Meridian Environmental Consulting, LLC

March 4, 2021

John Hunt
Wisconsin Department of Natural Resources
223 East Steinfest Road
Antigo, WI 54409

Subject: **Progress Report: March 2021**
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 since our July 2020 Progress Report for the above referenced spill.

This work included:

- Ground water sampling (October 7, 2020; January 5, 2021)
- PFAS Sampling (January 5, 2021)

The results of the sampling indicate the extent of impacted soil and ground water is defined. Based on the data collected, we recommend a Closure Packet be prepared.

The remainder of this report describes the work completed, our interpretation of the data, and recommendations.

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, 2, and 3). An estimated 1787 gallons of gasoline spilled onto the roadway and flowed easterly onto the shoulder and ditch.

The initial response action was conducted by REI Engineering, Inc. 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). This cleanup effort is estimated to have recovered 1500 gallons (or more) of product. Additionally, a significant portion of the unrecovered product likely evaporated over time (especially during the hot summer months).

Fire-fighting foam was sprayed on the spill during the initial response. This foam flowed into the ditch and mixed with the petroleum. Much of this foam was likely recovered during the initial response action (i.e., soil excavation, pumping of gasoline/water mixture).

Meridian Environmental Consulting, LLC was hired in the summer of 2016 to complete the Site Investigation. A monitoring well network was installed and sampled for several years. This report presents the most recent ground water sampling results.

RECENT WORK

The monitoring well network was sampled October 7, 2020 and January 5, 2021. The October samples were analyzed for PVOC (petroleum volatile organic chemicals) + Naphthalene. The January samples were analyzed for PVOC, Naphthalene, and PFAS (perfluoralkyl substances).

The analytical reports are provided in Appendix A and summarized in Tables 1 & 2. Ground water level measurements are summarized in Table 3. Natural attenuation field measurements (e.g., dissolved oxygen (DO), pH, temperature, conductivity, ORP) are summarized in Table 4.

PFAS are considered an "emerging contaminant", i.e., a contaminant where standards are still being developed. PFAS is sometimes found in fire-fighting foam and, because fire-fighting foam was sprayed on the gasoline spill, the ground water was sampled for the presence of PFAS.

Sampling was completed using currently available practices. Sampling for PFAS compounds requires additional care due to the prevalence of PFAS compounds in everyday items (e.g., it is found in clothing, food wrappers, vehicles, fire-fighting foam).

The PFAS sampling included several quality control samples (referred to as 'blanks'):

Equipment Blank (EB) – a container of lab-supplied PFAS-free water was poured into/over the bailer, twine, and nitrile gloves. No PFAS parameters were measured in the equipment blank.

Field Blank (FB) – the field blank consisted of placing a container of PFAS-free water supplied by the lab in the work area (truck tailgate) and removing the lid during the entire time sampling was being conducted. The lid was replaced when the sampling was completed and the bottle returned for analysis.

PFAS (430 *ng/l* of 1H,1H,2H,2H-perfluorooctane sulfonic acid (6:2 FTS) (Table 2) was measured in the Field Blank (FB). This may be airborne residue from the heavy vehicle traffic during the sampling.

Trip Blank (TB) – A unopened bottle of PFAS-free water supplied by the lab accompanied the samples to the lab. No PFAS parameters were measured in the trip blank.

DATA EVALUATION

Setting

The site is located in a rural area of Langlade County. The area is forested. The spill occurred in a topographic low with surface water flow to the south/southeast. The remedial excavation created a shallow pond (approximately 1 - 2 feet deep) (Figure 3). A "boulder field" likely from the initial road construction is found east of the pond. This obstacle and the forest affected access and placement of monitoring wells.

The nearest residences are located over ¼ mile away (Figure 2). Area residents rely on private wells for their water supply.

Hydrogeology

According to area well logs, the site is underlain by approximately 50 – 60 feet of silty, fine – coarse sand overlying granite bedrock. Figure 4 is a cross-section illustrating the site hydrogeology.

Soil sampling conducted during the installation of the monitoring wells indicate shallow soils (<25 feet) consist of fine sand with silt and clay. A layer of coarse sediments is found about 25 feet below grade.

The depth to water is typically within 20 feet of grade and varies with topography. Horizontal ground water flow appears to be southerly (Figure 5). There appears to be a downward vertical gradient.

The hydraulic conductivity of the saturated sediments was estimated by conducting slug tests in MW-7A and MW-7B. The slug tests estimated hydraulic conductivity of 5×10^{-4} cm/sec in MW-7A and 9×10^{-4} cm/sec in MW-7B. This is typical of silty-sand sediments. It is noteworthy the hydraulic conductivity in MW-7B is twice as fast as MW-7A. This indicates the soils at depth are more conductive (i.e., more permeable). Ground water flows more readily through the deeper sediments and may explain the downward plume extent.

The average linear horizontal ground water flow velocity (V) can be estimated using the relationship

$$V = KI/N$$

Where

K = hydraulic conductivity (use 9×10^{-4} cm/sec = 931 ft/year)
I = hydraulic gradient (use .013 based on 7/17/18 water level measurements)
N = porosity (use 30%)

This simple analysis estimates the ground water travels 40 ft/year. Due to natural attenuation processes (e.g., dilution, biodegradation, adsorption, etc.), MW-7B appears to represent the leading edge of the contaminant plume.

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

There are two contaminants of concern at this site: petroleum from the initial spill and PFAS from the fire-fighting foam.

Petroleum

The analytical data and ground water flow measurements indicate the petroleum-impacted ground water extends to the MW-7A/-7B well nest (see Figures 5 and 6). Benzene concentrations above NR140 Enforcement Standard (ES) were measured in MW-7B but not in MW-7A consistent with a diving plume.

Based on the analytical data and ground water flow measurements, the extent of petroleum-impacted ground water is defined. The concentrations are stable and/or decreasing.

PFAS

PFAS concentrations were measured within the footprint of the petroleum plume (i.e., MW-1, -2, -3, -4, -7B, -8A, -8B, -9P). There are no Standards for PFAS at this time. However, it is expected the extent of PFAS is similar to the petroleum.

Environmental Risk Analysis

The primary environmental risks at this site are surface water and potential impacts to nearby potable wells. Based on the sampling (i.e., pond, monitoring wells, private wells), the initial remedial actions and subsequent natural attenuation processes appear to have removed the threat to surface water and the downgradient private wells.

CONCLUSIONS AND RECOMMENDATIONS

- The extent of impacted soil is defined. Residual impacts were located in the initial spill area. These concentrations are expected to decrease due to natural processes (i.e., evaporation, volatilization, biodegradation, dilution, etc.).

- The extent of impacted ground water is defined.

    - The petroleum concentrations are stable indicating the petroleum contaminant plume is in equilibrium with natural attenuation processes.

    - The extent of PFAS is defined generally and is expected to be similar to the petroleum plume.

Based on the work conducted, we recommend this site be submitted for Closure.

Sincerely,
MERIDIAN ENVIRONMENTAL CONSULTING, LLC

Kenneth Shimko, PG
Project Manager

TABLES

Table 1: Ground Water Sampling Results
Wagner Spill - Hwy 45
Langlade County, Wisconsin

Sample Location	Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	1,2,4-TMB	1,3,5-TMB	TMB (Total)	Xylenes (Total)
NR140 Enforcement Standard	5	700	60	100	800			480	2000
NR140 Preventative Action Limit	0.5	140	12	10	160			96	400
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Soil Borings									
B3	<0.40	<0.39	<0.48	<0.42	<0.39	NR	NR	<0.42	<1.2
B5	**9,620**	**883**	<48.5	*77.6*[J]	**15,000**	NR	NR	*326*	**4,240**
B8	***8.6***	1.2	<0.48	<0.42	9.9	NR	NR	<0.42	5.3
B9	**25,800**	**5,050**	**<121**	**676**	**47,600**	NR	NR	**5,490**	**23,200**
B12	**299**	82.8	<4.8	<4.2	**930**	NR	NR	16.3	367
B13	**32.5**	0.80[J]	<0.48	<0.42	24.9	NR	NR	3.3	2.8[J]
B15	**39.9**	3.3	<0.48	<0.42	46.2	NR	NR	0.56[J]	10.5
B16	**3,250**	**2,340**	<48.5	**278**	**17,600**	NR	NR	**2,091**	**10,300**
Monitoring Wells (temporary "T" and 2-inch "MW")									
TW1 (B2) (installed 5/25/16)									
5/25/2016	<0.40	<0.39	<0.48	<0.42	<0.39	NR	NR	<0.42	<1.2
8/29/2016	Could not locate								
11/30/2016	<.4	4	<.48	<.42	<.39	<.42	<.42	<.42	24.1
3/29/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
7/31/2017	<.4	1.3	<.48	<.42	<.39	<.42	<.42	<.42	7.5
10/25/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
TW2 (B4) (installed 5/25/16)									
5/25/2016	<0.40	<0.39	<0.48	<0.42	<0.39	NR	NR	<0.42	<1.2
8/29/2016	Could not locate								
11/30/2016	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
3/29/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
7/31/2017	<.4	2.5	<.48	<.42	<.39	<.42	<.42	<.42	10.5
10/25/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
TW3 (B7) (installed 5/25/16)									
5/25/2016	*4.7*	<0.39	<0.48	<0.42	6.2	NR	NR	<0.42	<1.2
8/29/2016	**16.3**	<.39	<.48	<.42	4.8	<.42	0.75	0.75	5.3
11/30/2016	**487**	16	<2.4	<2.1	104	2.9	<2.1	2.9	42.4
3/29/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
7/31/2017	**904**	65.3	<4.8	*23.9*	<3.9	43.9	45.7	89.6	231
10/25/2017	Not sampled - dry								

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NR140 Preventative Action Limit	0.5	140	12	10	160			96	400
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
TW4 (B10) (installed 5/25/16)									
5/25/2016	*0.55*[J]	<0.39	<0.48	<0.42	1.8	NR	NR	<0.42	<1.2
8/29/2016	*<2*	2.2	<2.4	<2.1	30.9	<2.1	<2.1	<2.1	12.1
11/30/2016	<4	<3.9	<4.8	<4.2	<3.9	<4.2	<4.2	<4.2	<12.5
3/29/2017	Frozen inside well								
7/31/2017	Dry								
10/25/2017	Not sampled - dry								
TW5 (B14) (installed 5/25/16)									
5/25/2016	**46.5**	7.4	<0.48	<0.42	90.1	NR	NR	1.6	24.8
8/29/2016	<4	<3.9	<4.2	<4.2	<3.9	<4.2	<4.2	<4.2	<12.5
11/30/2016	Not sampled - dry								
3/29/2017	Not Sampled								
7/31/2017	Not sampled - dry								
10/25/2017	Not sampled - dry								
MW-1 (installed August 10, 2016)									
8/29/2016	**6630**	**1980**	<60.6	**299**	**186000**	1500	386	**1886**	**10700**
11/30/2016	**13200**	**2970**	<97	**341**	**32100**	1830	426	**2256**	**15100**
3/29/2017	**2670**	**2070**	*23.1*	**273**	**14200**	1920	528	**2448**	**12700**
7/31/2017	**4250**	**1930**	<48.5	**305**	**12600**	2010	562	**2572**	**11400**
10/25/2017	**6350**	**1980**	<19.4	**287**	**17700**	1620	446	**2066**	**9880**
(MW-6?) 5/10/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.34	<.97
7/17/2018	**2680**	**1640**	<64	**262J**	**13600**	1390	380	**1770**	**7910**
11/28/2018	**900**	**1010**	<12.8	**185**	**4730**	1070	291	**1361**	**4420**
4/24/2019	**59.4**	*379*	<6.2	*55*	**985**	552	173	**725**	*1541*
7/24/2019	**12.5**	109	<6.2	*26.6*	149	191	56.19	*247.19*	390
10/30/2019	**3.7**	31.1	<1.2	7	16.1	47.3	16.8	64.1	96.6
6/4/2020	**10.6**	22.9	<1.2	4.0 J	65.2	27.8	9.3	37.1	73.1
10/7/2020	**246**	*218*	<1.2	*47.5*	*407*	177	54.7	*231.7*	**802**
1/5/2021	**253**	*<1.6*	<6.2	*35.1*	*79.8*	5.1J	84.5		**318**

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NR140 Preventative Action Limit	0.5	140	12	10	160			96	400
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
MW-2 (installed August 10, 2016)									
8/29/2016	**10100**	**1160**	<60.6	**161**	**18000**	689	160	**849**	**7110**
11/30/2016	**7630**	**853**	<24.2	**102**	**299**	507	120	**627**	**2900**
3/29/2017	**2040**	**350**	<4.8	**48.6**	**62**	94	63.4	**157.4**	**515**
7/31/2017	**1920**	777	<9.7	**186**	**51.3**	783	412	**1195**	**1890**
10/25/2017	**1530**	*194*	<9.7	*77.4*	13.5	<8.4	27.5	27.5	<24.9
5/10/2018	**584**	94.3	<6.4	*16.7J*	**1870**	279	221	**500**	**2180**
7/17/2018	**849**	*222*	<3.2	*50.8*	61	463	366	**829**	*1730*
11/28/2018	**213**	*161*	<1.6	*39.5*	4.7J	210	144	*354*	*846*
4/24/2019	*1.1*	.74J	<1.2	*<1.2*	<.17	.97J	<.87	.97J	2.6
7/24/2019	**113**	74.2	<1.2	*28.2*	1.4J	69.7	45.6	*115.3*	125.6
10/30/2019	**432**	61.7	<1.2	*70.3*	4.7J	30.2	71.8	*102*	49.4
6/4/2020	**208**	*178*	<6.2	*45.9*	7.9	166	102	*268*	219.5
10/7/2020	**57.2**	20.2	<1.2	*20.7*	1.4	7.5	10.7	18.2	8.9
1/5/2021	**41.6**	44	<1.2	*3.4J*	2.9	6.2	2.9J		16.1
MW-3 (installed August 10, 2016)									
8/29/2016	**1430**	123	<9.7	*19.5*	**1640**	64.2	16.2	80.4	*818*
11/30/2016	**1800**	118	<4.8	*5.9*	**139**	13.3	12.4	25.7	200
3/29/2017	**1850**	120	<9.7	<8.5	**425**	37.5	24.8	62.3	316
7/31/2017	**1540**	*165*	<12.1	*20.6*	**177**	64.6	39.1	*103.7*	324
10/25/2017	**2370**	101	<12.1	*22.1*	**53.1**	17.2	23	40.2	*113*
5/10/2018	**198**	61.1	<.64	5.7	*187*	29.3	7.3	36.6	200
7/17/2018	**1150**	*269*	<3.2	*38.6*	<3.2	182	61.6	*243.6*	38.6
11/28/2018	**78.9**	9	<.32	3.5	15	10.3	5.1	15.4	45.2
4/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
7/24/2019	.33J	.38J	<1.2	<1.2	<.17	<.84	<.87	<.1.71	1.9J
10/30/2019	**7.9**	17.3	<1.2	*12.5*	2.3J	41.1	9.3	50.4	167
6/4/2020	*2.3*	4.4	<1.2	1.6 J	<.27	1.4 J	1.1 J	2.5	7.6
10/7/2020	**179**	49	<1.2	*22.4*	10.2	27.2	7.5	34.7	56.9
1/5/2021	**192**	19.9	<1.2	*9*	8.3	16.3	13.1		32.7

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NR140 Preventative Action Limit	0.5	140	12	10	160			96	400
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
MW-4 (installed November 14, 2016)									
11/30/2016	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.84	<1.2
3/29/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.84	<1.2
7/31/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.84	<1.2
10/25/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.84	<1.2
5/10/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.67	<.97
7/17/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.67	<.97
11/28/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.67	<.97
4/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
7/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/30/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
6/4/2020	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/7/2020	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
1/5/2021	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
MW-5 (installed November 14, 2016)									
11/30/2016	<.4	<.39	<.48	0.72	<.39	<.42	<.42	<.42	<1.2
3/29/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
7/31/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
10/25/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
5/10/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.34	<.97
7/17/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.67	<.97
11/28/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.67	<.97
4/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
7/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/30/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
6/4/2020	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/7/2020	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
1/5/2021	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73

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NR140 Preventative Action Limit	0.5	140	12	10	160			96	400
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
MW-6 (installed November 14, 2016)									
11/30/2016	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
3/29/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
7/31/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
10/25/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
(MW-1?) 5/10/2018	**461**	**1130**	*15.7J*	**218**	**3600**	1700	500	**2200**	**5740**
7/17/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.67	<.97
11/28/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.67	<.97
4/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
7/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/30/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
6/4/2020	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/7/2020	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
1/5/2021	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
MW-7A (installed 3/15/18)									
5/10/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.34	<.97
7/17/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.67	<.97
11/28/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.67	<.97
4/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
7/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/30/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
6/4/2020	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/7/2020	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
1/5/2021	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
MW-7B (installed 3/16/18)									
5/10/2018	**277**	1.1	<.32	<.51	1.5J	.58J	<.33	.58J	2.7J
7/17/2018	**993**	<3.3	<3.2	<5.1	<4.9	<3.4	<3.3	<6.7	<9.7
11/28/2018	**365**	<1.6	<1.6	<2.5	<2.4	<1.7	<1.6	<3.3	<4.8
4/24/2019	**59.4**	.53J	<1.2	<1.2	.63J	<.84	<.87	<1.71	.6J
7/24/2019	**83.4**	<.22	<1.2	<1.2	.27J	<.84	<.87	<1.71	<.73
10/30/2019	**14.5**	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
6/4/2020	*3.7*	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/7/2020	**5.2**	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
1/5/2021	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73

Table 1: Ground Water Sampling Results
Wagner Spill - Hwy 45
Langlade County, Wisconsin

Sample Location	Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	1,2,4-TMB	1,3,5-TMB	TMB (Total)	Xylenes (Total)
NR140 Enforcement Standard	5	700	60	100	800			480	2000
NR140 Preventative Action Limit	0.5	140	12	10	160			96	400
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
MW-8A (installed 10/29/18)									
11/28/2018	*1.7*	<.33	<.32	<.51	<.49	<.34	<.33	<.67	<.97
4/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
7/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/30/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
6/4/2020	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/7/2020	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
1/5/2021	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
MW-8B (installed 10/29/18)									
11/28/2018	**6.4**	<.33	<.32	<.51	<.49	.37J	<.33	.37J	<.97
4/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
7/24/2019	*.8J*	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/30/2019	*.88J*	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
6/4/2020	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/7/2020	.44J	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
1/5/2021	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
MW-9P (installed 10/30/18)									
11/28/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.67	<.97
4/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
7/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/30/2019	*1.5*	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
6/4/2020	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/7/2020	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
1/5/2021	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73

Table 1: Ground Water Sampling Results
Wagner Spill - Hwy 45
Langlade County, Wisconsin

Sample Location	Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	1,2,4-TMB	1,3,5-TMB	TMB (Total)	Xylenes (Total)
NR140 Enforcement Standard	5	700	60	100	800			480	2000
NR140 Preventative Action Limit	0.5	140	12	10	160			96	400
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Pond									
5/25/2016	**6.2**	4.2	<0.48	2.2	19.9	NR	NR	8.6	22.3
8/29/2016	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
11/30/2016	**11.5**	3.6	<.48	0.82	54.3	9.7	4.2	13.9	61.9
3/29/2017	0.44	<.39	<.48	<.42	1.4	0.69	0.64	1.33	4.3
7/31/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
10/25/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
5/10/2018	<.31	<.33	<.32	<.51	<.49	<.34	<.33	<.34	<.97
7/17/2018	<.31	<.33	<.32	<.51	<.49	.41J	<.33	.41J	<.97
7/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/30/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
6/4/2020	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/7/2020	<.25	<.32	<1.2	<1.2	<.27	<.84	<.87	<1.71	<.73
Pat Stone well									
(REI) 4/4/2016	<.21	<.23	<.16	<.14	<.12	<.16	<.2	<.36	<.55
3/29/2017	<.4	<.39	<.48	<.42	<.39	<.42	<.42	<.42	<1.2
4/24/2019	<.25	<.22	<1.2	<1.2	<.17	<.84	<.87	<1.71	<.73
10/7/2020	<.43	<.27	<.18	<.59	<.21	<.45	<.43	<.87	<.87
Gray well									
10/7/2020	<.43	<.27	<.18	<.59	<.21	<.45	<.43	<.87	<.87

Table 2: Ground Water Sampling Results - PFAS

Wagner Spill - Hwy 45
Langlade County, Wisconsin

CollectDate 01/05/2021

Parameter	EB	FB	TB	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7A	MW-7B	MW-8A	MW-8B	MW-9
Units	*ng/l*	*ng/l*	*ng/l*	*ng/l*	*ng/l*	*ng/l*	*ng/l*	*ng/l*	*ng/l*	*ng/l*	*ng/l*	*ng/l*	*ng/l*	*ng/l*
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	**140**	**42**	**16**	ND	ND	**3.9**	ND	ND	**1.9**	ND	ND
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	ND	**430**	ND	**980**	**630**	**500**	ND	ND	**13**	**3.1**	**430**	**41**	**11**	ND
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	**4.1**	**2.5**	**2.0**	ND	ND	ND	ND	**2.0**	ND	ND	ND
Hexafluoropropylene oxide dimer acid (GenX)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-butanesulfonic acid (PFBS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-decanesulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-heptanesulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-nonanesulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-octanesulfonamide (PFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-pentanesulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic acid (PFDOS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonic acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-butanoic acid (PFBA)	ND	ND	ND	**240**	**88**	**65**	**160**	**1.9**	**30**	ND	**75**	**81**	**7.9**	ND
Perfluoro-n-decanoic acid (PFDA)	ND	ND	ND	**4.7**	**0.97**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-dodecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-heptanoic acid (PFHpA)	ND	ND	ND	**680**	**130**	**94**	**120**	ND	**68**	ND	**90**	**79**	**7.1**	ND
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-hexanoic acid (PFHxA)	ND	ND	ND	**790**	**220**	**160**	**360**	ND	**79**	ND	**220**	**210**	**19**	**1.3**
Perfluoro-n-nonanoic acid (PFNA)	ND	ND	ND	110	**13**	**14**	ND	ND	**15**	ND	**1.1**	**1.9**	ND	ND
Perfluoro-n-octadecanoic acid (PFODA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-octanoic acid (PFOA)	ND	ND	ND	**580**	**75**	**67**	**17**	ND	**55**	ND	**28**	**34**	**3.0**	ND
Perfluoro-n-pentanoic acid (PFPeA)	ND	**0.99**	ND	**1100**	**410**	**240**	**700**	ND	**130**	ND	**350**	**380**	**35**	**2.2**
Perfluoro-n-tetradecanoic acid (PFTeDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-tridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-n-undecanoic acid (PFUdA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic acid (PFOS)	ND	ND	ND	**5.4**	**3.8**	**2.4**	ND	ND	**1.9**	ND	ND	ND	ND	ND
Total PFAS	ND	**431.0**	ND	**4524.2**	**1615.27**	**1160.4**	**1357**	**1.9**	**340.8**	**3.1**	**1196.1**	**828.8**	**83**	**3.5**

ng/l - nanogram per liter
EB - equipment blank (lab-supplied PFAS-free water poured into bailer, twine, gloves and then poured into sample bottle and analyzed)
FB - field blank (bottle of PFAS-free water supplied by lab left open on truck during sampling)
TB - Trip Blank (bottle of PFAS-free water supplied by lab - unopened from/to lab)
430 - BOLD - Concentration above Method Detection Limit (see laboratory report for MDL)
ND - Concentration below Method Detection Limit (see laboratory report for MDL)

