



Consulting
Engineers and
Scientists

June 19, 2023
Project 2102778

Mr. Matt Thompson
Hydrogeologist – Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
1300 W. Clairemont Avenue
Eau Claire, WI 54701

**Re: Status Report
Wausau Business Incubator (Former)
1300 Cleveland Avenue, Wausau, WI
WDNR BRRTS# 02-37-587081**

Dear Mr. Thompson:

On behalf of the City of Wausau, GEI Consultants, Inc. (GEI) is submitting this status report for the Wausau Business Incubator (Former) site located at 1300 Cleveland Avenue in the City of Wausau, Marathon County, Wisconsin. This status report summarizes the second round of groundwater sampling for Pre- and Polyfluoroalkyl Substances (PFAS) completed at this site on April 24, 2023. The sampling was completed to address a request from the Wisconsin Department of Natural Resources (WDNR) for PFAS groundwater sampling in a Site Investigation Report (SIR) Conditional Approval letter dated April 28, 2022, and in an email correspondence from you dated August 2, 2022, which was issued after the initial round of PFAS groundwater sampling completed on December 20, 2022. A status report summarizing the results of the initial sampling event was submitted to the WDNR on February 9, 2023.

During this second groundwater sampling event, groundwater elevations were measured, groundwater was purged, and groundwater samples were collected from the five existing monitoring wells at the site (SB-1R, SB-5R, SB-14R, SBGW-1R, and SBGW-3R).

Procedures

PFAS groundwater sampling was completed in general accordance with published guidance, including the Michigan Department of Environment, Great Lakes, and Energy's (EGLE's) *General PFAS Sampling Guidance* dated October 2018. Prior to sampling, groundwater levels were recorded using an electronic water level indicator that was decontaminated with Alconox soap followed by several water rinses using laboratory-provided, PFAS-free water. The water level indicator probe was decontaminated before its use at each well, with water from the final rinse at the first well location being collected for analysis as an equipment blank (Equipment Blank) for quality control (QC) purposes. Based on measured depths to groundwater and the top of well casing elevations established during a previous site survey, groundwater elevations were determined. After recording the depth to groundwater, dedicated high-density polyethylene (HDPE) bailers and dedicated nylon rope were used to purge approximately four well volumes

and then collect a groundwater sample from each well. A duplicate sample was collected from one well (SBGW-1R DUP) for QC per Chapter NR 716, Wisconsin Administrative Code. Additionally, a field blank sample (Field Blank) was generated during the monitoring event for QC purposes by slowly pouring PFAS-free water from one laboratory-provided container into another laboratory-provided container while at the site. The five primary groundwater samples, one duplicate groundwater sample, one equipment blank sample, and one field blank sample were delivered under chain-of-custody control to an analytical laboratory with WDNR PFAS certification (Pace Analytical Services, LLC in West Columbia, South Carolina) for analysis of the 33 analytes included on the WDNR's PFAS list effective March 1, 2021.

Purge water generated during sampling was collected in 5-gallon buckets with lids, which were staged on site pending receipt of the groundwater analytical results.

Results

Observations

Wells SB-1R, SB-5R, SB-14R, SBGW-1R, and SBGW-3R were accessible and observed in good condition, and contained sufficient water for sampling. Purge water recovered from the wells was documented to be clear to light brown with no obvious sheen or odor.

The groundwater elevation table included in the SIR (Table A.6.) is attached and has been updated to include groundwater elevations measured during this monitoring event. Groundwater elevations obtained during this event were used to update the groundwater contour map included in the SIR (Figure B.3.c.), which is also attached. Collectively, the attached table and figure indicate a depth to groundwater ranging from 23.29 to 29.66 feet below ground surface, a groundwater flow direction generally to the south, and an approximate hydraulic gradient of 0.00067 or 1 foot per 1,500 feet).

Analytical Results

The groundwater analytical results table included in the SIR (Table A.1) is attached and has been updated to include these PFAS groundwater sampling results. The laboratory analytical report is also attached.

Laboratory analytical results identified several PFAS analytes above the levels of detection (LODs) in each groundwater sample; however, most of the detections were "j-flagged" as being estimated concentrations below the limits of quantitation (LOQs). No PFAS analytes were detected in the equipment blank or the field blank samples. The results of the duplicate sample collected at SBGW-1R suggest some variability, with the Relative Percent Difference (RPD) being 23.4% for PFOA (4.3 nanograms per liter [ng/L] versus 3.4 ng/L) and 9.9% for PFOS (5.3 ng/L and 4.8 ng/L). Generally, a RPD less than 30% for aqueous matrices when the reported values are near or below the LOQs (3.6 and 3.7 ng/L, in this instance) is considered acceptable and suggests reasonable field sampling and intra-laboratory precision.

PFAS analytes and the ranges of detected concentrations in groundwater during this event include:

- 6:2 FTS (1.9 ng/L)
- PFBS (1.6 – 6.4 ng/L)
- PFPeS (0.75 – 1.5 ng/L)
- PFHxS (1.2 – 6.0 ng/L)
- PFBA (2.0 – 16 ng/L)
- PFHpA (0.81 – 12 ng/L)
- PFHxA (0.76 – 17 ng/L)
- PFOA (3.4 – 55 ng/L)
- PFPeA (0.79 – 8.3 ng/L)
- PFOS (4.8 – 12 ng/L)

Currently, there are no established federal or state groundwater standards for the 33 analytes included on the WDNR's PFAS list. The Environmental Protection Agency (EPA) has issued interim recommendations for addressing PFAS detected in groundwater (*Interim Recommendations to Address Groundwater Contaminated with Perfluorooctanoic Acid and Perfluorooctanesulfonate, December 2019*), which include an individual screening level (concentration that, if detected in groundwater, would warrant additional assessment) of 40 ng/L for PFOA and PFOS. The WDNR has not issued similar recommendations, but in Chapter NR 809, WAC, the WDNR has established a Maximum Containment Level (MCL) of 70 ng/L for PFOA and PFOS (individually or combined) in drinking water. The individual and combined concentrations of PFOA and PFOS are not above 70 ng/L at any of the monitoring well locations.

The Wisconsin Department of Health Services (DHS) has provided recommended groundwater standards to the WDNR for 18 of the 33 analytes included on the WDNR's PFAS list. Among individual standards, the DHS has recommended a combined Preventive Action Limit (PAL) of 2 ng/L and a combined Enforcement Standard (ES) of 20 ng/L for the following analytes: FOSA, NEtFOSE, NEtFOSA, NEtFOSAA, PFOS, and PFOA. However, such recommendations have not been codified and therefore, are not currently enforceable standards.

Conclusions and Recommendations

Laboratory analytical results identified low-level detections of PFAS at each monitoring well location. However, the individual and combined concentrations of PFOA and PFOS are not above the WDNR's drinking water MCL of 70 ng/L at any location, which is consistent with the initial sampling event completed in December 2022.

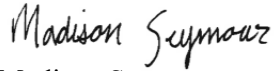
We reiterate our opinion from the SIR submitted to the WDNR in February 2022 and the Status Report submitted in February 2023, that PFAS are not a contaminant of concern at this site but rather, the detections at this site are representative of a background condition. Our opinion is based on there being no known source of PFAS at the site, no detections of PFAS in shallow soil/fill above currently established soil standards, no detections of PFAS in soil at depth nearer to the groundwater interface, and no detections PFOA or PFOS (individually or combined) above the WDNR's drinking water MCL. Accordingly, it is our opinion that further groundwater assessment at this site is not warranted, and we recommend that the existing monitoring wells be abandoned to reduce the potential for damage that may result from ongoing heavy vehicle traffic (excavators, etc.) by the city and/or their contractors on the site.

We anticipate that the purge water generated during the groundwater monitoring event will be approved for disposal via the City's publicly-owned treatment works (Wausau Water Works). Documentation of purge water disposal will be provided to the WDNR when it is available.

If you have any questions regarding this submittal, please contact Mr. Mike DeBraske at (920) 455-8655.

Sincerely,

GEI CONSULTANTS, INC.



Madison Seymour
Staff Professional



Michael L. DeBraske, P.E.
Senior Project Engineer



Roger A. Miller, P.G., C.P.G.
Senior Hydrogeologist

Attachments:

- Table A.1 – Groundwater Analytical Results
- Table A.6 – Groundwater Elevation Data Summary
- Figure B.3.c – Groundwater Contour Map (April 24, 2023)
- Laboratory Analytical Report (Pace Project #40261192)

Cc: Mr. Eric Lindman, City of Wausau

Table A.1.
Groundwater Analytical Results
 1300 Cleveland Avenue, Wausau, WI
 BRRTS #02-37-587081

