

Meridian Environmental Consulting, LLC

June 16, 2017

John Sager
Wisconsin Department of Natural Resources
1701 N. 4th St.
Superior, WI 54880

*Rec'd by
Wagner
6/22/17*

Subject: **Progress Report: June 2017**
Wagner Oil Spill – March 12, 2016
Hwy. 45 – Rolling Township, Langlade County, Wisconsin
DNR BRRTS No. 02-34-577387
Meridian No. 05C817

Dear John:

This letter describes work completed to date in response to the above referenced spill.

This work included:

- Installing a monitoring well network
- Ground water sampling

The results of the sampling indicate the extent of impacts to the soil and ground water is defined. The ground water contaminant plume appears to be stable and receding. Based on these results, we recommend two more rounds of ground water sampling. If the results continue to support a stable and/or receding plume, we will evaluate this site for Closure with GIS Registry for Soil and Ground Water.

BACKGROUND INFORMATION

Please refer to file reports for detailed background information. A brief summary is provided below.

The spill occurred March 12, 2016 on Hwy. 45 near Aniwa, Wisconsin (Figures 1 and 2). An estimated 1787 gallons of gasoline spilled onto the roadway and flowed easterly onto the shoulder and ditch.

Cleanup included using absorbent pads and booms (29 drums), vacuum truck(s) (14,800 gallons of gasoline/water mixture), and soil excavation (670.18 tons).

An estimated 1500 gallons (or more) of product was recovered in the initial emergency response action. Additionally, a significant portion of the unrecovered product likely evaporated over time (especially during the hot summer months).

REMEDIAL INVESTIGATION

Soil Borings – May 25, 2016

Seventeen soil borings (B1 through B17) were installed in the locations shown on Figure 3. The boring depths ranged from 8 to 12 ft below grade. Soil samples were collected from the borings and analyzed for PVOC+Naphthalene. The results are summarized in Table 1.

Ground water samples were collected from several soil borings; the results are summarized in Table 2.

Temporary Monitoring Wells – May 25, 2016

Five temporary monitoring wells (1-inch dia) (TMW-1 thru TMW-5) were installed in the locations shown on Figure 3. The wells were screened across the water table with 5 ft screens. Ground water samples were collected from these wells; the results are summarized in Table 2.

Monitoring Wells – August 10, 2016 and November 14, 2016

Monitoring wells MW-1, MW-2, and MW-3 were installed August 10, 2016 in the locations shown on Figure 3. Monitoring wells MW-4, MW-5, MW-6 were installed November 14, 2016.

Ground Water Sampling

Ground water samples were collected August 29, November 30, 2016 and March 29, 2017. The analytical reports are provided in Appendix A and summarized in Table 2.

The depth to ground water was measured in each well prior to sampling (Table 3).

Natural attenuation parameters were measured in the field during each sampling event (Table 4).

DATA EVALUATION

Setting

The site is located in a rural area of Langlade County. The area is forested. The spill occurred in a topographic swale with surface water flow to the south/southeast. The remedial excavation created a shallow pond (approximately 1 foot depth).

The nearest residences are located over ¼ mile away.

Hydrogeology

The site is underlain by heterogeneous glacial deposits consisting of sand, gravel, clay, and silt with large boulders. Bedrock (described as 'granite' in area well logs) is typically encountered in area wells about 50 feet below grade.

The soil borings encountered silty sands with some coarser sand, gravel, and large boulders (Figure 4). Ground water flow appears to be southerly (Figure 5).

Impacted Soil

The soil borings and soil samples defined the extent of impacted soil. There was residual soil contamination around the perimeter and floor of the excavated area. These impacts will naturally attenuate and do not require further investigation and remediation.

No further action is recommended with respect to soil impacts.

Extent of Impacted Ground Water

The analytical data and ground water flow measurements indicate the extent of impacted ground water is as shown in Figure 6.

Environmental Risk Analysis

The primary environmental risks at this site are surface water and potential impacts to nearby potable wells. Based on the water sample from the pond (Table 2), the initial remedial actions appear to have removed shallow petroleum impacts which present a threat to surface water. No further action is recommended with respect to surface water.

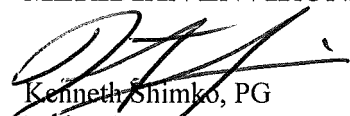
Private wells are located about ¼ mile from the site. Petroleum impacts are not expected to travel that distance. A sample of the well water from the property owner (Pat Stone) was collected March 29, 2017. No impacts were measured in this water sample (Table 2).

RECOMMENDATIONS

The soil and ground water sampling data indicate the extent of impacts are defined. The ground water contaminant plume appears to be stable and receding. We recommend two more sampling events (all wells and the pond). If the results continue to demonstrate a stable plume, the site will be evaluated for Closure with GIS Registry for Soil and Ground Water.

Sincerely,

MERIDIAN ENVIRONMENTAL CONSULTING, LLC


Kenneth Shimko, PG
Project Manager

C: John Wagner
Wagner Oil Company

TABLES

Table 1: Geoprobe Soil Analytical Results Table
Wagner Oil Company - Highway 45 Gasoline Spill
Rolling, WI
(Table Created By REI)

Date-->			5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16		
Sample-->			B1	B1	B2	B2	B3	B3	B4	B4	B5	B5	B6	B6	B7	B7	B8		
Sample Depth-->			2-4'	6-8'	2-4'	10-12'	2-4'	6-8'	2-4'	6-8'	2-4'	10-12'	2-4'	10-12'	2-4'	10-12'	2-4'		
Percent Moisture (%)			7.2	12.0	6.5	6.1	6.5	8.1	9.3	7.3	8.5	5.5	12.8	NA	10.5	10.9	16.4		
PID (ppm)			0	0	0	0	0	0	0	0	8.2	31.3	0	1,485	0.4	4.2	0		
Petroleum VOC's (mg/kg)	Non-Industrial Not-to-Exceed DC RCL	NR 140 Groundwater Pathway Protection																	
			Benzene	1.49	0.0026	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	26.3	<0.025
Ethylbenzene	7.47	0.785	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	79.9	<0.025	<0.025	<0.025	<0.025
Toluene	818	0.5536	<0.025	<0.025	<0.025	0.0374 ^J	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.0474 ^J	<0.025	<i>250</i>	<0.025	<0.025	<0.025	<0.025
Xylenes (Total)	258	1.97	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	363	<0.050	<0.050	<0.050	<0.050
Methyl-tert-Butyl-Ether (MTBE)	59.4	0.0135	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<i>2.18^J</i>	<0.025	<0.025	<0.025	<0.025
1,2,4- Trimethylbenzene	89.8	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	135	<0.025	<0.025	<0.025	<0.025
1,3,5- Trimethylbenzene	182	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	38.4	<0.025	<0.025	<0.025	<0.025
Trimethylbenzenes (Total)	NA	0.691	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<i>173.40</i>	<0.025	<0.025	<0.025	<0.025
Naphthalene	5.15	0.3291	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	19.8	<0.025	<0.025	<0.025	<0.025

Notes:
 NR 720 Standards Obtained From WDNR Online Database
 RCL - NR720 Soil Residual Concentration Level
 DC - Direct Contact
 < - Concentration Below Laboratory Detection Limit
 NA - No Standard/Not Applicable
 mg/kg - Parts Per Million (ppm)
 J - Estimated concentration at or above the Limit of Detection (LOD) and below the Limit of Quantitation (LOQ)
 Exceeds Non-Industrial Not-To-Exceed DC RCL - **Bold**
 Exceeds NR 140 Groundwater Pathway Protection - *Italic*

**Table 1 (cont): Geoprobe Soil Analytical Results Table
Wagner Oil Company - Highway 45 Gasoline Spill
Rolling, WI
(Table Created by REI)**

		Date-->	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16	5/25/16		
		Sample-->	B9	B9	B10	B10	B11	B11	B12	B13	B13	B14	B15	B15	B16	B16	B17	B17	B17		
		Sample Depth-->	2-4'	4-6'	2-4'	4-6'	2-4'	4-6'	2-4'	2-4'	4-6'	2-4'	4-6'	2-4'	8-10'	2-4'	6-8'	2-4'	6-8'		
		Percent Moisture (%)	10.8	10.7	13.1	15.1	10.9	11.2	11.0	9.8	11.8	9.8	8.7	5.2	14.4	7.0	7.8	5.0	2.3		
		PID (ppm)	1,163	1,107	4.9	1.9	194.6	797	8.0	0.9	7.3	0.8	1.0	0	52.6	26.9	65.7	8.7	30.1		
Petroleum VOC's (mg/kg)	Non-Industrial Not-to-Exceed DC RCL	NR 140 Groundwater Pathway Protection																			
			Benzene	1.49	0.0026	3.9	3.53	<0.025	<0.025	0.394	2.47	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.0569 ^J	<0.025	<0.025
Ethylbenzene	7.47	0.785	8.98	3.79	0.0573 ^J	<0.025	0.0689	1.13	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Toluene	818	0.5536	29.3	14.5	0.137	<0.025	0.675	5.79	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.109	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Xylenes (Total)	258	1.97	48.3	17.3	0.279	<0.050	0.315	5.28	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.0539 ^J	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl-tert-Butyl-Ether (MTBE)	59.4	0.0135	<i>0.201^J</i>	<i>0.0739^J</i>	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
1,2,4- Trimethylbenzene	89.8	NA	17.8	6.39	0.129	<0.025	0.0509 ^J	1.92	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.0535 ^J	<0.025	<0.025	<0.025	<0.025	<0.025
1,3,5- Trimethylbenzene	182	NA	5.1	1.79	0.042 ^J	<0.025	<0.025	0.531	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Trimethylbenzenes (Total)	NA	0.691	22.9	8.18	0.129	<0.025	0.0509 ^J	2.45	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Naphthalene	5.15	0.3291	2.42	<i>0.994</i>	<0.025	<0.025	<0.025	0.312	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025