Table 3: Ground Water Level Measurements

Wagner Spill - Hwy 45
Langlade County, Wisconsin

MW-1 (installed Aug. 10, 2016)		
Surface Elevation (ft)		92
Top of Casing elevation (ft)*(7/17/18 survey)*		91.67
Top of Screen Elevation (ft)		89
Bottom of Screen Elevation (ft)		79
Meas. Date	DTW (ft)	GW Elev (ft)
8/29/2016	4.99	86.68
11/30/2016	5.95	85.72
3/29/2017	4.13	87.54
7/31/2017	4.56	87.11
10/25/2017	5.62	86.05
Resurvey May 10, 2018		91.67
5/10/2018	2.8	88.87
7/17/2018	5.09	86.58
11/28/2018	4.15	87.52
4/24/2019	0.4	91.27
7/24/2019	1.21	90.46
10/30/2019	2.3	89.37
6/4/2020	2.15	89.52
10/7/2020	5.33	86.34

MW-2 (installed Aug. 10, 2016)		
Surface Elevation (ft)		98
Top of Casing elevation (ft)*(7/17/18 survey)*		97.58
Top of Screen Elevation (ft)		90
Bottom of Screen Elevation (ft)		80
Meas. Date	DTW (ft)	GW Elev (ft)
8/29/2016	11.41	86.17
11/30/2016	12.21	85.37
3/29/2017	10.86	86.72
7/31/2017	10.86	86.72
10/25/2017	11.97	85.61
Resurvey May 10, 2018		97.58
5/10/2018	9.94	87.64
7/17/2018	11.47	86.11
11/28/2018	10.58	87
4/24/2019	7.1	90.48
7/24/2019	8.14	89.44
10/30/2019	8.86	88.72
6/4/2020	8.8	88.78
10/7/2020	11.55	86.03

MW-3 (installed Aug. 10, 2016)		
Surface Elevation (ft)		94
Top of Casing elevation (ft)*(7/17/18 survey)*		93.83
Top of Screen Elevation (ft)		91
Bottom of Screen Elevation (ft)		81
Meas. Date	DTW (ft)	GW Elev (ft)
8/29/2016	7.21	86.62
11/30/2016	8.36	85.47
3/29/2017	6.77	87.06
7/31/2017	6.79	87.04
10/25/2017	7.83	86
Resurvey May 10, 2018		93.83
5/10/2018	5.18	88.65
7/17/2018	7.26	86.57
11/28/2018	6.44	87.39
4/24/2019	2.52	91.31
7/24/2019	3.53	90.3
10/30/2019	4.6	89.23
6/4/2020	4.5	89.33
10/7/2020	7.56	86.27

MW-4 (installed 11/14/16)		
Surface Elevation (ft)		92.5
Top of Casing elevation (ft)*(7/17/18 survey)*		92.05
Top of Screen Elevation (ft)		87.5
Bottom of Screen Elevation (ft)		77.5
Meas. Date	DTW (ft)	GW Elev (ft)
8/29/2016	4.99	86.68
11/30/2016	7.08	84.97
3/29/2017	5.55	86.5
7/31/2017	5.81	86.24
10/25/2017	6.91	85.14
Resurvey May 10, 2018		92.05
5/10/2018	4.8	87.25
7/17/2018	6.53	85.52
11/28/2018	7.52	84.53
4/24/2019	3.15	88.9
7/24/2019	2.83	89.22
10/30/2019	3.6	88.45
6/4/2020	3.58	88.47
10/7/2020	6.43	85.62

MW-5 (installed 11/14/16)		
Surface Elevation (ft)		100.25
Top of Casing elevation (ft)*(7/17/18 survey)*		100
Top of Screen Elevation (ft)		89.25
Bottom of Screen Elevation (ft)		79.25
Meas. Date	DTW (ft)	GW Elev (ft)
8/29/2016	11.41	86.17
11/30/2016	15.39	84.61
3/29/2017	13.94	86.06
7/31/2017	13.87	86.13
10/25/2017	15.04	84.96
Resurvey May 10, 2018		100
5/10/2018	13.18	86.82
7/17/2018	14.6	85.4
11/28/2018	13.62	86.38
4/24/2019	9.84	90.16
7/24/2019	10.9	89.1
10/30/2019	11.68	88.32
6/4/2020	11.67	88.33
10/7/2020	14.49	85.51

MW-6 (installed 11/14/16)		
Surface Elevation (ft)		92
Top of Casing elevation (ft)*(7/17/18 survey)*		91.74
Top of Screen Elevation (ft)		87.5
Bottom of Screen Elevation (ft)		77.5
Meas. Date	DTW (ft)	GW Elev (ft)
8/29/2016	7.21	86.62
11/30/2016	4.02	87.72
3/29/2017	1.99	89.75
7/31/2017	4.36	87.38
10/25/2017	4.36	87.38
Resurvey May 10, 2018		91.74
5/10/2018	1.6	90.14
7/17/2018	4.78	86.96
11/28/2018	2.75	88.99
4/24/2019	0.65	91.09
7/24/2019	1.12	90.62
10/30/2019	1.73	90.01
6/4/2020	1.76	89.98
10/7/2020	4.77	86.97

MW-7A (installed 3/15/18)		
Surface Elevation (ft)		97.5
Top of Casing elevation (ft)*(7/17/18 survey)*		97.02
Top of Screen Elevation (ft)		83.5
Bottom of Screen Elevation (ft)		73.5
Meas. Date	DTW (ft)	GW Elev (ft)
5/10/2018	10.27	86.75
7/17/2018	11.92	85.1
11/28/2018	10.91	86.11
4/24/2019	7.09	89.93
7/24/2019	8.2	88.82
10/30/2019	8.9	88.12
6/4/2020	8.95	88.07
10/7/2020	11.76	85.26

MW-7B (installed 3/16/18)		
Surface Elevation (ft)		97
Top of Casing elevation (ft)*(7/17/18 survey)*		96.84
Top of Screen Elevation (ft)		68
Bottom of Screen Elevation (ft)		63
Meas. Date	DTW (ft)	GW Elev (ft)
5/10/2018	10.41	86.43
7/17/2018	11.73	85.11
11/28/2018	10.75	86.09
4/24/2019	7.16	89.68
7/24/2019	8.18	88.66
10/30/2019	8.82	88.02
6/4/2020	8.89	87.95
10/7/2020	11.57	85.27

MW-8A (installed 10/29/18)		
Surface Elevation (ft)		94
Top of Casing elevation (ft)*(7/17/18 survey)*		93.74
Top of Screen Elevation (ft)		89
Bottom of Screen Elevation (ft)		79
Meas. Date	DTW (ft)	GW Elev (ft)
11/28/2018	6.49	87.25
4/24/2019	2.42	91.32
7/24/2019	3.6	90.14
10/30/2019	4.67	89.07
6/4/2020	4.58	89.16
10/7/2020	7.62	86.12

MW-8B (installed 10/29/18)		
Surface Elevation (ft)		94
Top of Casing elevation (ft)*(7/17/18 survey)*		93.95
Top of Screen Elevation (ft)		64
Bottom of Screen Elevation (ft)		59
Meas. Date	DTW (ft)	GW Elev (ft)
11/28/2018	7.73	86.22
4/24/2019	4.17	89.78
7/24/2019	10.73	83.22
10/30/2019	11.07	82.88
6/4/2020	5.88	88.07
10/7/2020	8.57	85.38

MW-9P (installed 10/30/18)		
Surface Elevation (ft)		99.75
Top of Casing elevation (ft)*(7/17/18 survey)*		99.54
Top of Screen Elevation (ft)		70
Bottom of Screen Elevation (ft)		65
Meas. Date	DTW (ft)	GW Elev (ft)
11/28/2018	13.5	86.04
4/24/2019	9.91	89.63
7/24/2019	10.93	88.61
10/30/2019	11.57	87.97
6/4/2020	11.64	87.9
10/7/2020	14.34	85.2

Table 4: Natural Attenuation Field Measurements

Wagner Oil Spill

Hwy. 45 near Aniwa, Wisconsin

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
5/10/2018	<1	8.1	6.2	359	-153
7/17/2018	0	7.53	11.7	606	67
11/28/2018	0	7.18	5.4	390	105
4/24/2019	3	7.58	4.2	388	-112
7/24/2019	0	7.38	14.4	264	-119
10/30/2019	<1	7.21	7.6	237	130
6/4/2020	1	5.95	10.3	259	58
10/7/2020	0	6.02	11.1	425	-5
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
5/10/2018	0	7.9	8	1076	-101
7/17/2018	0	7.51	9.6	983	-51
11/28/2018	<<1	6.67	6.1	872	101
4/24/2019	1	6.58	5	501	-109
7/24/2019	2	7.25	11.4	516	-104
10/30/2019	0	7.18	7.9	522	149
6/4/2020	2	5.76	8	583	100
10/7/2020	0	5.78	9.9	557	nm
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
5/10/2018	<1	8.24	5.6	301	-127
7/17/2018	1	7.6	11.9	574	-108
11/28/2018	<<1	7.54	4.7	275	57
4/24/2019	3	7.3	4.2	82	-99
7/24/2019	4	7.35	13.6	78.2	-125
10/30/2019	2	7.45	7.9	127	126
6/4/2020	5	6.2	9.6	831	106
10/7/2020	1	6	10.7	352	69
MW-4					
11/30/2016	3	7.72	7.4	108	-8
3/29/2017	4	8.12	4.5	110	-96
5/10/2018	5	8.52	6.1	70.3	-157
7/17/2018	5	7.46	10.8	120.4	-64
11/28/2018	5	7.32	5.8	93.8	35
4/24/2019	5	7.8	5.4	77	-110
7/24/2019	3	7.65	11.5	63.7	-103
10/30/2019	2	7.43	7.6	69	132
6/4/2020	4	6.46	8.6	62	124
10/7/2020	2	6.05	11	81.4	-31
MW-5					
11/30/2016	4	7.78	8.4	507	-35
3/29/2017	4	7.45	6.5	518	-59
5/10/2018	5	8.15	7.3	517	-117
7/17/2018	6	7.64	10.9	522	94
11/28/2018	5	7.72	6	583	53
4/24/2019	6	8	7.3	626	-87
7/24/2019	5	7.89	10.2	687	-76
10/30/2019	4	7.58	7.6	587	145
6/4/2020	8	6.59	8.2	481	143
10/7/2020	4	6.24	10.4	457	22

Table 4: Natural Attenuation Field Measurements

Wagner Oil Spill

Hwy. 45 near Aniwa, Wisconsin

Well	DO	pH	Temp	Conductivity	ORP
MW-6					
11/30/2016	2	7.92	7.5	527	-8
3/29/2017	4	7.86	3.3	494	-65
5/10/2018	5	8.93	6.3	302	-164
7/17/2018	1	7.13	14.2	465	183
11/28/2018	1	7.62	4	280	15
4/24/2019	8	7.88	4.5	346	-94
7/24/2019	4	7.69	15.4	317	-118
10/30/2019	0	7.54	7.7	188	118
6/4/2020	1	6.67	11.1	410	118
10/7/2020	0	6.09	11.8	985	86
MW-7A					
5/10/2018	5	8.34	7.9	302	-106
7/17/2018	5	7.71	9.5	274	85
11/28/2018	6	7.98	5.9	318	47
4/24/2019	6	8	8.2	310	-91
7/24/2019	5	7.7	10.7	263	-113
10/30/2019	5	7.61	7.9	292	128
6/4/2020	6	6.58	9.5	231	127
10/7/2020	4	6.32	9.6	290	18
MW-7B					
5/10/2018	0	8.15	8.6	1272	-126
7/17/2018	<<1	6.84	9.1	1191	57
11/28/2018	<<1	7.9	5.6	1160	75
4/24/2019	2	7.98	10.8	1043	-124
7/24/2019	1	7.81	10	768	-82
10/30/2019	1	7.64	6.2	689	130
6/4/2020	5	6.67	9.5	643	150
10/7/2020	3	6.39	9.1	787	43
MW-8A					
11/28/2018	2	7.58	4.8	205	27
4/24/2019	6	7.68	7.5	176	-111
7/24/2019	3	7.68	13	114.7	-127
10/30/2019	3	7.59	8.2	87.9	100
6/4/2020	5	6.56	9.2	58	114
10/7/2020	0	6.31	10.7	155	15
MW-8B					
11/28/2018	2	7.62	4.7	787	50
4/24/2019	3	7.74	9.4	822	-119
7/24/2019	0	7.75	10.4	823	-112
10/30/2019	<1	7.85	5.7	870	115
6/4/2020	<1	6.68	9.3	793	156
10/7/2020	1	6.46	9	754	44
MW-9P					
11/28/2018	<<1	7.54	4.8	476	38
4/24/2019	6	7.96	9.9	374	-69
7/24/2019	1	7.68	10.6	564	NM
10/30/2019	2	7.87	6.7	1312	71
6/4/2020	2	6.55	9.8	556	122
10/7/2020	<1	6.33	9	466	24

FIGURES

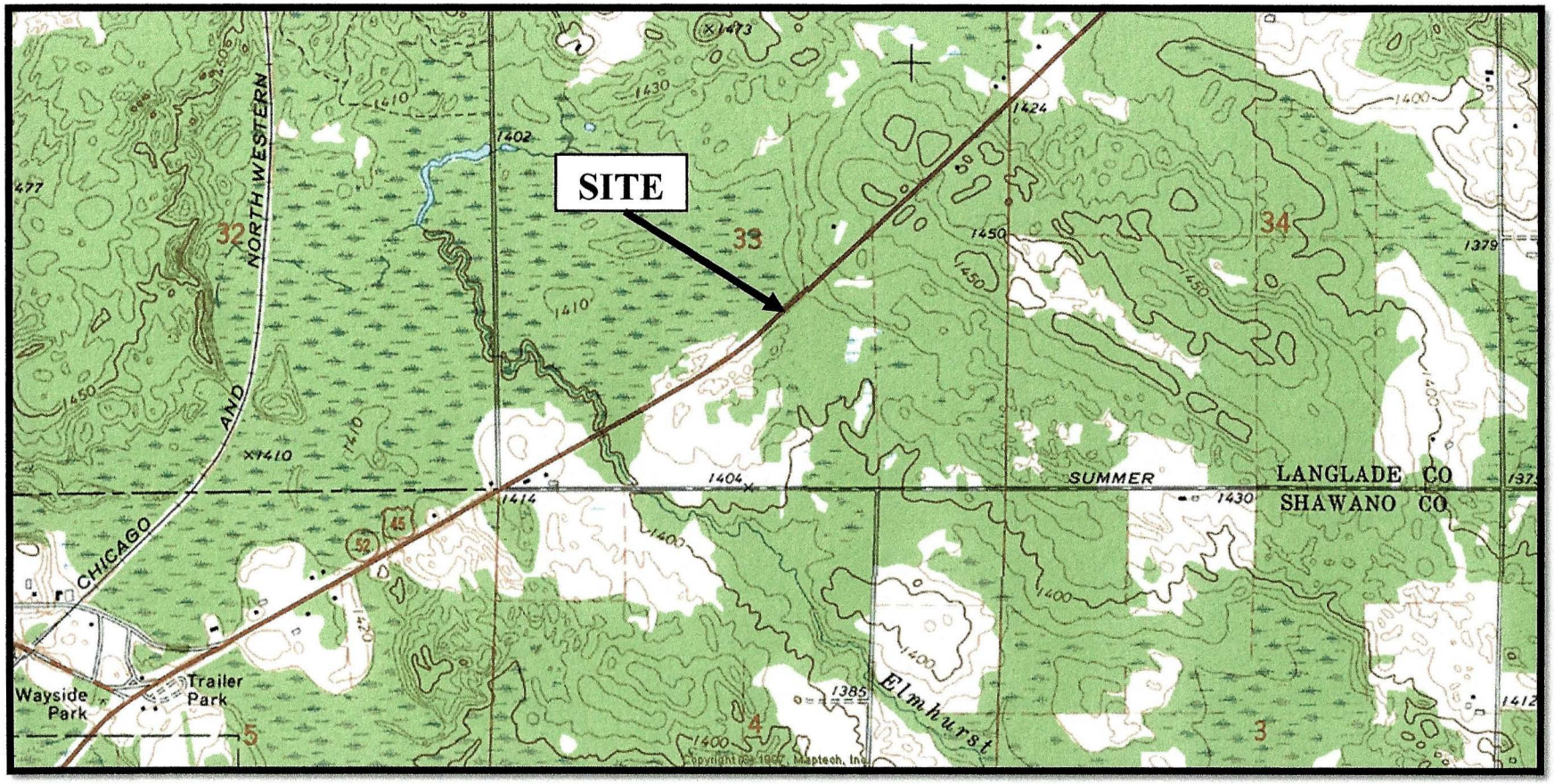
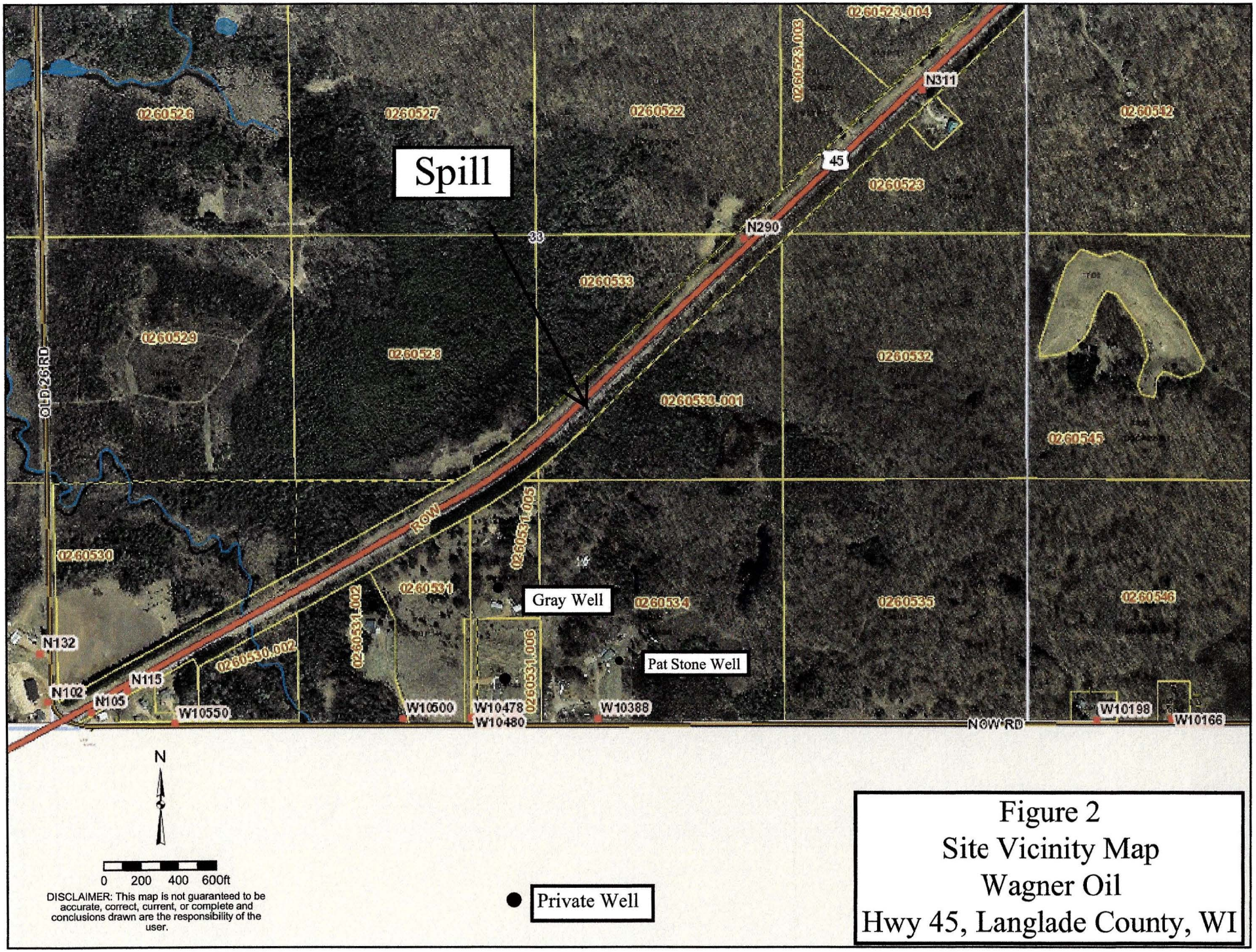


Figure 1: **Site Location Map**
Wagner Oil Spill
Hwy. 45 – Rolling Township – Langlade County


Spill
Gray Well
Pat Stone Well
Private Well
N
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.
Figure 2
Site Vicinity Map
Wagner Oil
Hwy 45, Langlade County, WI

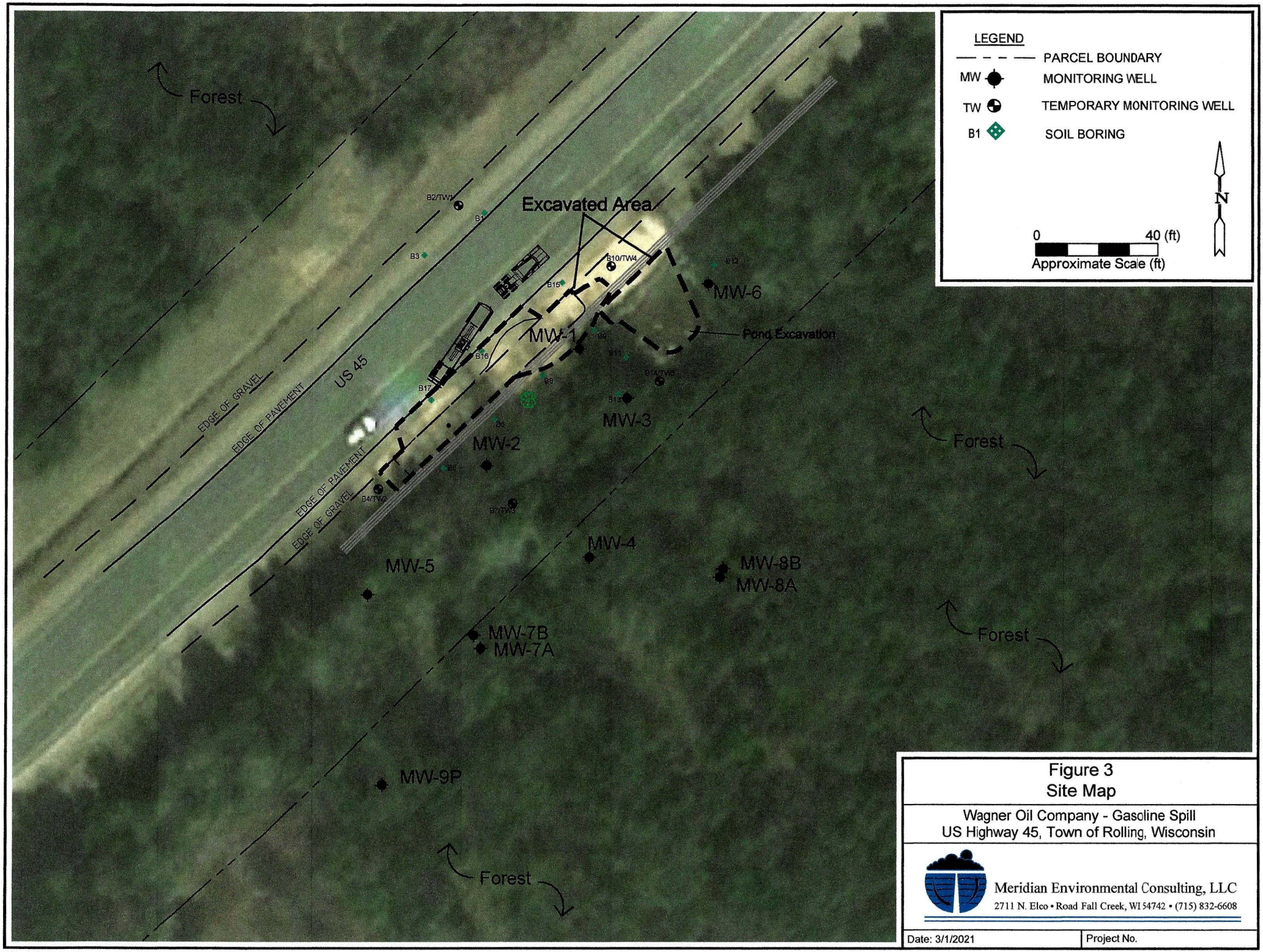


Figure 3
Site Map

Wagner Oil Company - Gasoline Spill
US Highway 45, Town of Rolling, Wisconsin

Meridian Environmental Consulting, LLC
2711 N. Elco • Road Fall Creek, WI 54742 • (715) 832-6608

Date: 3/1/2021 | Project No.