Laboratory Analytes		Wisconsin Regulatory Standards ^{1,2}		SBGW-1%	SBGW-1R			SBGW-1R DUP	SBGW-2%	SBGW-3%	SBGW-3R			SB-1R			SB-1R DUP
Name & CAS #		NR 140 PAL	NR 140 ES	10/12/20	08/18/21	12/20/22	04/24/23	04/24/23	10/12/20	10/12/20	08/18/21	12/20/22	04/24/23	08/18/21	12/20/22	04/24/23	12/20/22
PRIORITY POLLUTANT METALS³ (ug/L)																	
Antimony	7440-36-0	1.2	6.0	< 0.15	---	---	---	---	< 0.15	< 0.15	---	---	---	---	---	---	---
Arsenic	7440-38-2	1	10	0.45 J	---	---	---	---	< 0.28	< 0.28	---	---	---	---	---	---	---
Beryllium	7440-41-7	0.4	4.0	< 0.25	---	---	---	---	< 0.25	< 0.25	---	---	---	---	---	---	---
Cadmium	7440-43-9	0.5	5.0	< 0.15	---	---	---	---	< 0.15	< 0.15	---	---	---	---	---	---	---
Chromium	7440-47-3	10	100	< 1.0	---	---	---	---	< 1.0	< 1.0	---	---	---	---	---	---	---
Copper	7440-50-8	1,300	130	6.8	---	---	---	---	< 1.9	< 1.9	---	---	---	---	---	---	---
Lead	7439-92-1	1.5	15	< 0.24	---	---	---	---	< 0.24	< 0.24	---	---	---	---	---	---	---
Nickel	7440-02-0	100	20	1.0	---	---	---	---	5.7	9.7	---	---	---	---	---	---	---
Selenium	7782-49-2	10	50	< 0.32	---	---	---	---	< 0.32	< 0.32	---	---	---	---	---	---	---
Silver	7440-22-4	10	50	< 0.13	---	---	---	---	< 0.13	< 0.13	---	---	---	---	---	---	---
Thallium	7440-28-0	0.4	2.0	< 0.14	< 0.14	---	---	---	< 0.14	< 0.14	---	---	---	< 0.14	---	---	---
Zinc	7440-66-6	5	2.5	< 10.3	---	---	---	---	< 10.3	< 10.3	---	---	---	---	---	---	---
Mercury	7439-97-6	0.2	2.0	< 0.066	---	---	---	---	< 0.066	< 0.066	---	---	---	---	---	---	---
SEMI-VOLATILE ORGANIC COMPOUNDS³ (ug/L)																	
Acenaphthene	83-32-9	NE	NE	< 0.0055	< 0.013	---	---	---	< 0.0057	< 0.0054	< 0.013	---	---	< 0.013	---	---	---
Acenaphthylene	208-96-8	NE	NE	< 0.0045	< 0.012	---	---	---	< 0.0047	< 0.0044	< 0.012	---	---	< 0.011	---	---	---
Anthracene	120-12-7	600	3,000	0.082	< 0.017	---	---	---	0.090	0.26	0.063	---	---	< 0.017	---	---	---
Benzo(a)anthracene	56-55-3	NE	NE	0.011 J	< 0.012	---	---	---	< 0.0071	0.010 J	< 0.012	---	---	< 0.012	---	---	---
Benzo(a)pyrene	50-32-8	0.02	0.2	< 0.0095	< 0.018	---	---	---	< 0.0098	< 0.0094	< 0.018	---	---	< 0.018	---	---	---
Benzo(b)fluoranthene	205-99-2	0.02	0.2	< 0.0052	< 0.018	---	---	---	< 0.0054	0.0054 J	< 0.018	---	---	< 0.018	---	---	---
Benzo(g,h,i)perylene	191-24-2	NE	NE	< 0.0061	< 0.021	---	---	---	< 0.0063	< 0.0061	< 0.021	---	---	< 0.021	---	---	---
Benzo(k)fluoranthene	207-08-9	NE	NE	< 0.0068	< 0.020	---	---	---	< 0.0071	< 0.0067	< 0.020	---	---	< 0.020	---	---	---
Chrysene ⁴	218-01-9	0.02	0.2	0.027 J	< 0.024	---	---	---	0.020 J	0.052 J	< 0.024	---	---	< 0.024	---	---	---
Dibenzo(a,h)anthracene	53-70-3	NE	NE	< 0.0090	< 0.016	---	---	---	< 0.0094	< 0.0089	< 0.016	---	---	< 0.016	---	---	---
Fluoranthene	206-44-0	80	400	0.010 J	< 0.024	---	---	---	0.013 J	0.017 J	< 0.024	---	---	< 0.024	---	---	---
Fluorene	86-73-7	80	400	< 0.0072	< 0.022	---	---	---	< 0.0074	0.030 J	< 0.022	---	---	< 0.021	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	NE	NE	< 0.016	< 0.014	---	---	---	< 0.016	< 0.016	< 0.014	---	---	< 0.014	---	---	---
1-Methylnaphthalene	90-12-0	NE	NE	< 0.0053	< 0.016	---	---	---	< 0.0055	< 0.0053	< 0.016	---	---	< 0.016	---	---	---
2-Methylnaphthalene	91-57-6	NE	NE	< 0.0044	< 0.013	---	---	---	< 0.0046	< 0.0044	< 0.013	---	---	0.020 J	---	---	---
Naphthalene	91-20-3	10	100	< 0.017	< 0.018	---	---	---	< 0.017	< 0.016	< 0.018	---	---	0.025 J	---	---	---
Pentachlorophenol	87-86-5	0.1	1.0	< 4.3	---	---	---	---	< 4.4	< 4.3	---	---	---	---	---	---	---
Phenanthrene	85-01-8	NE	NE	0.095	< 0.023	---	---	---	0.072	0.044 J	< 0.024	---	---	< 0.023	---	---	---
Pyrene	129-00-0	50	250	0.014 J	< 0.021	---	---	---	0.018 J	0.020 J	< 0.021	---	---	< 0.021	---	---	---

Notes

(ug/L) = micrograms per liter < = not detected above method detection limit (MDL)
 J = concentration between detection limit and reporting limit NE = Not Established B=Detected in Method Blank --- = not analyzed

¹ NR 140 PAL = Chapter NR 140, Wisconsin Administrative Code, Preventive Action Limit

² NR 140 ES = Chapter NR 140, Wisconsin Administrative Code, Enforcement Standard

³ Only detected analytes are listed; refer to the laboratory analytical report for a full list of assessed analytes

⁴ Initial detections of chrysene above a PAL at SBGW-1 and SBGW-3 were not confirmed during the Site Investigation and therefore, they are not highlighted as regulatory standard exceedances.

% = Small Diameter/Temporary Well (other wells installed, developed and purged per WAC, Chapter NR 141)

Exceeds NR 140 PAL: 100 Exceeds NR 140 ES: 100

Table A.1.
Groundwater Analytical Results
1300 Cleveland Avenue, Wausau, WI
BRRTS #02-37-587081

Laboratory Analytes	Wisconsin Regulatory Standards ^{1,2}	SBGW-1%		SBGW-1R				SBGW-1R DUP	SBGW-2%		SBGW-3%	SBGW-3R			SB-1R			SB-1R DUP
		NR 140 PAL	NR 140 ES	10/12/20	08/18/21	12/20/22	04/24/23	04/24/23	10/12/20	10/12/20	08/18/21	12/20/22	04/24/23	08/18/21	12/20/22	04/24/23	12/20/22	
PFAS (ng/L)																		
9CI-PF3ONS	756426-58-1	NE	NE	---	---	< 0.43	< 0.43	< 0.44	---	---	---	< 0.44	< 0.45	---	< 0.45	< 0.46	< 0.45	
11CI-PF3OUdS	763051-92-9	NE	NE	---	---	< 0.60	< 0.59	< 0.61	---	---	---	< 0.61	< 0.61	---	< 0.62	< 0.63	< 0.63	
8:2 FTS	39108-34-4	NE	NE	---	---	< 1.4	< 1.4	< 1.5	---	---	---	< 1.5	< 1.5	---	< 1.5	< 1.5	< 1.5	
6:2 FTS	27619-97-2	NE	NE	---	---	< 1.8	< 1.8	< 1.8	---	---	---	7.6	< 1.9	---	< 1.9	< 1.9	< 1.9	
4:2 FTS	757124-72-4	NE	NE	---	---	< 0.78	< 0.78	< 0.81	---	---	---	< 0.80	< 0.81	---	< 0.82	< 0.83	< 0.82	
HFPO-DA	13252-13-6	NE	NE	---	---	< 1.9	< 1.8	< 1.9	---	---	---	< 1.9	< 1.9	---	< 1.9	< 2.0	< 2.0	
DONA	919005-14-4	NE	NE	---	---	< 0.43	< 0.43	< 0.45	---	---	---	< 0.44	< 0.45	---	< 0.45	< 0.46	< 0.46	
NEtFOSA	4151-50-2	NE	NE	---	---	< 1.2	< 1.2	< 1.2	---	---	---	< 1.2	< 1.3	---	< 1.3	< 1.3	< 1.3	
NEtFOSAA	2991-50-6	NE	NE	---	---	< 0.67	< 0.67	< 0.69	---	---	---	< 0.69	< 0.69	---	< 0.70	< 0.71	< 0.71	
NEtFOSE	1691-99-2	NE	NE	---	---	< 0.86	< 0.85	< 0.88	---	---	---	< 0.87	< 0.88	---	< 0.89	< 0.91	< 0.90	
NMeFOSA	31506-32-8	NE	NE	---	---	< 1.1	< 1.1	< 1.2	---	---	---	< 1.2	< 1.2	---	< 1.2	< 1.2	< 1.2	
NMeFOSAA	2355-31-9	NE	NE	---	---	< 0.84	< 0.83	< 0.86	---	---	---	< 0.85	< 0.86	---	< 0.87	< 0.89	< 0.88	
NMeFOSE	24448-09-7	NE	NE	---	---	< 1.2	< 1.1	< 1.2	---	---	---	< 1.2	< 1.2	---	< 1.2	< 1.2	< 1.2	
PFBS	375-73-5	NE	NE	---	---	1.7 J	1.6 J	1.6 J	---	---	---	13	6.4	---	3.5 J	2.7 J	3.5 J	
PFDS	335-77-3	NE	NE	---	---	< 0.70	< 0.69	< 0.72	---	---	---	< 0.71	< 0.72	---	< 0.73	< 0.74	< 0.73	
PFHpS	375-92-8	NE	NE	---	---	< 0.45	< 0.44	< 0.46	---	---	---	0.47 J	< 0.46	---	< 0.47	< 0.47	< 0.47	
PFNS	68259-12-1	NE	NE	---	---	< 0.64	< 0.63	< 0.66	---	---	---	< 0.65	< 0.66	---	< 0.67	< 0.68	< 0.67	
PFOSA	754-91-6	NE	NE	---	---	< 0.55	< 0.55	< 0.56	---	---	---	< 0.56	< 0.57	---	< 0.57	< 0.58	< 0.58	
PFPeS	2706-91-4	NE	NE	---	---	< 0.53	< 0.53	< 0.55	---	---	---	1.3 J	0.75 J	---	1.1 J	0.85 J	1.2 J	
PFDoS	79780-39-5	NE	NE	---	---	< 0.94	< 0.93	< 0.96	---	---	---	< 0.96	< 0.97	---	< 0.98	< 0.99	< 0.99	
PFHxS	355-46-4	NE	NE	---	---	1.6 J	1.4 J	1.2 J	---	---	---	7.7	4.0	---	5.0	3.9	4.4	
PFBA	375-22-4	NE	NE	---	---	2.2 J	2.5 J	2.0 J	---	---	---	9.4	3.5 J	---	18 BJ	2.7 J	14 BJ	
PFDA	335-76-2	NE	NE	---	---	< 0.47	< 0.47	< 0.48	---	---	---	< 0.48	< 0.49	---	< 0.49	< 0.50	< 0.50	
PFDoA	307-55-1	NE	NE	---	---	< 0.42	< 0.42	< 0.43	---	---	---	< 0.43	< 0.44	---	< 0.44	< 0.45	< 0.45	
PFHpA	375-85-9	NE	NE	---	---	0.87 J	1.0 J	0.81 J	---	---	---	5.2	2.0 J	---	1.2 J	0.83 J	1.1 J	
PFHxA	307-24-4	NE	NE	---	---	< 0.62	1.0 J	0.79 J	---	---	---	5.6	2.7 J	---	1.0 J	0.76 J	1.2 J	
PFNA	375-95-1	NE	NE	---	---	< 0.41	< 0.41	< 0.43	---	---	---	0.43 J	< 0.43	---	< 0.43	< 0.44	< 0.44	
PFOA	335-67-1	NE	NE	---	---	3.7	4.3	3.4 J	---	---	---	19	8.3	---	7.0	3.8	6.6	
PFPeA	2706-90-3	NE	NE	---	---	< 0.49	0.93 J	0.79 J	---	---	---	3.5 J	1.6 J	---	0.52 J	< 0.52	0.73 J	
PFTA	376-06-7	NE	NE	---	---	< 0.54	< 0.53	< 0.55	---	---	---	< 0.55	< 0.56	---	< 0.56	< 0.57	< 0.57	
PFTrDA	72629-94-8	NE	NE	---	---	< 0.48	< 0.47	< 0.49	---	---	---	< 0.48	< 0.49	---	< 0.50	< 0.50	< 0.50	
PFUnA	2058-94-8	NE	NE	---	---	< 0.56	< 0.56	< 0.58	---	---	---	< 0.57	< 0.58	---	< 0.59	< 0.60	< 0.59	
PFOS	1763-23-1	NE	NE	---	---	4.0	4.8	5.3	---	---	---	23	8.5	---	9.6	8.5	9.8	
VOLATILE ORGANIC COMPOUNDS³ (µg/L)																		
No VOCs Identified Above Method Detection Limit (MDL)				< MDL	---	---	---	---	< MDL	< MDL	---	---	---	---	---	---	---	