Notes:

NR 720 Standards Obtained From WDNR Online Database

RCL - NR720 Soil Residual Concentration Level

DC - Direct Contact

< - Concentration Below Laboratory Detection Limit

NA - No Standard/Not Applicable

mg/kg - Parts Per Million (ppm)

J - Estimated concentration at or above the Limit of Detection (LOD) and below the Limit of Quantitation (LOQ)

Exceeds Non-Industrial Not-To-Exceed DC RCL -

Bold
<i>Italic</i>

Exceeds NR 140 Groundwater Pathway Protection -

Table 2: Ground Water Analytical Results

Wagner Oil Spill
 Hwy 45 near Anlwa, Wisconsin
 Meridian No. 05C817

Sample Location	Benzene	Ethylbenzene	Toluene	Xylenes (Total)	MTBE	1,2,4-TMB	1,3,5-TMB	TMB (Total)	Naphthalene
NR140 Enforcement Standard	5	700	800	2000	60			480	100
NR140 Preventative Action Limit	0.5	140	160	400	12			96	10
Soil Borings									
B3	<0.40	<0.39	<0.39	<1.2	<0.48	NR	NR	<0.42	<0.42
B5	9,620	883	15,000	4,240	<48.5	NR	NR	326	77.6 ¹
B8	8.6	1.2	9.9	5.3	<0.48	NR	NR	<0.42	<0.42
B9	25,800	5,050	47,600	23,200	<121	NR	NR	5,490	676
B12	299	82.8	930	367	<4.8	NR	NR	16.3	<4.2
B13	32.5	0.80 ¹	24.9	2.8 ¹	<0.48	NR	NR	3.3	<0.42
B15	39.9	3.3	46.2	10.5	<0.48	NR	NR	0.56 ¹	<0.42
B16	3,250	2,340	17,600	10,300	<48.5	NR	NR	2,091	278
Monitoring Wells (temporary and 2-Inch)									
TW1 (B2) (installed 5/25/16)									
5/25/2016	<0.40	<0.39	<0.39	<1.2	<0.48	NR	NR	<0.42	<0.42
8/29/2016	Could not locate								
11/30/2016	<.4	4	<.39	24.1	<.48	<.42	<.42	<.42	<.42
3/29/2017	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	<.42
TW2 (B4) (installed 5/25/16)									
5/25/2016	<0.40	<0.39	<0.39	<1.2	<0.48	NR	NR	<0.42	<0.42
8/29/2016	Could not locate								
11/30/2016	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	<.42
3/29/2017	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	<.42
TW3 (B7) (installed 5/25/16)									
5/25/2016	4.7	<0.39	6.2	<1.2	<0.48	NR	NR	<0.42	<0.42
8/29/2016	16.3	<.39	4.8	5.3	<.48	<.42	0.75	0.75	<.42
11/30/2016	487	16	104	42.4	<2.4	2.9	<2.1	2.9	<2.1
3/29/2017	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	<.42
TW4 (B10) (installed 5/25/16)									
5/25/2016	0.55 ¹	<0.39	1.8	<1.2	<0.48	NR	NR	<0.42	<0.42
8/29/2016	2	2.2	30.9	12.1	<2.4	<2.1	<2.1	<2.1	<2.1
11/30/2016	<.4	<.39	<.39	<12.5	<.48	<.42	<.42	<.42	<.42
3/29/2017	Frozen inside well								
TW5 (B14) (installed 5/25/16)									
5/25/2016	46.5	7.4	90.1	24.8	<0.48	NR	NR	1.6	<0.42
8/29/2016	<.4	<.39	<.39	<12.5	<.42	<.42	<.42	<.42	<.42
11/30/2016	Not sampled - dry								
3/29/2017	Not Sampled								
MW-1 (installed August 10, 2016)									
8/29/2016	6630	1980	186000	10700	<60.6	1500	386	1886	299
11/30/2016	13200	2970	32100	15100	<97	1830	426	2256	341
3/29/2017	2670	2070	14200	12700	23.1	1920	528	2448	273
MW-2 (installed August 10, 2016)									
8/29/2016	10100	1160	18000	7110	<60.6	689	160	849	161
11/30/2016	7630	853	299	2900	<24.2	507	120	627	102
3/29/2017	2040	350	62	515	<4.8	94	63.4	157.4	48.6
MW-3 (installed August 10, 2016)									
8/29/2016	1430	123	1640	818	<9.7	64.2	16.2	80.4	19.5
11/30/2016	1800	118	139	200	<4.8	13.3	12.4	25.7	5.9
3/29/2017	1850	120	425	316	<9.7	37.5	24.8	62.3	<8.5
MW-4 (installed November 14, 2016)									
11/30/2016	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	<.42
3/29/2017	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	<.42
MW-5 (installed November 14, 2016)									
11/30/2016	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	0.72
3/29/2017	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	<.42
MW-6 (installed November 14, 2016)									
11/30/2016	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	<.42
3/29/2017	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	<.42
Pond									
5/25/2016	6.2	4.2	19.9	22.3	<0.48	NR	NR	8.6	2.2
8/29/2016	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	<.42
11/30/2016	11.5	3.6	54.3	61.9	<.48	9.7	4.2	13.9	0.82
3/29/2017	0.44	<.39	1.4	4.3	<.48	0.69	0.64	1.33	<.42
Pat Stone well									
3/29/2017	<.4	<.39	<.39	<1.2	<.48	<.42	<.42	<.42	<.42

NR - Not Reported by the lab

Table 3: Ground Water Level Measurements

Wagner Oil Spill
 Hwy 45 near Aniwa, Wisconsin
 Meridian No. 05C817

TMW-1 (installed May 25, 2016) (screened 9-14 ft below grade)			TMW-2 (installed May 25, 2016) (screened 6-11 ft below grade)			TMW-3 (installed May 25, 2016) (screened 11-16 ft bg)		
Surface Elevation (ft)		102.5	Surface Elevation (ft)		101	Surface Elevation (ft)		104.5
Top of Casing elevation (ft)		102.24	Top of Casing elevation (ft)		100.96	Top of Casing elevation (ft)		104.33
Top of Screen Elevation (ft)		93.5	Top of Screen Elevation (ft)		95	Top of Screen Elevation (ft)		93.5
Bottom of Screen Elevation (ft)		88.5	Bottom of Screen Elevation (ft)		90	Bottom of Screen Elevation (ft)		88.5
Meas. Date	DTW (ft)	GW Elev (ft)	Meas. Date	DTW (ft)	GW Elev (ft)	Meas. Date	DTW (ft)	GW Elev (ft)
8/29/2016		could not locate	8/29/2016		could not locate	8/29/2016	9.97	94.36
11/30/2016	7.17	95.07	11/30/2016	7.5	93.46	11/30/2016	10.91	93.42
3/29/2017	6.38	95.86	3/29/2017	6.2	94.76	3/29/2017	9.51	94.82

TMW-4 (installed May 25, 2016) (screened 3-8 ft bg)			TMW-5 (installed May 25, 2016) (screened 3-8 ft bg)		
Surface Elevation (ft)		100.5	Surface Elevation (ft)		101.75
Top of Casing elevation (ft)		100.46	Top of Casing elevation (ft)		101.59
Top of Screen Elevation (ft)		97.5	Top of Screen Elevation (ft)		98.75
		92.5	Bottom of Screen Elevation (ft)		93.75
Meas. Date	DTW (ft)	GW Elev (ft)	Meas. Date	DTW (ft)	GW Elev (ft)
8/29/2016	5.47	94.99	8/29/2016	6.67	94.92
11/30/2016	6.07	94.39	11/30/2016	7.38	94.21
3/29/2017	FROZEN		3/29/2017	NM	

MW-1 (installed Aug. 10, 2016)			MW-2 (installed Aug. 10, 2016)			MW-3 (installed Aug. 10, 2016)		
Surface Elevation (ft)		100.25	Surface Elevation (ft)		106	Surface Elevation (ft)		102.25
Top of Casing elevation (ft)		100	Top of Casing elevation (ft)		105.86	Top of Casing elevation (ft)		102.18
Top of Screen Elevation (ft)		98	Top of Screen Elevation (ft)		98	Top of Screen Elevation (ft)		99.25
Bottom of Screen Elevation (ft)		88	Bottom of Screen Elevation (ft)		88	Bottom of Screen Elevation (ft)		89.25
Meas. Date	DTW (ft)	GW Elev (ft)	Meas. Date	DTW (ft)	GW Elev (ft)	Meas. Date	DTW (ft)	GW Elev (ft)
8/29/2016	4.99	95.01	8/29/2016	11.41	94.45	8/29/2016	7.21	94.97
11/30/2016	5.95	94.05	11/30/2016	12.21	93.65	11/30/2016	8.36	93.82
3/29/2017	4.13	95.87	3/29/2017	10.86	95	3/29/2017	6.77	95.41