File: WOC-Spill_RollingWI(2000).dwg Date: 10/28/20

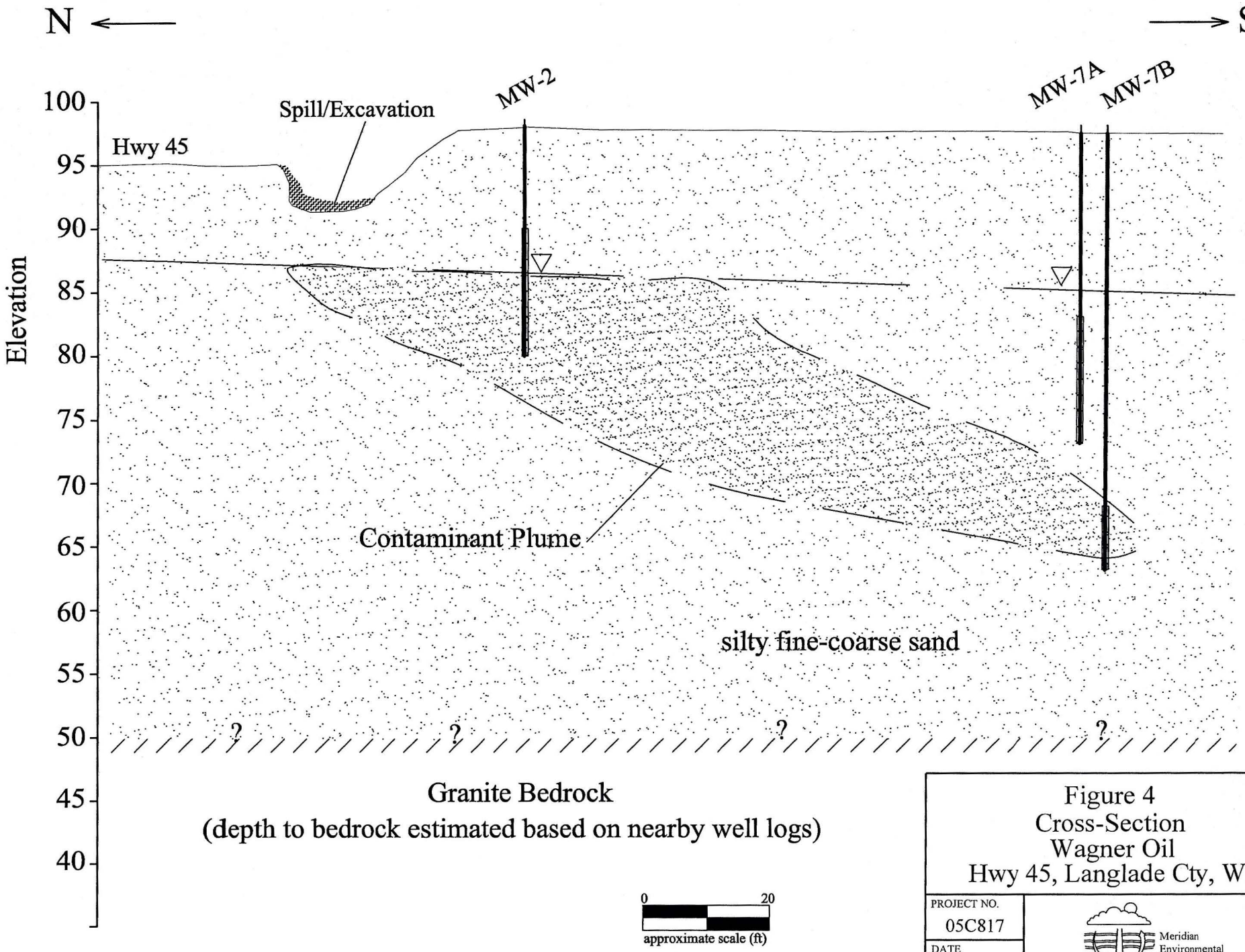


Figure 4
Cross-Section
Wagner Oil
Hwy 45, Langlade Cty, WI

PROJECT NO.
05C817

DATE
3/1/2021

Meridian Environmental Consulting, LLC

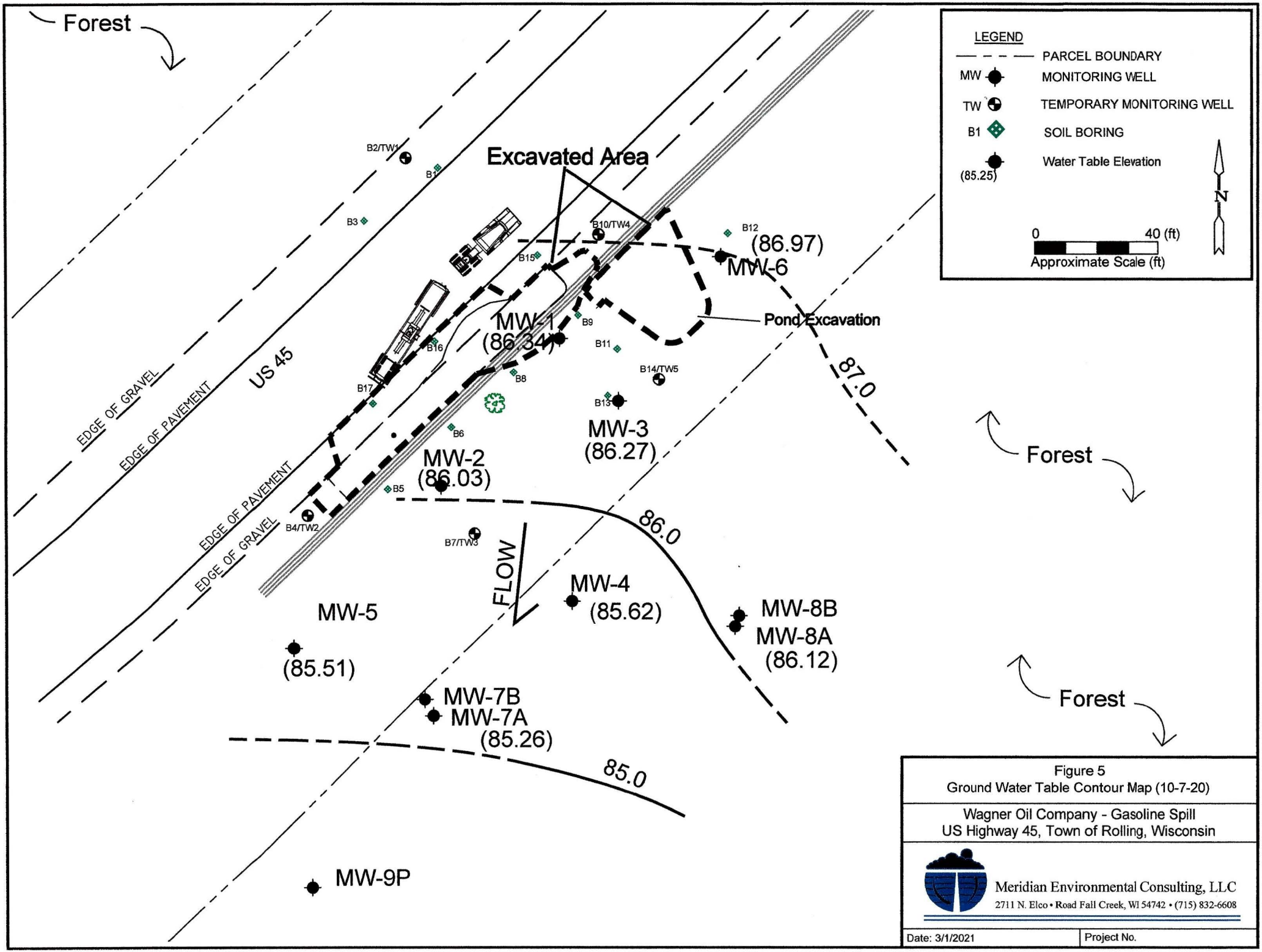


Figure 5
Ground Water Table Contour Map (10-7-20)

Wagner Oil Company - Gasoline Spill
US Highway 45, Town of Rolling, Wisconsin

Meridian Environmental Consulting, LLC
2711 N. Elco • Road Fall Creek, WI 54742 • (715) 832-6608

Date: 3/1/2021 | Project No.

File: WOC-Spill_RollingWI(2000).dwg Date: 10/28/20

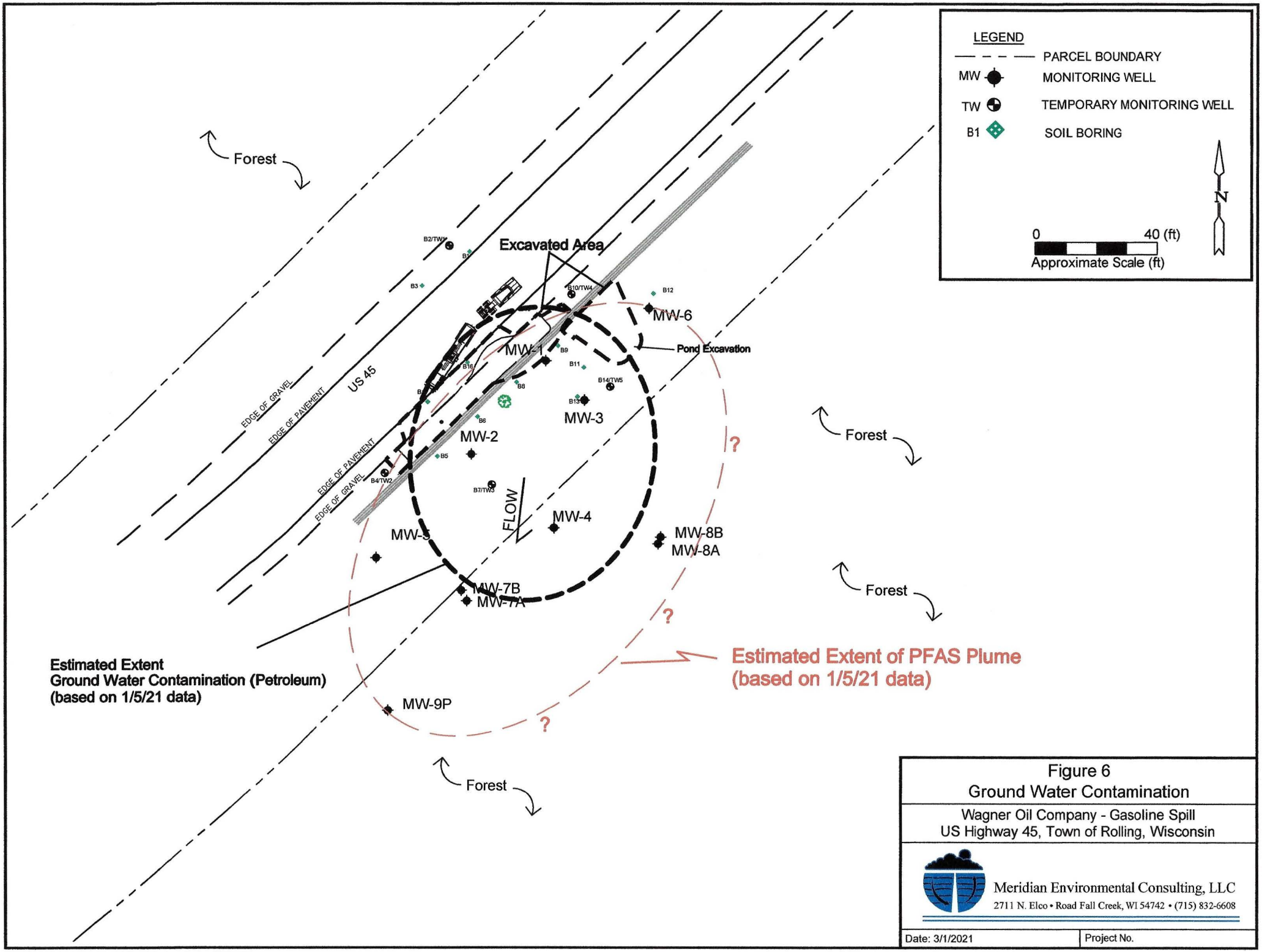


Figure 6
Ground Water Contamination

Wagner Oil Company - Gasoline Spill
US Highway 45, Town of Rolling, Wisconsin

Meridian Environmental Consulting, LLC
2711 N. Elco • Road Fall Creek, WI 54742 • (715) 832-6608

Date: 3/1/2021 | Project No.

File: WOC-Spill_RollingWI(2000).dwg Date: 10/28/20

APPENDIX A

Laboratory Reports

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

October 21, 2020

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

RE: Project: WAGNER
Pace Project No.: 40216252

Dear Kenneth Shimko:

Enclosed are the analytical results for sample(s) received by the laboratory on October 09, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses were subcontracted outside of the Pace Network. The test report from the external subcontractor is attached to this report in its entirety.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay

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

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Pace Analytical Services, LLC
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CERTIFICATIONS

Project: WAGNER
Pace Project No.: 40216252

Pace Analytical Services Green Bay
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.: 40216252

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40216252001	**STONE**	Water	10/07/20 00:00	10/09/20 09:10
40216252002	**GRAY**	Water	10/06/20 00:00	10/09/20 09:10
40216252003	**POND**	Water	10/07/20 00:00	10/09/20 09:10
40216252004	**MW-1**	Water	10/07/20 00:00	10/09/20 09:10
40216252005	**MW-2**	Water	10/07/20 00:00	10/09/20 09:10
40216252006	**MW-3**	Water	10/07/20 00:00	10/09/20 09:10
40216252007	**MW-4**	Water	10/07/20 00:00	10/09/20 09:10
40216252008	**MW-5**	Water	10/07/20 00:00	10/09/20 09:10
40216252009	**MW-6**	Water	10/07/20 00:00	10/09/20 09:10
40216252010	**MW-7A**	Water	10/07/20 00:00	10/09/20 09:10
40216252011	**MW-7B**	Water	10/07/20 00:00	10/09/20 09:10
40216252012	**MW-8A**	Water	10/07/20 00:00	10/09/20 09:10
40216252013	**MW-8B**	Water	10/07/20 00:00	10/09/20 09:10
40216252014	**MW-9**	Water	10/07/20 00:00	10/09/20 09:10
40216252015	**TRIP BLANK**	Water	10/07/20 00:00	10/09/20 09:10

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SAMPLE ANALYTE COUNT

Project: WAGNER
Pace Project No.: 40216252

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40216252003	**POND**	EPA 8260	SMT	12	PASI-G
40216252004	**MW-1**	EPA 8260	LAP	12	PASI-G
40216252005	**MW-2**	EPA 8260	LAP	12	PASI-G
40216252006	**MW-3**	EPA 8260	LAP	12	PASI-G
40216252007	**MW-4**	EPA 8260	LAP	12	PASI-G
40216252008	**MW-5**	EPA 8260	LAP	12	PASI-G
40216252009	**MW-6**	EPA 8260	LAP	12	PASI-G
40216252010	**MW-7A**	EPA 8260	LAP	12	PASI-G
40216252011	**MW-7B**	EPA 8260	LAP	12	PASI-G
40216252012	**MW-8A**	EPA 8260	LAP	12	PASI-G
40216252013	**MW-8B**	EPA 8260	LAP	12	PASI-G
40216252014	**MW-9**	EPA 8260	LAP	12	PASI-G
40216252015	**TRIP BLANK**	EPA 8260	SMT	12	PASI-G

PASI-G = Pace Analytical Services - Green Bay

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PROJECT NARRATIVE

Project: WAGNER
Pace Project No.: 40216252

Method: **EPA 8260**
Description: 8260 MSV UST
Client: Meridian Environmental Consulting, LLC
Date: October 21, 2020

General Information:
13 samples were analyzed for EPA 8260 by Pace Analytical Services Green Bay. 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.

Internal Standards:
All internal standards were within QC limits 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: 367892

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40216123001

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

- MS (Lab ID: 2128362)
  - Toluene

Additional Comments:

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

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40216252

Sample: POND **Lab ID: 40216252003** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		10/12/20 15:01	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		10/12/20 15:01	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/12/20 15:01	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		10/12/20 15:01	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		10/12/20 15:01	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		10/12/20 15:01	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		10/12/20 15:01	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		10/12/20 15:01	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		10/12/20 15:01	95-47-6	
Surrogates									
Dibromofluoromethane (S)	117	%	70-130		1		10/12/20 15:01	1868-53-7	
Toluene-d8 (S)	94	%	70-130		1		10/12/20 15:01	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130		1		10/12/20 15:01	460-00-4	

Sample: MW-1 **Lab ID: 40216252004** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**246**	ug/L	10.0	2.5	10		10/14/20 07:52	71-43-2	
Ethylbenzene	**218**	ug/L	10.6	3.2	10		10/14/20 07:52	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/13/20 21:51	1634-04-4	
Naphthalene	**47.5**	ug/L	5.0	1.2	1		10/13/20 21:51	91-20-3	
Toluene	**407**	ug/L	10.0	2.7	10		10/14/20 07:52	108-88-3	
1,2,4-Trimethylbenzene	**177**	ug/L	2.8	0.84	1		10/13/20 21:51	95-63-6	
1,3,5-Trimethylbenzene	**54.7**	ug/L	2.9	0.87	1		10/13/20 21:51	108-67-8	
m&p-Xylene	**598**	ug/L	2.0	0.47	1		10/13/20 21:51	179601-23-1	
o-Xylene	**204**	ug/L	1.0	0.26	1		10/13/20 21:51	95-47-6	
Surrogates									
Dibromofluoromethane (S)	102	%	70-130		1		10/13/20 21:51	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		10/13/20 21:51	2037-26-5	
4-Bromofluorobenzene (S)	99	%	70-130		1		10/13/20 21:51	460-00-4	

Sample: MW-2 **Lab ID: 40216252005** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**57.2**	ug/L	1.0	0.25	1		10/14/20 07:32	71-43-2	
Ethylbenzene	**20.2**	ug/L	1.1	0.32	1		10/14/20 07:32	100-41-4	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40216252

Sample: MW-2 **Lab ID: 40216252005** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/14/20 07:32	1634-04-4	
Naphthalene	**20.7**	ug/L	5.0	1.2	1		10/14/20 07:32	91-20-3	
Toluene	**1.4**	ug/L	1.0	0.27	1		10/14/20 07:32	108-88-3	
1,2,4-Trimethylbenzene	**7.5**	ug/L	2.8	0.84	1		10/14/20 07:32	95-63-6	
1,3,5-Trimethylbenzene	**10.7**	ug/L	2.9	0.87	1		10/14/20 07:32	108-67-8	
m&p-Xylene	**2.5**	ug/L	2.0	0.47	1		10/14/20 07:32	179601-23-1	
o-Xylene	**6.4**	ug/L	1.0	0.26	1		10/14/20 07:32	95-47-6	
Surrogates									
Dibromofluoromethane (S)	104	%	70-130		1		10/14/20 07:32	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		10/14/20 07:32	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130		1		10/14/20 07:32	460-00-4	

Sample: MW-3 **Lab ID: 40216252006** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**179**	ug/L	1.0	0.25	1		10/13/20 22:10	71-43-2	
Ethylbenzene	**49.0**	ug/L	1.1	0.32	1		10/13/20 22:10	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/13/20 22:10	1634-04-4	
Naphthalene	**22.4**	ug/L	5.0	1.2	1		10/13/20 22:10	91-20-3	
Toluene	**10.2**	ug/L	1.0	0.27	1		10/13/20 22:10	108-88-3	
1,2,4-Trimethylbenzene	**27.2**	ug/L	2.8	0.84	1		10/13/20 22:10	95-63-6	
1,3,5-Trimethylbenzene	**7.5**	ug/L	2.9	0.87	1		10/13/20 22:10	108-67-8	
m&p-Xylene	**51.2**	ug/L	2.0	0.47	1		10/13/20 22:10	179601-23-1	
o-Xylene	**5.7**	ug/L	1.0	0.26	1		10/13/20 22:10	95-47-6	
Surrogates									
Dibromofluoromethane (S)	101	%	70-130		1		10/13/20 22:10	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		10/13/20 22:10	2037-26-5	
4-Bromofluorobenzene (S)	99	%	70-130		1		10/13/20 22:10	460-00-4	

Sample: MW-4 **Lab ID: 40216252007** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		10/13/20 11:49	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		10/13/20 11:49	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/13/20 11:49	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		10/13/20 11:49	91-20-3	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40216252

Sample: MW-4 **Lab ID: 40216252007** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Toluene	**<0.27**	ug/L	1.0	0.27	1		10/13/20 11:49	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		10/13/20 11:49	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		10/13/20 11:49	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		10/13/20 11:49	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		10/13/20 11:49	95-47-6	
Surrogates									
Dibromofluoromethane (S)	98	%	70-130		1		10/13/20 11:49	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		10/13/20 11:49	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		10/13/20 11:49	460-00-4	

Sample: MW-5 **Lab ID: 40216252008** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		10/13/20 12:11	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		10/13/20 12:11	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/13/20 12:11	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		10/13/20 12:11	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		10/13/20 12:11	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		10/13/20 12:11	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		10/13/20 12:11	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		10/13/20 12:11	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		10/13/20 12:11	95-47-6	
Surrogates									
Dibromofluoromethane (S)	103	%	70-130		1		10/13/20 12:11	1868-53-7	
Toluene-d8 (S)	97	%	70-130		1		10/13/20 12:11	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		10/13/20 12:11	460-00-4	

Sample: MW-6 **Lab ID: 40216252009** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		10/13/20 12:32	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		10/13/20 12:32	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/13/20 12:32	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		10/13/20 12:32	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		10/13/20 12:32	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		10/13/20 12:32	95-63-6	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40216252

Sample: MW-6 **Lab ID: 40216252009** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		10/13/20 12:32	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		10/13/20 12:32	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		10/13/20 12:32	95-47-6	
Surrogates									
Dibromofluoromethane (S)	100	%	70-130		1		10/13/20 12:32	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		10/13/20 12:32	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		10/13/20 12:32	460-00-4	

Sample: MW-7A **Lab ID: 40216252010** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		10/13/20 12:53	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		10/13/20 12:53	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/13/20 12:53	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		10/13/20 12:53	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		10/13/20 12:53	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		10/13/20 12:53	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		10/13/20 12:53	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		10/13/20 12:53	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		10/13/20 12:53	95-47-6	
Surrogates									
Dibromofluoromethane (S)	99	%	70-130		1		10/13/20 12:53	1868-53-7	
Toluene-d8 (S)	96	%	70-130		1		10/13/20 12:53	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130		1		10/13/20 12:53	460-00-4	

Sample: MW-7B **Lab ID: 40216252011** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**5.2**	ug/L	1.0	0.25	1		10/13/20 22:57	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		10/13/20 22:57	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/13/20 22:57	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		10/13/20 22:57	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		10/13/20 22:57	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		10/13/20 22:57	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		10/13/20 22:57	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		10/13/20 22:57	179601-23-1	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40216252

Sample: MW-7B **Lab ID: 40216252011** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		10/13/20 22:57	95-47-6	
Surrogates									
Dibromofluoromethane (S)	113	%	70-130		1		10/13/20 22:57	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		10/13/20 22:57	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130		1		10/13/20 22:57	460-00-4	

Sample: MW-8A **Lab ID: 40216252012** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**0.44J**	ug/L	1.0	0.25	1		10/13/20 23:18	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		10/13/20 23:18	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/13/20 23:18	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		10/13/20 23:18	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		10/13/20 23:18	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		10/13/20 23:18	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		10/13/20 23:18	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		10/13/20 23:18	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		10/13/20 23:18	95-47-6	
Surrogates									
Dibromofluoromethane (S)	102	%	70-130		1		10/13/20 23:18	1868-53-7	
Toluene-d8 (S)	97	%	70-130		1		10/13/20 23:18	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		1		10/13/20 23:18	460-00-4	