Notes

(µg/L) = micrograms per liter < = not detected above method detection limit (MDL)
 J = concentration between detection limit and reporting limit NE = Not Established B=Detected in Method Blank --- = not analyzed

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Table A.1.
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 BRRTS #02-37-587081

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				08/18/21	12/20/22	04/24/23	08/18/21	12/20/22	04/23/23	08/18/21	12/20/22	04/24/23	12/20/22	04/24/23
Name & CAS #		NR 140 PAL	NR 140 ES											
PRIORITY POLLUTANT METALS³ (ug/L)														
Antimony	7440-36-0	1.2	6.0	---	---	---	< 0.15	---	---	< 0.15	---	---	---	---
Arsenic	7440-38-2	1	10	---	---	---	< 0.28	---	---	< 0.28	---	---	---	---
Beryllium	7440-41-7	0.4	4.0	---	---	---	< 0.25	---	---	< 0.25	---	---	---	---
Cadmium	7440-43-9	0.5	5.0	---	---	---	< 0.15	---	---	< 0.15	---	---	---	---
Chromium	7440-47-3	10	100	---	---	---	1.4 J	---	---	1.1 J	---	---	---	---
Copper	7440-50-8	1,300	130	---	---	---	< 1.9	---	---	< 1.9	---	---	---	---
Lead	7439-92-1	1.5	15	< 0.24	---	---	< 0.24	---	---	< 0.24	---	---	---	---
Nickel	7440-02-0	100	20	---	---	---	3.0	---	---	3.0	---	---	---	---
Selenium	7782-49-2	10	50	---	---	---	< 0.32	---	---	< 0.32	---	---	---	---
Silver	7440-22-4	10	50	---	---	---	< 0.13	---	---	< 0.13	---	---	---	---
Thallium	7440-28-0	0.4	2.0	---	---	---	< 0.14	---	---	< 0.14	---	---	---	---
Zinc	7440-66-6	5	2.5	---	---	---	< 10.3	---	---	< 10.3	---	---	---	---
Mercury	7439-97-6	0.2	2.0	---	---	---	< 0.066	---	---	< 0.066	---	---	---	---
SEMI-VOLATILE ORGANIC COMPOUNDS³ (ug/L)														
Acenaphthene	83-32-9	NE	NE	< 0.013	---	---	< 0.014	---	---	< 0.014	---	---	---	---
Acenaphthylene	208-96-8	NE	NE	< 0.012	---	---	< 0.013	---	---	< 0.013	---	---	---	---
Anthracene	120-12-7	600	3,000	< 0.017	---	---	< 0.019	---	---	< 0.018	---	---	---	---
Benzo(a)anthracene	56-55-3	NE	NE	< 0.013	---	---	< 0.014	---	---	< 0.013	---	---	---	---
Benzo(a)pyrene	50-32-8	0.02	0.2	< 0.019	---	---	< 0.020	---	---	< 0.019	---	---	---	---
Benzo(b)fluoranthene	205-99-2	0.02	0.2	< 0.018	---	---	< 0.020	---	---	< 0.019	---	---	---	---
Benzo(g,h,i)perylene	191-24-2	NE	NE	< 0.022	---	---	< 0.023	---	---	< 0.023	---	---	---	---
Benzo(k)fluoranthene	207-08-9	NE	NE	< 0.021	---	---	< 0.022	---	---	< 0.022	---	---	---	---
Chrysene ⁴	218-01-9	0.02	0.2	< 0.025	---	---	< 0.027	---	---	< 0.026	---	---	---	---
Dibenzo(a,h)anthracene	53-70-3	NE	NE	< 0.017	---	---	< 0.018	---	---	< 0.017	---	---	---	---
Fluoranthene	206-44-0	80	400	< 0.025	---	---	< 0.026	---	---	< 0.026	---	---	---	---
Fluorene	86-73-7	80	400	< 0.022	---	---	< 0.024	---	---	< 0.023	---	---	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	NE	NE	< 0.015	---	---	< 0.016	---	---	< 0.015	---	---	---	---
1-Methylnaphthalene	90-12-0	NE	NE	< 0.017	---	---	< 0.018	---	---	< 0.018	---	---	---	---
2-Methylnaphthalene	91-57-6	NE	NE	< 0.013	---	---	< 0.014	---	---	< 0.014	---	---	---	---
Naphthalene	91-20-3	10	100	< 0.019	---	---	0.13	---	---	< 0.020	---	---	---	---
Pentachlorophenol	87-86-5	0.1	1.0	---	---	---	---	---	---	---	---	---	---	---
Phenanthrene	85-01-8	NE	NE	< 0.024	---	---	< 0.026	---	---	< 0.025	---	---	---	---
Pyrene	129-00-0	50	250	< 0.021	---	---	< 0.023	---	---	< 0.022	---	---	---	---

Notes

(ug/L) = micrograms per liter < = not detected above method detection limit (MDL)
 J = concentration between detection limit and reporting limit NE = Not Established B=Detected in Method Blank --- = not analyzed
¹ NR 140 PAL = Chapter NR 140, Wisconsin Administrative Code, Preventive Action Limit
² NR 140 ES = Chapter NR 140, Wisconsin Administrative Code, Enforcement Standard
³ Only detected analytes are listed; refer to the laboratory analytical report for a full list of assessed analytes
⁴ Initial detections of chrysene above a PAL at SBGW-1 and SBGW-3 were not confirmed during the Site Investigation and therefore, they are not highlighted as regulatory standard exceedances.
 % = Small Diameter/Temporary Well (other wells installed, developed and purged per WAC, Chapter NR 141)
 Exceeds NR 140 PAL: 100 Exceeds NR 140 ES: 100

Table A.1.
Groundwater Analytical Results
 1300 Cleveland Avenue, Wausau, WI
 BRRTS #02-37-587081