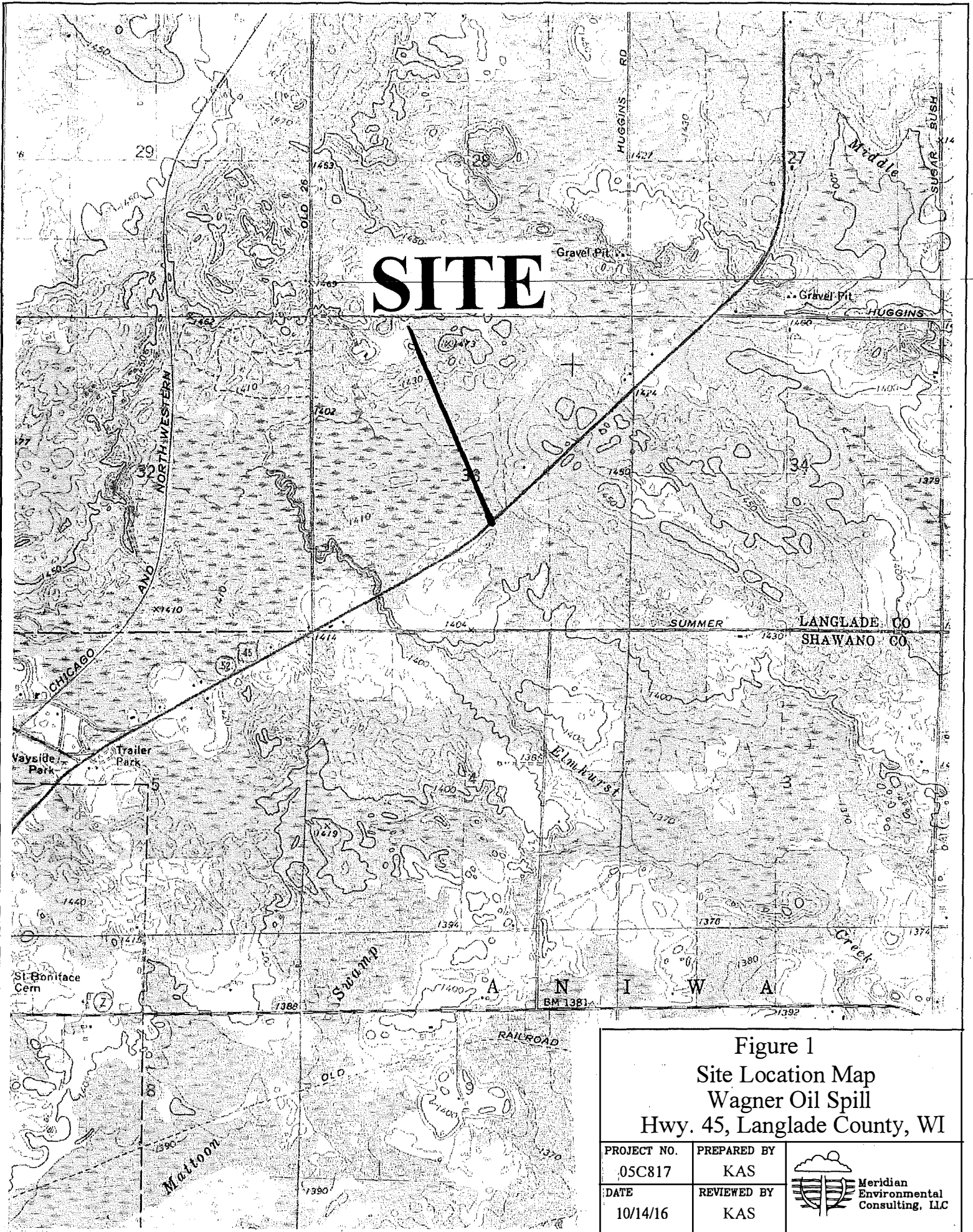
MW-4 (installed 11/14/16)			MW-5 (installed 11/14/16)			MW-6 (installed 11/14/16)		
Surface Elevation (ft)		100.5	Surface Elevation (ft)		108.5	Surface Elevation (ft)		100.25
Top of Casing elevation (ft)		100.37	Top of Casing elevation (ft)		108.29	Top of Casing elevation (ft)		100.08
Top of Screen Elevation (ft)		95.5	Top of Screen Elevation (ft)		97.5	Top of Screen Elevation (ft)		95.75
Bottom of Screen Elevation (ft)		85.5	Bottom of Screen Elevation (ft)		87.5	Bottom of Screen Elevation (ft)		85.75
Meas. Date	DTW (ft)	GW Elev (ft)	Meas. Date	DTW (ft)	GW Elev (ft)	Meas. Date	DTW (ft)	GW Elev (ft)
8/29/2016	4.99	95.01	8/29/2016	11.41	94.45	8/29/2016	7.21	94.97
11/30/2016	7.08	93.29	11/30/2016	15.39	92.9	11/30/2016	4.02	96.06
3/29/2017	5.55	94.82	3/29/2017	13.94	94.35	3/29/2017	1.99	98.09

Table 4: Natural Attenuation Field Measurements

Wagner Oil Spill
 Hwy 45 near Aniwa, Wisconsin
 Meridian No. 05C817

Well	DO	pH	Temp	Conductivity	ORP
MW-1					
8/29/2016	0	7.7	17.6	511	12
11/30/2016	0	7.71	6.7	623	71
3/29/2017	<1	8.94	3.8	802	-95
MW-2					
8/29/2016	0	8.16	15.3	773	31
11/30/2016	0	7.2	8.5	942	-10
3/29/2017	<<1	7.46	5.7	1116	-58
MW-3					
8/29/2016	0	too muddy			
11/30/2016	0	7.15	7.5	646	3
3/29/2017	<<1	7.62	4.8	681	-74
MW-4					
11/30/2016	3	7.72	7.4	108	-8
3/29/2017	4	8.12	4.5	110	-96
MW-5					
11/30/2016	4	7.78	8.4	507	-35
3/29/2017	4	7.45	6.5	518	-59
MW-6					
11/30/2016	2	7.92	7.5	527	-8
3/29/2017	4	7.86	3.3	494	-65
TMW-1					
11/30/2016	1				
3/29/2017	4				
TMW-2					
11/30/2016	3				
3/29/2017	4				
TMW-3					
8/29/2016	<1	too muddy			
11/30/2016	0				
3/29/2017					
TMW-4					
8/29/2016	1	too muddy			
11/30/2016	4				
3/29/2017					
TMW-5					
8/29/2016	3	too muddy			
11/30/2016	Dry				
3/29/2017					
Pond					
8/29/2016	8				
11/30/2016					
3/29/2017	<1				

FIGURES

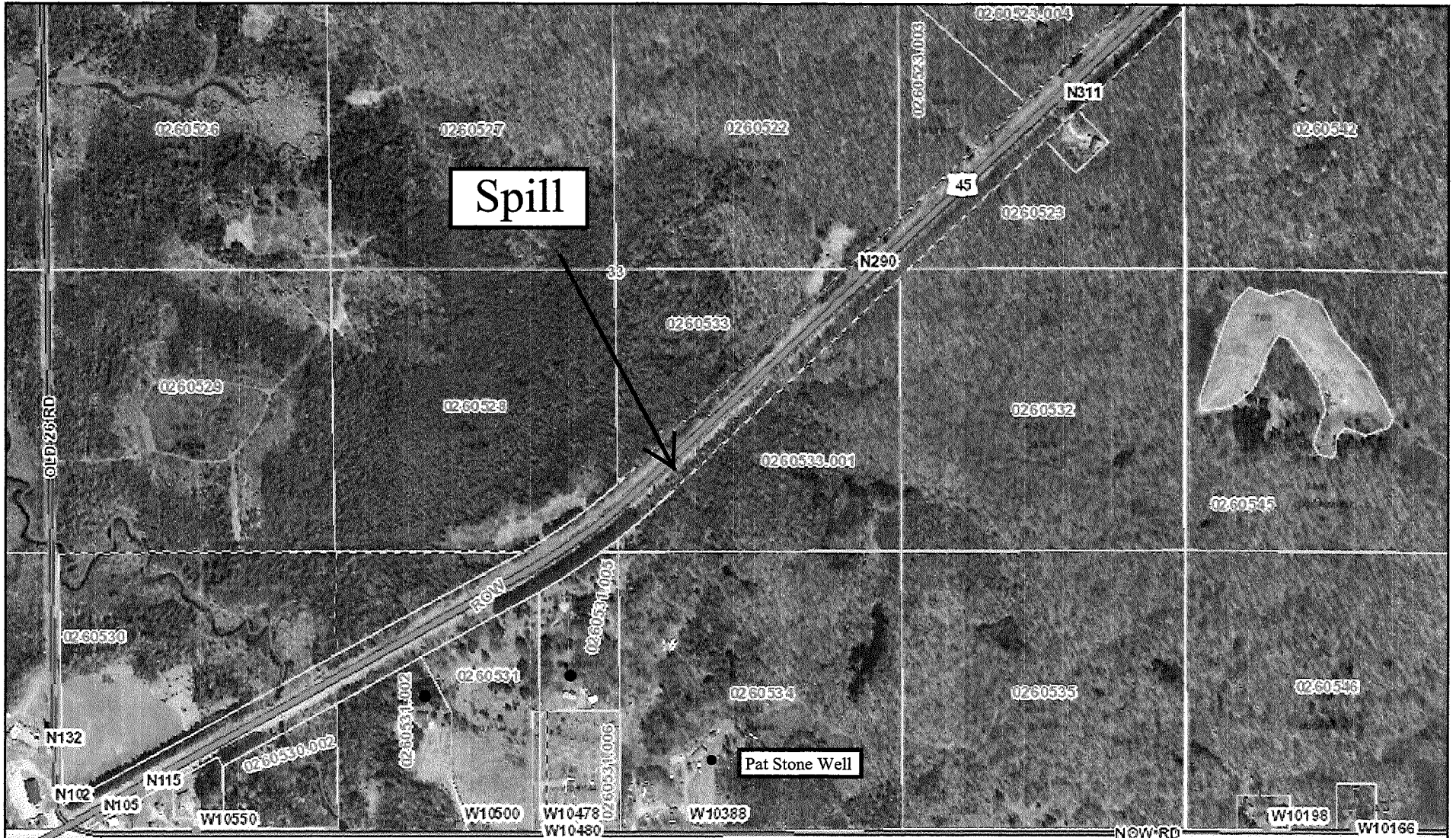


SITE

Figure 1
 Site Location Map
 Wagner Oil Spill
 Hwy. 45, Langlade County, WI

PROJECT NO.	PREPARED BY
05C817	KAS
DATE	REVIEWED BY
10/14/16	KAS





Spill

Pat Stone Well



0 200 400 600ft

DISCLAIMER: This map is not guaranteed to be accurate, correct, current, or complete and conclusions drawn are the responsibility of the user.