Sample: MW-8B **Lab ID: 40216252013** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		10/13/20 10:02	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		10/13/20 10:02	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/13/20 10:02	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		10/13/20 10:02	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		10/13/20 10:02	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		10/13/20 10:02	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		10/13/20 10:02	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		10/13/20 10:02	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		10/13/20 10:02	95-47-6	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40216252

Sample: MW-8B **Lab ID: 40216252013** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Surrogates									
Dibromofluoromethane (S)	101	%	70-130		1		10/13/20 10:02	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		10/13/20 10:02	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		1		10/13/20 10:02	460-00-4	

Sample: MW-9 **Lab ID: 40216252014** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		10/13/20 23:40	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		10/13/20 23:40	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/13/20 23:40	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		10/13/20 23:40	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		10/13/20 23:40	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		10/13/20 23:40	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		10/13/20 23:40	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		10/13/20 23:40	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		10/13/20 23:40	95-47-6	
Surrogates									
Dibromofluoromethane (S)	104	%	70-130		1		10/13/20 23:40	1868-53-7	
Toluene-d8 (S)	97	%	70-130		1		10/13/20 23:40	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		1		10/13/20 23:40	460-00-4	

Sample: TRIP BLANK **Lab ID: 40216252015** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		10/14/20 10:56	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		10/14/20 10:56	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		10/14/20 10:56	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		10/14/20 10:56	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		10/14/20 10:56	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		10/14/20 10:56	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		10/14/20 10:56	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		10/14/20 10:56	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		10/14/20 10:56	95-47-6	
Surrogates									
Dibromofluoromethane (S)	105	%	70-130		1		10/14/20 10:56	1868-53-7	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40216252

Sample: TRIP BLANK **Lab ID: 40216252015** Collected: 10/07/20 00:00 Received: 10/09/20 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Surrogates									
Toluene-d8 (S)	95	%	70-130		1		10/14/20 10:56	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130		1		10/14/20 10:56	460-00-4	

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QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40216252

QC Batch: 367892
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST-WATER
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40216252015

METHOD BLANK: 2126872 Matrix: Water
Associated Lab Samples: 40216252015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/13/20 17:54	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/13/20 17:54	
Benzene	ug/L	<0.25	1.0	10/13/20 17:54	
Ethylbenzene	ug/L	<0.32	1.1	10/13/20 17:54	
m&p-Xylene	ug/L	<0.47	2.0	10/13/20 17:54	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/13/20 17:54	
Naphthalene	ug/L	<1.2	5.0	10/13/20 17:54	
o-Xylene	ug/L	<0.26	1.0	10/13/20 17:54	
Toluene	ug/L	<0.27	1.0	10/13/20 17:54	
4-Bromofluorobenzene (S)	%	99	70-130	10/13/20 17:54	
Dibromofluoromethane (S)	%	105	70-130	10/13/20 17:54	
Toluene-d8 (S)	%	97	70-130	10/13/20 17:54	

LABORATORY CONTROL SAMPLE: 2126873

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	39.9	80	70-130	
Ethylbenzene	ug/L	50	43.7	87	80-120	
m&p-Xylene	ug/L	100	89.3	89	70-130	
Methyl-tert-butyl ether	ug/L	50	39.1	78	61-129	
o-Xylene	ug/L	50	44.2	88	70-130	
Toluene	ug/L	50	41.3	83	80-120	
4-Bromofluorobenzene (S)	%			109	70-130	
Dibromofluoromethane (S)	%			106	70-130	
Toluene-d8 (S)	%			97	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2128362 2128363

Parameter	Units	40216123001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	<0.25	50	50	40.9	39.9	82	80	70-136	2	20	
Ethylbenzene	ug/L	<0.32	50	50	42.5	43.2	85	86	80-120	2	20	
m&p-Xylene	ug/L	<0.47	100	100	85.1	87.9	85	88	70-130	3	20	
Methyl-tert-butyl ether	ug/L	<1.2	50	50	39.7	39.6	79	79	61-136	0	20	
o-Xylene	ug/L	<0.26	50	50	43.0	43.8	86	88	70-130	2	20	
Toluene	ug/L	<0.27	50	50	39.7	40.5	79	81	80-120	2	20	M1
4-Bromofluorobenzene (S)	%						107	109	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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Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40216252

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2128362 2128363

Parameter	Units	40216123001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dibromofluoromethane (S)	%						108	106	70-130			
Toluene-d8 (S)	%						97	96	70-130			

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(920)469-2436

QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40216252

QC Batch: 367897
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST-WATER
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40216252003

METHOD BLANK: 2127062 Matrix: Water
Associated Lab Samples: 40216252003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/12/20 12:45	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/12/20 12:45	
Benzene	ug/L	<0.25	1.0	10/12/20 12:45	
Ethylbenzene	ug/L	<0.32	1.1	10/12/20 12:45	
m&p-Xylene	ug/L	<0.47	2.0	10/12/20 12:45	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/12/20 12:45	
Naphthalene	ug/L	<1.2	5.0	10/12/20 12:45	
o-Xylene	ug/L	<0.26	1.0	10/12/20 12:45	
Toluene	ug/L	<0.27	1.0	10/12/20 12:45	
4-Bromofluorobenzene (S)	%	97	70-130	10/12/20 12:45	
Dibromofluoromethane (S)	%	112	70-130	10/12/20 12:45	
Toluene-d8 (S)	%	96	70-130	10/12/20 12:45	

LABORATORY CONTROL SAMPLE: 2127063

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	56.6	113	70-130	
Ethylbenzene	ug/L	50	55.7	111	80-120	
m&p-Xylene	ug/L	100	118	118	70-130	
Methyl-tert-butyl ether	ug/L	50	52.8	106	61-129	
o-Xylene	ug/L	50	56.9	114	70-130	
Toluene	ug/L	50	52.9	106	80-120	
4-Bromofluorobenzene (S)	%			102	70-130	
Dibromofluoromethane (S)	%			109	70-130	
Toluene-d8 (S)	%			94	70-130	

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(920)469-2436

QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40216252

QC Batch: 367989
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST-WATER
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40216252007, 40216252008, 40216252009, 40216252010, 40216252011, 40216252012, 40216252013, 40216252014

METHOD BLANK: 2127399 Matrix: Water
Associated Lab Samples: 40216252007, 40216252008, 40216252009, 40216252010, 40216252011, 40216252012, 40216252013, 40216252014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/13/20 06:06	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/13/20 06:06	
Benzene	ug/L	<0.25	1.0	10/13/20 06:06	
Ethylbenzene	ug/L	<0.32	1.1	10/13/20 06:06	
m&p-Xylene	ug/L	<0.47	2.0	10/13/20 06:06	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/13/20 06:06	
Naphthalene	ug/L	<1.2	5.0	10/13/20 06:06	
o-Xylene	ug/L	<0.26	1.0	10/13/20 06:06	
Toluene	ug/L	<0.27	1.0	10/13/20 06:06	
4-Bromofluorobenzene (S)	%	95	70-130	10/13/20 06:06	
Dibromofluoromethane (S)	%	99	70-130	10/13/20 06:06	
Toluene-d8 (S)	%	100	70-130	10/13/20 06:06	

LABORATORY CONTROL SAMPLE: 2127400

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	54.6	109	70-130	
Ethylbenzene	ug/L	50	57.2	114	80-120	
m&p-Xylene	ug/L	100	115	115	70-130	
Methyl-tert-butyl ether	ug/L	50	48.4	97	61-129	
o-Xylene	ug/L	50	55.8	112	70-130	
Toluene	ug/L	50	54.7	109	80-120	
4-Bromofluorobenzene (S)	%			99	70-130	
Dibromofluoromethane (S)	%			99	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2127722 2127723

Parameter	Units	40216252013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	<0.25	50	50	50.3	54.2	101	108	70-136	7	20	
Ethylbenzene	ug/L	<0.32	50	50	52.5	55.4	105	111	80-120	5	20	
m&p-Xylene	ug/L	<0.47	100	100	104	111	104	111	70-130	6	20	
Methyl-tert-butyl ether	ug/L	<1.2	50	50	44.7	48.2	89	96	61-136	8	20	
o-Xylene	ug/L	<0.26	50	50	50.6	53.6	101	107	70-130	6	20	
Toluene	ug/L	<0.27	50	50	50.3	54.2	101	108	80-120	7	20	

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(920)469-2436

QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40216252

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2127722 2127723

Parameter	Units	40216252013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
4-Bromofluorobenzene (S)	%						98	99	70-130			
Dibromofluoromethane (S)	%						98	102	70-130			
Toluene-d8 (S)	%						99	98	70-130			

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QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40216252

QC Batch: 368118
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST-WATER
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40216252004, 40216252005, 40216252006

METHOD BLANK: 2127937 Matrix: Water
Associated Lab Samples: 40216252004, 40216252005, 40216252006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/13/20 14:50	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/13/20 14:50	
Benzene	ug/L	<0.25	1.0	10/13/20 14:50	
Ethylbenzene	ug/L	<0.32	1.1	10/13/20 14:50	
m&p-Xylene	ug/L	<0.47	2.0	10/13/20 14:50	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/13/20 14:50	
Naphthalene	ug/L	<1.2	5.0	10/13/20 14:50	
o-Xylene	ug/L	<0.26	1.0	10/13/20 14:50	
Toluene	ug/L	<0.27	1.0	10/13/20 14:50	
4-Bromofluorobenzene (S)	%	96	70-130	10/13/20 14:50	
Dibromofluoromethane (S)	%	99	70-130	10/13/20 14:50	
Toluene-d8 (S)	%	89	70-130	10/13/20 14:50	

LABORATORY CONTROL SAMPLE: 2127938

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	53.2	106	70-130	
Ethylbenzene	ug/L	50	54.6	109	80-120	
m&p-Xylene	ug/L	100	111	111	70-130	
Methyl-tert-butyl ether	ug/L	50	61.2	122	61-129	
o-Xylene	ug/L	50	55.5	111	70-130	
Toluene	ug/L	50	52.9	106	80-120	
4-Bromofluorobenzene (S)	%			100	70-130	
Dibromofluoromethane (S)	%			102	70-130	
Toluene-d8 (S)	%			99	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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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALIFIERS

Project: WAGNER
Pace Project No.: 40216252

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.

ANALYTE QUALIFIERS

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

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Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WAGNER
Pace Project No.: 40216252

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40216252003	**POND**	EPA 8260	367897		
40216252004	**MW-1**	EPA 8260	368118		
40216252005	**MW-2**	EPA 8260	368118		
40216252006	**MW-3**	EPA 8260	368118		
40216252007	**MW-4**	EPA 8260	367989		
40216252008	**MW-5**	EPA 8260	367989		
40216252009	**MW-6**	EPA 8260	367989		
40216252010	**MW-7A**	EPA 8260	367989		
40216252011	**MW-7B**	EPA 8260	367989		
40216252012	**MW-8A**	EPA 8260	367989		
40216252013	**MW-8B**	EPA 8260	367989		
40216252014	**MW-9**	EPA 8260	367989		
40216252015	**TRIP BLANK**	EPA 8260	367892		

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40216252

Pace Analytical
www.pacelabs.com

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

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

(Please Print Clearly)	
Company Name:	Meridian Env. Grp
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):	
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	Ken Shimko
Mail To Company:	Meridian Env Grp
Mail To Address:	2711 N. Falco Rd Fall Creek, WI 54742
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	
Invoice To Phone:	

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

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

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	Y/N	Pick Letter	Analyses Requested: 524.2	Analyses Requested: pVOC+Naph	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
001	Stone	10/7		W			X				
002	Gray	10/6					X				
003	Pond	10/7						X			
004	MW-1										
005	MW-2										
006	MW-3										
007	MW-4										
008	MW-5										
009	MW-6										
010	MW-7A										
011	MW-7B										

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:	Date/Time:	Received By:	Date/Time:
	10/8/20	Fed Ex	10/8/20
Fed Ex	10/9/20 0910	Susan Kilgore Pace	10/9/20 0910

PACE Project No. 40216252

Receipt Temp = 20.1 °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal Present / Not Present

Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2008)

ORIGINAL

40216252

Pace Analytical
www.pacelabs.com

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

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

(Please Print Clearly)	
Company Name:	Meridian
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):	
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	Ken Shimko
Mail To Company:	Meridian E.C.
Mail To Address:	2711 N. Flambeau Fall Creek WI 54742
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	
Invoice To Phone:	

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 DATE	COLLECTION TIME	MATRIX	FILTERED? (YES/NO) Y/N	PRESERVATION (CODE)* Pick Letter	Analyses Requested	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
012	MW-8A	10/7		W			PVOA + Naph			
013	MW-8B	↓		↓			↓			
014	MW-9									
015	Trip Blank ①									

① Dr shipment Lab added to COC 10/9/20 RW

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:	Date/Time:	Received By:	Date/Time:
	10/8/20	Fedex	10/8/20
	10/9/20 0910		10/9/20 0910

PACE Project No. 40216252

Receipt Temp = 1.0T °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal Present / Not Present

Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

Pace Container Order #687307

40216259

Addresses

Order By :		Ship To :		Return To:	
Company	Meridian Environmental	Company	Meridian Environmental Consulting, LLC	Company	Pace Analytical Green Bay
Contact	Shimko, Kenneth	Contact	Shimko, Kenneth	Contact	Basten, Brian
Email	kshimko.meridianenv@gmail.com	Email	kshimko.meridianenv@gmail.com	Email	brian.basten@pacelabs.com
Address	2711 North Elco Rd	Address	2711 North Elco Rd	Address	1241 Bellevue Street
Address 2		Address 2		Address 2	Suite 9
City	Fall Creek	City	Fall Creek	City	Green Bay
State	WI Zip 54742	State	WI Zip 54742	State	WI Zip 54302
Phone	715-579-0723	Phone	715-579-0723	Phone	(920)469-2436

Info

Project Name Antigo **Due Date** 08/31/2020 **Profile** **Quote**

Project Manager Basten, Brian **Return Date** **Carrier** Most Economical **Location** WI

Trip Blanks

[X] Include Trip Blanks

Bottle Labels

[X] Blank
[ ] Pre-Printed No Sample IDs
[ ] Pre-Printed With Sample IDs

Bottles

[ ] Boxed Cases
[ ] Individually Wrapped
[ ] Grouped By Sample ID/Matrix

Return Shipping Labels

[ ] No Shipper
[ ] With Shipper

COC Options

[X] Number of Blanks 5
[ ] Pre-Printed

Misc

[X] Sampling Instructions
[X] Custody Seal
[ ] Temp. Blanks
[X] Coolers
[X] Syringes
[ ] Extra Bubble Wrap
[ ] Short Hold/Rush Stickers
[ ] DI Water Liter(s)
[ ] USDA Regulated Soils

# of Samples	Matrix	Test	Container	Total	# of	Lot #	Notes
3	WT	SDWA VOC by 524.2	3-40mL glass vial w/ Ascorbic Acid & HCL ampule	9	0	B-0-015-01VB 102119-HCL	
15	WT	PVOC	3-40mL glass vial w/ HCl	45	0	B-0-130-01VB	
20	SL	PVOC	40mL vial, 10mL MeOH Tared Wt	21	0	B-0-015-01VB	
20	SL	10g Sampling Tool	Plastic 10 gram cut off syringe	20	0	NA	
2	WT	Trip BLANK	2-40mL HCL w/custody seal	4	0	B-0-015-01VB	

Hazard Shipping Placard In Place : NA

*Sample receiving hours are typically 8am-5pm, but may differ by location. Please check with your Pace Project Manager.
*Pace Analytical reserves the right to return hazardous, toxic, or radioactive samples to you.
*Pace Analytical reserves the right to charge for unused bottles, as well as cost associated with sample storage/disposal.
*Payment term are net 30 days.
*Please include the proposal number on the chain of custody to insure proper billing.

LAB USE:

Ship Date :	08/28/2020
Prepared By:	Mai Yer Her
Verified By:	

Sample

CLIENT USE (Optional):

Date Rec'd:	
Received By:	
Verified By:	

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

Sample Preservation Receipt Form

Client Name: Meridian Env. Project # 40216252

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

Initial when completed: Date/ Time:

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

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	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN						
001														3			3															2.5 / 5 / 10
002														3			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																	3															2.5 / 5 / 10
009																	3															2.5 / 5 / 10
010																	3															2.5 / 5 / 10
011																	3															2.5 / 5 / 10
012																	3															2.5 / 5 / 10
013																	3															2.5 / 5 / 10
014																	3															2.5 / 5 / 10
015																	2															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

10/9/20 DCL

Exceptions to preservation checked: 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
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG4U	120 mL amber glass unpres
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4

VG9A	40 mL clear ascorbic
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN	

Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 26Mar2020
	Document No.: ENV-FRM-GBAY-0014-Rev.00	Author: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO#: 40216252

40216252

Client Name: Meridian Env.

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

Tracking #: 397634625109

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 cardboard 10-9-20 SKW

Thermometer Used SR - N/A **Type of Ice:** Wet Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: ROI /Corr:

Temp Blank Present: ☐ yes ☒ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Person examining contents: Date: 10-9-20 /Initials: SKW

Labeled By Initials: AP

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☐Yes ☑No ☐N/A	2. Proj #, Filter, Preserve, Invoice info, Collect time 10-9-20 SKW
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☑N/A	
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☐Yes ☑No ☐N/A	12. No dates 10-9-20 SKW
-Includes date/time/ID/Analysis Matrix: W		
Trip Blank Present:	☑Yes ☐No ☐N/A	13. In Shipment Lab added to COC 10-9-20 SKW
Trip Blank Custody Seals Present	☑Yes ☐No ☐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:

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

NORTHERN LAKE SERVICE, INC.
Analytical Laboratory and Environmental Services
400 North Lake Avenue - Crandon, WI 54520
Ph: (715)-478-2777 Fax: (715)-478-3060

ANALYTICAL REPORT

WDNR Laboratory ID No. 721026460
WDATCP Laboratory Certification No. 105-330
EPA Laboratory ID No. WI00034

Printed: 10/21/20 **Page 1 of 1**

Client: **Pace Analytical Services Inc (GB)**
Attn: Brian D Basten
1241 Bellevue Street
Green Bay, WI 54302 2156

NLS Project: 355252
NLS Customer: 94575
Fax: 920 469 8827 **Phone: 800 736 2436**

Project: **40216252 Wagner**

40216252001 (Stone) NLS ID: 1221565
COC: :1 Matrix: DW
Collected: 10/07/20 00:00 Received: 10/13/20

Parameter	Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab
SDWA Volatile Organics (VOCs) by EPA 524.2	see attached					10/19/20	EPA 524.2, Rev 4.1	721026460

40216252002 (Gray) NLS ID: 1221566
COC: :2 Matrix: DW
Collected: 10/06/20 00:00 Received: 10/13/20

Parameter	Result	Units	Dilution	LOD	LOQ/MCL	Analyzed	Method	Lab
SDWA Volatile Organics (VOCs) by EPA 524.2	see attached					10/19/20	EPA 524.2, Rev 4.1	721026460

Values in brackets represent results greater than or equal to the LOD but less than the LOQ and are within a region of "Less-Certain Quantitation". Results greater than or equal to the LOQ are considered to be in the region of "Certain Quantitation". LOD and/or LOQ tagged with an asterisk(*) are considered Reporting Limits. All LOD/LOQs adjusted to reflect dilution and/or solids content.

ND = Not Detected (< LOD) LOD = Limit of Detection LOQ = Limit of Quantitation NA = Not Applicable
DWB = Dry Weight Basis %DWB = (mg/kg DWB) / 10000 1000 ug/L = 1 mg/L
MCL = Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.

Reviewed by:

Authorized by:
R. T. Krueger
President

ANALYTICAL RESULTS: GCMS 524.2, Rev 4.1 Safe Drinking Water Analysis

Customer: Pace Analytical Services Inc (GB) **NLS Project: 355252**

Project Description: 40216252

Project Title: Wagner **Template: 524W** **Printed: 10/21/2020 08:27**

Sample: 1221565 40216252001 (Stone) Collected: 10/07/20 Analyzed: 10/19/20 - Analytes: 60

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
Benzene	ND	ug/L	1	0.43	1.4	5	
Bromobenzene	ND	ug/L	1	0.14	0.46		
Bromochloromethane	ND	ug/L	1	0.31	1.0		
Bromodichloromethane	ND	ug/L	1	0.42	1.4	80	
Bromoform	ND	ug/L	1	0.39	1.3	80	
Bromomethane	ND	ug/L	1	1.0	3.5		
n-Butylbenzene	ND	ug/L	1	0.49	1.6		
sec-Butylbenzene	ND	ug/L	1	0.41	1.4		
tert-Butylbenzene	ND	ug/L	1	0.51	1.7		
Carbon Tetrachloride	ND	ug/L	1	0.28	0.93	5	
Chlorobenzene	ND	ug/L	1	0.28	0.95	100	
Chloroethane	ND	ug/L	1	2.7	8.9		
Chloroform	ND	ug/L	1	0.52	1.7	80	
Chloromethane	2.6	ug/L	1	0.40	1.3		
2-Chlorotoluene	ND	ug/L	1	0.36	1.2		
4-Chlorotoluene	ND	ug/L	1	0.40	1.3		
Dibromochloromethane	ND	ug/L	1	0.41	1.4	80	
1,2-Dibromo-3-Chloropropane	ND	ug/L	1	0.53	1.8		
1,2-Dibromoethane	ND	ug/L	1	0.28	0.95		
Dibromomethane	ND	ug/L	1	0.38	1.3		
1,2-Dichlorobenzene	ND	ug/L	1	0.12	0.40	600	
1,3-Dichlorobenzene	ND	ug/L	1	0.19	0.62		
1,4-Dichlorobenzene	ND	ug/L	1	0.22	0.73	75	
Dichlorodifluoromethane	ND	ug/L	1	0.35	1.2		
1,1-Dichloroethane	ND	ug/L	1	0.28	0.92		
1,2-Dichloroethane	ND	ug/L	1	0.43	1.4	5	
1,1-Dichloroethene	ND	ug/L	1	0.28	0.94	7	
cis-1,2-Dichloroethene	ND	ug/L	1	0.35	1.2	70	
trans-1,2-Dichloroethene	ND	ug/L	1	0.24	0.81	100	
1,2-Dichloropropane	ND	ug/L	1	0.63	2.1	5	
1,3-Dichloropropane	ND	ug/L	1	0.40	1.3		
2,2-Dichloropropane	ND	ug/L	1	0.87	2.9		
1,1-Dichloropropene	ND	ug/L	1	0.35	1.2		
cis-1,3-Dichloropropene	ND	ug/L	1	0.26	0.86		
trans-1,3-Dichloropropene	ND	ug/L	1	0.25	0.83		
Ethylbenzene	ND	ug/L	1	0.27	0.90	700	
Hexachlorobutadiene	ND	ug/L	1	0.60	2.0		
Isopropylbenzene	ND	ug/L	1	0.33	1.1		
p-Isopropyltoluene	ND	ug/L	1	0.46	1.5		
Methylene chloride	ND	ug/L	1	1.1	3.7	5	
Naphthalene	ND	ug/L	1	0.59	2.0		
n-Propylbenzene	ND	ug/L	1	0.40	1.3		
Styrene	ND	ug/L	1	0.31	1.0	100	
ortho-Xylene	ND	ug/L	1	0.28	0.95		
1,1,1,2-Tetrachloroethane	ND	ug/L	1	0.38	1.3		
1,1,2,2-Tetrachloroethane	ND	ug/L	1	0.60	2.0		
Tetrachloroethene	ND	ug/L	1	0.27	0.90	5	
Toluene	ND	ug/L	1	0.21	0.69	1000	
1,2,3-Trichlorobenzene	ND	ug/L	1	0.51	1.7		
1,2,4-Trichlorobenzene	ND	ug/L	1	0.44	1.5	70	
1,1,1-Trichloroethane	ND	ug/L	1	0.44	1.5	200	
1,1,2-Trichloroethane	ND	ug/L	1	0.53	1.8	5	
Trichloroethene	ND	ug/L	1	0.46	1.5	5	

ANALYTICAL RESULTS: GCMS 524.2, Rev 4.1 Safe Drinking Water Analysis

Customer: Pace Analytical Services Inc (GB) **NLS Project: 355252**

Project Description: 40216252

Project Title: Wagner **Template: 524W** **Printed: 10/21/2020 08:27**

Sample: 1221565 40216252001 (Stone) Collected: 10/07/20 Analyzed: 10/19/20 - Analytes: 60

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
Trichlorofluoromethane	ND	ug/L	1	0.29	0.96		
1,2,3-Trichloropropane	ND	ug/L	1	0.91	3.0		
1,2,4-Trimethylbenzene	ND	ug/L	1	0.45	1.5		
1,3,5-Trimethylbenzene	ND	ug/L	1	0.43	1.4		
Vinyl chloride	ND	ug/L	1	0.19	0.62	.2	
meta,para-Xylene	ND	ug/L	1	0.59	2.0	10000	
MTBE	ND	ug/L	1	0.18	0.60		
4-Bromofluorobenzene (SURR)	74%		1				S
1,2-Dichlorobenzene-d4 (SURR)	79%		1				S

NOTES APPLICABLE TO THIS ANALYSIS:

S = This compound is a surrogate used to evaluate the quality control of a method.