Laboratory Analytes		Wisconsin Regulatory Standards ^{1,2}		SB-5R			SB-14R			SB-14R (DUP)	Equipment Blank		Field Blank	
				08/18/21	12/20/22	04/24/23	08/18/21	12/20/22	04/23/23	08/18/21	12/20/22	04/24/23	12/20/22	04/24/23
Name & CAS #		NR 140 PAL	NR 140 ES											
PFAS (ng/L)														
9CI-PF3ONS	756426-58-1	NE	NE	---	< 0.45	< 0.43	---	< 0.45	< 0.45	---	< 0.45	< 0.42	< 0.44	< 0.41
11CI-PF3OUdS	763051-92-9	NE	NE	---	< 0.62	< 0.59	---	< 0.62	< 0.62	---	< 0.63	< 0.58	< 0.6	< 0.57
8:2 FTS	39108-34-4	NE	NE	---	< 1.5	< 1.4	---	< 1.5	< 1.5	---	< 1.5	< 1.4	< 1.5	< 1.4
6:2 FTS	27619-97-2	NE	NE	---	4.9 J	1.9 J	---	< 1.9	< 1.9	---	6.0 J	< 1.8	< 1.8	< 1.7
4:2 FTS	757124-72-4	NE	NE	---	< 0.82	< 0.78	---	< 0.81	< 0.82	---	< 0.82	< 0.77	< 0.8	< 0.75
HFPO-DA	13252-13-6	NE	NE	---	< 1.9	< 1.8	---	< 1.9	< 1.9	---	< 2.0	< 1.8	< 1.9	< 1.8
DONA	919005-14-4	NE	NE	---	< 0.45	< 0.43	---	< 0.45	< 0.45	---	< 0.46	< 0.43	< 0.44	< 0.42
NEtFOSA	4151-50-2	NE	NE	---	< 1.3	< 1.2	---	< 1.3	< 1.3	---	< 1.3	< 1.2	< 1.2	< 1.2
NEtFOSAA	2991-50-6	NE	NE	---	< 0.70	< 0.67	---	< 0.70	< 0.70	---	< 0.71	< 0.66	< 0.68	< 0.64
NEtFOSE	1691-99-2	NE	NE	---	< 0.89	< 0.85	---	< 0.89	< 0.89	---	< 0.9	< 0.84	< 0.87	< 0.82
NMeFOSA	31506-32-8	NE	NE	---	< 1.2	< 1.1	---	< 1.2	< 1.2	---	< 1.2	< 1.1	< 1.1	< 1.1
NMeFOSAA	2355-31-9	NE	NE	---	< 0.87	< 0.83	---	< 0.87	< 0.87	---	< 0.88	< 0.82	< 0.85	< 0.80
NMeFOSE	24448-09-7	NE	NE	---	< 1.2	< 1.1	---	< 1.2	< 1.2	---	< 1.2	< 1.1	< 1.2	< 1.1
PFBS	375-73-5	NE	NE	---	1.8 J	1.8 J	---	5.8	3.0 J	---	< 0.39	< 0.37	< 0.38	< 0.36
PFDS	335-77-3	NE	NE	---	< 0.73	< 0.69	---	< 0.72	< 0.73	---	< 0.73	< 0.69	< 0.71	< 0.67
PFHpS	375-92-8	NE	NE	---	< 0.47	< 0.44	---	< 0.46	< 0.47	---	< 0.47	< 0.44	< 0.46	< 0.43
PFNS	68259-12-1	NE	NE	---	< 0.66	< 0.63	---	< 0.66	< 0.67	---	< 0.67	< 0.63	< 0.65	< 0.61
PFOSA	754-91-6	NE	NE	---	< 0.57	< 0.54	---	< 0.57	< 0.57	---	< 0.58	< 0.54	< 0.56	< 0.53
PFPeS	2706-91-4	NE	NE	---	0.82 J	1.5 J	---	1.3 J	1.1 J	---	< 0.56	< 0.52	< 0.54	< 0.51
PFDoS	79780-39-5	NE	NE	---	< 0.98	< 0.93	---	< 0.97	< 0.98	---	< 0.99	< 0.92	< 0.95	< 0.90
PFHxS	355-46-4	NE	NE	---	2.4 J	2.1 J	---	6.4	6.0	---	< 0.52	< 0.49	< 0.5	< 0.47
PFBA	375-22-4	NE	NE	---	7.2 B	8.0	---	17 BJ	16	---	2.2 BJ	< 0.53	2.1 BJ	< 0.52
PFDA	335-76-2	NE	NE	---	< 0.49	< 0.47	---	< 0.49	< 0.49	---	< 0.50	< 0.46	< 0.48	< 0.45
PFDoA	307-55-1	NE	NE	---	< 0.44	< 0.42	---	< 0.44	< 0.44	---	< 0.45	< 0.42	< 0.43	< 0.41
PFHpA	375-85-9	NE	NE	---	1.8 J	3.2 J	---	4.0	12	---	< 0.42	< 0.39	< 0.41	< 0.38
PFHxA	307-24-4	NE	NE	---	1.7 J	2.1 J	---	5.1	17	---	< 0.65	< 0.61	< 0.63	< 0.59
PFNA	375-95-1	NE	NE	---	< 0.43	< 0.41	---	< 0.43	< 0.43	---	< 0.44	< 0.41	< 0.42	< 0.40
PFOA	335-67-1	NE	NE	---	7.0	12	---	17	55	---	< 0.78	< 0.73	< 0.76	< 0.71
PFPeA	2706-90-3	NE	NE	---	1.4 J	2.2 J	---	2.7 J	8.3	---	< 0.51	< 0.48	< 0.5	< 0.47
PFTA	376-06-7	NE	NE	---	< 0.56	< 0.53	---	< 0.56	< 0.56	---	< 0.57	< 0.53	< 0.55	< 0.52
PFTrDA	72629-94-8	NE	NE	---	< 0.49	< 0.47	---	< 0.49	< 0.50	---	< 0.50	< 0.47	< 0.48	< 0.45
PFUnA	2058-94-8	NE	NE	---	< 0.58	< 0.56	---	< 0.58	< 0.59	---	< 0.59	< 0.55	< 0.57	< 0.54
PFOS	1763-23-1	NE	NE	---	4.7	5.4	---	17	12	---	< 1.9	< 1.8	< 1.8	< 1.7
VOLATILE ORGANIC COMPOUNDS³ (µg/L)														
No VOCs Identified Above Method Detection Limit (MDL)				---	---	---	---	---	---	---	---	---	---	---

Notes

(µg/L) = micrograms per liter < = not detected above method detection limit (MDL)
 J = concentration between detection limit and reporting limit NE = Not Established B=Detected in Method Blank --- = not analyzed

¹ NR 140 PAL = Chapter NR 140, Wisconsin Administrative Code, Preventive Action Limit

² NR 140 ES = Chapter NR 140, Wisconsin Administrative Code, Enforcement Standard

³ Only detected analytes are listed; refer to the laboratory analytical report for a full list of assessed analytes

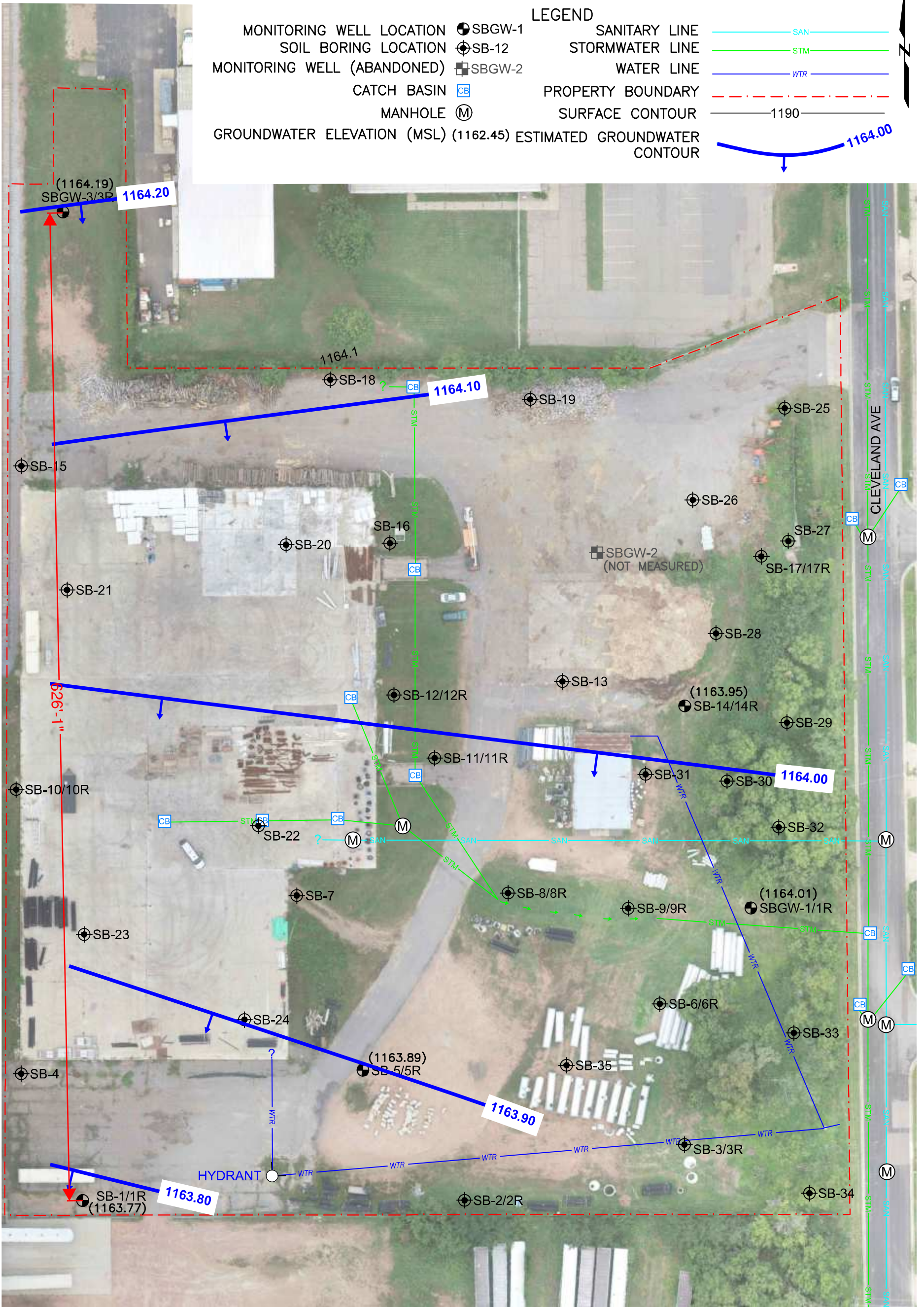
³ Initial detections of chrysene above a PAL at SBGW-1 and SBGW-3 were not confirmed during the Site Investigation and therefore, they are not highlighted as regulatory standard exceedances.