● **Private Well**

Figure 2
Site Vicinity Map
Wagner Oil
Hwy 45, Langlade County, WI

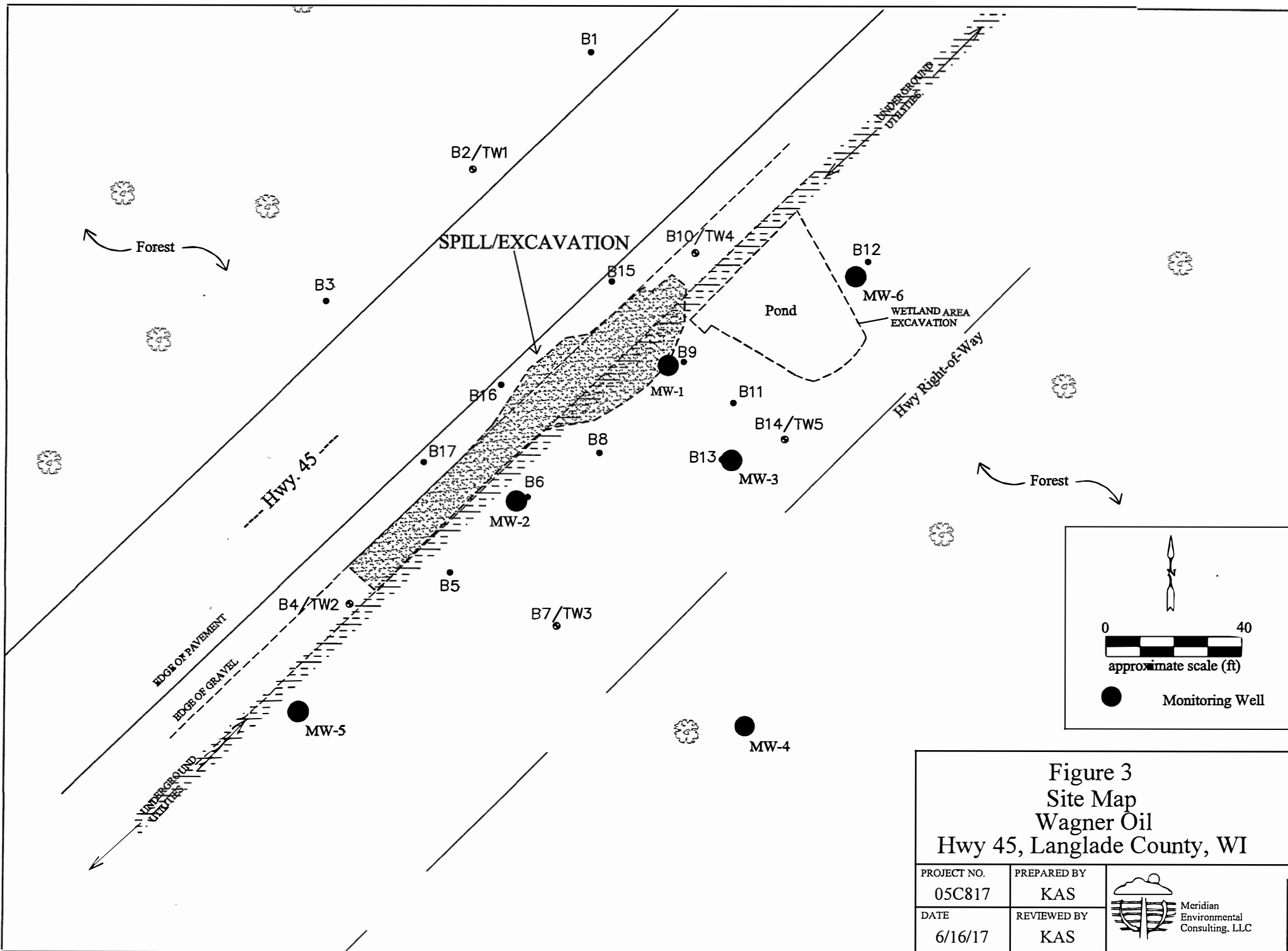



Figure 3
 Site Map
 Wagner Oil
 Hwy 45, Langlade County, WI

PROJECT NO. 05C817	PREPARED BY KAS	 Meridian Environmental Consulting, LLC
DATE 6/16/17	REVIEWED BY KAS	

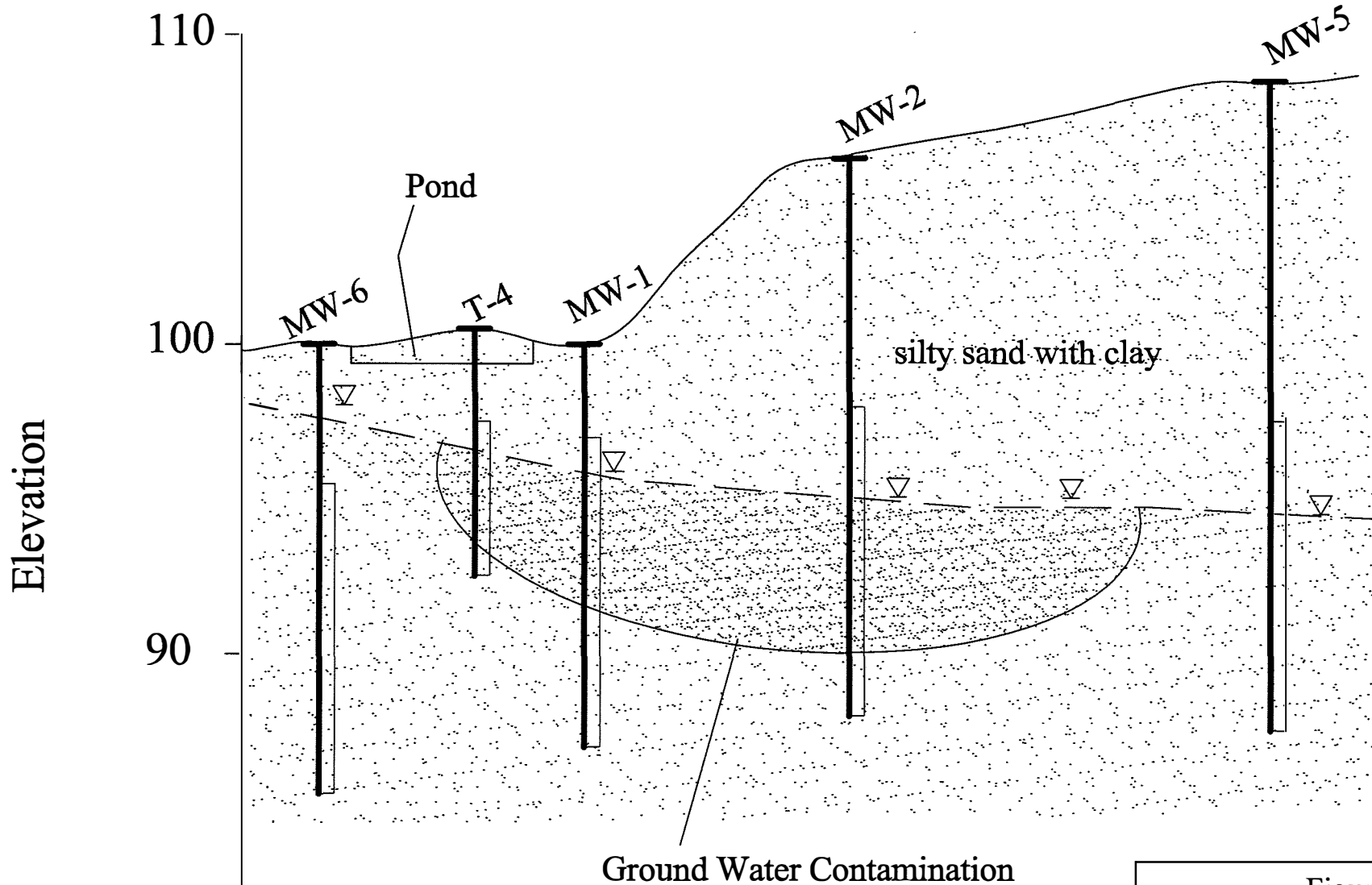



Figure 4
 Cross-Section
 Wagner Oil
 Hwy 45, Langlade Cty, WI

PROJECT NO. 05C817	PREPARED BY KAS	 Meridian Environmental Consulting, LLC
DATE 06/16/17	REVIEWED BY KAS	