ANALYTICAL RESULTS: GCMS 524.2, Rev 4.1 Safe Drinking Water Analysis

Customer: Pace Analytical Services Inc (GB) **NLS Project: 355252**

Project Description: 40216252

Project Title: Wagner **Template: 524W** **Printed: 10/21/2020 08:27**

Sample: 1221566 40216252002 (Gray) Collected: 10/06/20 Analyzed: 10/19/20 - Analytes: 60

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
Benzene	ND	ug/L	1	0.43	1.4	5	
Bromobenzene	ND	ug/L	1	0.14	0.46		
Bromochloromethane	ND	ug/L	1	0.31	1.0		
Bromodichloromethane	ND	ug/L	1	0.42	1.4	80	
Bromoform	ND	ug/L	1	0.39	1.3	80	
Bromomethane	ND	ug/L	1	1.0	3.5		
n-Butylbenzene	ND	ug/L	1	0.49	1.6		
sec-Butylbenzene	ND	ug/L	1	0.41	1.4		
tert-Butylbenzene	ND	ug/L	1	0.51	1.7		
Carbon Tetrachloride	ND	ug/L	1	0.28	0.93	5	
Chlorobenzene	ND	ug/L	1	0.28	0.95	100	
Chloroethane	ND	ug/L	1	2.7	8.9		
Chloroform	ND	ug/L	1	0.52	1.7	80	
Chloromethane	[0.93]	ug/L	1	0.40	1.3		J
2-Chlorotoluene	ND	ug/L	1	0.36	1.2		
4-Chlorotoluene	ND	ug/L	1	0.40	1.3		
Dibromochloromethane	ND	ug/L	1	0.41	1.4	80	
1,2-Dibromo-3-Chloropropane	ND	ug/L	1	0.53	1.8		
1,2-Dibromoethane	ND	ug/L	1	0.28	0.95		
Dibromomethane	ND	ug/L	1	0.38	1.3		
1,2-Dichlorobenzene	ND	ug/L	1	0.12	0.40	600	
1,3-Dichlorobenzene	ND	ug/L	1	0.19	0.62		
1,4-Dichlorobenzene	ND	ug/L	1	0.22	0.73	75	
Dichlorodifluoromethane	ND	ug/L	1	0.35	1.2		
1,1-Dichloroethane	ND	ug/L	1	0.28	0.92		
1,2-Dichloroethane	ND	ug/L	1	0.43	1.4	5	
1,1-Dichloroethene	ND	ug/L	1	0.28	0.94	7	
cis-1,2-Dichloroethene	ND	ug/L	1	0.35	1.2	70	
trans-1,2-Dichloroethene	ND	ug/L	1	0.24	0.81	100	
1,2-Dichloropropane	ND	ug/L	1	0.63	2.1	5	
1,3-Dichloropropane	ND	ug/L	1	0.40	1.3		
2,2-Dichloropropane	ND	ug/L	1	0.87	2.9		
1,1-Dichloropropene	ND	ug/L	1	0.35	1.2		
cis-1,3-Dichloropropene	ND	ug/L	1	0.26	0.86		
trans-1,3-Dichloropropene	ND	ug/L	1	0.25	0.83		
Ethylbenzene	ND	ug/L	1	0.27	0.90	700	
Hexachlorobutadiene	ND	ug/L	1	0.60	2.0		
Isopropylbenzene	ND	ug/L	1	0.33	1.1		
p-Isopropyltoluene	ND	ug/L	1	0.46	1.5		
Methylene chloride	ND	ug/L	1	1.1	3.7	5	
Naphthalene	ND	ug/L	1	0.59	2.0		
n-Propylbenzene	ND	ug/L	1	0.40	1.3		
Styrene	ND	ug/L	1	0.31	1.0	100	
ortho-Xylene	ND	ug/L	1	0.28	0.95		
1,1,1,2-Tetrachloroethane	ND	ug/L	1	0.38	1.3		
1,1,2,2-Tetrachloroethane	ND	ug/L	1	0.60	2.0		
Tetrachloroethene	ND	ug/L	1	0.27	0.90	5	
Toluene	ND	ug/L	1	0.21	0.69	1000	
1,2,3-Trichlorobenzene	ND	ug/L	1	0.51	1.7		
1,2,4-Trichlorobenzene	ND	ug/L	1	0.44	1.5	70	
1,1,1-Trichloroethane	ND	ug/L	1	0.44	1.5	200	
1,1,2-Trichloroethane	ND	ug/L	1	0.53	1.8	5	
Trichloroethene	ND	ug/L	1	0.46	1.5	5	

ANALYTICAL RESULTS: GCMS 524.2, Rev 4.1 Safe Drinking Water Analysis
Customer: Pace Analytical Services Inc (GB) **NLS Project: 355252**
Project Description: 40216252
Project Title: Wagner **Template: 524W** **Printed: 10/21/2020 08:27**

Sample: 1221566 40216252002 (Gray) Collected: 10/06/20 Analyzed: 10/19/20 - Analytes: 60

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
Trichlorofluoromethane	ND	ug/L	1	0.29	0.96		
1,2,3-Trichloropropane	ND	ug/L	1	0.91	3.0		
1,2,4-Trimethylbenzene	ND	ug/L	1	0.45	1.5		
1,3,5-Trimethylbenzene	ND	ug/L	1	0.43	1.4		
Vinyl chloride	ND	ug/L	1	0.19	0.62	2	
meta,para-Xylene	ND	ug/L	1	0.59	2.0	10000	
MTBE	ND	ug/L	1	0.18	0.60		
4-Bromofluorobenzene (SURR)	71%		1				S
1,2-Dichlorobenzene-d4 (SURR)	76%		1				S

NOTES APPLICABLE TO THIS ANALYSIS:
J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.
S = This compound is a surrogate used to evaluate the quality control of a method.

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

January 12, 2021

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

RE: Project: WAGNER
Pace Project No.: 40220674

Dear Kenneth Shimko:

Enclosed are the analytical results for sample(s) received by the laboratory on January 07, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay

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

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Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project: WAGNER
Pace Project No.: 40220674

Pace Analytical Services Green Bay
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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Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: WAGNER
Pace Project No.: 40220674

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40220674001	**MW-1**	Water	01/05/21 00:00	01/07/21 11:00
40220674002	**MW-2**	Water	01/05/21 00:00	01/07/21 11:00
40220674003	**MW-3**	Water	01/05/21 00:00	01/07/21 11:00
40220674004	**MW-4**	Water	01/05/21 00:00	01/07/21 11:00
40220674005	**MW-5**	Water	01/05/21 00:00	01/07/21 11:00
40220674006	**MW-6**	Water	01/05/21 00:00	01/07/21 11:00
40220674007	**MW-7A**	Water	01/05/21 00:00	01/07/21 11:00
40220674008	**MW-7B**	Water	01/05/21 00:00	01/07/21 11:00
40220674009	**MW-8A**	Water	01/05/21 00:00	01/07/21 11:00
40220674010	**MW-8B**	Water	01/05/21 00:00	01/07/21 11:00
40220674011	**MW-9**	Water	01/05/21 00:00	01/07/21 11:00

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE ANALYTE COUNT

Project: WAGNER
Pace Project No.: 40220674

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40220674001	**MW-1**	EPA 8260	HNW	12	PASI-G
40220674002	**MW-2**	EPA 8260	HNW	12	PASI-G
40220674003	**MW-3**	EPA 8260	HNW	12	PASI-G
40220674004	**MW-4**	EPA 8260	HNW	12	PASI-G
40220674005	**MW-5**	EPA 8260	HNW	12	PASI-G
40220674006	**MW-6**	EPA 8260	HNW	12	PASI-G
40220674007	**MW-7A**	EPA 8260	HNW	12	PASI-G
40220674008	**MW-7B**	EPA 8260	HNW	12	PASI-G
40220674009	**MW-8A**	EPA 8260	LAP	12	PASI-G
40220674010	**MW-8B**	EPA 8260	LAP	12	PASI-G
40220674011	**MW-9**	EPA 8260	LAP	12	PASI-G

PASI-G = Pace Analytical Services - Green Bay

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Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

PROJECT NARRATIVE

Project: WAGNER
Pace Project No.: 40220674

Method: **EPA 8260**
Description: 8260 MSV UST
Client: Meridian Environmental Consulting, LLC
Date: January 12, 2021

General Information:
11 samples were analyzed for EPA 8260 by Pace Analytical Services Green Bay. 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.

pH: Post-analysis pH measurement indicates insufficient VOA sample preservation.
- MW-1 (Lab ID: 40220674001)

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.

Internal Standards:
All internal standards were within QC limits 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: 375418

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40220674009

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MSD (Lab ID: 2169278)
  - Ethylbenzene
  - Toluene

Additional Comments:

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

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Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40220674

Sample: MW-1 **Lab ID: 40220674001** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**253**	ug/L	5.0	1.2	5		01/08/21 10:57	71-43-2	
Ethylbenzene	**<1.6**	ug/L	5.3	1.6	5		01/08/21 10:57	100-41-4	
Methyl-tert-butyl ether	**<6.2**	ug/L	20.8	6.2	5		01/08/21 10:57	1634-04-4	
Naphthalene	**35.1**	ug/L	25.0	5.9	5		01/08/21 10:57	91-20-3	
Toluene	**79.8**	ug/L	5.0	1.3	5		01/08/21 10:57	108-88-3	
1,2,4-Trimethylbenzene	**5.1J**	ug/L	14.0	4.2	5		01/08/21 10:57	95-63-6	
1,3,5-Trimethylbenzene	**84.5**	ug/L	14.6	4.4	5		01/08/21 10:57	108-67-8	
m&p-Xylene	**213**	ug/L	10.0	2.3	5		01/08/21 10:57	179601-23-1	
o-Xylene	**105**	ug/L	5.0	1.3	5		01/08/21 10:57	95-47-6	
Surrogates									
Dibromofluoromethane (S)	100	%	70-130		5		01/08/21 10:57	1868-53-7	pH
Toluene-d8 (S)	99	%	70-130		5		01/08/21 10:57	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130		5		01/08/21 10:57	460-00-4	

Sample: MW-2 **Lab ID: 40220674002** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**41.6**	ug/L	1.0	0.25	1		01/08/21 10:35	71-43-2	
Ethylbenzene	**44.0**	ug/L	1.1	0.32	1		01/08/21 10:35	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		01/08/21 10:35	1634-04-4	
Naphthalene	**3.4J**	ug/L	5.0	1.2	1		01/08/21 10:35	91-20-3	
Toluene	**2.9**	ug/L	1.0	0.27	1		01/08/21 10:35	108-88-3	
1,2,4-Trimethylbenzene	**6.2**	ug/L	2.8	0.84	1		01/08/21 10:35	95-63-6	
1,3,5-Trimethylbenzene	**2.9J**	ug/L	2.9	0.87	1		01/08/21 10:35	108-67-8	
m&p-Xylene	**11.2**	ug/L	2.0	0.47	1		01/08/21 10:35	179601-23-1	
o-Xylene	**4.9**	ug/L	1.0	0.26	1		01/08/21 10:35	95-47-6	
Surrogates									
Dibromofluoromethane (S)	99	%	70-130		1		01/08/21 10:35	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		01/08/21 10:35	2037-26-5	
4-Bromofluorobenzene (S)	101	%	70-130		1		01/08/21 10:35	460-00-4	

Sample: MW-3 **Lab ID: 40220674003** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**192**	ug/L	1.0	0.25	1		01/08/21 11:18	71-43-2	
Ethylbenzene	**19.9**	ug/L	1.1	0.32	1		01/08/21 11:18	100-41-4	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40220674

Sample: MW-3 **Lab ID: 40220674003** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260								
	Pace Analytical Services - Green Bay								
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		01/08/21 11:18	1634-04-4	
Naphthalene	**9.0**	ug/L	5.0	1.2	1		01/08/21 11:18	91-20-3	
Toluene	**8.3**	ug/L	1.0	0.27	1		01/08/21 11:18	108-88-3	
1,2,4-Trimethylbenzene	**16.3**	ug/L	2.8	0.84	1		01/08/21 11:18	95-63-6	
1,3,5-Trimethylbenzene	**13.1**	ug/L	2.9	0.87	1		01/08/21 11:18	108-67-8	
m&p-Xylene	**19.3**	ug/L	2.0	0.47	1		01/08/21 11:18	179601-23-1	
o-Xylene	**13.4**	ug/L	1.0	0.26	1		01/08/21 11:18	95-47-6	
Surrogates									
Dibromofluoromethane (S)	98	%	70-130		1		01/08/21 11:18	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		01/08/21 11:18	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130		1		01/08/21 11:18	460-00-4	

Sample: MW-4 **Lab ID: 40220674004** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260								
	Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		01/08/21 11:40	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		01/08/21 11:40	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		01/08/21 11:40	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		01/08/21 11:40	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		01/08/21 11:40	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		01/08/21 11:40	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		01/08/21 11:40	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		01/08/21 11:40	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		01/08/21 11:40	95-47-6	
Surrogates									
Dibromofluoromethane (S)	100	%	70-130		1		01/08/21 11:40	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		01/08/21 11:40	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130		1		01/08/21 11:40	460-00-4	

Sample: MW-5 **Lab ID: 40220674005** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260								
	Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		01/08/21 12:01	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		01/08/21 12:01	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		01/08/21 12:01	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		01/08/21 12:01	91-20-3	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40220674

Sample: MW-5 **Lab ID: 40220674005** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Toluene	**<0.27**	ug/L	1.0	0.27	1		01/08/21 12:01	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		01/08/21 12:01	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		01/08/21 12:01	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		01/08/21 12:01	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		01/08/21 12:01	95-47-6	
Surrogates									
Dibromofluoromethane (S)	107	%	70-130		1		01/08/21 12:01	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		01/08/21 12:01	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130		1		01/08/21 12:01	460-00-4	

Sample: MW-6 **Lab ID: 40220674006** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		01/08/21 12:23	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		01/08/21 12:23	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		01/08/21 12:23	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		01/08/21 12:23	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		01/08/21 12:23	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		01/08/21 12:23	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		01/08/21 12:23	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		01/08/21 12:23	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		01/08/21 12:23	95-47-6	
Surrogates									
Dibromofluoromethane (S)	108	%	70-130		1		01/08/21 12:23	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		01/08/21 12:23	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		1		01/08/21 12:23	460-00-4	

Sample: MW-7A **Lab ID: 40220674007** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		01/08/21 12:44	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		01/08/21 12:44	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		01/08/21 12:44	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		01/08/21 12:44	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		01/08/21 12:44	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		01/08/21 12:44	95-63-6	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40220674

Sample: MW-7A **Lab ID: 40220674007** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		01/08/21 12:44	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		01/08/21 12:44	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		01/08/21 12:44	95-47-6	
Surrogates									
Dibromofluoromethane (S)	102	%	70-130		1		01/08/21 12:44	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		01/08/21 12:44	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130		1		01/08/21 12:44	460-00-4	

Sample: MW-7B **Lab ID: 40220674008** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		01/08/21 13:06	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		01/08/21 13:06	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		01/08/21 13:06	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		01/08/21 13:06	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		01/08/21 13:06	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		01/08/21 13:06	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		01/08/21 13:06	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		01/08/21 13:06	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		01/08/21 13:06	95-47-6	
Surrogates									
Dibromofluoromethane (S)	99	%	70-130		1		01/08/21 13:06	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		01/08/21 13:06	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		1		01/08/21 13:06	460-00-4	

Sample: MW-8A **Lab ID: 40220674009** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		01/08/21 12:27	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		01/08/21 12:27	100-41-4	M1
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		01/08/21 12:27	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		01/08/21 12:27	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		01/08/21 12:27	108-88-3	M1
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		01/08/21 12:27	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		01/08/21 12:27	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		01/08/21 12:27	179601-23-1	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40220674

Sample: MW-8A **Lab ID: 40220674009** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		01/08/21 12:27	95-47-6	
Surrogates									
Dibromofluoromethane (S)	96	%	70-130		1		01/08/21 12:27	1868-53-7	
Toluene-d8 (S)	95	%	70-130		1		01/08/21 12:27	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		1		01/08/21 12:27	460-00-4	

Sample: MW-8B **Lab ID: 40220674010** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		01/08/21 12:51	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		01/08/21 12:51	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		01/08/21 12:51	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		01/08/21 12:51	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		01/08/21 12:51	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		01/08/21 12:51	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		01/08/21 12:51	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		01/08/21 12:51	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		01/08/21 12:51	95-47-6	
Surrogates									
Dibromofluoromethane (S)	96	%	70-130		1		01/08/21 12:51	1868-53-7	
Toluene-d8 (S)	97	%	70-130		1		01/08/21 12:51	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130		1		01/08/21 12:51	460-00-4	

Sample: MW-9 **Lab ID: 40220674011** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		01/08/21 13:14	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		01/08/21 13:14	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		01/08/21 13:14	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		01/08/21 13:14	91-20-3	
Toluene	**<0.27**	ug/L	1.0	0.27	1		01/08/21 13:14	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		01/08/21 13:14	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		01/08/21 13:14	108-67-8	
m&p-Xylene	**<0.47**	ug/L	2.0	0.47	1		01/08/21 13:14	179601-23-1	
o-Xylene	**<0.26**	ug/L	1.0	0.26	1		01/08/21 13:14	95-47-6	

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ANALYTICAL RESULTS

Project: WAGNER
Pace Project No.: 40220674

Sample: MW-9 **Lab ID: 40220674011** Collected: 01/05/21 00:00 Received: 01/07/21 11:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Surrogates									
Dibromofluoromethane (S)	105	%	70-130		1		01/08/21 13:14	1868-53-7	
Toluene-d8 (S)	97	%	70-130		1		01/08/21 13:14	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		01/08/21 13:14	460-00-4	

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QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40220674

QC Batch: 375395
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST-WATER
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40220674001, 40220674002, 40220674003, 40220674004, 40220674005, 40220674006, 40220674007, 40220674008

METHOD BLANK: 2168664 Matrix: Water
Associated Lab Samples: 40220674001, 40220674002, 40220674003, 40220674004, 40220674005, 40220674006, 40220674007, 40220674008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	01/08/21 08:27	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	01/08/21 08:27	
Benzene	ug/L	<0.25	1.0	01/08/21 08:27	
Ethylbenzene	ug/L	<0.32	1.1	01/08/21 08:27	
m&p-Xylene	ug/L	<0.47	2.0	01/08/21 08:27	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	01/08/21 08:27	
Naphthalene	ug/L	<1.2	5.0	01/08/21 08:27	
o-Xylene	ug/L	<0.26	1.0	01/08/21 08:27	
Toluene	ug/L	<0.27	1.0	01/08/21 08:27	
4-Bromofluorobenzene (S)	%	96	70-130	01/08/21 08:27	
Dibromofluoromethane (S)	%	100	70-130	01/08/21 08:27	
Toluene-d8 (S)	%	100	70-130	01/08/21 08:27	

LABORATORY CONTROL SAMPLE: 2168665

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	48.5	97	70-130	
Ethylbenzene	ug/L	50	52.8	106	80-120	
m&p-Xylene	ug/L	100	105	105	70-130	
Methyl-tert-butyl ether	ug/L	50	45.8	92	61-129	
o-Xylene	ug/L	50	52.6	105	70-130	
Toluene	ug/L	50	50.0	100	80-120	
4-Bromofluorobenzene (S)	%			101	70-130	
Dibromofluoromethane (S)	%			101	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2168786 2168787

Parameter	Units	40220674002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	41.6	250	250	284	298	97	102	70-136	5	20	
Ethylbenzene	ug/L	44.0	250	250	298	313	101	107	80-120	5	20	
m&p-Xylene	ug/L	11.2	500	500	524	554	103	109	70-130	6	20	
Methyl-tert-butyl ether	ug/L	<1.2	250	250	230	244	92	98	61-136	6	20	
o-Xylene	ug/L	4.9	250	250	259	272	102	107	70-130	5	20	
Toluene	ug/L	2.9	250	250	243	261	96	103	80-120	7	20	

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REPORT OF LABORATORY ANALYSIS

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40220674

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2168786 2168787

Parameter	Units	40220674002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
4-Bromofluorobenzene (S)	%						99	100	70-130			
Dibromofluoromethane (S)	%						103	100	70-130			
Toluene-d8 (S)	%						98	99	70-130			

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QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40220674

QC Batch: 375418
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST-WATER
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40220674009, 40220674010, 40220674011

METHOD BLANK: 2168780 Matrix: Water
Associated Lab Samples: 40220674009, 40220674010, 40220674011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	01/08/21 10:05	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	01/08/21 10:05	
Benzene	ug/L	<0.25	1.0	01/08/21 10:05	
Ethylbenzene	ug/L	<0.32	1.1	01/08/21 10:05	
m&p-Xylene	ug/L	<0.47	2.0	01/08/21 10:05	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	01/08/21 10:05	
Naphthalene	ug/L	<1.2	5.0	01/08/21 10:05	
o-Xylene	ug/L	<0.26	1.0	01/08/21 10:05	
Toluene	ug/L	<0.27	1.0	01/08/21 10:05	
4-Bromofluorobenzene (S)	%	93	70-130	01/08/21 10:05	
Dibromofluoromethane (S)	%	100	70-130	01/08/21 10:05	
Toluene-d8 (S)	%	95	70-130	01/08/21 10:05	

LABORATORY CONTROL SAMPLE: 2168781

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	51.2	102	70-130	
Ethylbenzene	ug/L	50	57.6	115	80-120	
m&p-Xylene	ug/L	100	114	114	70-130	
Methyl-tert-butyl ether	ug/L	50	50.7	101	61-129	
o-Xylene	ug/L	50	56.4	113	70-130	
Toluene	ug/L	50	54.2	108	80-120	
4-Bromofluorobenzene (S)	%			103	70-130	
Dibromofluoromethane (S)	%			98	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2169277 2169278

Parameter	Units	40220674009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	<0.25	50	50	51.4	58.8	103	118	70-136	13	20	
Ethylbenzene	ug/L	<0.32	50	50	56.6	65.0	113	130	80-120	14	20	M1
m&p-Xylene	ug/L	<0.47	100	100	110	127	110	127	70-130	14	20	
Methyl-tert-butyl ether	ug/L	<1.2	50	50	49.6	57.3	99	115	61-136	14	20	
o-Xylene	ug/L	<0.26	50	50	55.5	64.6	111	129	70-130	15	20	
Toluene	ug/L	<0.27	50	50	53.7	61.2	107	122	80-120	13	20	M1
4-Bromofluorobenzene (S)	%						101	104	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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Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: WAGNER
Pace Project No.: 40220674

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2169277 2169278

Parameter	Units	40220674009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dibromofluoromethane (S)	%						101	99	70-130			
Toluene-d8 (S)	%						100	99	70-130			

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QUALIFIERS

Project: WAGNER
Pace Project No.: 40220674

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.

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WAGNER
Pace Project No.: 40220674

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40220674001	**MW-1**	EPA 8260	375395		
40220674002	**MW-2**	EPA 8260	375395		
40220674003	**MW-3**	EPA 8260	375395		
40220674004	**MW-4**	EPA 8260	375395		
40220674005	**MW-5**	EPA 8260	375395		
40220674006	**MW-6**	EPA 8260	375395		
40220674007	**MW-7A**	EPA 8260	375395		
40220674008	**MW-7B**	EPA 8260	375395		
40220674009	**MW-8A**	EPA 8260	375418		
40220674010	**MW-8B**	EPA 8260	375418		
40220674011	**MW-9**	EPA 8260	375418		

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

Page 1 of 1

402067

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

(Please Print Clearly)	
Company Name:	Meridian Env. Cstg
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):	
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	Ken Shimko
Mail To Company:	Meridian E.C.
Mail To Address:	2711 N. Elcho Rd Fall Creek, WI 54742
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	
Invoice To Phone:	

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

FILTERED? (YES/NO) — Y/N
PRESERVATION (CODE)* — Pick Letter

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	Analyses Requested: PVOL + Naph	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
001	MW-1	1/5		W	X			
002	-2							
003	-3							
004	-4							
005	-5							
006	-6							
007	-7A							
008	-7B							
009	-8A							
010	-8B							
011	-9							

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:	Date/Time:	Received By:	Date/Time:
	1/6/21	Fed Ex	1/6/21
	1-7-21 1100		1-7-21 1100
		Pace	

PACE Project No. 402067

Receipt Temp = 20.1 °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal Present / Not Present

Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

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

Sample Preservation Receipt Form

Client Name: Meridian Env. Project # 40220674

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	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN							
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																	3																2.5 / 5 / 10
009																	3																2.5 / 5 / 10
010																	3																2.5 / 5 / 10
011																	3																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																											1/7/21	SM					2.5 / 5 / 10

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
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG4U	120 mL amber glass unpres
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4

VG9A	40 mL clear ascorbic
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN	

Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 26Mar2020
	Document No.: ENV-FRM-GBAY-0014-Rev.00	Author: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: Meridian Env. Project #: **WO# : 40220674**

40220674

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

Tracking #: 7823 0679 8162

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 - 101 **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: 1-7-21 /Initials: SCV

Labeled By Initials: MM

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	☒Yes ☐No ☐N/A	1. YCC	1-7-21 SCV
Chain of Custody Filled Out:	☐Yes ☒No ☐N/A	2. Proj #, Filter, Preserve, Collect times	1-7-21 SCV
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.	
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.	
Samples Arrived within Hold Time:	☒Yes ☐No	5.	
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:	
Short Hold Time Analysis (<72hr):	☐Yes ☒No	6.	
Rush Turn Around Time Requested:	☐Yes ☒No	7.	
Sufficient Volume: For Analysis: ☒Yes ☐No MS/MSD:	☐Yes ☒No ☐N/A	8.	
Correct Containers Used:	☒Yes ☐No	9.	
-Pace Containers Used:	☒Yes ☐No ☐N/A		
-Pace IR Containers Used:	☐Yes ☐No ☒N/A		
Containers Intact:	☒Yes ☐No	10.	
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.	
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: W	☐Yes ☒No ☐N/A	12. No collect dates	1-7-21 SCV
Trip Blank Present:	☐Yes ☒No ☐N/A	13.	
Trip Blank Custody Seals Present	☐Yes ☐No ☒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:

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

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(920)469-2436

February 01, 2021

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

RE: Project: WAGNER
Pace Project No.: 40220670

Dear Kenneth Shimko:

Enclosed are the analytical results for sample(s) received by the laboratory on January 07, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

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

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SAMPLE SUMMARY

Project: WAGNER
Pace Project No.: 40220670

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40220670001	**EB**	Water	01/05/21 00:00	01/07/21 11:00
40220670002	**FB**	Water	01/05/21 00:00	01/07/21 11:00
40220670003	**TB**	Water	01/05/21 00:00	01/07/21 11:00
40220670004	**MW-1**	Water	01/05/21 00:00	01/07/21 11:00
40220670005	**MW-2**	Water	01/05/21 00:00	01/07/21 11:00
40220670006	**MW-3**	Water	01/05/21 00:00	01/07/21 11:00
40220670007	**MW-4**	Water	01/05/21 00:00	01/07/21 11:00
40220670008	**MW-5**	Water	01/05/21 00:00	01/07/21 11:00
40220670009	**MW-6**	Water	01/05/21 00:00	01/07/21 11:00
40220670010	**MW-7A**	Water	01/05/21 00:00	01/07/21 11:00
40220670011	**MW-7B**	Water	01/05/21 00:00	01/07/21 11:00
40220670012	**MW-8A**	Water	01/05/21 00:00	01/07/21 11:00
40220670013	**MW-8B**	Water	01/05/21 00:00	01/07/21 11:00
40220670014	**MW-9**	Water	01/05/21 00:00	01/07/21 11:00

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PROJECT NARRATIVE

Project:
Pace Project No.:

Method:
Description:
Client:
Date:

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

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Meridian Env. Cslty

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Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 115061
40220670

Client: 2711 N. Elco Rd	Report to Contact: Ken Shimko	Telephone No. / E-mail: 715-832-6608	Quote No.
Address: Fall Creek	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page 1 of 2
City / State: WI / Zip Code: 54742	Printed Name: Ken Shimko		Lot # Bar Code (lab use only)
Project Name: Wagner			
Project No. / P.O. No.			

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Grab/Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	Analysis: MS WI	Remarks / Cooler I.D.
EB	1/5			✓			1	HCl						X	001
FB	1/5						(1)	HCl							002
TB	1/5						(1)	HCl							003
MW-1							2								004
MW-2							2								005
MW-3							2								006
MW-4							2								007
MW-5							2								008
MW-6							2								007

Turn Around Time Required (Prior lab approval required for expedited TAT.)
☑ Standard ☐ Rush (Specify)

Sample Disposal
☐ Return to Client ☑ Disposal by Lab

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by	1/6/21		1. Received by: Fed Ex	1/6/21	
2. Relinquished by: Fed Ex	1-7-21	1100	2. Received by: Susan Klyle Pace	1-7-21	1100
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory received by		

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack
Receipt Temp._____ °C
Temp Blank ☐ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

Pace Analytical®

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106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number L15062
4022067O

Client: Meridian Env. Cs Llc	Report to Contact: Ken Shinko	Telephone No. / E-mail: 715-832-6608	Quote No.
Address: 2711 N. Elcho Rd	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page 2 of 2
City: Fall Creek / State: WI / Zip Code: 54742	Printed Name: Ken Shinko		Lot # Bar Code (lab use only)
Project Name: Wagner			
Project No.	P.O. No.		

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	WI 36	Remarks / Cooler I.D.
MW-7A	1/5			✓			2							x	010 008
MW-7B	↓			↓			2							↓	011 009
MW-8A							2								012 010
MW-8B							2								013 011
MW-9							2								014 012

Turn Around Time Required (Prior lab approval required for expedited TAT.) ☑ Standard ☐ Rush (Specify)

Sample Disposal ☐ Return to Client ☑ Disposal by Lab

Possible Hazard Identification ☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by	1/6/21		1. Received by: Fed Ex	1/6/21	
2. Relinquished by: Fed Ex	1-7-21	1100	2. Received by: Susan Kilgore Pace	1-7-21	1100
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by	Date	Time	4. Laboratory received by	Date	Time

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack
Receipt Temp. _____ °C
Temp Blank ☐ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

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

Sample Preservation Receipt Form

Client Name: Meridian Env. Project # 40220670

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

Initial when completed: Date/ Time:

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

	Glass								Plastic					Vials						Jars				General							
Pace Lab #	AG1U	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001										1																1						2.5 / 5 / 10
002										1																2						2.5 / 5 / 10
003																										1						2.5 / 5 / 10
004																										2						2.5 / 5 / 10
005																										2						2.5 / 5 / 10
006																										2						2.5 / 5 / 10
007																										2						2.5 / 5 / 10
008																										2						2.5 / 5 / 10
009																										2						2.5 / 5 / 10
010																										2						2.5 / 5 / 10
011																										2						2.5 / 5 / 10
012																										2						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																													1-2-2/SU			2.5 / 5 / 10

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

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG4U	120 mL amber glass unpres
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4

VG9A	40 mL clear ascorbic
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN	250 ml poly TRIS HCL

Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 26Mar2020
	Document No.: ENV-FRM-GBAY-0014-Rev.00	Author: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: Meridian Env. Project #: WO#: 40220670

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

Tracking #: 7823 0679 8162

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 - 101 **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: 1-7-21 /Initials: SCV

Labeled By Initials: MM

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	☒Yes ☐No ☐N/A	1. ☒ 2CC	1-7-21 SCV
Chain of Custody Filled Out:	☐Yes ☒No ☐N/A	2. Proj #, Filter, Preserve, Collect times	1-7-21 SCV
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.	
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.	
Samples Arrived within Hold Time:	☒Yes ☐No	5.	
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:	
Short Hold Time Analysis (<72hr):	☐Yes ☒No	6.	
Rush Turn Around Time Requested:	☐Yes ☒No	7.	
Sufficient Volume: For Analysis: ☒Yes ☐No MS/MSD: ☐Yes ☒No ☐N/A		8.	
Correct Containers Used:	☒Yes ☐No	9.	
-Pace Containers Used:	☒Yes ☐No ☐N/A		
-Pace IR Containers Used:	☐Yes ☐No ☒N/A		
Containers Intact:	☒Yes ☐No	10.	
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.	
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: W	☐Yes ☒No ☐N/A	12. No dates	1-7-21 SCV
Trip Blank Present:	☐Yes ☐No ☒N/A	13.	
Trip Blank Custody Seals Present	☐Yes ☐No ☒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:

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logir

Report of Analysis

Pace Analytical Services, LLC
1241 Bellevue Street
Suite 9
Green Bay, WI 54302
Attention: Brian Basten

Project Name: WAGNER

Project Number: 40220670

Lot Number:**WA08112**

Date Completed:01/29/2021

01/29/2021 9:40 PM
Approved and released by:
Project Manager II: **Karen L. Coonan**

The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

Case Narrative
Pace Analytical Services, LLC
Lot Number: WA08112

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Samples WA08112-001, WA08112-002, WA08112-003, WA08112-004, WA08112-005, WA08112-006, WA08112-007, and WA08112-008, WA08112-009, WA08112-010, WA08112-011, WA08112-012, WA08112-013, and WA08112-014 were collected in client-provided bottles and were preserved with trizma.

Samples WA08112-004, WA08112-007, WA08112-008, WA08112-009, WA08112-010, WA08112-011, WA08112-012, WA08112-013, and WA08112-014 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

Surrogate recovery for the following sample was outside control limits: WA08112-004. Evidence of matrix interference is present; therefore, re-

extraction and/or re-analysis was not performed.

Surrogate recovery for the following sample was outside the upper control limit: WA08112-013. This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

The method blank associated with prep batch 79251 contained analyte: 6:2 FTS greater than the method criteria. For the following samples there was an insufficient amount to perform a re-extraction or re-analysis: WA08112-010, WA08112-013. The data has been reported.

The method blank for prep batch 79251 contained analyte(s): 6:2 FTS greater than the acceptance criteria. The associated samples WA08112-011, contained detections for this analyte at concentrations greater than 10X the value found in the method blank; therefore sample results are not impacted. The data has been reported.

For run 2, Samples WA08112-009, WA08112-012, WA08112-014 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.Samples were preserved with trizma, which is not specified by the method. Samples were collected in client provided HDPE bottles. While this is method compliant, the sample bottles were not provided by the laboratory.

Surrogate recovery for the following sample was outside the upper control limit: WA08112-014 - Run 2. This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

In the Matrix Spike (MS) associated with sample -013, 6:2 FTS recovered outside of the acceptance limits. The Laboratory Control Spike (LCS) recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

Sample Summary

Pace Analytical Services, LLC

Lot Number: WA08112

Project Name: WAGNER

Project Number: 40220670

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	EB	Aqueous	01/05/2021	01/08/2021
002	FB	Aqueous	01/05/2021	01/08/2021
003	TB	Aqueous	01/05/2021	01/08/2021
004	MW-1	Aqueous	01/05/2021	01/08/2021
005	MW-2	Aqueous	01/05/2021	01/08/2021
006	MW-3	Aqueous	01/05/2021	01/08/2021
007	MW-4	Aqueous	01/05/2021	01/08/2021
008	MW-5	Aqueous	01/05/2021	01/08/2021
009	MW-6	Aqueous	01/05/2021	01/08/2021
010	MW-7A	Aqueous	01/05/2021	01/08/2021
011	MW-7B	Aqueous	01/05/2021	01/08/2021
012	MW-8A	Aqueous	01/05/2021	01/08/2021
013	MW-8B	Aqueous	01/05/2021	01/08/2021
014	MW-9	Aqueous	01/05/2021	01/08/2021

(14 samples)

Detection Summary

Pace Analytical Services, LLC

Lot Number: WA08112

Project Name: WAGNER

Project Number: 40220670

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
002	FB	Aqueous	6:2 FTS	PFAS by ID	430		ng/L	8
002	FB	Aqueous	PFPeA	PFAS by ID	0.99	J	ng/L	8
004	MW-1	Aqueous	8:2 FTS	PFAS by ID	140		ng/L	12
004	MW-1	Aqueous	6:2 FTS	PFAS by ID	980		ng/L	12
004	MW-1	Aqueous	4:2 FTS	PFAS by ID	4.1	J	ng/L	12
004	MW-1	Aqueous	PFBA	PFAS by ID	240		ng/L	12
004	MW-1	Aqueous	PFDA	PFAS by ID	4.7		ng/L	12
004	MW-1	Aqueous	PFHpA	PFAS by ID	680		ng/L	12
004	MW-1	Aqueous	PFHxA	PFAS by ID	790		ng/L	12
004	MW-1	Aqueous	PFNA	PFAS by ID	110		ng/L	12
004	MW-1	Aqueous	PFOA	PFAS by ID	580		ng/L	12
004	MW-1	Aqueous	PFPeA	PFAS by ID	1100		ng/L	12
004	MW-1	Aqueous	PFOS	PFAS by ID	5.4		ng/L	12
005	MW-2	Aqueous	8:2 FTS	PFAS by ID	42		ng/L	14
005	MW-2	Aqueous	6:2 FTS	PFAS by ID	630		ng/L	14
005	MW-2	Aqueous	4:2 FTS	PFAS by ID	2.5	J	ng/L	14
005	MW-2	Aqueous	PFBA	PFAS by ID	88		ng/L	14
005	MW-2	Aqueous	PFDA	PFAS by ID	0.97	J	ng/L	14
005	MW-2	Aqueous	PFHpA	PFAS by ID	130		ng/L	14
005	MW-2	Aqueous	PFHxA	PFAS by ID	220		ng/L	14
005	MW-2	Aqueous	PFNA	PFAS by ID	13		ng/L	14
005	MW-2	Aqueous	PFOA	PFAS by ID	75		ng/L	14
005	MW-2	Aqueous	PFPeA	PFAS by ID	410		ng/L	14
005	MW-2	Aqueous	PFOS	PFAS by ID	3.8		ng/L	14
006	MW-3	Aqueous	8:2 FTS	PFAS by ID	16		ng/L	16
006	MW-3	Aqueous	6:2 FTS	PFAS by ID	500		ng/L	16
006	MW-3	Aqueous	4:2 FTS	PFAS by ID	2.0	J	ng/L	16
006	MW-3	Aqueous	PFBA	PFAS by ID	65		ng/L	16
006	MW-3	Aqueous	PFHpA	PFAS by ID	94		ng/L	16
006	MW-3	Aqueous	PFHxA	PFAS by ID	160		ng/L	16
006	MW-3	Aqueous	PFNA	PFAS by ID	14		ng/L	16
006	MW-3	Aqueous	PFOA	PFAS by ID	67		ng/L	16
006	MW-3	Aqueous	PFPeA	PFAS by ID	240		ng/L	16
006	MW-3	Aqueous	PFOS	PFAS by ID	2.4	J	ng/L	16
007	MW-4	Aqueous	PFBA	PFAS by ID	160		ng/L	18
007	MW-4	Aqueous	PFHpA	PFAS by ID	120		ng/L	18
007	MW-4	Aqueous	PFHxA	PFAS by ID	360		ng/L	18
007	MW-4	Aqueous	PFOA	PFAS by ID	17		ng/L	18
007	MW-4	Aqueous	PFPeA	PFAS by ID	700		ng/L	18
008	MW-5	Aqueous	PFBA	PFAS by ID	1.9	J	ng/L	20
009	MW-6	Aqueous	8:2 FTS	PFAS by ID	3.9	J	ng/L	22
009	MW-6	Aqueous	6:2 FTS	PFAS by ID	13		ng/L	22
009	MW-6	Aqueous	PFBA	PFAS by ID	30		ng/L	22

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
009	MW-6	Aqueous	PFHpA	PFAS by ID	68		ng/L	22
009	MW-6	Aqueous	PFHxA	PFAS by ID	79		ng/L	22
009	MW-6	Aqueous	PFNA	PFAS by ID	15		ng/L	22
009	MW-6	Aqueous	PFOA	PFAS by ID	55		ng/L	22
009	MW-6	Aqueous	PFPeA	PFAS by ID	130		ng/L	22
009	MW-6	Aqueous	PFOS	PFAS by ID	1.9	J	ng/L	22
010	MW-7A	Aqueous	6:2 FTS	PFAS by ID	3.1	BJ	ng/L	24
011	MW-7B	Aqueous	6:2 FTS	PFAS by ID	430	B	ng/L	26
011	MW-7B	Aqueous	4:2 FTS	PFAS by ID	2.0	J	ng/L	26
011	MW-7B	Aqueous	PFBA	PFAS by ID	75		ng/L	26
011	MW-7B	Aqueous	PFHpA	PFAS by ID	90		ng/L	26
011	MW-7B	Aqueous	PFHxA	PFAS by ID	220		ng/L	26
011	MW-7B	Aqueous	PFNA	PFAS by ID	1.1	J	ng/L	26
011	MW-7B	Aqueous	PFOA	PFAS by ID	28		ng/L	26
011	MW-7B	Aqueous	PFPeA	PFAS by ID	350		ng/L	26
012	MW-8A	Aqueous	8:2 FTS	PFAS by ID	1.9	J	ng/L	28
012	MW-8A	Aqueous	6:2 FTS	PFAS by ID	41		ng/L	28
012	MW-8A	Aqueous	PFBA	PFAS by ID	81		ng/L	28
012	MW-8A	Aqueous	PFHpA	PFAS by ID	79		ng/L	28
012	MW-8A	Aqueous	PFHxA	PFAS by ID	210		ng/L	28
012	MW-8A	Aqueous	PFNA	PFAS by ID	1.9	J	ng/L	28
012	MW-8A	Aqueous	PFOA	PFAS by ID	34		ng/L	28
012	MW-8A	Aqueous	PFPeA	PFAS by ID	380		ng/L	28
013	MW-8B	Aqueous	6:2 FTS	PFAS by ID	11	B	ng/L	30
013	MW-8B	Aqueous	PFBA	PFAS by ID	7.9		ng/L	30
013	MW-8B	Aqueous	PFHpA	PFAS by ID	7.1		ng/L	30
013	MW-8B	Aqueous	PFHxA	PFAS by ID	19		ng/L	30
013	MW-8B	Aqueous	PFOA	PFAS by ID	3.0	J	ng/L	30
013	MW-8B	Aqueous	PFPeA	PFAS by ID	35		ng/L	30
014	MW-9	Aqueous	PFHxA	PFAS by ID	1.3	J	ng/L	32
014	MW-9	Aqueous	PFPeA	PFAS by ID	2.2	J	ng/L	32

(74 detections)

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-001
Description: EB | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/13/2021 1751	SES	01/12/2021 1016	79085

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	3.5	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		103	25-150
13C2_6:2FTS		105	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		86	25-150
13C2_PFHxDA		77	25-150
13C2_PFTeDA		70	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-001**

Description: **EB** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBS		95	25-150
13C3_PFHxS		96	25-150
13C3-HFPO-DA		99	25-150
13C4_PFBA		98	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		96	25-150
13C5_PFPeA		100	25-150
13C6_PFDA		93	25-150
13C7_PFUdA		89	25-150
13C8_PFOA		96	25-150
13C8_PFOS		89	25-150
13C8_PFOSA		100	10-150
13C9_PFNA		97	25-150
d-EtFOSA		69	10-150
d5-EtFOSAA		94	25-150
d9-EtFOSE		71	10-150
d-MeFOSA		70	10-150
d3-MeFOSAA		95	25-150
d7-MeFOSE		84	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-002
Description: FB | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/13/2021 1802	SES	01/12/2021 1016	79085

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	430		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		15	3.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.99	J	3.6	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		100	25-150
13C2_6:2FTS		93	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		78	25-150
13C2_PFHxDA		73	25-150
13C2_PFTeDA		65	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-002**

Description: **FB** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBS		89	25-150
13C3_PFHxS		83	25-150
13C3-HFPO-DA		100	25-150
13C4_PFBA		96	25-150
13C4_PFHpA		91	25-150
13C5_PFHxA		97	25-150
13C5_PFPeA		97	25-150
13C6_PFDA		98	25-150
13C7_PFUdA		86	25-150
13C8_PFOA		94	25-150
13C8_PFOS		86	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		109	25-150
d-EtFOSA		73	10-150
d5-EtFOSAA		88	25-150
d9-EtFOSE		74	10-150
d-MeFOSA		61	10-150
d3-MeFOSAA		95	25-150
d7-MeFOSE		83	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-003
Description: TB | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/13/2021 1813	SES	01/12/2021 1016	79085

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		15	3.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		92	25-150
13C2_6:2FTS		98	25-150
13C2_8:2FTS		88	25-150
13C2_PFDoA		91	25-150
13C2_PFHxDA		74	25-150
13C2_PFTeDA		72	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-003**

Description: **TB** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBS		100	25-150
13C3_PFHxS		94	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		101	25-150
13C4_PFHpA		95	25-150
13C5_PFHxA		97	25-150
13C5_PFPeA		102	25-150
13C6_PFDA		93	25-150
13C7_PFUdA		93	25-150
13C8_PFOA		100	25-150
13C8_PFOS		82	25-150
13C8_PFOSA		108	10-150
13C9_PFNA		98	25-150
d-EtFOSA		88	10-150
d5-EtFOSAA		91	25-150
d9-EtFOSE		82	10-150
d-MeFOSA		83	10-150
d3-MeFOSAA		103	25-150
d7-MeFOSE		98	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC — Laboratory ID: WA08112-004
Description: MW-1 — Matrix: Aqueous
Date Sampled: 01/05/2021 — Project Name: WAGNER
Date Received: 01/08/2021 — Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/14/2021 0223	SES	01/12/2021 1016	79085
2	SOP SPE	PFAS by ID SOP	5	01/19/2021 1954	SES	01/12/2021 1016	79085

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	140		7.2	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	980		36	9.0	ng/L	2
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.1	J	7.2	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	3.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	240		3.6	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	4.7		3.6	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	680		3.6	0.90	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	790		3.6	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	110		3.6	0.90	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	580		3.6	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1100		18	4.5	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	5.4		3.6	0.90	ng/L	1

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	168	25-150	N	161	25-150
13C2_6:2FTS		95	25-150		112	25-150
13C2_8:2FTS		92	25-150		121	25-150
13C2_PFDoA		47	25-150		113	25-150
13C2_PFHxDA	N	18	25-150		110	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-004**