% = Small Diameter/Temporary Well (other wells installed, developed and purged per WAC, Chapter NR 141)

Exceeds NR 140 PAL: 100 Exceeds NR 140 ES: 100

Table A.6.
 Groundwater Elevation Data Summary
 1300 Cleveland Avenue, Wausau, WI
 BRRTS #02-37-587081

Location	SB-1R		SB-5R		SB-14R		SBGW-1R		SBGW-3R	
Date Installed	8/3/21		8/3/21		8/4/21		8/2/21		8/2/21	
Well Depth (ft)	31.8		30.0		30.5		29.5		37.0	
Screen Length (ft)	10.0		10.0		10.0		10.0		10.0	
TOC Elevation	1192.04		1190.57		1189.87		1191.31		1196.30	
GS Elevation	1189.76		1188.03		1187.24		1188.80		1193.85	
Screen Interval	1,167.96 - 1,157.96		1,168.03 - 1,158.03		1,166.74 - 1,156.74		1,169.30 - 1,159.30		1,166.85 - 1,156.85	
Sample Date	TOC to SWL (Ft)	GW Elevation (Ft AMSL)	TOC to SWL (Ft)	GW Elevation (Ft AMSL)	TOC to SWL (Ft)	GW Elevation (Ft AMSL)	TOC to SWL (Ft)	GW Elevation (Ft AMSL)	TOC to SWL (Ft)	GW Elevation (Ft AMSL)
8/18/2021	28.47	1163.57	26.87	1163.70	26.02	1163.85	27.58	1163.73	31.85	1164.45
12/20/2022	29.93	1162.11	28.42	1162.15	27.75	1162.12	29.17	1162.14	33.85	1162.45
4/24/2023	28.27	1163.77	26.68	1163.89	25.92	1163.95	27.3	1164.01	32.11	1164.19



LEGEND

MONITORING WELL LOCATION	SBGW-1	SANITARY LINE	SAN
SOIL BORING LOCATION	SB-12	STORMWATER LINE	STM
MONITORING WELL (ABANDONED)	SBGW-2	WATER LINE	WTR
CATCH BASIN	CB	PROPERTY BOUNDARY	- - - - -
MANHOLE	M	SURFACE CONTOUR	1190
GROUNDWATER ELEVATION (MSL) (1162.45) ESTIMATED GROUNDWATER CONTOUR			1164.00

- NOTES:**
- HORIZONTAL DATUM WISCONSIN MARATHON COUNTY COORDINATE SYSTEM
 - VERTICAL DATUM NAVD 88
 - BACKGROUND IMAGE GEI DRONE SURVEY DATED 8-27-2021

WDNR BRRTS #02-37-587081
 1300 CLEVELAND AVE
 WAUSAU, WI
 CITY OF WAUSAU
 WAUSAU, WI

GEI Consultants
 Project 2102778

GROUNDWATER CONTOUR
 MAP (APRIL 24, 2023)
 JUNE 2023
 Fig. B.3.c.

May 18, 2023

Mike Debraske
GEI Consultants, Inc.
3159 Voyager Drive
Green Bay, WI 54311

RE: Project: 2004400 Wausau 1300 Cleveland
Pace Project No.: 40261192

Dear Mike Debraske:

Enclosed are the analytical results for sample(s) received by the laboratory on April 24, 2023. 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,



Christopher Hyska
christopher.hyska@pacelabs.com
(920)469-2436
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: 2004400 Wausau 1300 Cleveland

Pace Project No.: 40261192

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40261192001	EQUIPMENT BLANK	Water	04/24/23 09:10	04/24/23 13:30
40261192002	FIELD BLANK	Water	04/24/23 09:15	04/24/23 13:30
40261192003	SB-1R	Water	04/24/23 09:35	04/24/23 13:30
40261192004	SB-5R	Water	04/24/23 09:45	04/24/23 13:30
40261192005	SBGW-1R	Water	04/24/23 10:20	04/24/23 13:30
40261192006	SBGW-1R DUP	Water	04/24/23 10:25	04/24/23 13:30
40261192007	SB-14R	Water	04/24/23 10:35	04/24/23 13:30
40261192008	SBGW-3R	Water	04/24/23 11:10	04/24/23 13:30

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

40261192

ALL SHADED AREAS are for LAB USE ONLY

Company: **GET Consultants, Inc** Billing Information: **3159 Voyager Drive**
 Address: **Green Bay, WI**
 Report To: **Mike DeBiasse** Email To: **mdebras12@getconsultants.com**
 Copy To: **1300 Cleveland Ave, Wausau WI**
 Customer Project Name/Number: **W/ Wausau** State: **WI** County/City: **Wausau** Time Zone Collected: **[]PT []MT []CT []ET**

Container Preservative Type **
 Lab Project Manager:
 ** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Phone: **720-412-4779** Site/Facility ID #: **Compliance Monitoring?**
 Email: **Madison Seymour** Purchase Order #: **Quote #:** DW PWS ID #: **DW Location Code:**
 Collected By (print): **Madison Seymour** Turnaround Date Required: **Immediately Packed on Ice:**
 Collected By (signature): **[Signature]** [] Yes [] No
 Sample Disposal: **[] Same Day [] Next Day** Field Filtered (if applicable): **[] Yes [] No**
 [] Dispose as appropriate [] Return [] 2 Day [] 3 Day [] 4 Day [] 5 Day
 [] Archive: **[] Hold:** (Expedite Charges Apply) Analysis: **Analysis:**

Analyses										Lab Profile/Line:	
Lab Sample Receipt Checklist:											
										Custody Seals Present/Intact	Y N NA
										Custody Signatures Present	Y N NA
										Collector Signature Present	Y N NA
										Bottles Intact	Y N NA
										Correct Bottles	Y N NA
										Sufficient Volume	Y N NA
										Samples Received on Ice	Y N NA
										VOA - Headspace Acceptable	Y N NA
										USDA Regulated Soils	Y N NA
										Samples in Holding Time	Y N NA
										Residual Chlorine Present	Y N NA
										Cl Strips:	
										Sample pH Acceptable	Y N NA
										pH Strips:	
										Sulfide Present	Y N NA
										Lead Acetate Strips:	
										LAB USE ONLY:	
										Lab Sample # / Comments:	

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
Equipment Blank	GW	G	4-24-23	9:10				X
Field Blank				9:15				X
SB-1R				9:35				X
SB-5R				9:45				X
SBGW-1R				10:20				X
SBGW-1R DOP				10:25				X
SB-14R				10:35				X
SBGW-3R				11:10				X

PFAS (W)

001
002
003
004
005
006
007
008

Customer Remarks / Special Conditions / Possible Hazards: **Type of Ice Used: Wet Blue Dry None**
 Packing Material Used:
 Radchem sample(s) screened (<500 cpm): **Y N NA**

SHORT HOLDS PRESENT (<72 hours): **Y N N/A**
 Lab Tracking #: **2830348**
 Samples received via: **FEDEX UPS Client Courier Pace Courier**

Lab Sample Temperature Info:
 Temp Blank Received: **Y N NA**
 Therm ID#: **134**
 Cooler 1 Temp Upon Receipt: **2.0** oC
 Cooler 1 Therm Corr. Factor: **2.0** oC
 Cooler 1 Corrected Temp: **2.0** oC
 Comments:

Relinquished by/Company: (Signature) **[Signature]** Date/Time: **4/24/2023 1:30**
 Received by/Company: (Signature) **[Signature]** Date/Time: **4/24/23 1330**

MTJL LAB USE ONLY
 Table #:
 Acctnum:
 Template:
 Prelogin:
 PM:
 PB:

Trip Blank Received: **Y N NA**
 HCL MeOH TSP Other
 Non Conformance(s): **YES / NO**
 Page 3 of 34
 Page: **1** of: **1**

Client Name: GEE
All containers needing preservation have been checked and noted below
Lab Lot# of pH paper

Sample Preservation Receipt Form
Project # 40261192
 Yes No N/A
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	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC								GN 1	GN 2				
001								2																														2.5 / 5
002								2																														2.5 / 5
003								2																														2.5 / 5
004								2																														2.5 / 5
005								2																														2.5 / 5
006								2																														2.5 / 5
007								2																														2.5 / 5
008								2																														2.5 / 5
009																																						2.5 / 5
010																																						2.5 / 5
011																																						2.5 / 5
012																																						2.5 / 5
013																																						2.5 / 5
014																																						2.5 / 5
015																																						2.5 / 5
016																																						2.5 / 5
017																																						2.5 / 5
018																																						2.5 / 5
019																																						2.5 / 5
020																																						2.5 / 5

424 / 23 N/A

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

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	
						GN 2	

Sample Condition Upon Receipt Form (SCUR)

Project #: _____

Client Name: GEL

WO#: 40261192

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



Tracking #: _____

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 - 134 Type of Ice: Wet Blue Dry None Meltwater Only

Cooler Temperature Uncorr. 2.0 / Corr. 2.0

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

Person examining contents:
 Date: 4/24/23 / Initials: NK
 Labeled By Initials: YJA

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

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



Report of Analysis

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

Project Name: 2004400 Wausau 1300 Cleveland

Project Number: 40261192

Lot Number: **YD25005**

Date Completed: 05/12/2023

05/17/2023 4:21 PM

Approved and released by:
Project Coordinator 1: **Jenna S. Holliday**



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.