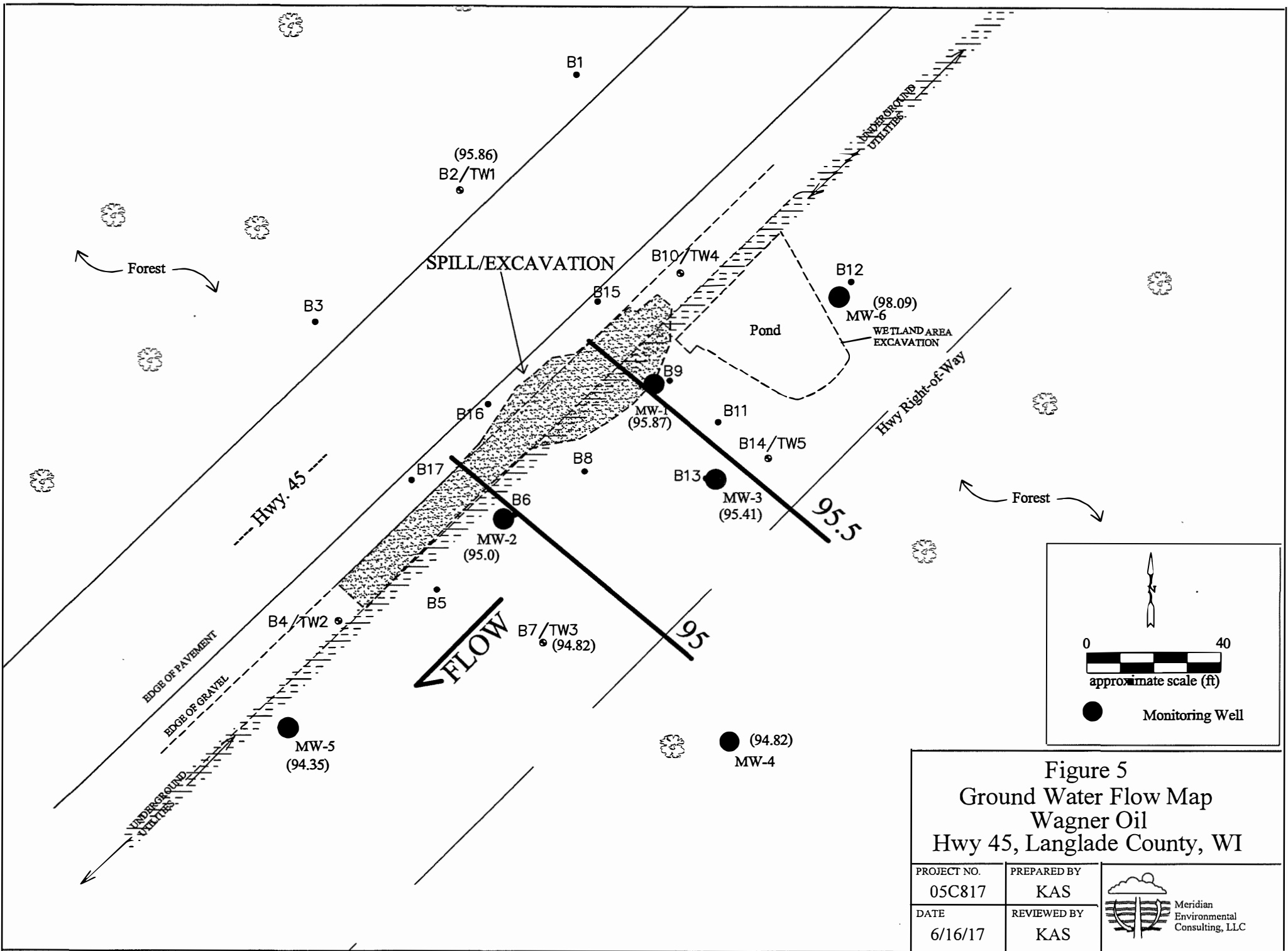

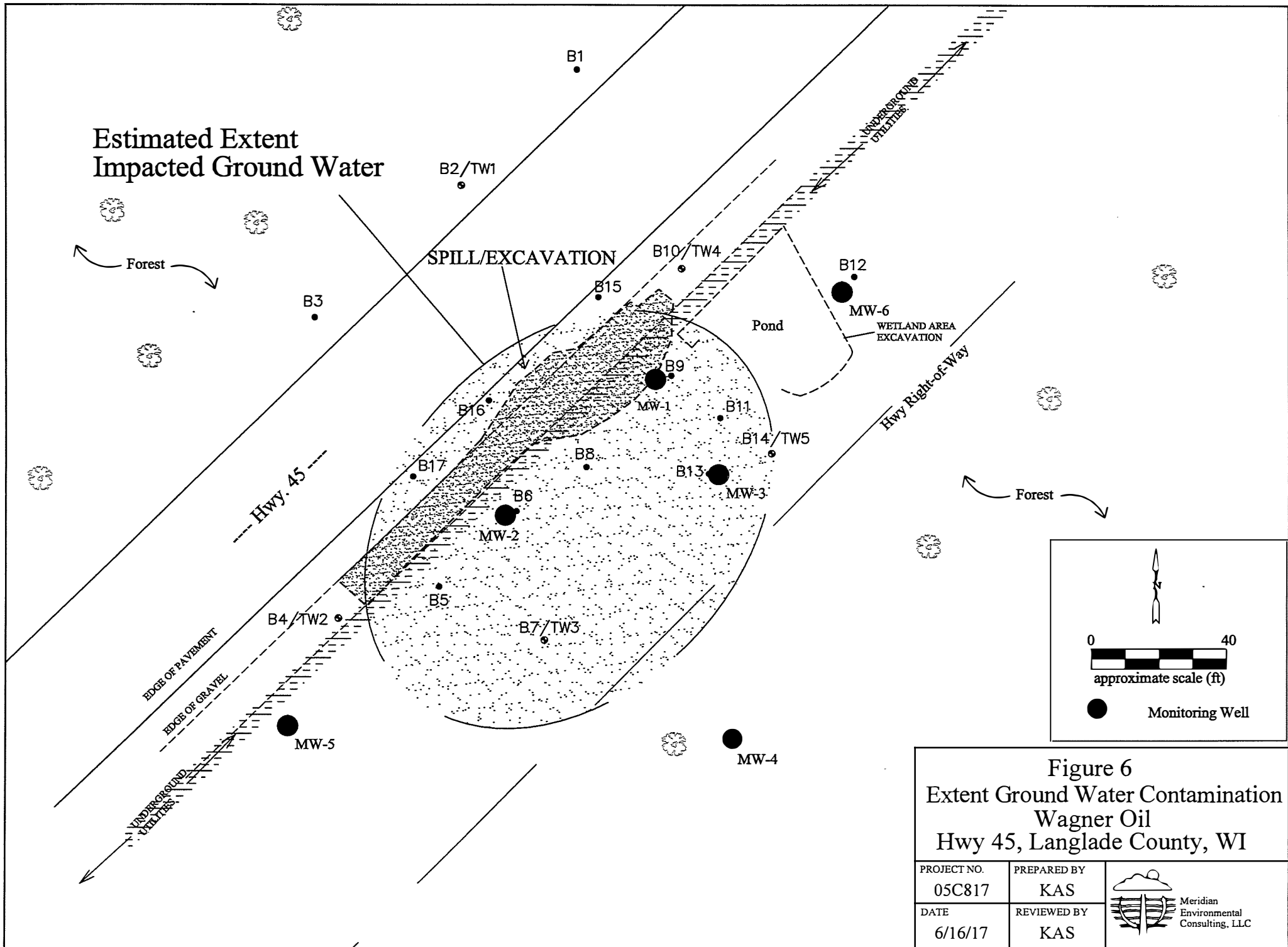


Figure 5
 Ground Water Flow Map
 Wagner Oil
 Hwy 45, Langlade County, WI

PROJECT NO. 05C817	PREPARED BY KAS	 Meridian Environmental Consulting, LLC
DATE 6/16/17	REVIEWED BY KAS	



APPENDIX A
Analytical Reports

December 06, 2016

Kenneth Shimko
Meridian Environmental Consulting, LLC
2711 North Elco Rd
Fall Creek, WI 54742

RE: Project: WAGNER
Pace Project No.: 40142863

Dear Kenneth Shimko:

Enclosed are the analytical results for sample(s) received by the laboratory on December 02, 2016. 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
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: WAGNER
Pace Project No.: 40142863

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: WAGNER
Pace Project No.: 40142863

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40142863001	T-1	Water	11/30/16 00:00	12/02/16 07:30
40142863002	T-2	Water	11/30/16 00:00	12/02/16 07:30
40142863003	T-3	Water	11/30/16 00:00	12/02/16 07:30
40142863004	T-4	Water	11/30/16 00:00	12/02/16 07:30
40142863005	M-1	Water	11/30/16 00:00	12/02/16 07:30
40142863006	M-2	Water	11/30/16 00:00	12/02/16 07:30
40142863007	M-3	Water	11/30/16 00:00	12/02/16 07:30
40142863008	M-4	Water	11/30/16 00:00	12/02/16 07:30
40142863009	M-5	Water	11/30/16 00:00	12/02/16 07:30
40142863010	M-6	Water	11/30/16 00:00	12/02/16 07:30
40142863011	POND	Water	11/30/16 00:00	12/02/16 07:30
40142863012	TRIP BLANK	Water	11/30/16 00:00	12/02/16 07:30

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SAMPLE ANALYTE COUNT

Project: WAGNER
Pace Project No.: 40142863

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40142863001	T-1	WI MOD GRO	ALD	9	PASI-G
40142863002	T-2	WI MOD GRO	ALD	9	PASI-G
40142863003	T-3	WI MOD GRO	ALD	9	PASI-G
40142863004	T-4	WI MOD GRO	ALD	9	PASI-G
40142863005	M-1	WI MOD GRO	ALD	9	PASI-G
40142863006	M-2	WI MOD GRO	ALD	9	PASI-G
40142863007	M-3	WI MOD GRO	ALD	9	PASI-G
40142863008	M-4	WI MOD GRO	ALD	9	PASI-G
40142863009	M-5	WI MOD GRO	ALD	9	PASI-G
40142863010	M-6	WI MOD GRO	ALD	9	PASI-G
40142863011	POND	WI MOD GRO	ALD	9	PASI-G
40142863012	TRIP BLANK	WI MOD GRO	ALD	9	PASI-G

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WAGNER
Pace Project No.: 40142863

Method: WI MOD GRO
Description: WIGRO GCV
Client: Meridian Environmental Consulting, LLC
Date: December 06, 2016

General Information:

12 samples were analyzed for WI MOD GRO. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 243168

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40142863007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1440944)
- Benzene

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40142863

Sample: T-1 Lab ID: 40142863001 Collected: 11/30/16 00:00 Received: 12/02/16 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		12/05/16 11:54	71-43-2	
Ethylbenzene	4.0	ug/L	1.0	0.39	1		12/05/16 11:54	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		12/05/16 11:54	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		12/05/16 11:54	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		12/05/16 11:54	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 11:54	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 11:54	108-67-8	
Xylene (Total)	24.1	ug/L	3.0	1.2	1		12/05/16 11:54	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	104	%	80-120		1		12/05/16 11:54	98-08-8	

Sample: T-2 Lab ID: 40142863002 Collected: 11/30/16 00:00 Received: 12/02/16 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		12/05/16 12:19	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		12/05/16 12:19	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		12/05/16 12:19	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		12/05/16 12:19	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		12/05/16 12:19	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 12:19	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 12:19	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		12/05/16 12:19	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	105	%	80-120		1		12/05/16 12:19	98-08-8	

Sample: T-3 Lab ID: 40142863003 Collected: 11/30/16 00:00 Received: 12/02/16 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	487	ug/L	5.0	2.0	5		12/05/16 22:33	71-43-2	
Ethylbenzene	16.0	ug/L	5.0	2.0	5		12/05/16 22:33	100-41-4	
Methyl-tert-butyl ether	<2.4	ug/L	5.0	2.4	5		12/05/16 22:33	1634-04-4	
Naphthalene	<2.1	ug/L	5.0	2.1	5		12/05/16 22:33	91-20-3	
Toluene	104	ug/L	5.0	1.9	5		12/05/16 22:33	108-88-3	
1,2,4-Trimethylbenzene	2.9J	ug/L	5.0	2.1	5		12/05/16 22:33	95-63-6	
1,3,5-Trimethylbenzene	<2.1	ug/L	5.0	2.1	5		12/05/16 22:33	108-67-8	
Xylene (Total)	42.4	ug/L	15.0	6.2	5		12/05/16 22:33	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-120		5		12/05/16 22:33	98-08-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WAGNER

Pace Project No.: 40142863

Sample: T-4									
		Lab ID: 40142863004	Collected: 11/30/16 00:00	Received: 12/02/16 07:30	Matrix: Water				
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV									
Analytical Method: WI MOD GRO									
Benzene	<4.0	ug/L	10.0	4.0	10		12/05/16 18:43	71-43-2	
Ethylbenzene	<3.9	ug/L	10.0	3.9	10		12/05/16 18:43	100-41-4	
Methyl-tert-butyl ether	<4.8	ug/L	10.0	4.8	10		12/05/16 18:43	1634-04-4	
Naphthalene	<4.2	ug/L	10.0	4.2	10		12/05/16 18:43	91-20-3	
Toluene	<3.9	ug/L	10.0	3.9	10		12/05/16 18:43	108-88-3	
1,2,4-Trimethylbenzene	<4.2	ug/L	10.0	4.2	10		12/05/16 18:43	95-63-6	
1,3,5-Trimethylbenzene	<4.2	ug/L	10.0	4.2	10		12/05/16 18:43	108-67-8	
Xylene (Total)	<12.5	ug/L	30.0	12.5	10		12/05/16 18:43	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	104	%	80-120		10		12/05/16 18:43	98-08-8	F1

Sample: M-1									
		Lab ID: 40142863005	Collected: 11/30/16 00:00	Received: 12/02/16 07:30	Matrix: Water				
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV									
Analytical Method: WI MOD GRO									
Benzene	13200	ug/L	200	79.2	200		12/05/16 19:34	71-43-2	
Ethylbenzene	2970	ug/L	200	78.6	200		12/05/16 19:34	100-41-4	
Methyl-tert-butyl ether	<97.0	ug/L	200	97.0	200		12/05/16 19:34	1634-04-4	
Naphthalene	341	ug/L	200	84.8	200		12/05/16 19:34	91-20-3	
Toluene	32100	ug/L	200	77.6	200		12/05/16 19:34	108-88-3	
1,2,4-Trimethylbenzene	1830	ug/L	200	83.6	200		12/05/16 19:34	95-63-6	
1,3,5-Trimethylbenzene	426	ug/L	200	83.2	200		12/05/16 19:34	108-67-8	
Xylene (Total)	15100	ug/L	600	249	200		12/05/16 19:34	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-120		200		12/05/16 19:34	98-08-8	

Sample: M-2									
		Lab ID: 40142863006	Collected: 11/30/16 00:00	Received: 12/02/16 07:30	Matrix: Water				
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV									
Analytical Method: WI MOD GRO									
Benzene	7630	ug/L	50.0	19.8	50		12/05/16 20:00	71-43-2	
Ethylbenzene	853	ug/L	50.0	19.6	50		12/05/16 20:00	100-41-4	
Methyl-tert-butyl ether	<24.2	ug/L	50.0	24.2	50		12/05/16 20:00	1634-04-4	
Naphthalene	102	ug/L	50.0	21.2	50		12/05/16 20:00	91-20-3	
Toluene	299	ug/L	50.0	19.4	50		12/05/16 20:00	108-88-3	
1,2,4-Trimethylbenzene	507	ug/L	50.0	20.9	50		12/05/16 20:00	95-63-6	
1,3,5-Trimethylbenzene	120	ug/L	50.0	20.8	50		12/05/16 20:00	108-67-8	
Xylene (Total)	2900	ug/L	150	62.4	50		12/05/16 20:00	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-120		50		12/05/16 20:00	98-08-8	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40142863

Sample: M-3									
		Lab ID: 40142863007	Collected: 11/30/16 00:00	Received: 12/02/16 07:30	Matrix: Water				
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	1800	ug/L	10.0	4.0	10		12/05/16 16:10	71-43-2	M1
Ethylbenzene	118	ug/L	10.0	3.9	10		12/05/16 16:10	100-41-4	
Methyl-tert-butyl ether	<4.8	ug/L	10.0	4.8	10		12/05/16 16:10	1634-04-4	
Naphthalene	5.9J	ug/L	10.0	4.2	10		12/05/16 16:10	91-20-3	
Toluene	139	ug/L	10.0	3.9	10		12/05/16 16:10	108-88-3	
1,2,4-Trimethylbenzene	13.3	ug/L	10.0	4.2	10		12/05/16 16:10	95-63-6	
1,3,5-Trimethylbenzene	12.4	ug/L	10.0	4.2	10		12/05/16 16:10	108-67-8	
Xylene (Total)	200	ug/L	30.0	12.5	10		12/05/16 16:10	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-120		10		12/05/16 16:10	98-08-8	

Sample: M-4									
		Lab ID: 40142863008	Collected: 11/30/16 00:00	Received: 12/02/16 07:30	Matrix: Water				
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		12/05/16 13:11	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		12/05/16 13:11	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		12/05/16 13:11	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		12/05/16 13:11	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		12/05/16 13:11	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 13:11	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 13:11	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		12/05/16 13:11	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	103	%	80-120		1		12/05/16 13:11	98-08-8	

Sample: M-5									
		Lab ID: 40142863009	Collected: 11/30/16 00:00	Received: 12/02/16 07:30	Matrix: Water				
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		12/05/16 13:36	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		12/05/16 13:36	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		12/05/16 13:36	1634-04-4	
Naphthalene	0.72J	ug/L	1.0	0.42	1		12/05/16 13:36	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		12/05/16 13:36	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 13:36	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 13:36	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		12/05/16 13:36	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	103	%	80-120		1		12/05/16 13:36	98-08-8	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40142863

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Sample: M-6 Lab ID: 40142863010 Collected: 11/30/16 00:00 Received: 12/02/16 07:30 Matrix: Water									
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		12/05/16 14:02	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		12/05/16 14:02	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		12/05/16 14:02	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		12/05/16 14:02	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		12/05/16 14:02	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 14:02	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 14:02	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		12/05/16 14:02	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	80-120		1		12/05/16 14:02	98-08-8	

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Sample: POND Lab ID: 40142863011 Collected: 11/30/16 00:00 Received: 12/02/16 07:30 Matrix: Water									
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	11.5	ug/L	1.0	0.40	1		12/05/16 11:03	71-43-2	
Ethylbenzene	3.6	ug/L	1.0	0.39	1		12/05/16 11:03	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		12/05/16 11:03	1634-04-4	
Naphthalene	0.82J	ug/L	1.0	0.42	1		12/05/16 11:03	91-20-3	
Toluene	54.3	ug/L	1.0	0.39	1		12/05/16 11:03	108-88-3	
1,2,4-Trimethylbenzene	9.7	ug/L	1.0	0.42	1		12/05/16 11:03	95-63-6	
1,3,5-Trimethylbenzene	4.2	ug/L	1.0	0.42	1		12/05/16 11:03	108-67-8	
Xylene (Total)	61.9	ug/L	3.0	1.2	1		12/05/16 11:03	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	105	%	80-120		1		12/05/16 11:03	98-08-8	

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Sample: TRIP BLANK Lab ID: 40142863012 Collected: 11/30/16 00:00 Received: 12/02/16 07:30 Matrix: Water									
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		12/05/16 21:17	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		12/05/16 21:17	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		12/05/16 21:17	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		12/05/16 21:17	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		12/05/16 21:17	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 21:17	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		12/05/16 21:17	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		12/05/16 21:17	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	103	%	80-120		1		12/05/16 21:17	98-08-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40142863

QC Batch: 243168 Analysis Method: WI MOD GRO
QC Batch Method: WI MOD GRO Analysis Description: WIGRO GCV Water
Associated Lab Samples: 40142863001, 40142863002, 40142863003, 40142863004, 40142863005, 40142863006, 40142863007, 40142863008, 40142863009, 40142863010, 40142863011, 40142863012

METHOD BLANK: 1440739 Matrix: Water
Associated Lab Samples: 40142863001, 40142863002, 40142863003, 40142863004, 40142863005, 40142863006, 40142863007, 40142863008, 40142863009, 40142863010, 40142863011, 40142863012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.42	1.0	12/05/16 09:20	
1,3,5-Trimethylbenzene	ug/L	<0.42	1.0	12/05/16 09:20	
Benzene	ug/L	<0.40	1.0	12/05/16 09:20	
Ethylbenzene	ug/L	<0.39	1.0	12/05/16 09:20	
Methyl-tert-butyl ether	ug/L	<0.48	1.0	12/05/16 09:20	
Naphthalene	ug/L	<0.42	1.0	12/05/16 09:20	
Toluene	ug/L	<0.39	1.0	12/05/16 09:20	
Xylene (Total)	ug/L	<1.2	3.0	12/05/16 09:20	
a,a,a-Trifluorotoluene (S)	%	102	80-120	12/05/16 09:20	

LABORATORY CONTROL SAMPLE & LCSD: 1440740

1440741

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.0	19.8	100	99	80-120	1	20	
1,3,5-Trimethylbenzene	ug/L	20	19.3	19.0	96	95	80-120	1	20	
Benzene	ug/L	20	20.3	19.9	102	99	80-120	2	20	
Ethylbenzene	ug/L	20	19.4	19.0	97	95	80-120	2	20	
Methyl-tert-butyl ether	ug/L	20	20.0	20.1	100	101	80-120	1	20	
Naphthalene	ug/L	20	18.7	19.4	93	97	80-120	4	20	
Toluene	ug/L	20	19.8	19.4	99	97	80-120	2	20	
Xylene (Total)	ug/L	60	58.6	57.4	98	96	80-120	2	20	
a,a,a-Trifluorotoluene (S)	%				103	102	80-120			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1440943

1440944

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40142863007 Result	Spike Conc.	Spike Conc.	MS Result					
1,2,4-Trimethylbenzene	ug/L	13.3	200	200	224	220	105	103	48-177	2 20
1,3,5-Trimethylbenzene	ug/L	12.4	200	200	220	216	104	102	73-145	2 20
Benzene	ug/L	1800	200	200	2050	1910	125	56	74-139	7 20 M1
Ethylbenzene	ug/L	118	200	200	329	315	105	98	74-140	4 20
Methyl-tert-butyl ether	ug/L	<4.8	200	200	202	197	101	98	80-120	2 20
Naphthalene	ug/L	5.9J	200	200	199	192	96	93	73-133	3 20
Toluene	ug/L	139	200	200	352	337	106	99	80-128	5 20
Xylene (Total)	ug/L	200	600	600	831	803	105	101	69-143	3 20
a,a,a-Trifluorotoluene (S)	%						99	100	80-120	

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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QUALIFIERS

Project: WAGNER
Pace Project No.: 40142863

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 and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

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.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

F1 The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WAGNER
Pace Project No.: 40142863

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40142863001	T-1	WI MOD GRO	243168		
40142863002	T-2	WI MOD GRO	243168		
40142863003	T-3	WI MOD GRO	243168		
40142863004	T-4	WI MOD GRO	243168		
40142863005	M-1	WI MOD GRO	243168		
40142863006	M-2	WI MOD GRO	243168		
40142863007	M-3	WI MOD GRO	243168		
40142863008	M-4	WI MOD GRO	243168		
40142863009	M-5	WI MOD GRO	243168		
40142863010	M-6	WI MOD GRO	243168		
40142863011	POND	WI MOD GRO	243168		
40142863012	TRIP BLANK	WI MOD GRO	243168		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: Mendota Env. Cntr

Branch/Location:

Project Contact: Ken Shimko

Phone: 715 832 6608

Project Number:

Project Name: Wagner

Project State: WI

Sampled By (Print): Ken Shimko

Sampled By (Sign): [Signature]

PO #:

Regulatory Program:



40142863

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

Quote #:

Mail To Contact: Ken Shimko

Mail To Company: Meridian Env. Cntr

Mail To Address: 2711 N. Elco Rd
Fall Creek WI

Invoice To Contact: 54742

Invoice To Company:

Invoice To Address:

Invoice To Phone:

FILTERED? (YES/NO)

PRESERVATION (CODE)*

Y/N	P	L	Label
			Analyses Requested
			PVOC + NapH

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

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
001	T-1	11/30		BW
002	T-2			
003	T-3			
004	T-4			
005	M-1			
006	M-2			
007	M-3			
008	M-4			
009	M-5			
010	M-6			
011	pond			SW
012	Trip Blank (1)			

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)

Profile #

2-40mlv^B

3-40mlv^B

2-40mlv^B

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)

Date Needed:

Transmit Prelim Rush Results by (complete what you want):

Email #1:

Email #2:

Telephone:

Fax:

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

Relinquished By: [Signature] Date/Time: 12/1/16 9n

Relinquished By: Dunham Date/Time: 12-2-16 0730

Relinquished By: _____ Date/Time: _____

Relinquished By: _____ Date/Time: _____

Relinquished By: _____ Date/Time: _____

Received By: Dunham Date/Time: 12/1/16 9n

Received By: Susanna Wyle Date/Time: 12-2-16 0730

Received By: _____ Date/Time: _____

Received By: _____ Date/Time: _____

Received By: _____ Date/Time: _____

PACE Project No. 40142863

Receipt Temp = ROT °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal Present / Not Present Intact / Not Intact

Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Pace Analytical

Project # **WO#: 40142863**

Client Name: Meridian
Courier: Fed Ex UPS Client Pace Other: Durham
Tracking #: 1238605



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: N/A Type of Ice: Wet Dry None Samples on ice, cooling process has begun
Cooler Temperature: Uncorr: ROI /Corr: _____ Biological Tissue Is Frozen: yes no
Temp Blank Present: yes no

Person examining contents:
Date: 12-2-16
Initials: SLW

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1. Original and a copy
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2. 012 - Not listed on COC - Lab
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3. added to COC. No collect times 12-2-16
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 <input type="checkbox"/> N/A	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 <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	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 type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. NO collect date & time on all samples.
- Includes date/time/ID/Analysis Matrix:	<u>W</u>	12-2-16
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions (VOA, collform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lab Std #/ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):	<u>372</u> <u>12-2-16</u>	

Client Notification/ Resolution: _____ If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____
Comments/ Resolution: Client returned 7 empty 40ml B 12-2-16

Project Manager Review: _____ Date: 12-2-16

April 05, 2017

Kenneth Shimko
Meridian Environmental Consulting, LLC
2711 North Elco Rd
Fall Creek, WI 54742

RE: Project: WAGNER
Pace Project No.: 40147511

Dear Kenneth Shimko:

Enclosed are the analytical results for sample(s) received by the laboratory on March 31, 2017. 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: WAGNER

Pace Project No.: 40147511

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: WAGNER
Pace Project No.: 40147511

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40147511001	STONE	Water	03/29/17 00:00	03/31/17 09:20
40147511002	MW-1	Water	03/29/17 00:00	03/31/17 09:20
40147511003	MW-2	Water	03/29/17 00:00	03/31/17 09:20
40147511004	MW-3	Water	03/29/17 00:00	03/31/17 09:20
40147511005	MW-4	Water	03/29/17 00:00	03/31/17 09:20
40147511006	MW-5	Water	03/29/17 00:00	03/31/17 09:20
40147511007	MW-6	Water	03/29/17 00:00	03/31/17 09:20
40147511008	T-1	Water	03/29/17 00:00	03/31/17 09:20
40147511009	T-2	Water	03/29/17 00:00	03/31/17 09:20
40147511010	T-3	Water	03/29/17 00:00	03/31/17 09:20
40147511011	POND	Water	03/29/17 00:00	03/31/17 09:20
40147511012	TB	Water	03/29/17 00:00	03/31/17 09:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WAGNER
Pace Project No.: 40147511

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40147511001	STONE	WI MOD GRO	ALD	9	PASI-G
40147511002	MW-1	WI MOD GRO	ALD	9	PASI-G
40147511003	MW-2	WI MOD GRO	ALD	9	PASI-G
40147511004	MW-3	WI MOD GRO	ALD	9	PASI-G
40147511005	MW-4	WI MOD GRO	ALD	9	PASI-G
40147511006	MW-5	WI MOD GRO	ALD	9	PASI-G
40147511007	MW-6	WI MOD GRO	ALD	9	PASI-G
40147511008	T-1	WI MOD GRO	ALD	9	PASI-G
40147511009	T-2	WI MOD GRO	ALD	9	PASI-G
40147511010	T-3	WI MOD GRO	ALD	9	PASI-G
40147511011	POND	WI MOD GRO	ALD	9	PASI-G
40147511012	TB	WI MOD GRO	ALD	9	PASI-G

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WAGNER
Pace Project No.: 40147511

Method: WI MOD GRO
Description: WIGRO GCV
Client: Meridian Environmental Consulting, LLC
Date: April 05, 2017

General Information:

12 samples were analyzed for WI MOD GRO. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40147511

Sample: STONE Lab ID: 40147511001 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		04/04/17 19:08	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		04/04/17 19:08	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		04/04/17 19:08	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		04/04/17 19:08	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		04/04/17 19:08	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 19:08	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 19:08	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		04/04/17 19:08	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	80-120		1		04/04/17 19:08	98-08-8	

Sample: MW-1 Lab ID: 40147511002 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	2670	ug/L	40.0	15.8	40		04/04/17 17:52	71-43-2	
Ethylbenzene	2070	ug/L	40.0	15.7	40		04/04/17 17:52	100-41-4	
Methyl-tert-butyl ether	23.1J	ug/L	40.0	19.4	40		04/04/17 17:52	1634-04-4	
Naphthalene	273	ug/L	40.0	17.0	40		04/04/17 17:52	91-20-3	
Toluene	14200	ug/L	40.0	15.5	40		04/04/17 17:52	108-88-3	
1,2,4-Trimethylbenzene	1920	ug/L	40.0	16.7	40		04/04/17 17:52	95-63-6	
1,3,5-Trimethylbenzene	528	ug/L	40.0	16.6	40		04/04/17 17:52	108-67-8	
Xylene (Total)	12700	ug/L	120	49.9	40		04/04/17 17:52	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	103	%	80-120		40		04/04/17 17:52	98-08-8	

Sample: MW-2 Lab ID: 40147511003 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	2040	ug/L	10.0	4.0	10		04/04/17 18:17	71-43-2	
Ethylbenzene	350	ug/L	10.0	3.9	10		04/04/17 18:17	100-41-4	
Methyl-tert-butyl ether	<4.8	ug/L	10.0	4.8	10		04/04/17 18:17	1634-04-4	
Naphthalene	48.6	ug/L	10.0	4.2	10		04/04/17 18:17	91-20-3	
Toluene	62.0	ug/L	10.0	3.9	10		04/04/17 18:17	108-88-3	
1,2,4-Trimethylbenzene	94.0	ug/L	10.0	4.2	10		04/04/17 18:17	95-63-6	
1,3,5-Trimethylbenzene	63.4	ug/L	10.0	4.2	10		04/04/17 18:17	108-67-8	
Xylene (Total)	515	ug/L	30.0	12.5	10		04/04/17 18:17	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	98	%	80-120		10		04/04/17 18:17	98-08-8	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40147511

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-3 Lab ID: 40147511004 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water									
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	1850	ug/L	20.0	7.9	20		04/04/17 15:44	71-43-2	
Ethylbenzene	120	ug/L	20.0	7.9	20		04/04/17 15:44	100-41-4	
Methyl-tert-butyl ether	<9.7	ug/L	20.0	9.7	20		04/04/17 15:44	1634-04-4	
Naphthalene	<8.5	ug/L	20.0	8.5	20		04/04/17 15:44	91-20-3	
Toluene	425	ug/L	20.0	7.8	20		04/04/17 15:44	108-88-3	
1,2,4-Trimethylbenzene	37.5	ug/L	20.0	8.4	20		04/04/17 15:44	95-63-6	
1,3,5-Trimethylbenzene	24.8	ug/L	20.0	8.3	20		04/04/17 15:44	108-67-8	
Xylene (Total)	316	ug/L	60.0	24.9	20		04/04/17 15:44	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	80-120		20		04/04/17 15:44	98-08-8	

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-4 Lab ID: 40147511005 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water									
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		04/04/17 10:31	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		04/04/17 10:31	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		04/04/17 10:31	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		04/04/17 10:31	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		04/04/17 10:31	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 10:31	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 10:31	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		04/04/17 10:31	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	80-120		1		04/04/17 10:31	98-08-8	

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-5 Lab ID: 40147511006 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water									
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		04/04/17 10:57	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		04/04/17 10:57	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		04/04/17 10:57	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		04/04/17 10:57	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		04/04/17 10:57	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 10:57	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 10:57	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		04/04/17 10:57	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-120		1		04/04/17 10:57	98-08-8	

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ANALYTICAL RESULTS

Project: WAGNER

Pace Project No.: 40147511

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MW-6 Lab ID: 40147511007 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water									
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		04/04/17 11:23	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		04/04/17 11:23	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		04/04/17 11:23	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		04/04/17 11:23	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		04/04/17 11:23	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 11:23	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 11:23	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		04/04/17 11:23	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-120		1		04/04/17 11:23	98-08-8	

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Sample: T-1 Lab ID: 40147511008 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water									
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		04/04/17 11:48	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		04/04/17 11:48	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		04/04/17 11:48	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		04/04/17 11:48	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		04/04/17 11:48	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 11:48	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 11:48	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		04/04/17 11:48	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	80-120		1		04/04/17 11:48	98-08-8	

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Sample: T-2 Lab ID: 40147511009 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water									
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		04/04/17 12:14	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		04/04/17 12:14	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		04/04/17 12:14	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		04/04/17 12:14	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		04/04/17 12:14	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 12:14	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 12:14	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		04/04/17 12:14	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	80-120		1		04/04/17 12:14	98-08-8	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40147511

Sample: T-3 Lab ID: 40147511010 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		04/04/17 12:39	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		04/04/17 12:39	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		04/04/17 12:39	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		04/04/17 12:39	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		04/04/17 12:39	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 12:39	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 12:39	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		04/04/17 12:39	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	80-120		1		04/04/17 12:39	98-08-8	

Sample: POND Lab ID: 40147511011 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	0.44J	ug/L	1.0	0.40	1		04/04/17 17:26	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		04/04/17 17:26	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		04/04/17 17:26	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		04/04/17 17:26	91-20-3	
Toluene	1.4	ug/L	1.0	0.39	1		04/04/17 17:26	108-88-3	
1,2,4-Trimethylbenzene	0.69J	ug/L	1.0	0.42	1		04/04/17 17:26	95-63-6	
1,3,5-Trimethylbenzene	0.64J	ug/L	1.0	0.42	1		04/04/17 17:26	108-67-8	
Xylene (Total)	4.3	ug/L	3.0	1.2	1		04/04/17 17:26	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	80-120		1		04/04/17 17:26	98-08-8	

Sample: TB Lab ID: 40147511012 Collected: 03/29/17 00:00 Received: 03/31/17 09:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV Analytical Method: WI MOD GRO									
Benzene	<0.40	ug/L	1.0	0.40	1		04/04/17 14:27	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		04/04/17 14:27	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		04/04/17 14:27	1634-04-4	
Naphthalene	<0.42	ug/L	1.0	0.42	1		04/04/17 14:27	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		04/04/17 14:27	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 14:27	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		04/04/17 14:27	108-67-8	
Xylene (Total)	<1.2	ug/L	3.0	1.2	1		04/04/17 14:27	1330-20-7	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	80-120		1		04/04/17 14:27	98-08-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40147511

QC Batch: 251731 Analysis Method: WI MOD GRO
QC Batch Method: WI MOD GRO Analysis Description: WIGRO GCV Water
Associated Lab Samples: 40147511001, 40147511002, 40147511003, 40147511004, 40147511005, 40147511006, 40147511007, 40147511008, 40147511009, 40147511010, 40147511011, 40147511012

METHOD BLANK: 1485482 Matrix: Water
Associated Lab Samples: 40147511001, 40147511002, 40147511003, 40147511004, 40147511005, 40147511006, 40147511007, 40147511008, 40147511009, 40147511010, 40147511011, 40147511012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.42	1.0	04/04/17 08:49	
1,3,5-Trimethylbenzene	ug/L	<0.42	1.0	04/04/17 08:49	
Benzene	ug/L	<0.40	1.0	04/04/17 08:49	
Ethylbenzene	ug/L	<0.39	1.0	04/04/17 08:49	
Methyl-tert-butyl ether	ug/L	<0.48	1.0	04/04/17 08:49	
Naphthalene	ug/L	<0.42	1.0	04/04/17 08:49	
Toluene	ug/L	<0.39	1.0	04/04/17 08:49	
Xylene (Total)	ug/L	<1.2	3.0	04/04/17 08:49	
a,a,a-Trifluorotoluene (S)	%	100	80-120	04/04/17 08:49	

LABORATORY CONTROL SAMPLE & LCSD: 1485483

1485484

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	18.1	17.9	90	90	80-120	1	20	
1,3,5-Trimethylbenzene	ug/L	20	17.7	17.5	89	88	80-120	1	20	
Benzene	ug/L	20	20.3	20.2	102	101	80-120	1	20	
Ethylbenzene	ug/L	20	19.0	18.8	95	94	80-120	1	20	
Methyl-tert-butyl ether	ug/L	20	20.3	19.9	101	99	80-120	2	20	
Naphthalene	ug/L	20	18.2	18.0	91	90	80-120	1	20	
Toluene	ug/L	20	19.6	19.4	98	97	80-120	1	20	
Xylene (Total)	ug/L	60	56.6	55.9	94	93	80-120	1	20	
a,a,a-Trifluorotoluene (S)	%				100	99	80-120			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1485559

1485560

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40147511004 Result	Spike Conc.	Spike Conc.	MS Result							
1,2,4-Trimethylbenzene	ug/L	37.5	400	400	416	408	95	93	48-177	2	20	
1,3,5-Trimethylbenzene	ug/L	24.8	400	400	399	391	94	92	73-145	2	20	
Benzene	ug/L	1850	400	400	2250	2240	100	99	74-139	0	20	
Ethylbenzene	ug/L	120	400	400	516	511	99	98	74-140	1	20	
Methyl-tert-butyl ether	ug/L	<9.7	400	400	415	413	104	103	80-120	0	20	
Naphthalene	ug/L	<8.5	400	400	378	375	94	94	73-133	1	20	
Toluene	ug/L	425	400	400	826	823	100	99	80-128	0	20	
Xylene (Total)	ug/L	316	1200	1200	1490	1470	98	96	69-143	2	20	
a,a,a-Trifluorotoluene (S)	%						102	103	80-120			

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: WAGNER
Pace Project No.: 40147511

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 and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

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.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WAGNER
Pace Project No.: 40147511

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40147511001	STONE	WI MOD GRO	251731		
40147511002	MW-1	WI MOD GRO	251731		
40147511003	MW-2	WI MOD GRO	251731		
40147511004	MW-3	WI MOD GRO	251731		
40147511005	MW-4	WI MOD GRO	251731		
40147511006	MW-5	WI MOD GRO	251731		
40147511007	MW-6	WI MOD GRO	251731		
40147511008	T-1	WI MOD GRO	251731		
40147511009	T-2	WI MOD GRO	251731		
40147511010	T-3	WI MOD GRO	251731		
40147511011	POND	WI MOD GRO	251731		
40147511012	TB	WI MOD GRO	251731		

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Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302



Project #: **WO# : 40147511**

Client Name: Meridian env

Courier: Fed Ex UPS Client Pace Other: _____

Tracking #: 7800 8205 1540



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: N/A Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature: Uncorr: 20 /Corr: _____ Biological Tissue is Frozen: yes no

Temp Blank Present: yes no no

Person examining contents:
Date: 3/31/17
Initials: ru

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1. original + copy	3/31/17 ru
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2. no collect time	3/31/17 ru
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 <input type="checkbox"/> N/A	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 <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	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 <input type="checkbox"/> N/A	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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. no collect date	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		3/31/17 ru
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.	<input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 <2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
exceptions: (VOA Coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed	Lab Std #/ID of preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.	Date/Time:
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.	
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):	<u>375</u>		

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

Project Manager Review: _____ Date: 3-31-17