Description: **MW-1** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_PFTeDA		28	25-150		105	25-150
13C3_PFBS		66	25-150		115	25-150
13C3_PFHxS		82	25-150		118	25-150
13C3-HFPO-DA		77	25-150		112	25-150
13C4_PFBA		46	25-150		112	25-150
13C4_PFHpA		84	25-150		116	25-150
13C5_PFHxA		79	25-150		121	25-150
13C5_PFPeA		65	25-150		117	25-150
13C6_PFDA		65	25-150		115	25-150
13C7_PFUdA		66	25-150		116	25-150
13C8_PFOA		73	25-150		116	25-150
13C8_PFOS		74	25-150		108	25-150
13C8_PFOSA		55	10-150		116	10-150
13C9_PFNA		80	25-150		112	25-150
d-EtFOSA		41	10-150		100	10-150
d5-EtFOSAA		60	25-150		115	25-150
d9-EtFOSE		37	10-150		100	10-150
d-MeFOSA		50	10-150		122	10-150
d3-MeFOSAA		70	25-150		121	25-150
d7-MeFOSE		44	10-150		115	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-005
Description: MW-2 | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/14/2021 0233	SES	01/12/2021 1016	79085

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	42		7.2	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	630		7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	2.5	J	7.2	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	3.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	88		3.6	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.97	J	3.6	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	130		3.6	0.90	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	220		3.6	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	13		3.6	0.90	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	75		3.6	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	410		3.6	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	3.8		3.6	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		124	25-150
13C2_6:2FTS		72	25-150
13C2_8:2FTS		80	25-150
13C2_PFDoA		58	25-150
13C2_PFHxDA		33	25-150
13C2_PFTeDA		44	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-005**

Description: **MW-2** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBS		73	25-150
13C3_PFHxS		71	25-150
13C3-HFPO-DA		84	25-150
13C4_PFBA		67	25-150
13C4_PFHpA		84	25-150
13C5_PFHxA		87	25-150
13C5_PFPeA		76	25-150
13C6_PFDA		73	25-150
13C7_PFUdA		66	25-150
13C8_PFOA		73	25-150
13C8_PFOS		61	25-150
13C8_PFOSA		77	10-150
13C9_PFNA		77	25-150
d-EtFOSA		53	10-150
d5-EtFOSAA		61	25-150
d9-EtFOSE		53	10-150
d-MeFOSA		57	10-150
d3-MeFOSAA		67	25-150
d7-MeFOSE		58	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-006
Description: MW-3 | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/14/2021 0244	SES	01/12/2021 1016	79085

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	16		7.1	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	500		7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	2.0	J	7.1	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	3.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	65		3.6	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	94		3.6	0.89	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	160		3.6	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	14		3.6	0.89	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	67		3.6	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	240		3.6	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.4	J	3.6	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		143	25-150
13C2_6:2FTS		100	25-150
13C2_8:2FTS		94	25-150
13C2_PFDoA		67	25-150
13C2_PFHxDA		33	25-150
13C2_PFTeDA		50	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-006**

Description: **MW-3** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBS		77	25-150
13C3_PFHxS		78	25-150
13C3-HFPO-DA		88	25-150
13C4_PFBA		75	25-150
13C4_PFHpA		90	25-150
13C5_PFHxA		91	25-150
13C5_PFPeA		83	25-150
13C6_PFDA		81	25-150
13C7_PFUdA		76	25-150
13C8_PFOA		80	25-150
13C8_PFOS		72	25-150
13C8_PFOSA		76	10-150
13C9_PFNA		84	25-150
d-EtFOSA		51	10-150
d5-EtFOSAA		74	25-150
d9-EtFOSE		66	10-150
d-MeFOSA		62	10-150
d3-MeFOSAA		80	25-150
d7-MeFOSE		69	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-007
Description: MW-4 | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/14/2021 0255	SES	01/12/2021 1016	79085

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	3.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	160		3.6	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	120		3.6	0.89	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	360		3.6	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	17		3.6	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	700		3.6	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		79	25-150
13C2_6:2FTS		64	25-150
13C2_8:2FTS		73	25-150
13C2_PFDoA		59	25-150
13C2_PFHxDA		42	25-150
13C2_PFTeDA		53	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-007**

Description: **MW-4** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBS		68	25-150
13C3_PFHxS		73	25-150
13C3-HFPO-DA		78	25-150
13C4_PFBA		75	25-150
13C4_PFHpA		78	25-150
13C5_PFHxA		75	25-150
13C5_PFPeA		72	25-150
13C6_PFDA		70	25-150
13C7_PFUdA		64	25-150
13C8_PFOA		72	25-150
13C8_PFOS		63	25-150
13C8_PFOSA		65	10-150
13C9_PFNA		71	25-150
d-EtFOSA		48	10-150
d5-EtFOSAA		60	25-150
d9-EtFOSE		54	10-150
d-MeFOSA		60	10-150
d3-MeFOSAA		66	25-150
d7-MeFOSE		54	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-008
Description: MW-5 | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/14/2021 0306	SES	01/12/2021 1016	79085

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	3.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	J	3.6	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		91	25-150
13C2_6:2FTS		76	25-150
13C2_8:2FTS		83	25-150
13C2_PFDoA		67	25-150
13C2_PFHxDA		59	25-150
13C2_PFTeDA		68	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-008**

Description: **MW-5** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBS		84	25-150
13C3_PFHxS		84	25-150
13C3-HFPO-DA		91	25-150
13C4_PFBA		87	25-150
13C4_PFHpA		86	25-150
13C5_PFHxA		89	25-150
13C5_PFPeA		87	25-150
13C6_PFDA		77	25-150
13C7_PFUdA		77	25-150
13C8_PFOA		80	25-150
13C8_PFOS		80	25-150
13C8_PFOSA		82	10-150
13C9_PFNA		85	25-150
d-EtFOSA		60	10-150
d5-EtFOSAA		70	25-150
d9-EtFOSE		65	10-150
d-MeFOSA		58	10-150
d3-MeFOSAA		80	25-150
d7-MeFOSE		65	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-009
Description: MW-6 | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	SOP SPE	PFAS by ID SOP	1	01/20/2021 1218	MMM	01/19/2021 1022	79847

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.9	J	7.2	1.8	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	13		7.2	1.8	ng/L	2
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	3.6	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	30		3.6	0.90	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	68		3.6	0.90	ng/L	2
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	79		3.6	0.90	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	15		3.6	0.90	ng/L	2
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	55		3.6	0.90	ng/L	2
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	130		3.6	0.90	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	J	3.6	0.90	ng/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		83	25-150
13C2_6:2FTS		85	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		93	25-150
13C2_PFHxDA		53	25-150
13C2_PFTeDA		66	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-009**

Description: **MW-6** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C3_PFBS		80	25-150
13C3_PFHxS		72	25-150
13C3-HFPO-DA		72	25-150
13C4_PFBA		72	25-150
13C4_PFHpA		70	25-150
13C5_PFHxA		73	25-150
13C5_PFPeA		74	25-150
13C6_PFDA		70	25-150
13C7_PFUdA		74	25-150
13C8_PFOA		74	25-150
13C8_PFOS		77	25-150
13C8_PFOSA		66	10-150
13C9_PFNA		72	25-150
d-EtFOSA		57	10-150
d5-EtFOSAA		65	25-150
d9-EtFOSE		55	10-150
d-MeFOSA		56	10-150
d3-MeFOSAA		89	25-150
d7-MeFOSE		72	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-010
Description: MW-7A | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/14/2021 2030	SES	01/13/2021 1027	79251

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.1	BJ	7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	3.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		85	25-150
13C2_6:2FTS		83	25-150
13C2_8:2FTS		66	25-150
13C2_PFDoA		54	25-150
13C2_PFHxDA		47	25-150
13C2_PFTeDA		50	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-010**

Description: **MW-7A** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBS		74	25-150
13C3_PFHxS		74	25-150
13C3-HFPO-DA		95	25-150
13C4_PFBA		96	25-150
13C4_PFHpA		87	25-150
13C5_PFHxA		95	25-150
13C5_PFPeA		90	25-150
13C6_PFDA		67	25-150
13C7_PFUdA		62	25-150
13C8_PFOA		77	25-150
13C8_PFOS		52	25-150
13C8_PFOSA		90	10-150
13C9_PFNA		79	25-150
d-EtFOSA		74	10-150
d5-EtFOSAA		66	25-150
d9-EtFOSE		73	10-150
d-MeFOSA		69	10-150
d3-MeFOSAA		70	25-150
d7-MeFOSE		83	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-011
Description: MW-7B | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/14/2021 2051	SES	01/13/2021 1027	79251

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	430	B	7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	2.0	J	7.3	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		15	3.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	75		3.6	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	90		3.6	0.91	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	220		3.6	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.1	J	3.6	0.91	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	28		3.6	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	350		3.6	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		110	25-150
13C2_6:2FTS		96	25-150
13C2_8:2FTS		89	25-150
13C2_PFDoA		64	25-150
13C2_PFHxDA		61	25-150
13C2_PFTeDA		61	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-011**

Description: **MW-7B** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBS		86	25-150
13C3_PFHxS		90	25-150
13C3-HFPO-DA		93	25-150
13C4_PFBA		88	25-150
13C4_PFHpA		87	25-150
13C5_PFHxA		90	25-150
13C5_PFPeA		89	25-150
13C6_PFDA		80	25-150
13C7_PFUdA		77	25-150
13C8_PFOA		83	25-150
13C8_PFOS		76	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		90	25-150
d-EtFOSA		62	10-150
d5-EtFOSAA		77	25-150
d9-EtFOSE		73	10-150
d-MeFOSA		73	10-150
d3-MeFOSAA		80	25-150
d7-MeFOSE		78	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-012
Description: MW-8A | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	SOP SPE	PFAS by ID SOP	1	01/20/2021 1228	MMM	01/19/2021 1022	79847

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.9	J	7.2	1.8	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	41		7.2	1.8	ng/L	2
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	3.6	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	81		3.6	0.90	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	79		3.6	0.90	ng/L	2
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	210		3.6	0.90	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	J	3.6	0.90	ng/L	2
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.2	1.8	ng/L	2
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	34		3.6	0.90	ng/L	2
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	380		3.6	0.90	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.90	ng/L	2
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	0.90	ng/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		116	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		72	25-150
13C2_PFDoA		76	25-150
13C2_PFHxDA		33	25-150
13C2_PFTeDA		58	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-012**

Description: **MW-8A** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C3_PFBS		86	25-150
13C3_PFHxS		78	25-150
13C3-HFPO-DA		97	25-150
13C4_PFBA		92	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		84	25-150
13C5_PFPeA		89	25-150
13C6_PFDA		79	25-150
13C7_PFUdA		86	25-150
13C8_PFOA		88	25-150
13C8_PFOS		78	25-150
13C8_PFOSA		86	10-150
13C9_PFNA		77	25-150
d-EtFOSA		64	10-150
d5-EtFOSAA		76	25-150
d9-EtFOSE		65	10-150
d-MeFOSA		93	10-150
d3-MeFOSAA		91	25-150
d7-MeFOSE		80	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-013
Description: MW-8B | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/14/2021 2112	SES	01/13/2021 1027	79251

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	11	B	7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		15	3.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	7.9		3.7	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	7.1		3.7	0.92	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	19		3.7	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.0	J	3.7	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	35		3.7	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	186	25-150
13C2_6:2FTS		125	25-150
13C2_8:2FTS		97	25-150
13C2_PFDoA		56	25-150
13C2_PFHxDA		26	25-150
13C2_PFTeDA		43	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-013**

Description: **MW-8B** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBS		84	25-150
13C3_PFHxS		84	25-150
13C3-HFPO-DA		89	25-150
13C4_PFBA		104	25-150
13C4_PFHpA		95	25-150
13C5_PFHxA		94	25-150
13C5_PFPeA		88	25-150
13C6_PFDA		76	25-150
13C7_PFUdA		73	25-150
13C8_PFOA		86	25-150
13C8_PFOS		65	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		96	25-150
d-EtFOSA		68	10-150
d5-EtFOSAA		70	25-150
d9-EtFOSE		62	10-150
d-MeFOSA		70	10-150
d3-MeFOSAA		80	25-150
d7-MeFOSE		71	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC | Laboratory ID: WA08112-014
Description: MW-9 | Matrix: Aqueous
Date Sampled: 01/05/2021 | Project Name: WAGNER
Date Received: 01/08/2021 | Project Number: 40220670

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	SOP SPE	PFAS by ID SOP	1	01/20/2021 1239	MMM	01/19/2021 1022	79847

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	3.6	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.3	J	3.6	0.89	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	2
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.2	J	3.6	0.89	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	2
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	181	25-150
13C2_6:2FTS		117	25-150
13C2_8:2FTS		82	25-150
13C2_PFDoA		100	25-150
13C2_PFHxDA		57	25-150
13C2_PFTeDA		74	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **WA08112-014**

Description: **MW-9** Matrix: **Aqueous**

Date Sampled: **01/05/2021** Project Name: **WAGNER**

Date Received: **01/08/2021** Project Number: **40220670**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C3_PFBS		90	25-150
13C3_PFHxS		85	25-150
13C3-HFPO-DA		93	25-150
13C4_PFBA		97	25-150
13C4_PFHpA		109	25-150
13C5_PFHxA		91	25-150
13C5_PFPeA		90	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		80	25-150
13C8_PFOA		95	25-150
13C8_PFOS		88	25-150
13C8_PFOSA		85	10-150
13C9_PFNA		78	25-150
d-EtFOSA		77	10-150
d5-EtFOSAA		82	25-150
d9-EtFOSE		67	10-150
d-MeFOSA		86	10-150
d3-MeFOSAA		92	25-150
d7-MeFOSE		82	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
H = Out of holding time
W = Reported on wet weight basis

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ79085-001
Batch: 79085
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/12/2021 1016

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	2.0	ng/L	01/13/2021 1336
11Cl-PF3OUdS	ND		1	8.0	2.0	ng/L	01/13/2021 1336
8:2 FTS	ND		1	8.0	2.0	ng/L	01/13/2021 1336
6:2 FTS	ND		1	8.0	2.0	ng/L	01/13/2021 1336
10:2 FTS	ND		1	8.0	2.0	ng/L	01/13/2021 1336
4:2 FTS	ND		1	8.0	2.0	ng/L	01/13/2021 1336
GenX	ND		1	8.0	2.0	ng/L	01/13/2021 1336
ADONA	ND		1	8.0	2.0	ng/L	01/13/2021 1336
EtFOSA	ND		1	8.0	2.0	ng/L	01/13/2021 1336
EtFOSAA	ND		1	8.0	2.0	ng/L	01/13/2021 1336
EtFOSE	ND		1	8.0	2.0	ng/L	01/13/2021 1336
MeFOSA	ND		1	16	4.0	ng/L	01/13/2021 1336
MeFOSAA	ND		1	8.0	2.0	ng/L	01/13/2021 1336
MeFOSE	ND		1	8.0	2.0	ng/L	01/13/2021 1336
PFBS	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFDS	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFHpS	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFNS	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFOSA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFPeS	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFDOS	ND		1	8.0	2.0	ng/L	01/13/2021 1336
PFHxS	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFBA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFDA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFDoA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFHpA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFHxDA	ND		1	8.0	2.0	ng/L	01/13/2021 1336
PFHxA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFNA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFODA	ND		1	8.0	2.0	ng/L	01/13/2021 1336
PFOA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFPeA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFTeDA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFTrDA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFUdA	ND		1	4.0	1.0	ng/L	01/13/2021 1336
PFOS	ND		1	4.0	1.0	ng/L	01/13/2021 1336

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		94	25-150
13C2_6:2FTS		101	25-150
13C2_8:2FTS		96	25-150
13C2_PFDoA		95	25-150
13C2_PFHxDA		93	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ79085-001
Batch: 79085
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/12/2021 1016

Surrogate	Q	% Rec	Acceptance Limit
13C2_PFTeDA		89	25-150
13C3_PFBS		97	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		105	25-150
13C4_PFBA		101	25-150
13C4_PFHpA		99	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		101	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		89	25-150
13C8_PFOA		100	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		95	25-150
d-EtFOSA		88	10-150
d5-EtFOSAA		88	25-150
d9-EtFOSE		102	10-150
d-MeFOSA		102	10-150
d3-MeFOSAA		96	25-150
d7-MeFOSE		105	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ79085-002
Batch: 79085
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/12/2021 1016

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	104	50-150	01/13/2021 1346
11Cl-PF3OUdS	15	14		1	96	50-150	01/13/2021 1346
8:2 FTS	15	15		1	99	50-150	01/13/2021 1346
6:2 FTS	15	15		1	96	50-150	01/13/2021 1346
10:2 FTS	15	16		1	102	50-150	01/13/2021 1346
4:2 FTS	15	16		1	110	50-150	01/13/2021 1346
GenX	32	34		1	107	50-150	01/13/2021 1346
ADONA	15	19		1	124	50-150	01/13/2021 1346
EtFOSA	16	16		1	98	50-150	01/13/2021 1346
EtFOSAA	16	17		1	109	50-150	01/13/2021 1346
EtFOSE	16	17		1	107	50-150	01/13/2021 1346
MeFOSA	16	21		1	131	50-150	01/13/2021 1346
MeFOSAA	16	19		1	116	50-150	01/13/2021 1346
MeFOSE	16	17		1	109	50-150	01/13/2021 1346
PFBS	14	15		1	104	50-150	01/13/2021 1346
PFDS	15	13		1	85	50-150	01/13/2021 1346
PFHpS	15	16		1	107	50-150	01/13/2021 1346
PFNS	15	15		1	101	50-150	01/13/2021 1346
PFOSA	16	17		1	103	50-150	01/13/2021 1346
PFPeS	15	16		1	109	50-150	01/13/2021 1346
PFDOS	15	16		1	102	50-150	01/13/2021 1346
PFHxS	15	17		1	115	50-150	01/13/2021 1346
PFBA	16	16		1	103	50-150	01/13/2021 1346
PFDA	16	17		1	109	50-150	01/13/2021 1346
PFDoA	16	18		1	114	50-150	01/13/2021 1346
PFHpA	16	17		1	107	50-150	01/13/2021 1346
PFHxDA	16	18		1	112	50-150	01/13/2021 1346
PFHxA	16	16		1	98	50-150	01/13/2021 1346
PFNA	16	18		1	110	50-150	01/13/2021 1346
PFODA	16	18		1	111	50-150	01/13/2021 1346
PFOA	16	16		1	102	50-150	01/13/2021 1346
PFPeA	16	16		1	102	50-150	01/13/2021 1346
PFTeDA	16	17		1	104	50-150	01/13/2021 1346
PFTrDA	16	19		1	118	50-150	01/13/2021 1346
PFUdA	16	18		1	110	50-150	01/13/2021 1346
PFOS	15	15		1	100	50-150	01/13/2021 1346

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		80	25-150
13C2_6:2FTS		90	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		81	25-150
13C2_PFHxDA		77	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ79085-002
Batch: 79085
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/12/2021 1016

Surrogate	Q	% Rec	Acceptance Limit
13C2_PFTeDA		79	25-150
13C3_PFBS		78	25-150
13C3_PFHxS		82	25-150
13C3-HFPO-DA		96	25-150
13C4_PFBA		92	25-150
13C4_PFHpA		85	25-150
13C5_PFHxA		90	25-150
13C5_PFPeA		94	25-150
13C6_PFDA		80	25-150
13C7_PFUdA		80	25-150
13C8_PFOA		92	25-150
13C8_PFOS		77	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		84	25-150
d-EtFOSA		82	10-150
d5-EtFOSAA		75	25-150
d9-EtFOSE		88	10-150
d-MeFOSA		76	10-150
d3-MeFOSAA		87	25-150
d7-MeFOSE		88	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ79251-001
Batch: 79251
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/13/2021 1027

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	2.0	ng/L	01/14/2021 1417
11Cl-PF3OUdS	ND		1	8.0	2.0	ng/L	01/14/2021 1417
8:2 FTS	ND		1	8.0	2.0	ng/L	01/14/2021 1417
6:2 FTS	7.2	J	1	8.0	2.0	ng/L	01/14/2021 1417
10:2 FTS	ND		1	8.0	2.0	ng/L	01/14/2021 1417
4:2 FTS	ND		1	8.0	2.0	ng/L	01/14/2021 1417
GenX	ND		1	8.0	2.0	ng/L	01/14/2021 1417
ADONA	ND		1	8.0	2.0	ng/L	01/14/2021 1417
EtFOSA	ND		1	8.0	2.0	ng/L	01/14/2021 1417
EtFOSAA	ND		1	8.0	2.0	ng/L	01/14/2021 1417
EtFOSE	ND		1	8.0	2.0	ng/L	01/14/2021 1417
MeFOSA	ND		1	16	4.0	ng/L	01/14/2021 1417
MeFOSAA	ND		1	8.0	2.0	ng/L	01/14/2021 1417
MeFOSE	ND		1	8.0	2.0	ng/L	01/14/2021 1417
PFBS	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFDS	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFHpS	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFNS	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFOSA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFPeS	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFDOS	ND		1	8.0	2.0	ng/L	01/14/2021 1417
PFHxS	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFBA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFDA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFDoA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFHpA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFHxDA	ND		1	8.0	2.0	ng/L	01/14/2021 1417
PFHxA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFNA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFODA	ND		1	8.0	2.0	ng/L	01/14/2021 1417
PFOA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFPeA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFTeDA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFTrDA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFUdA	ND		1	4.0	1.0	ng/L	01/14/2021 1417
PFOS	ND		1	4.0	1.0	ng/L	01/14/2021 1417

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		96	25-150
13C2_6:2FTS		101	25-150
13C2_8:2FTS		101	25-150
13C2_PFDoA		94	25-150
13C2_PFHxDA		105	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ79251-001
Batch: 79251
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/13/2021 1027

Surrogate	Q	% Rec	Acceptance Limit
13C2_PFTeDA		103	25-150
13C3_PFBS		100	25-150
13C3_PFHxS		102	25-150
13C3-HFPO-DA		111	25-150
13C4_PFBA		104	25-150
13C4_PFHpA		107	25-150
13C5_PFHxA		103	25-150
13C5_PFPeA		106	25-150
13C6_PFDA		101	25-150
13C7_PFUdA		104	25-150
13C8_PFOA		105	25-150
13C8_PFOS		99	25-150
13C8_PFOSA		109	10-150
13C9_PFNA		112	25-150
d-EtFOSA		96	10-150
d5-EtFOSAA		104	25-150
d9-EtFOSE		112	10-150
d-MeFOSA		101	10-150
d3-MeFOSAA		107	25-150
d7-MeFOSE		112	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ79251-002
Batch: 79251
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/13/2021 1027

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	101	50-150	01/14/2021 1427
11Cl-PF3OUdS	15	16		1	107	50-150	01/14/2021 1427
8:2 FTS	15	18		1	118	50-150	01/14/2021 1427
6:2 FTS	15	21		1	142	50-150	01/14/2021 1427
10:2 FTS	15	16		1	102	50-150	01/14/2021 1427
4:2 FTS	15	18		1	122	50-150	01/14/2021 1427
GenX	32	32		1	101	50-150	01/14/2021 1427
ADONA	15	16		1	107	50-150	01/14/2021 1427
EtFOSA	16	17		1	104	50-150	01/14/2021 1427
EtFOSAA	16	17		1	109	50-150	01/14/2021 1427
EtFOSE	16	15		1	97	50-150	01/14/2021 1427
MeFOSA	16	17		1	107	50-150	01/14/2021 1427
MeFOSAA	16	15		1	94	50-150	01/14/2021 1427
MeFOSE	16	19		1	120	50-150	01/14/2021 1427
PFBS	14	14		1	98	50-150	01/14/2021 1427
PFDS	15	15		1	95	50-150	01/14/2021 1427
PFHpS	15	16		1	104	50-150	01/14/2021 1427
PFNS	15	15		1	98	50-150	01/14/2021 1427
PFOSA	16	17		1	106	50-150	01/14/2021 1427
PFPeS	15	15		1	97	50-150	01/14/2021 1427
PFDOS	15	16		1	106	50-150	01/14/2021 1427
PFHxS	15	14		1	97	50-150	01/14/2021 1427
PFBA	16	16		1	100	50-150	01/14/2021 1427
PFDA	16	16		1	102	50-150	01/14/2021 1427
PFDoA	16	15		1	96	50-150	01/14/2021 1427
PFHpA	16	15		1	96	50-150	01/14/2021 1427
PFHxDA	16	16		1	103	50-150	01/14/2021 1427
PFHxA	16	16		1	102	50-150	01/14/2021 1427
PFNA	16	16		1	100	50-150	01/14/2021 1427
PFODA	16	18		1	113	50-150	01/14/2021 1427
PFOA	16	16		1	99	50-150	01/14/2021 1427
PFPeA	16	16		1	100	50-150	01/14/2021 1427
PFTeDA	16	16		1	98	50-150	01/14/2021 1427
PFTrDA	16	17		1	105	50-150	01/14/2021 1427
PFUdA	16	16		1	97	50-150	01/14/2021 1427
PFOS	15	17		1	112	50-150	01/14/2021 1427