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative Pace Analytical Services, LLC Lot Number: YD25005

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. Where sampling is conducted by the client, results relate to the accuracy of the information provided, and as the samples are received.

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.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

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

PFAS Analysis

Surrogate recovery for sample YD25005-004 was outside the acceptance limits. This sample did not contain any target analytes >1/2 LOQ; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for samples YD25005-005, -007, and -008 were outside the acceptance limits. These samples did not contain any detects for the target analyte; therefore, the data has been reported.

PACE ANALYTICAL SERVICES, LLC

Sample Summary
Pace Analytical Services, LLC
Lot Number: YD25005
Project Name: 2004400 Wausau 1300 Cleveland
Project Number: 40261192

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	EQUIPMENT BLANK	Aqueous	04/24/2023 0910	04/25/2023
002	FIELD BLANK	Aqueous	04/24/2023 0915	04/25/2023
003	SB-1R	Aqueous	04/24/2023 0935	04/25/2023
004	SB-5R	Aqueous	04/24/2023 0945	04/25/2023
005	SBGW-1R	Aqueous	04/24/2023 1020	04/25/2023
006	SBGW-1R DUP	Aqueous	04/24/2023 1025	04/25/2023
007	SB-14R	Aqueous	04/24/2023 1035	04/25/2023
008	SBGW-3R	Aqueous	04/24/2023 1110	04/25/2023

(8 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary
Pace Analytical Services, LLC
Lot Number: YD25005
Project Name: 2004400 Wausau 1300 Cleveland
Project Number: 40261192

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
003	SB-1R	Aqueous	PFBS	PFAS by ID	2.7	J	ng/L	11
003	SB-1R	Aqueous	PFPeS	PFAS by ID	0.85	J	ng/L	11
003	SB-1R	Aqueous	PFHxS	PFAS by ID	3.9		ng/L	11
003	SB-1R	Aqueous	PFBA	PFAS by ID	2.7	J	ng/L	11
003	SB-1R	Aqueous	PFHpA	PFAS by ID	0.83	J	ng/L	11
003	SB-1R	Aqueous	PFHxA	PFAS by ID	0.76	J	ng/L	11
003	SB-1R	Aqueous	PFOA	PFAS by ID	3.8		ng/L	11
003	SB-1R	Aqueous	PFOS	PFAS by ID	8.5		ng/L	11
004	SB-5R	Aqueous	6:2 FTS	PFAS by ID	1.9	JQ	ng/L	13
004	SB-5R	Aqueous	PFBS	PFAS by ID	1.8	J	ng/L	13
004	SB-5R	Aqueous	PFPeS	PFAS by ID	1.5	J	ng/L	13
004	SB-5R	Aqueous	PFHxS	PFAS by ID	2.1	J	ng/L	13
004	SB-5R	Aqueous	PFBA	PFAS by ID	8.0		ng/L	13
004	SB-5R	Aqueous	PFHpA	PFAS by ID	3.2	J	ng/L	13
004	SB-5R	Aqueous	PFHxA	PFAS by ID	2.1	J	ng/L	13
004	SB-5R	Aqueous	PFOA	PFAS by ID	12		ng/L	13
004	SB-5R	Aqueous	PFPeA	PFAS by ID	2.2	J	ng/L	13
004	SB-5R	Aqueous	PFOS	PFAS by ID	5.4		ng/L	13
005	SBGW-1R	Aqueous	PFBS	PFAS by ID	1.6	J	ng/L	15
005	SBGW-1R	Aqueous	PFHxS	PFAS by ID	1.4	J	ng/L	15
005	SBGW-1R	Aqueous	PFBA	PFAS by ID	2.5	J	ng/L	15
005	SBGW-1R	Aqueous	PFHpA	PFAS by ID	1.0	J	ng/L	15
005	SBGW-1R	Aqueous	PFHxA	PFAS by ID	1.0	J	ng/L	15
005	SBGW-1R	Aqueous	PFOA	PFAS by ID	4.3		ng/L	15
005	SBGW-1R	Aqueous	PFPeA	PFAS by ID	0.93	J	ng/L	15
005	SBGW-1R	Aqueous	PFOS	PFAS by ID	4.8		ng/L	15
006	SBGW-1R DUP	Aqueous	PFBS	PFAS by ID	1.6	J	ng/L	17
006	SBGW-1R DUP	Aqueous	PFHxS	PFAS by ID	1.2	J	ng/L	17
006	SBGW-1R DUP	Aqueous	PFBA	PFAS by ID	2.0	J	ng/L	17
006	SBGW-1R DUP	Aqueous	PFHpA	PFAS by ID	0.81	J	ng/L	17
006	SBGW-1R DUP	Aqueous	PFHxA	PFAS by ID	0.79	J	ng/L	17
006	SBGW-1R DUP	Aqueous	PFOA	PFAS by ID	3.4	J	ng/L	17
006	SBGW-1R DUP	Aqueous	PFPeA	PFAS by ID	0.79	J	ng/L	17
006	SBGW-1R DUP	Aqueous	PFOS	PFAS by ID	5.3		ng/L	17
007	SB-14R	Aqueous	PFBS	PFAS by ID	3.0	J	ng/L	19
007	SB-14R	Aqueous	PFPeS	PFAS by ID	1.1	J	ng/L	19
007	SB-14R	Aqueous	PFHxS	PFAS by ID	6.0		ng/L	19
007	SB-14R	Aqueous	PFBA	PFAS by ID	16		ng/L	19
007	SB-14R	Aqueous	PFHpA	PFAS by ID	12		ng/L	19
007	SB-14R	Aqueous	PFHxA	PFAS by ID	17		ng/L	19
007	SB-14R	Aqueous	PFOA	PFAS by ID	55		ng/L	19
007	SB-14R	Aqueous	PFPeA	PFAS by ID	8.3		ng/L	19
007	SB-14R	Aqueous	PFOS	PFAS by ID	12		ng/L	19

Detection Summary (Continued)

Lot Number: YD25005

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
008	SBGW-3R	Aqueous	PFBS	PFAS by ID	6.4		ng/L	21
008	SBGW-3R	Aqueous	PFPeS	PFAS by ID	0.75	J	ng/L	21
008	SBGW-3R	Aqueous	PFHxS	PFAS by ID	4.0		ng/L	21
008	SBGW-3R	Aqueous	PFBA	PFAS by ID	3.5	J	ng/L	21
008	SBGW-3R	Aqueous	PFHpA	PFAS by ID	2.0	J	ng/L	21
008	SBGW-3R	Aqueous	PFHxA	PFAS by ID	2.7	J	ng/L	21
008	SBGW-3R	Aqueous	PFOA	PFAS by ID	8.3		ng/L	21
008	SBGW-3R	Aqueous	PFPeA	PFAS by ID	1.6	J	ng/L	21
008	SBGW-3R	Aqueous	PFOS	PFAS by ID	8.5		ng/L	21

(52 detections)

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-001
Description: EQUIPMENT BLANK	Matrix: Aqueous
Date Sampled: 04/24/2023 0910	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/10/2023 1458	ARC2	05/09/2023 1721	74875

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	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-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.1	0.77	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-dioxo-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.1	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.66	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.1	0.84	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.82	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.1	1.1	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.1	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.73	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUDA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		99	25-150
13C2_6:2FTS		107	25-150
13C2_8:2FTS		103	25-150
13C2_PFDaA		91	25-150
13C2_PFTeDA		92	25-150
13C3_PFBS		103	25-150
13C3_PFHxS		103	25-150
13C3-HFPO-DA		105	25-150
13C4_PFBA		107	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 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 L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-001
Description: EQUIPMENT BLANK	Matrix: Aqueous
Date Sampled: 04/24/2023 0910	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		104	25-150
13C5_PFHxA		112	25-150
13C5_PFPeA		105	25-150
13C6_PFDA		104	25-150
13C7_PFUdA		99	25-150
13C8_PFOA		103	25-150
13C8_PFOS		106	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		100	25-150
d-EtFOSA		75	10-150
d5-EtFOSAA		94	25-150
d9-EtFOSE		92	10-150
d-MeFOSA		78	10-150
d3-MeFOSAA		106	25-150
d7-MeFOSE		88	10-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
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	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-002
Description: FIELD BLANK	Matrix: Aqueous
Date Sampled: 04/24/2023 0915	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/10/2023 1536	ARC2	05/09/2023 1721	74875

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		6.9	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.64	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		6.9	0.82	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		6.9	1.1	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		6.9	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUDA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Run 1 Q	Acceptance % Recovery	Limits
13C2_4:2FTS		106	25-150
13C2_6:2FTS		111	25-150
13C2_8:2FTS		108	25-150
13C2_PFDa		95	25-150
13C2_PFTeDA		93	25-150
13C3_PFBS		108	25-150
13C3_PFHxS		106	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		104	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 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 L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-002
Description: FIELD BLANK	Matrix: Aqueous
Date Sampled: 04/24/2023 0915	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		104	25-150
13C5_PFHxA		110	25-150
13C5_PFPeA		107	25-150
13C6_PFDA		102	25-150
13C7_PFUdA		101	25-150
13C8_PFOA		107	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		101	10-150
13C9_PFNA		101	25-150
d-EtFOSA		77	10-150
d5-EtFOSAA		96	25-150
d9-EtFOSE		95	10-150
d-MeFOSA		79	10-150
d3-MeFOSAA		107	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 Q = Surrogate failure
 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 L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC**

Laboratory ID: **YD25005-003**

Description: **SB-1R**

Matrix: **Aqueous**

Date Sampled: **04/24/2023 0935**

Project Name: **2004400 Wausau 1300**

Date Received: **04/25/2023**

Project Number: **40261192**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/10/2023 1549	ARC2	05/09/2023 1721	74875

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.6	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.6	0.63	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.6	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.6	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.6	0.83	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.6	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.6	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.6	1.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.6	0.71	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.6	0.91	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		15	1.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.6	0.89	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.6	1.2	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.7	J	3.8	0.39	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.74	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.47	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.85	J	3.8	0.57	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.6	0.99	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	3.9		3.8	0.52	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.7	J	3.8	0.57	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.83	J	3.8	0.43	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.76	J	3.8	0.65	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.8		3.8	0.79	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.8	0.52	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUDA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	8.5		3.8	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		123	25-150
13C2_6:2FTS		119	25-150
13C2_8:2FTS		98	25-150
13C2_PFDaA		80	25-150
13C2_PFTeDA		66	25-150
13C3_PFBS		106	25-150
13C3_PFHxS		104	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		84	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 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 L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-003
Description: SB-1R	Matrix: Aqueous
Date Sampled: 04/24/2023 0935	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		108	25-150
13C5_PFHxA		111	25-150
13C5_PFPeA		101	25-150
13C6_PFDA		100	25-150
13C7_PFUdA		94	25-150
13C8_PFOA		109	25-150
13C8_PFOS		102	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		102	25-150
d-EtFOSA		69	10-150
d5-EtFOSAA		89	25-150
d9-EtFOSE		76	10-150
d-MeFOSA		75	10-150
d3-MeFOSAA		92	25-150
d7-MeFOSE		79	10-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
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	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-004
Description: SB-5R	Matrix: Aqueous
Date Sampled: 04/24/2023 0945	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/10/2023 1602	ARC2	05/09/2023 1721	74875

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.9	JQ	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	Q	7.1	0.78	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-dioxo-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.1	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.67	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.1	0.85	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.1	1.1	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	J	3.6	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.5	J	3.6	0.53	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.1	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.1	J	3.6	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	8.0		3.6	0.53	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	3.2	J	3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1	J	3.6	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	12		3.6	0.74	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.2	J	3.6	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUDA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	5.4		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	208	25-150
13C2_6:2FTS	N	174	25-150
13C2_8:2FTS		125	25-150
13C2_PFDaA		90	25-150
13C2_PFTeDA		83	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		107	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		39	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 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 L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-004
Description: SB-5R	Matrix: Aqueous
Date Sampled: 04/24/2023 0945	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		112	25-150
13C5_PFHxA		110	25-150
13C5_PFPeA		84	25-150
13C6_PFDA		109	25-150
13C7_PFUdA		103	25-150
13C8_PFOA		114	25-150
13C8_PFOS		107	25-150
13C8_PFOSA		100	10-150
13C9_PFNA		107	25-150
d-EtFOSA		71	10-150
d5-EtFOSAA		104	25-150
d9-EtFOSE		82	10-150
d-MeFOSA		77	10-150
d3-MeFOSAA		126	25-150
d7-MeFOSE		81	10-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
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	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-005
Description: SBGW-1R	Matrix: Aqueous
Date Sampled: 04/24/2023 1020	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/10/2023 1615	ARC2	05/09/2023 1721	74875

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	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-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.1	0.78	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	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.1	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.67	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.1	0.85	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.1	1.1	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.6	J	3.6	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.1	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.4	J	3.6	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.5	J	3.6	0.53	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.0	J	3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.0	J	3.6	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	4.3		3.6	0.74	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.93	J	3.6	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUDA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	4.8		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	174	25-150
13C2_6:2FTS		142	25-150
13C2_8:2FTS		111	25-150
13C2_PFDaA		83	25-150
13C2_PFTeDA		74	25-150
13C3_PFBS		109	25-150
13C3_PFHxS		105	25-150
13C3-HFPO-DA		103	25-150
13C4_PFBA		60	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 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 L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-005
Description: SBGW-1R	Matrix: Aqueous
Date Sampled: 04/24/2023 1020	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		110	25-150
13C5_PFHxA		110	25-150
13C5_PFPeA		101	25-150
13C6_PFDA		102	25-150
13C7_PFUdA		97	25-150
13C8_PFOA		111	25-150
13C8_PFOS		109	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		107	25-150
d-EtFOSA		68	10-150
d5-EtFOSAA		95	25-150
d9-EtFOSE		80	10-150
d-MeFOSA		76	10-150
d3-MeFOSAA		98	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	Q = Surrogate failure
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	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-006
Description: SBGW-1R DUP	Matrix: Aqueous
Date Sampled: 04/24/2023 1025	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/10/2023 1627	ARC2	05/09/2023 1721	74875

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.4	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.4	0.81	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.4	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.69	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.4	0.88	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		15	1.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.86	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.4	1.2	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.6	J	3.7	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.4	0.96	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.2	J	3.7	0.51	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	J	3.7	0.55	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.81	J	3.7	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.79	J	3.7	0.63	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.4	J	3.7	0.76	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.79	J	3.7	0.50	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUDA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	5.3		3.7	1.8	ng/L	1

Surrogate	Run 1 Q	Acceptance % Recovery	Limits
13C2_4:2FTS		146	25-150
13C2_6:2FTS		115	25-150
13C2_8:2FTS		96	25-150
13C2_PFDaA		70	25-150
13C2_PFTeDA		59	25-150
13C3_PFBS		96	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		92	25-150
13C4_PFBA		56	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 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 L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-006
Description: SBGW-1R DUP	Matrix: Aqueous
Date Sampled: 04/24/2023 1025	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		92	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		89	25-150
13C6_PFDA		90	25-150
13C7_PFUdA		83	25-150
13C8_PFOA		98	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		82	10-150
13C9_PFNA		90	25-150
d-EtFOSA		57	10-150
d5-EtFOSAA		78	25-150
d9-EtFOSE		62	10-150
d-MeFOSA		63	10-150
d3-MeFOSAA		86	25-150
d7-MeFOSE		66	10-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 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 L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-007
Description: SB-14R	Matrix: Aqueous
Date Sampled: 04/24/2023 1035	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/10/2023 1640	ARC2	05/09/2023 1721	74875

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.5	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.5	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.5	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.5	0.82	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.5	1.9	ng/L	1
4,8-dioxo-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.5	1.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.5	0.70	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.5	0.89	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		15	1.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.5	0.87	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.5	1.2	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	3.0	J	3.7	0.39	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.73	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.47	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.67	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.1	J	3.7	0.56	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.5	0.98	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	6.0		3.7	0.52	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	16		3.7	0.56	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpa)	375-85-9	PFAS by ID SOP	12		3.7	0.42	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	17		3.7	0.64	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	55		3.7	0.78	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	8.3		3.7	0.51	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUDA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.59	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	12		3.7	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	154	25-150
13C2_6:2FTS		129	25-150
13C2_8:2FTS		105	25-150
13C2_PFDaA		81	25-150
13C2_PFTeDA		67	25-150
13C3_PFBS		113	25-150
13C3_PFHxS		112	25-150
13C3-HFPO-DA		107	25-150
13C4_PFBA		65	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 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 L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-007
Description: SB-14R	Matrix: Aqueous
Date Sampled: 04/24/2023 1035	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		110	25-150
13C5_PFHxA		117	25-150
13C5_PFPeA		104	25-150
13C6_PFDA		104	25-150
13C7_PFUdA		97	25-150
13C8_PFOA		109	25-150
13C8_PFOS		110	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		107	25-150
d-EtFOSA		67	10-150
d5-EtFOSAA		90	25-150
d9-EtFOSE		75	10-150
d-MeFOSA		72	10-150
d3-MeFOSAA		99	25-150
d7-MeFOSE		74	10-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 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 L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-008
Description: SBGW-3R	Matrix: Aqueous
Date Sampled: 04/24/2023 1110	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/10/2023 1653	ARC2	05/09/2023 1721	74875

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.4	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.4	0.81	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxo-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.4	1.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.69	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.4	0.88	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		15	1.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.86	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.4	1.2	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	6.4		3.7	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.75	J	3.7	0.55	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.4	0.97	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	4.0		3.7	0.51	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	3.5	J	3.7	0.56	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	J	3.7	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.7	J	3.7	0.64	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	8.3		3.7	0.77	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.6	J	3.7	0.50	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUDA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	8.5		3.7	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	213	25-150
13C2_6:2FTS	N	177	25-150
13C2_8:2FTS		122	25-150
13C2_PFDaA		82	25-150
13C2_PFTeDA		73	25-150
13C3_PFBS		105	25-150
13C3_PFHxS		110	25-150
13C3-HFPO-DA		103	25-150
13C4_PFBA		63	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 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 L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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

PFAS by LC/MS/MS

Client: Pace Analytical Services, LLC	Laboratory ID: YD25005-008
Description: SBGW-3R	Matrix: Aqueous
Date Sampled: 04/24/2023 1110	Project Name: 2004400 Wausau 1300
Date Received: 04/25/2023	Project Number: 40261192

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		106	25-150
13C5_PFHxA		109	25-150
13C5_PFPeA		96	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		96	25-150
13C8_PFOA		110	25-150
13C8_PFOS		107	25-150
13C8_PFOSA		102	10-150
13C9_PFNA		108	25-150
d-EtFOSA		64	10-150
d5-EtFOSAA		97	25-150
d9-EtFOSE		77	10-150
d-MeFOSA		70	10-150
d3-MeFOSAA		104	25-150
d7-MeFOSE		79	10-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
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	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: YQ74875-001

Matrix: Aqueous

Batch: 74875

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 05/09/2023 1721

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
9CI-PF3ONS	ND		1	8.0	0.48	ng/L	05/10/2023 1251
11CI-PF3OUdS	ND		1	8.0	0.66	ng/L	05/10/2023 1251
8:2 FTS	ND		1	8.0	1.6	ng/L	05/10/2023 1251
6:2 FTS	ND		1	8.0	2.0	ng/L	05/10/2023 1251
4:2 FTS	ND		1	8.0	0.87	ng/L	05/10/2023 1251
GenX	ND		1	8.0	2.1	ng/L	05/10/2023 1251
ADONA	ND		1	8.0	0.48	ng/L	05/10/2023 1251
EtFOSA	ND		1	8.0	1.4	ng/L	05/10/2023 1251
EtFOSAA	ND		1	8.0	0.75	ng/L	05/10/2023 1251
EtFOSE	ND		1	8.0	0.95	ng/L	05/10/2023 1251
MeFOSA	ND		1	16	1.3	ng/L	05/10/2023 1251
MeFOSAA	ND		1	8.0	0.93	ng/L	05/10/2023 1251
MeFOSE	ND		1	8.0	1.3	ng/L	05/10/2023 1251
PFBS	ND		1	4.0	0.41	ng/L	05/10/2023 1251
PFDS	ND		1	4.0	0.78	ng/L	05/10/2023 1251
PFHpS	ND		1	4.0	0.50	ng/L	05/10/2023 1251
PFNS	ND		1	4.0	0.71	ng/L	05/10/2023 1251
PFOSA	ND		1	4.0	0.61	ng/L	05/10/2023 1251
PFPeS	ND		1	4.0	0.59	ng/L	05/10/2023 1251
PFDOS	ND		1	8.0	1.0	ng/L	05/10/2023 1251
PFHxS	ND		1	4.0	0.55	ng/L	05/10/2023 1251
PFBA	ND		1	4.0	0.60	ng/L	05/10/2023 1251
PFDA	ND		1	4.0	0.52	ng/L	05/10/2023 1251
PFDaA	ND		1	4.0	0.47	ng/L	05/10/2023 1251
PFHpA	ND		1	4.0	0.45	ng/L	05/10/2023 1251
PFHxA	ND		1	4.0	0.69	ng/L	05/10/2023 1251
PFNA	ND		1	4.0	0.46	ng/L	05/10/2023 1251
PFOA	ND		1	4.0	0.83	ng/L	05/10/2023 1251
PFPeA	ND		1	4.0	0.54	ng/L	05/10/2023 1251
PFTeDA	ND		1	4.0	0.60	ng/L	05/10/2023 1251
PFTTrDA	ND		1	4.0	0.53	ng/L	05/10/2023 1251
PFUdA	ND		1	4.0	0.63	ng/L	05/10/2023 1251
PFOS	ND		1	4.0	2.0	ng/L	05/10/2023 1251

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		104	25-150
13C2_6:2FTS		107	25-150
13C2_8:2FTS		105	25-150
13C2_PFDaA		97	25-150
13C2_PFTeDA		102	25-150
13C3_PFBS		104	25-150
13C3_PFHxS		106	25-150
13C3-HFPO-DA		105	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = 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: YQ74875-001

Matrix: Aqueous

Batch: 74875

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 05/09/2023 1721

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		106	25-150
13C4_PFHpA		107	25-150
13C5_PFHxA		109	25-150
13C5_PFPeA		106	25-150
13C6_PFDA		103	25-150
13C7_PFUdA		103	25-150
13C8_PFOA		111	25-150
13C8_PFOS		107	25-150
13C8_PFOSA		97	10-150
13C9_PFNA		107	25-150
d-EtFOSA		79	10-150
d5-EtFOSAA		101	25-150
d9-EtFOSE		97	10-150
d-MeFOSA		84	10-150
d3-MeFOSAA		105	25-150
d7-MeFOSE		97	10-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = 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: YQ74875-002

Matrix: Aqueous

Batch: 74875

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 05/09/2023 1721

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	16		1	106	50-150	05/10/2023 1304
11CI-PF3OUdS	15	17		1	111	50-150	05/10/2023 1304
8:2 FTS	15	17		1	110	50-150	05/10/2023 1304
6:2 FTS	15	16		1	108	50-150	05/10/2023 1304
4:2 FTS	15	16		1	109	50-150	05/10/2023 1304
GenX	32	35		1	109	50-150	05/10/2023 1304
ADONA	15	17		1	115	50-150	05/10/2023 1304
EtFOSA	16	18		1	111	50-150	05/10/2023 1304
EtFOSAA	16	18		1	114	50-150	05/10/2023 1304
EtFOSE	16	18		1	113	50-150	05/10/2023 1304
MeFOSA	16	17		1	106	50-150	05/10/2023 1304
MeFOSAA	16	19		1	118	50-150	05/10/2023 1304
MeFOSE	16	18		1	111	50-150	05/10/2023 1304
PFBS	14	15		1	108	50-150	05/10/2023 1304
PFDS	15	16		1	104	50-150	05/10/2023 1304
PFHpS	15	16		1	106	50-150	05/10/2023 1304
PFNS	15	16		1	106	50-150	05/10/2023 1304
PFOSA	16	18		1	111	50-150	05/10/2023 1304
PFPeS	15	16		1	108	50-150	05/10/2023 1304
PFDOS	15	15		1	97	50-150	05/10/2023 1304
PFHxS	15	16		1	109	50-150	05/10/2023 1304
PFBA	16	17		1	108	50-150	05/10/2023 1304
PFDA	16	17		1	109	50-150	05/10/2023 1304
PFDoA	16	18		1	112	50-150	05/10/2023 1304
PFHpA	16	18		1	112	50-150	05/10/2023 1304
PFHxA	16	18		1	110	50-150	05/10/2023 1304
PFNA	16	17		1	107	50-150	05/10/2023 1304
PFOA	16	17		1	109	50-150	05/10/2023 1304
PFPeA	16	17		1	106	50-150	05/10/2023 1304
PFTeDA	16	17		1	109	50-150	05/10/2023 1304
PFTTrDA	16	18		1	113	50-150	05/10/2023 1304
PFUdA	16	18		1	113	50-150	05/10/2023 1304
PFOS	15	15		1	104	50-150	05/10/2023 1304

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	25-150
13C2_6:2FTS		106	25-150
13C2_8:2FTS		101	25-150
13C2_PFDoA		95	25-150
13C2_PFTeDA		94	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		101	25-150
13C3-HFPO-DA		101	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = 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: YQ74875-002

Matrix: Aqueous

Batch: 74875

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 05/09/2023 1721

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		101	25-150
13C4_PFHpA		102	25-150
13C5_PFHxA		106	25-150
13C5_PFPeA		102	25-150
13C6_PFDA		99	25-150
13C7_PFUdA		97	25-150
13C8_PFOA		107	25-150
13C8_PFOS		102	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		101	25-150
d-EtFOSA		84	10-150
d5-EtFOSAA		96	25-150
d9-EtFOSE		97	10-150
d-MeFOSA		89	10-150
d3-MeFOSAA		104	25-150
d7-MeFOSE		94	10-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = 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



Workorder: 40261192 Workorder Name: 2034/00 Wausau 1300 Cleveland

Samples Pre-Logged into eCOC.

State of Origin: WI

Cert. Needed: Yes No

Owner Received Date: 4/24/2023 Results Requested By: 5/30/2023

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

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



Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Upstream	Comments	Received By	Date/Time	Released By	Date/Time	Received By	Date/Time	Custody Seal	Y	N	or	Y	N	or	N	Samples Intact
1	EQUIPMENT BLANK	PS	4/24/2023 09:10	40261192001	Water	2																
2	FIELD BLANK	PS	4/24/2023 09:16	40261192002	Water	2																
3	SB-1R	PS	4/24/2023 08:36	40261192003	Water	2																
4	SB-5R	PS	4/24/2023 08:45	40261192004	Water	2																
5	SBGW-1R	PS	4/24/2023 10:20	40261192005	Water	2																
6	SBGW-1R DUP	PS	4/24/2023 10:25	40261192006	Water	2																
7	SB-1HR	PS	4/24/2023 10:35	40261192007	Water	2																
8	SBGW-3R	PS	4/24/2023 11:10	40261192008	Water	2																

Transfers Released By: *[Signature]* Date/Time: 4/24/23 6:00
 Received By: *[Signature]* Date/Time: 4/24/23 10:55
 Cooler Temperature on Receipt: 9.5 °C Custody Seal: *[Signature]* Received on Ice: *[Signature]*

***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.

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
 Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: Pace Cooler Inspected by/date: BRB / 04/25/2023 Lot #: YD25005

Means of receipt: <input type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1. Were custody seals present on the cooler?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA 2.3 / 2.3 °C NA / NA °C NA / NA °C NA / NA °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Was collection date & time listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Were all samples containers accounted for? (No missing/excess)
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all applicable NH ₃ /TKN/cyanide/pheno/625 I/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	18. 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) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA. □	
Time of preservation NA. If more than one preservative is needed, please note in the comments below.	
Sample(s) NA were received with bubbles >6 mm in diameter.	
Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Unique ID: NA	

Comments:

