45 Received: 09/13/19 09:10 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		09/16/19 20:28	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		09/16/19 20:28	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		09/16/19 20:28	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		09/16/19 20:28	95-47-6	
Surrogates									
Dibromofluoromethane (S)	93	%	70-130		1		09/16/19 20:28	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		09/16/19 20:28	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130		1		09/16/19 20:28	460-00-4	

Sample: MW4R Lab ID: 40195076004 Collected: 09/10/19 12:15 Received: 09/13/19 09:10 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	0.54J	ug/L	1.0	0.25	1		09/17/19 01:20	71-43-2	
Ethylbenzene	43.8	ug/L	1.0	0.22	1		09/17/19 01:20	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		09/17/19 01:20	1634-04-4	
Naphthalene	26.1	ug/L	5.0	1.2	1		09/17/19 01:20	91-20-3	
Toluene	0.49J	ug/L	5.0	0.17	1		09/17/19 01:20	108-88-3	
1,2,4-Trimethylbenzene	98.6	ug/L	2.8	0.84	1		09/17/19 01:20	95-63-6	
1,3,5-Trimethylbenzene	19.4	ug/L	2.9	0.87	1		09/17/19 01:20	108-67-8	
m&p-Xylene	67.5	ug/L	2.0	0.47	1		09/17/19 01:20	179601-23-1	
o-Xylene	6.1	ug/L	1.0	0.26	1		09/17/19 01:20	95-47-6	
Surrogates									
Dibromofluoromethane (S)	90	%	70-130		1		09/17/19 01:20	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		09/17/19 01:20	2037-26-5	
4-Bromofluorobenzene (S)	103	%	70-130		1		09/17/19 01:20	460-00-4	

Sample: MW5 Lab ID: 40195076005 Collected: 09/10/19 11:15 Received: 09/13/19 09:10 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		09/16/19 20:50	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		09/16/19 20:50	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		09/16/19 20:50	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		09/16/19 20:50	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		09/16/19 20:50	108-88-3	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		09/16/19 20:50	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		09/16/19 20:50	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		09/16/19 20:50	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		09/16/19 20:50	95-47-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 7644 THOMAS SERVICE

Pace Project No.: 40195076

Sample: MW5 Lab ID: 40195076005 Collected: 09/10/19 11:15 Received: 09/13/19 09:10 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
<i>Surrogates</i>									
Dibromofluoromethane (S)	97	%	70-130		1		09/16/19 20:50	1868-53-7	
Toluene-d8 (S)	95	%	70-130		1		09/16/19 20:50	2037-26-5	
4-Bromofluorobenzene (S)	86	%	70-130		1		09/16/19 20:50	460-00-4	

Sample: MW2 Lab ID: 40195076006 Collected: 09/10/19 11:35 Received: 09/13/19 09:10 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		09/16/19 21:13	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		09/16/19 21:13	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		09/16/19 21:13	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		09/16/19 21:13	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		09/16/19 21:13	108-88-3	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		09/16/19 21:13	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		09/16/19 21:13	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		09/16/19 21:13	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		09/16/19 21:13	95-47-6	
<i>Surrogates</i>									
Dibromofluoromethane (S)	98	%	70-130		1		09/16/19 21:13	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		09/16/19 21:13	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		1		09/16/19 21:13	460-00-4	

Sample: MW7 Lab ID: 40195076007 Collected: 09/10/19 12:00 Received: 09/13/19 09:10 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		09/16/19 21:35	71-43-2	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		09/16/19 21:35	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		09/16/19 21:35	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		09/16/19 21:35	91-20-3	
Toluene	<0.17	ug/L	5.0	0.17	1		09/16/19 21:35	108-88-3	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		09/16/19 21:35	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		09/16/19 21:35	108-67-8	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		09/16/19 21:35	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		09/16/19 21:35	95-47-6	
<i>Surrogates</i>									
Dibromofluoromethane (S)	103	%	70-130		1		09/16/19 21:35	1868-53-7	
Toluene-d8 (S)	96	%	70-130		1		09/16/19 21:35	2037-26-5	
4-Bromofluorobenzene (S)	89	%	70-130		1		09/16/19 21:35	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 7644 THOMAS SERVICE
Pace Project No.: 40195076

QC Batch: 334008 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40195076001, 40195076002, 40195076003, 40195076004, 40195076005, 40195076006, 40195076007

METHOD BLANK: 1939635 Matrix: Water
Associated Lab Samples: 40195076001, 40195076002, 40195076003, 40195076004, 40195076005, 40195076006, 40195076007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	09/16/19 15:59	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	09/16/19 15:59	
Benzene	ug/L	<0.25	1.0	09/16/19 15:59	
Ethylbenzene	ug/L	<0.22	1.0	09/16/19 15:59	
m&p-Xylene	ug/L	<0.47	2.0	09/16/19 15:59	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	09/16/19 15:59	
Naphthalene	ug/L	<1.2	5.0	09/16/19 15:59	
o-Xylene	ug/L	<0.26	1.0	09/16/19 15:59	
Toluene	ug/L	<0.17	5.0	09/16/19 15:59	
4-Bromofluorobenzene (S)	%	88	70-130	09/16/19 15:59	
Dibromofluoromethane (S)	%	97	70-130	09/16/19 15:59	
Toluene-d8 (S)	%	98	70-130	09/16/19 15:59	

LABORATORY CONTROL SAMPLE: 1939636

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	46.8	94	70-130	
Ethylbenzene	ug/L	50	55.0	110	80-124	
m&p-Xylene	ug/L	100	115	115	70-130	
Methyl-tert-butyl ether	ug/L	50	42.0	84	54-137	
o-Xylene	ug/L	50	55.7	111	70-130	
Toluene	ug/L	50	51.5	103	80-126	
4-Bromofluorobenzene (S)	%			106	70-130	
Dibromofluoromethane (S)	%			96	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1939977 1939978

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40195079002 Result	Spike Conc.	Spike Conc.	MS Result								
Benzene	ug/L	<0.25	50	50	44.9	49.7	90	99	70-130	10	20		
Ethylbenzene	ug/L	<0.22	50	50	53.7	58.3	107	117	80-125	8	20		
m&p-Xylene	ug/L	<0.47	100	100	114	122	114	122	70-130	7	20		
Methyl-tert-butyl ether	ug/L	<1.2	50	50	42.0	47.5	84	95	51-145	12	20		
o-Xylene	ug/L	<0.26	50	50	55.9	59.5	112	119	70-130	6	20		
Toluene	ug/L	<0.17	50	50	51.6	57.7	103	115	80-131	11	20		
4-Bromofluorobenzene (S)	%						104	104	70-130				
Dibromofluoromethane (S)	%						95	91	70-130				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: 7644 THOMAS SERVICE

Pace Project No.: 40195076

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1939977 1939978												
Parameter	Units	40195079002 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Toluene-d8 (S)	%							99	102	70-130		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: 7644 THOMAS SERVICE
Pace Project No.: 40195076

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 7644 THOMAS SERVICE

Pace Project No.: 40195076

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40195076001	MW1	EPA 8260	334008		
40195076002	MW6	EPA 8260	334008		
40195076003	MW3	EPA 8260	334008		
40195076004	MW4R	EPA 8260	334008		
40195076005	MW5	EPA 8260	334008		
40195076006	MW2	EPA 8260	334008		
40195076007	MW7	EPA 8260	334008		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: REE
 Branch/Location: Wausau
 Project Contact: Dane Larson
 Phone: 715-679-2411
 Project Number: 7644
 Project Name: Thomas Service
 Project State: WI
 Sampled By (Print): Paul Bushan
 Sampled By (Sign): [Signature]
 PO #:



UPPER MIDWEST REGION

MN: 612-607-1700 WI: 920-469-2436

40195076

CHAIN OF CUSTODY

Preservation Codes
 A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED?
(YES/NO)
 PRESERVATION
(CODE)*

Y/N	Pick Letter	Analyses Requested	COLLECTION		MATRIX
			DATE	TIME	
N	B	[Signature]	9-6-19	11:30	GW
				10:45	
				11:45	
				12:15	
				11:15	
				11:35	
				12:00	

Quote #: _____
 Mail To Contact: [Signature]
 Mail To Company: REE
 Mail To Address: _____
 Invoice To Contact: SAA
 Invoice To Company: _____
 Invoice To Address: _____
 Invoice To Phone: _____
 CLIENT COMMENTS: _____
 LAB COMMENTS (Lab Use Only): [Signature]
 Profile #: _____

Data Package Options (billable)
 EPA Level III
 EPA Level IV

MS/MSD
 On your sample (billable)
 NOT needed on your sample

Matrix Codes
 A = Air W = Water
 B = Biota DW = Drinking Water
 C = Charcoal GW = Ground Water
 O = Oil SW = Surface Water
 S = Soil WW = Waste Water
 Sl = Sludge WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
001	MV1	9-6-19	11:30	GW
002	MW6		10:45	
003	MW3		11:45	
004	MV4R		12:15	
005	MW5		11:15	
006	MW2		11:35	
007	MV7		12:00	

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:	Relinquished By: <u>[Signature]</u> Date/Time: <u>9-12-19 1600</u>	Received By: _____ Date/Time: _____	PACE Project No. <u>40195076</u> Receipt Temp = <u>201</u> °C Sample Receipt pH OK / Adjusted Cooler Custody Seal Present / Not Present Intact / Not Intact
Transmit Prelim Rush Results by (complete what you want):	Relinquished By: <u>Waltco</u> Date/Time: <u>9/13/19 0910</u>	Received By: <u>[Signature]</u> Date/Time: <u>9/13/19 0910</u>	
Email #1:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	
Email #2:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	
Telephone:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	
Fax:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	

Samples on HOLD are subject to special pricing and release of liability

Sample Preservation Receipt Form

Client Name: REI

Project # U0195076

All containers needing preservation have been checked and noted below: Yes No N/A

Lab Lot# of pH paper:

Lab Std #ID of preservation (if pH adjusted):

Initial when completed:

Date/Time:

Pace Lab #	Glass						Plastic						Vials					Jars			General			VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)	
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU	WPFU								SP5T
001																	3														2.5/5/10
002																	3														2.5/5/10
003																	3														2.5/5/10
004																	3														2.5/5/10
005																	3														2.5/5/10
006																	3														2.5/5/10
007																	3														2.5/5/10
008																															2.5/5/10
009																															2.5/5/10
010																															2.5/5/10
011																															2.5/5/10
012																															2.5/5/10
013																															2.5/5/10
014																															2.5/5/10
015																															2.5/5/10
016																															2.5/5/10
017																															2.5/5/10
018																															2.5/5/10
019																															2.5/5/10
020																															2.5/5/10

9/13/1967

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other:

Headspace in VOA Vials (>6mm) : Yes No N/A *If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	DG9A	40 mL amber ascorbic	JGFU	4 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP2N	500 mL plastic HNO3	DG9T	40 mL amber Na Thio	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH, Znact	VG9U	40 mL clear vial unpres	WPFU	4 oz plastic jar unpres
AG4U	120 mL amber glass unpres	BP3U	250 mL plastic unpres	VG9H	40 mL clear vial HCL		
AG5U	100 mL amber glass unpres	BP3B	250 mL plastic NaOH	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres	BP3S	250 mL plastic H2SO4			GN:	



1241 Bellevue Street, Green Bay, WI 54302

Document Name:
Sample Condition Upon Receipt (SCUR)

Document No.:
F-GB-C-031-Rev.07

Document Revised: 25Apr2018

Issuing Authority:
Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: REL

Project #:

WO#: **40195076**

Courier: CS Logistics Fed Ex Speedee UPS Waltco
 Client Pace Other: _____



40195076

Tracking #: 2174023-1

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR - NA Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: R01 /Corr: _____

Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Person examining contents:
Date: 9/13/19
Initials: PL

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2. <u>PS #</u>
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

If checked, see attached form for additional comments.

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____

Date: 9-16-19