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	25-150
13C2_6:2FTS		102	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		88	25-150
13C2_PFHxDA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ79251-002
Batch: 79251
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/13/2021 1027

Surrogate	Q	% Rec	Acceptance Limit
13C2_PFTeDA		88	25-150
13C3_PFBS		92	25-150
13C3_PFHxS		94	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		95	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		92	25-150
13C5_PFPeA		95	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		96	25-150
13C8_PFOA		92	25-150
13C8_PFOS		91	25-150
13C8_PFOSA		96	10-150
13C9_PFNA		100	25-150
d-EtFOSA		88	10-150
d5-EtFOSAA		93	25-150
d9-EtFOSE		98	10-150
d-MeFOSA		77	10-150
d3-MeFOSAA		94	25-150
d7-MeFOSE		94	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: WA08112-010DU
Batch: 79251
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/13/2021 1027

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	ND		1	0.00	20	01/14/2021 2040
11Cl-PF3OUdS	ND	ND		1	0.00	20	01/14/2021 2040
8:2 FTS	ND	ND		1	0.00	20	01/14/2021 2040
6:2 FTS	3.1	3.7	J	1	17	20	01/14/2021 2040
10:2 FTS	ND	ND		1	0.00	20	01/14/2021 2040
4:2 FTS	ND	ND		1	0.00	20	01/14/2021 2040
GenX	ND	ND		1	0.00	20	01/14/2021 2040
ADONA	ND	ND		1	0.00	20	01/14/2021 2040
EtFOSA	ND	ND		1	0.00	20	01/14/2021 2040
EtFOSAA	ND	ND		1	0.00	20	01/14/2021 2040
EtFOSE	ND	ND		1	0.00	20	01/14/2021 2040
MeFOSA	ND	ND		1	0.00	20	01/14/2021 2040
MeFOSAA	ND	ND		1	0.00	20	01/14/2021 2040
MeFOSE	ND	ND		1	0.00	20	01/14/2021 2040
PFBS	ND	ND		1	0.00	20	01/14/2021 2040
PFDS	ND	ND		1	0.00	20	01/14/2021 2040
PFHpS	ND	ND		1	0.00	20	01/14/2021 2040
PFNS	ND	ND		1	0.00	20	01/14/2021 2040
PFOSA	ND	ND		1	0.00	20	01/14/2021 2040
PFPeS	ND	ND		1	0.00	20	01/14/2021 2040
PFDOS	ND	ND		1	0.00	20	01/14/2021 2040
PFHxS	ND	ND		1	0.00	20	01/14/2021 2040
PFBA	ND	ND		1	0.00	20	01/14/2021 2040
PFDA	ND	ND		1	0.00	20	01/14/2021 2040
PFDoA	ND	ND		1	0.00	20	01/14/2021 2040
PFHpA	ND	ND		1	0.00	20	01/14/2021 2040
PFHxDA	ND	ND		1	0.00	20	01/14/2021 2040
PFHxA	ND	ND		1	0.00	20	01/14/2021 2040
PFNA	ND	ND		1	0.00	20	01/14/2021 2040
PFODA	ND	ND		1	0.00	20	01/14/2021 2040
PFOA	ND	ND		1	0.00	20	01/14/2021 2040
PFPeA	ND	ND		1	0.00	20	01/14/2021 2040
PFTeDA	ND	ND		1	0.00	20	01/14/2021 2040
PFTrDA	ND	ND		1	0.00	20	01/14/2021 2040
PFUdA	ND	ND		1	0.00	20	01/14/2021 2040
PFOS	ND	ND		1	0.00	20	01/14/2021 2040

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		99	25-150
13C2_6:2FTS		100	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		69	25-150
13C2_PFHxDA		49	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: WA08112-010DU
Batch: 79251
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/13/2021 1027

Surrogate	Q	% Rec	Acceptance Limit
13C2_PFTeDA		62	25-150
13C3_PFBS		90	25-150
13C3_PFHxS		92	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		100	25-150
13C4_PFHpA		91	25-150
13C5_PFHxA		95	25-150
13C5_PFPeA		96	25-150
13C6_PFDA		84	25-150
13C7_PFUdA		89	25-150
13C8_PFOA		87	25-150
13C8_PFOS		77	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		97	25-150
d-EtFOSA		76	10-150
d5-EtFOSAA		90	25-150
d9-EtFOSE		75	10-150
d-MeFOSA		74	10-150
d3-MeFOSAA		95	25-150
d7-MeFOSE		78	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Sample ID: WA08112-013MS
Batch: 79251
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/13/2021 1027

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9Cl-PF3ONS	ND	14	11		1	82	50-150	01/14/2021 2123
11Cl-PF3OUdS	ND	14	9.6		1	69	50-150	01/14/2021 2123
8:2 FTS	ND	14	15		1	108	50-150	01/14/2021 2123
6:2 FTS	11	14	34	N	1	162	50-150	01/14/2021 2123
10:2 FTS	ND	14	12		1	88	50-150	01/14/2021 2123
4:2 FTS	ND	14	15		1	107	50-150	01/14/2021 2123
GenX	ND	29	27		1	92	50-150	01/14/2021 2123
ADONA	ND	14	19		1	135	50-150	01/14/2021 2123
EtFOSA	ND	15	13		1	87	50-150	01/14/2021 2123
EtFOSAA	ND	15	12		1	80	50-150	01/14/2021 2123
EtFOSE	ND	15	14		1	93	50-150	01/14/2021 2123
MeFOSA	ND	15	20		1	135	50-150	01/14/2021 2123
MeFOSAA	ND	15	12		1	83	50-150	01/14/2021 2123
MeFOSE	ND	15	15		1	101	50-150	01/14/2021 2123
PFBS	ND	13	12		1	95	50-150	01/14/2021 2123
PFDS	ND	14	11		1	77	50-150	01/14/2021 2123
PFHpS	ND	14	14		1	99	50-150	01/14/2021 2123
PFNS	ND	14	12		1	85	50-150	01/14/2021 2123
PFOSA	ND	15	16		1	107	50-150	01/14/2021 2123
PFPeS	ND	14	13		1	92	50-150	01/14/2021 2123
PFDOS	ND	14	8.9		1	63	50-150	01/14/2021 2123
PFHxS	ND	13	13		1	100	50-150	01/14/2021 2123
PFBA	7.9	15	22		1	96	50-150	01/14/2021 2123
PFDA	ND	15	15		1	100	50-150	01/14/2021 2123
PFDoA	ND	15	14		1	96	50-150	01/14/2021 2123
PFHpA	7.1	15	22		1	102	50-150	01/14/2021 2123
PFHxDA	ND	15	16		1	108	50-150	01/14/2021 2123
PFHxA	19	15	35		1	107	50-150	01/14/2021 2123
PFNA	ND	15	15		1	99	50-150	01/14/2021 2123
PFODA	ND	15	13		1	91	50-150	01/14/2021 2123
PFOA	3.0	15	17		1	98	50-150	01/14/2021 2123
PFPeA	35	15	53		1	119	50-150	01/14/2021 2123
PFTeDA	ND	15	15		1	103	50-150	01/14/2021 2123
PFTrDA	ND	15	12		1	83	50-150	01/14/2021 2123
PFUdA	ND	15	15		1	101	50-150	01/14/2021 2123
PFOS	ND	14	15		1	107	50-150	01/14/2021 2123

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	181	25-150
13C2_6:2FTS		112	25-150
13C2_8:2FTS		84	25-150
13C2_PFDoA		59	25-150
13C2_PFHxDA		39	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Sample ID: WA08112-013MS
Batch: 79251
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/13/2021 1027

Surrogate	Q	% Rec	Acceptance Limit
13C2_PFTeDA		46	25-150
13C3_PFBS		79	25-150
13C3_PFHxS		74	25-150
13C3-HFPO-DA		93	25-150
13C4_PFBA		106	25-150
13C4_PFHpA		92	25-150
13C5_PFHxA		94	25-150
13C5_PFPeA		90	25-150
13C6_PFDA		76	25-150
13C7_PFUdA		72	25-150
13C8_PFOA		81	25-150
13C8_PFOS		58	25-150
13C8_PFOSA		89	10-150
13C9_PFNA		96	25-150
d-EtFOSA		77	10-150
d5-EtFOSAA		68	25-150
d9-EtFOSE		71	10-150
d-MeFOSA		62	10-150
d3-MeFOSAA		79	25-150
d7-MeFOSE		77	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ79847-001
Batch: 79847
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/19/2021 1022

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	2.0	ng/L	01/20/2021 1157
11Cl-PF3OUdS	ND		1	8.0	2.0	ng/L	01/20/2021 1157
8:2 FTS	ND		1	8.0	2.0	ng/L	01/20/2021 1157
6:2 FTS	ND		1	8.0	2.0	ng/L	01/20/2021 1157
10:2 FTS	ND		1	8.0	2.0	ng/L	01/20/2021 1157
4:2 FTS	ND		1	8.0	2.0	ng/L	01/20/2021 1157
GenX	ND		1	8.0	2.0	ng/L	01/20/2021 1157
ADONA	ND		1	8.0	2.0	ng/L	01/20/2021 1157
EtFOSA	ND		1	8.0	2.0	ng/L	01/20/2021 1157
EtFOSAA	ND		1	8.0	2.0	ng/L	01/20/2021 1157
EtFOSE	ND		1	8.0	2.0	ng/L	01/20/2021 1157
MeFOSA	ND		1	16	4.0	ng/L	01/20/2021 1157
MeFOSAA	ND		1	8.0	2.0	ng/L	01/20/2021 1157
MeFOSE	ND		1	8.0	2.0	ng/L	01/20/2021 1157
PFBS	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFDS	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFHpS	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFNS	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFOSA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFPeS	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFDOS	ND		1	8.0	2.0	ng/L	01/20/2021 1157
PFHxS	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFBA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFDA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFDoA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFHpA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFHxDA	ND		1	8.0	2.0	ng/L	01/20/2021 1157
PFHxA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFNA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFODA	ND		1	8.0	2.0	ng/L	01/20/2021 1157
PFOA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFPeA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFTeDA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFTrDA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFUdA	ND		1	4.0	1.0	ng/L	01/20/2021 1157
PFOS	ND		1	4.0	1.0	ng/L	01/20/2021 1157

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		113	25-150
13C2_6:2FTS		102	25-150
13C2_8:2FTS		107	25-150
13C2_PFDoA		122	25-150
13C2_PFHxDA		96	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ79847-001
Batch: 79847
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/19/2021 1022

Surrogate	Q	% Rec	Acceptance Limit
13C2_PFTeDA		99	25-150
13C3_PFBS		93	25-150
13C3_PFHxS		96	25-150
13C3-HFPO-DA		103	25-150
13C4_PFBA		100	25-150
13C4_PFHpA		92	25-150
13C5_PFHxA		96	25-150
13C5_PFPeA		91	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		87	25-150
13C8_PFOA		97	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		91	10-150
13C9_PFNA		92	25-150
d-EtFOSA		78	10-150
d5-EtFOSAA		90	25-150
d9-EtFOSE		86	10-150
d-MeFOSA		75	10-150
d3-MeFOSAA		110	25-150
d7-MeFOSE		100	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ79847-002
Batch: 79847
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/19/2021 1022

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	93	50-150	01/20/2021 1207
11Cl-PF3OUdS	15	15		1	100	50-150	01/20/2021 1207
8:2 FTS	15	17		1	112	50-150	01/20/2021 1207
6:2 FTS	15	15		1	100	50-150	01/20/2021 1207
10:2 FTS	15	16		1	104	50-150	01/20/2021 1207
4:2 FTS	15	18		1	119	50-150	01/20/2021 1207
GenX	32	34		1	105	50-150	01/20/2021 1207
ADONA	15	17		1	111	50-150	01/20/2021 1207
EtFOSA	16	15		1	94	50-150	01/20/2021 1207
EtFOSAA	16	16		1	101	50-150	01/20/2021 1207
EtFOSE	16	16		1	100	50-150	01/20/2021 1207
MeFOSA	16	19		1	117	50-150	01/20/2021 1207
MeFOSAA	16	17		1	109	50-150	01/20/2021 1207
MeFOSE	16	17		1	104	50-150	01/20/2021 1207
PFBS	14	14		1	99	50-150	01/20/2021 1207
PFDS	15	15		1	97	50-150	01/20/2021 1207
PFHpS	15	18		1	120	50-150	01/20/2021 1207
PFNS	15	19		1	122	50-150	01/20/2021 1207
PFOSA	16	17		1	105	50-150	01/20/2021 1207
PFPeS	15	16		1	106	50-150	01/20/2021 1207
PFDOS	15	15		1	98	50-150	01/20/2021 1207
PFHxS	15	18		1	122	50-150	01/20/2021 1207
PFBA	16	17		1	103	50-150	01/20/2021 1207
PFDA	16	18		1	113	50-150	01/20/2021 1207
PFDoA	16	18		1	109	50-150	01/20/2021 1207
PFHpA	16	16		1	102	50-150	01/20/2021 1207
PFHxDA	16	16		1	103	50-150	01/20/2021 1207
PFHxA	16	17		1	106	50-150	01/20/2021 1207
PFNA	16	17		1	105	50-150	01/20/2021 1207
PFODA	16	18		1	110	50-150	01/20/2021 1207
PFOA	16	17		1	107	50-150	01/20/2021 1207
PFPeA	16	16		1	99	50-150	01/20/2021 1207
PFTeDA	16	18		1	111	50-150	01/20/2021 1207
PFTrDA	16	17		1	106	50-150	01/20/2021 1207
PFUdA	16	20		1	123	50-150	01/20/2021 1207
PFOS	15	14		1	97	50-150	01/20/2021 1207

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		96	25-150
13C2_6:2FTS		106	25-150
13C2_8:2FTS		93	25-150
13C2_PFDoA		110	25-150
13C2_PFHxDA		100	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ79847-002
Batch: 79847
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 01/19/2021 1022

Surrogate	Q	% Rec	Acceptance Limit
13C2_PFTeDA		98	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		76	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		101	25-150
13C4_PFHpA		101	25-150
13C5_PFHxA		94	25-150
13C5_PFPeA		96	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		90	25-150
13C8_PFOA		92	25-150
13C8_PFOS		104	25-150
13C8_PFOSA		100	10-150
13C9_PFNA		84	25-150
d-EtFOSA		86	10-150
d5-EtFOSAA		86	25-150
d9-EtFOSE		79	10-150
d-MeFOSA		86	10-150
d3-MeFOSAA		100	25-150
d7-MeFOSE		103	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Internal Transfer Chain of Custody

Pace Analytical®
www.pacelabs.com

☐ Samples Pre-Logged into eCOC.

State Of Origin: WI
Cert. Needed: ☒ Yes ☐ No
Owner Received Date: 1/7/2021 Results Requested By: 2/4/2021

Workorder: 40220670 **Workorder Name:** WAGNER

Report To

Brian Basten
Pace Analytical Green Bay
1241 Bellevue Street
Suite 9
Green Bay, WI 54302
Phone (920)469-2436

Subcontract To

Pace Analytical West Columbia
106 Vantage Point Drive
West Columbia, SC 29172
Phone (803)791-9700

WA08112

KLC2

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Preserved Containers: Other	Requested Analysis: PFAS WI 36	LAB USE ONLY
1	EB	PS	1/5/2021 00:00	40220670001	Water	1		X	
2	FB	PS	1/5/2021 00:00	40220670002	Water	1		X	
3	TB	PS	1/5/2021 00:00	40220670003	Water		1	X	
4	MW-1	PS	1/5/2021 00:00	40220670004	Water		2	X	
5	MW-2	PS	1/5/2021 00:00	40220670005	Water		2	X	
6	MW-3	PS	1/5/2021 00:00	40220670006	Water		2	X	
7	MW-4	PS	1/5/2021 00:00	40220670007	Water		2	X	
8	MW-5	PS	1/5/2021 00:00	40220670008	Water		2	X	
9	MW-6	PS	1/5/2021 00:00	40220670009	Water		2	X	
10	MW-7A	PS	1/5/2021 00:00	40220670010	Water		2	X	
11	MW-7B	PS	1/5/2021 00:00	40220670011	Water		2	X	
12	MW-8A	PS	1/5/2021 00:00	40220670012	Water		2	X	
13	MW-8B	PS	1/5/2021 00:00	40220670013	Water		2	X	
14	MW-9	PS	1/5/2021 00:00	40220670014	Water		2	X	

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	[illegible] Dave	1/7/21 1630			
2					
3	FedEx	1/8/21 1045	[illegible]	1/8/21 1045	

Cooler Temperature on Receipt 4.1 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.

WA08112

KL/52

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PACE ANALYTICAL SERVICES, LLC

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Pace Analytical®

PACE ANALYTICAL SERVICES, LLC
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 115061
40220670

Client: Meridian Env. Cslt.	Report to Contact: Ken Shimko	Telephone No. / E-mail: 715-832-6608	Quote No.
Address: 2711 N. Elco Rd	Sampler's Signature: x [signature]	Analysis (Attach list if more space is needed)	Page 1 of 2
City: Fall Creek	State: WI	Zip Code: 54742	Printed Name: Ken Shimko	Lot # Bar Code (lab use only)
Project Name: Wagner			
Project No.	P.O. No.		

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	G=Grab C=Composite	Aqueous	Solid	Non Aqueous		Unpres.	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Field Filtered	WI 36									Remarks / Cooler I.D.
EB	1/5			✓				KS							X									001
FB	1/5			↓				①							↓									002
TB	1/5			↓				① KS							↓									003
MW-1	↓			↓				2							↓									004
MW-2	↓			↓				2							↓									005
MW-3	↓			↓				2							↓									006
MW-4	↓			↓				3							↓									007
MW-5	↓			↓				2							↓									008
MW-6	↓			↓				2							↓									009

Turn Around Time Required (Prior lab approval required for expedited TAT.)
☑ Standard ☐ Rush (Specify)

Sample Disposal
☐ Return to Client ☑ Disposal by Lab

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by [signature]	1/6/21		1. Received by Fed Ex	1/6/21	
2. Relinquished by Fed Ex	1-7-21	1100	2. Received by Susan K Wylie Pace	1-7-21	1100
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory received by		

LAB USE ONLY
Received on Ice (Circle) Yes No Ice Pack
Receipt Temp. ______ °C
Temp Blank ☐ Y ☐ N

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

Document Number: ME003NB-01

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Pace Analytical®

PACE ANALYTICAL SERVICES, LLC
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number L15062
4022067O

Client: Meridian Env. Cliff	Report to Contact: Ken Shimko	Telephone No. / E-mail: 715-832-6608	Quote No.
Address: 2711 N. Elco Rd	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page 2 of 2
City: Fall Creek / State: WI / Zip Code: 54742	Printed Name: Ken Shimko		Lot # Bar Code (lab use only)
Project Name: Wagner			
Project No.	P.O. No.		Remarks / Cooler I.D.

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Composite / Grab	Matrix: Aqueous	Soil/	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Field Filtered	WI 36	Remarks / Cooler I.D.
MW-7A	1/5			X			2							X	010 008
MW-7B	↓			↓			2							↓	011 009
MW-8A							2								012 010
MW-8B							2								013 011
MW-9							2								014 012

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☑ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☑ Disposal by Lab

Positive Hazard Identification: ☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time
1. Relinquished by	1/6/21	
2. Relinquished by	1-7-21	1100
3. Relinquished by		
4. Relinquished by		

	Date	Time
1. Received by: Fed Ex	1/6/21	
2. Received by: Susan Kilgee Paul	1-7-21	1100
3. Received by		
4. Laboratory received by		

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack
Receipt Temp. _____ °C
Temp Blank ☐ Y ☐ N

Document Number: MEN03N2-01

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

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

Sample Preservation Receipt Form

t Name: *Meridian Env.* Project # *40220670*

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:

	Glass								Plastic					Vials						Jars				General										
	AG1U	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
1										—																							2.5 / 5 / 10
2										/																							2.5 / 5 / 10
3																										1							2.5 / 5 / 10
4																										2							2.5 / 5 / 10
5																										2							2.5 / 5 / 10
6																										2							2.5 / 5 / 10
7																										2							2.5 / 5 / 10
8																										2							2.5 / 5 / 10
9																										2							2.5 / 5 / 10
10																										2							2.5 / 5 / 10
11																										2							2.5 / 5 / 10
12																										2							2.5 / 5 / 10
13																																	2.5 / 5 / 10
14																																	2.5 / 5 / 10
15																																	2.5 / 5 / 10
16																																	2.5 / 5 / 10
17																																	2.5 / 5 / 10
18																																	2.5 / 5 / 10
19																																	2.5 / 5 / 10
20																																	2.5 / 5 / 10

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

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

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG4U	120 mL amber glass unpres
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4

VG9A	40 mL clear ascorbic
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN	*250 ml poly TRIS HCL*

Page *1* of *2*

GB-C-046-Rev.03 (11Feb2020) Sample Preservation Receipt Form

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 26Mar2020
	Document No.: ENV-FRM-GBAY-0014-Rev.00	Author: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #: WO#: 40220670

Client Name: Meridian Env.

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

Tracking #: 7823 0679 8162

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 - 101 Type of Ice: Wet Blue Dry None ☒ Samples on ice, cooling process has begun

Cooler Temperature: Uncorr: 4.5 /Corr: 4.5 Biological Tissue is Frozen: ☐ yes ☐ no

Temp Blank Present: ☒ yes ☐ no

Person examining contents: Date: 1-7-21 /Initials: SW

Labeled By Initials:

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	☒Yes ☐No ☐N/A	1. ☒ 2cc 1-7-21 SW
Chain of Custody Filled Out:	☐Yes ☒No ☐N/A	2. Proj. #, Tube, Preserve, Collect times 1-7-21 SW
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☒No	6.
Rush Turn Around Time Requested:	☐Yes ☒No	7.
Sufficient Volume: For Analysis: ☒Yes ☐No MS/MSD: ☐Yes ☒No ☐N/A		8.
Correct Containers Used:	☒Yes ☐No	9.
-Pace Containers Used:	☒Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☒N/A	
Containers Intact:	☒Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix:	☐Yes ☒No ☐N/A	12. No dates 1-7-21 SW
Trip Blank Present:	☐Yes ☐No ☒N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased):		

if checked, see attached form for additional comments ☐

Client Notification/ Resolution:
Person Contacted: Date/Time:
Comments/ Resolution:

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample login

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Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

ed:9/29/2020
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WA08112

KLC2

Sample Receipt Checklist (SRC)

Client: Pace Cooler Inspected by/date: KBS 1/8/21

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☐ FedEx ☐ Other:

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NC Chlorine Strip ID: NC Tested by: NC

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NC

4.1 / 4.1 °C NC / NC °C NC / NC °C NC / NC °C

Method: ☐ Temperature Blank ☑ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NC were received incorrectly preserved and were adjusted accordingly in sample receiving with NC mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NC.
Time of preservation NC. If more than one preservative is needed, please note in the comments below.

Sample(s) NC were received with bubbles >6 mm in diameter.

Samples(s) NC were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NC.

SR barcode labels applied by: KBS Date: 1/8/21

Comments: