From:	Dewey, Jeffrey
To:	Paddock, Jeffrey J - DNR
Cc:	Thompson, Matthew A - DNR
Subject:	FW: Monthly Wausau Superfund Call
Date:	Friday, January 5, 2024 8:18:25 AM
Attachments:	2102778_Status Update-PFAS GW Sampling Report_BRRTS 0237587081 (Final 6.19.23).pdf Wausau PFAS Testing_Jan2019 to Aug2023_Sized.pdf

Hi Jeff P.,

OJ sent me the PFAS data yesterday for Wausau in case you're interested.

Best,
Jeff

From: OJ Ojinaga <oj.ojinaga@ghd.com>
Sent: Thursday, January 4, 2024 6:30 PM
To: Dewey, Jeffrey <Dewey.Jeffrey@epa.gov>
Cc: Thompson, Matthew A - DNR <MatthewA.Thompson@wisconsin.gov>
Subject: RE: Monthly Wausau Superfund Call

Hi Jeff-

Please see the attached analytical data, as requested in your email below.

The first attachment included the data collected from a Brownfield site that the City is investigating as required by the DNR.

The second attachment is the sample results collected from drinking water wells and treated water. The sample results are from 2019 through August 2023. The City samples the treated water quarterly.

Thanks-
OJ

From: OJ Ojinaga <oj.ojinaga@ghd.com>
Sent: Thursday, December 14, 2023 3:24 PM
To: Dewey, Jeffrey <Dewey.Jeffrey@epa.gov>
Cc: Thompson, Matthew A - DNR <MatthewA.Thompson@wisconsin.gov>
Subject: RE: Monthly Wausau Superfund Call

Jeff-

Please see the attached figure that shows the office locations as requested.

I will work on getting you the other information before 12/29.

OJ

From: Dewey, Jeffrey <Dewey.Jeffrey@epa.gov>
Sent: Friday, December 1, 2023 10:31 AM
To: OJ Ojinaga <oj.ojinaga@ghd.com>
Cc: Thompson, Matthew A - DNR <MatthewA.Thompson@wisconsin.gov>
Subject: RE: Monthly Wausau Superfund Call

Hi OJ,

You mentioned in our call on Wednesday that you'd have the VI report to EPA and state in a day or so. Will we be receiving that today? If not, please submit the report by Wednesday December 6th so that we have plenty of time to review before our call on December 20th.

Some other items mentioned on the call were 1. sending all data/reports of PFAS sampling in the area to EPA and state, 2. Developing an institutional control implementation and assessment plan (ICIAP), 3. Developing a VI monitoring plan, 4. Sending any final or prefinal construction reports for the new city treatment facility as well as any meeting minutes or city canvassing efforts in which community members expressed their views about the new treatment facility. Please send whatever information you have for the PFAS data before the end of this calendar year (December 29th, 2023).

The rest of the items (2-4) do not have a hard deadline at this time and will be discussed in the future.

Thanks again for meeting on Wednesday!

Best,
Jeff

From: OJ Ojinaga <oj.ojinaga@ghd.com>
Sent: Thursday, November 16, 2023 10:06 PM
To: Dewey, Jeffrey <Dewey.Jeffrey@epa.gov>
Cc: Thompson, Matthew A - DNR <MatthewA.Thompson@wisconsin.gov>
Subject: RE: Monthly Wausau Superfund Call

Hi Jeff-

I apologize for the delay in getting you the VI report as I had intended on or before 11/17. There have been some internal delays, and I will not be able to meet that timeframe. I'm planning on getting you a draft report early next week.

Thank you-
OJ

From: Dewey, Jeffrey <Dewey.Jeffrey@epa.gov>
Sent: Tuesday, November 7, 2023 9:10 AM
To: OJ Ojinaga <oj.ojinaga@ghd.com>; Thompson, Matthew A - DNR <MatthewA.Thompson@wisconsin.gov>
Subject: RE: Monthly Wausau Superfund Call

Hi OJ,

Sounds great re VI report, thanks!

We can skip this call and meet in December. Make sure there's some extra time scheduled for that December call though because I think there will be a number of items to discuss in some detail.

Best,
Jeff

From: OJ Ojinaga <oj.ojinaga@ghd.com>
Sent: Tuesday, November 7, 2023 9:07 AM
To: Dewey, Jeffrey <Dewey.Jeffrey@epa.gov>; Thompson, Matthew A - DNR <MatthewA.Thompson@wisconsin.gov>
Subject: RE: Monthly Wausau Superfund Call

Morning-

I was going to email you both to see if we could postpone our call until November 29th. I have project conflicts next week and I'm out of the office on vacation the following week.

Or we can just wait until next month to talk.

Jeff- I'm planning on getting you the September 2023 Vapor Intrusion Summary report by the end of this week.

Let me know your thoughts on this months call.

OJ

From: Dewey, Jeffrey <Dewey.Jeffrey@epa.gov>
Sent: Tuesday, November 7, 2023 8:21 AM
To: OJ Ojinaga <oj.ojinaga@ghd.com>; Thompson, Matthew A - DNR <MatthewA.Thompson@wisconsin.gov>
Subject: RE: Monthly Wausau Superfund Call

Hi OJ and Matt,

Is there any chance we can move this meeting to Monday, November 13th at the same time? I have a site visit from Tuesday-Thursday. I can still make the original meeting time, but it might be a bit challenging to discuss any documents or data depending on the internet/service I have in the specific area.

Best,
Jeff

-----Original Appointment-----
From: OJ Ojinaga <oj.ojinaga@ghd.com>
Sent: Wednesday, October 18, 2023 8:41 AM
To: OJ Ojinaga; Dewey, Jeffrey; Thompson, Matthew A - DNR
Subject: Monthly Wausau Superfund Call
When: Wednesday, November 15, 2023 9:30 AM-10:30 AM (UTC-06:00) Central Time (US & Canada).
Where: Microsoft Teams Meeting

> **Caution:** This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

This will be the time for our standing monthly call.

Microsoft Teams meeting

Join on your computer or mobile app
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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

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3159 Voyager Drive, Green Bay, WI 54311
920.455.8200

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.

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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.

GEI Consultants, Inc
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920.455.8200

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

GEI Consultants, Inc
3159 Voyager Drive, Green Bay, WI 54311
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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 METALS[3] (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 COMPOUNDS[3] (µg/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

(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.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
PFAS (ng/L)																	
9Cl-PF3ONS	756426-58-1	NE	NE	---	---	< 0.43	< 0.43	< 0.44	---	---	---	< 0.44	< 0.45	---	< 0.45	< 0.46	< 0.45
11Cl-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 COMPOUNDS[3] (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

[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.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	
Name & CAS #		**NR 140 PAL**	**NR 140 ES**	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
PRIORITY POLLUTANT METALS[3] (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 COMPOUNDS[3] (µg/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

(µg/L) = micrograms per liter < = not detected above method detection limit (MDL)

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[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.

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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	
Name & CAS #		**NR 140 PAL**	**NR 140 ES**	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
PFAS (ng/L)														
9Cl-PF3ONS	756426-58-1	NE	NE	---	< 0.45	< 0.43	---	< 0.45	< 0.45	---	< 0.45	< 0.42	< 0.44	< 0.41
11Cl-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 COMPOUNDS[3] (µg/L)														
No VOCs Identified Above Method Detection Limit (MDL)				---	---	---	---	---	---	---	---	---	---	---

Notes

(µg/L) = micrograms per liter < = not detected above method detection limit (MDL)

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

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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
SOIL BORING LOCATION SB-12
MONITORING WELL (ABANDONED) SBGW-2
CATCH BASIN CB
MANHOLE M
GROUNDWATER ELEVATION (MSL) (1162.45)

SANITARY LINE SAN
STORMWATER LINE STM
WATER LINE WTR
PROPERTY BOUNDARY
SURFACE CONTOUR 1190
ESTIMATED GROUNDWATER CONTOUR 1164.00

N

(1164.19)
SBGW-3/3R
1164.20
1164.1
SB-18
CB
1164.10
SB-19
SB-25
SB-15
SB-26
SB-16
SB-20
SB-27
SBGW-2
(NOT MEASURED)
SB-17/17R
SB-21
SB-28
SB-13
626'-1"
SB-12/12R
(1163.95)
SB-14/14R
SB-29
SB-11/11R
SB-31
SB-30
1164.00
SB-10/10R
SB-32
SB-22
SB-7
SB-8/8R
(1164.01)
SB-9/9R
SBGW-1/1R
SB-23
SB-6/6R
SB-24
SB-33
(1163.89)
SB-5/5R
SB-35
1163.90
SB-4
SB-3/3R
HYDRANT
1163.80
SB-1/1R
(1163.77)
SB-2/2R
SB-34
CLEVELAND AVE
STM
SAN
WTR

0 60 120
SCALE: 1" = 60'

NOTES:

1. HORIZONTAL DATUM WISCONSIN MARATHON COUNTY COORDINATE SYSTEM
2. VERTICAL DATUM NAVD 88
3. 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

GROUNDWATER CONTOUR MAP (APRIL 24, 2023)

Project 2102778 | JUNE 2023 | Fig. B.3.c.

BURGER, DAVE J:\2021\City Of Wausau\Fig B3c Map 6-23.dwg - 6/9/2023

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

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

Enclosures

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

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

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent 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: GEI Consultants, Inc	Billing Information: 3159 Voyager Drive Green Bay, WI
Address: Same	
Report To: Mike DeBraske	Email To: mdebraske@geiconsultants.com
Copy To:	Site Collection Info/Address: 1300 Cleveland Ave, Wausau WI
Customer Project Name/Number:	State: WI County/City: Wausau Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET
Phone: 920-412-4779 Email:	Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): Madison Seymour	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature): MSeymour	Turnaround Date Required: Immediately Packed on Ice: [ ] Yes [ ] No
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)
	Field Filtered (if applicable): [ ] Yes [ ] No Analysis: _____

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 _____

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) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	PFAS (WI)	Lab Sample # / Comments
Equipement Blank	GW	G	4-24-23	9:10					X	001
Field Blank				9:15					X	002
SB-1R				9:35					X	003
SB-5R				9:45					X	004
SBGW-1R				10:20					X	005
SBGW-1RDUP				10:25					X	006
SB-14R				10:35					X	007
SBGW-3R				11:10					X	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: — oC
Cooler 1 Corrected Temp: 2.0 oC
Comments:

Relinquished by/Company: (Signature) MSeymour	Date/Time: 1:30 4/24/2023	Received by/Company: (Signature) Pace	Date/Time: 4/24/23 1330
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

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

Client Name: GEI

Sample Preservation Receipt Form

Project # 402611192

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

Lab Lot# of pH paper

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

Initial when completed.

Date/ Time:

Pace Lab #	Glass							Plastic						Vials						Jars				General				VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	BG1U	AG1H	AG4S	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

4/24/23 NR

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	

Page 1 of 2

Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: GEI

WO# : 40261192

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

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

Person examining contents:
Date: 4/24/23 /Initials: NK

Labeled By Initials: YP

Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☐Yes ☒No ☐N/A	2. proj. name/#, 4/24/23 NK
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No	5.
- DI VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time
Short Hold Time Analysis (<72hr):	☐Yes ☒No	6.
Rush Turn Around Time Requested:	☐Yes ☒No	7.
Sufficient Volume: For Analysis: ☒Yes ☐No MS/MSD: ☐Yes ☒No ☐N/A		8.
Correct Containers Used:	☒Yes ☐No	9.
Correct Type: ~~Pace Green Bay~~, Pace IR, Non-Pace		
Containers Intact:	☒Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC:	☒Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: W		
Trip Blank Present:	☐Yes ☐No ☒N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased): _____		

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

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

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**

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.

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)

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

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-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	0.66	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-butanesulfonic 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_PFDoA		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-butanesulfonic 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	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	25-150
13C2_6:2FTS		111	25-150
13C2_8:2FTS		108	25-150
13C2_PFDoA		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

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

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

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_PFDoA		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
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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 (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-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-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-butanesulfonic 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_PFDoA		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

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 (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-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-butanesulfonic 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_PFDoA		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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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: YD25005-005
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
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		146	25-150
13C2_6:2FTS		115	25-150
13C2_8:2FTS		96	25-150
13C2_PFDoA		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 (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-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-dioxa-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_PFDoA		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
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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 (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.45	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	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-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	1.3	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_PFDoA		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
Batch: 74875
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/09/2023 1721

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	05/10/2023 1251
11Cl-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
PFDoA	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
PFTrDA	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_PFDoA		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
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - MB

Sample ID: YQ74875-001
Batch: 74875
Analytical Method: PFAS by ID SOP

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

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

PFAS by LC/MS/MS - LCS

Sample ID: YQ74875-002
Batch: 74875
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/09/2023 1721

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	106	50-150	05/10/2023 1304
11Cl-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
PFTrDA	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
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCS

Sample ID: YQ74875-002
Batch: 74875
Analytical Method: PFAS by ID SOP

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

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

Chain of Custody

and

Miscellaneous Documents

Internal Transfer Chain of Custody

Pace Analytical
www.pacelabs.com

☐ Samples Pre-Logged into eCOC.

State Of Origin: WI
Cert. Needed: [X] Yes ☐ No
Owner Received Date: 4/24/2023 Results Requested By: 5/30/2023

Workorder: 40261192 **Workorder Name:** 2004100 Wausau 1300 Cleveland

Report To	Subcontract To
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

YD25005

JSH

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved						PFAS-TD (WI 33 list)	LAB USE ONLY
1	EQUIPMENT BLANK	PS	4/24/2023 09:10	40261192001	Water	2						X	
2	FIELD BLANK	PS	4/24/2023 09:15	40261192002	Water	2						X	
3	SB-1R	PS	4/24/2023 09:35	40261192003	Water	2						X	
4	SB-5R	PS	4/24/2023 09:45	40261192004	Water	2						X	
5	SBGW-1R	PS	4/24/2023 10:20	40261192005	Water	2						X	
6	SBGW-1R DUP	PS	4/24/2023 10:25	40261192006	Water	2						X	
7	SB-14R	PS	4/24/2023 10:35	40261192007	Water	2						X	
8	SBGW-3R	PS	4/24/2023 11:10	40261192008	Water	2						X	

Transfers	Released By	Date/Time	Received By	Date/Time
1		4/24/23 1400		
2				
3	FEDEX	04/25/23 1035		04/25/23 1035

Comments

Cooler Temperature on Receipt 2.5 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
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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: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

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

pH Strip ID: 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: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

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

☑ Yes	☐ No	☐ 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).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☑ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☑ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		9. Were tests to be performed listed on the COC?
☑ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		11. Was adequate sample volume available?
☑ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☑ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☑ 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?
☐ Yes	☐ No	☑ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☑ No	☐ 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 ($Na_2S_2O_3$) with Unique ID: NA.

Comments:

Qualtrax ID: 56360 Pace® Analytical Services, LLC Page 1 of 1

ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis

Customer: Wausau Waterworks NLS Project: 321644

Project Description: PFOA/PFAS/VOC

Project Title: PWS#73701023 Template: 537PPT Printed: 06/06/2019 17:32

Sample: 1122080 Well #3 Collected: 05/17/19 Analyzed: 05/30/19 - Analytes: 12

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	[3.02]	ppt		1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	2.77	ppt		1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	2.8	8.8		
perfluorooctanoic acid (PFOA)	9.82	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt		1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	15.1	ppt		1	1.7	5.3		
perfluorodecanoic acid (PFDA)	[0.90]	ppt		1	0.90	2.7		J
perfluoroundecanoic acid (PFUnA)	ND	ppt		1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt		1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt		1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt		1	2.8	8.9		
C13-PFHxA (SURR)	49.575%			1				SR S
C13-PFDA (SURR)	96.49%			1				S

NOTES APPLICABLE TO THIS ANALYSIS:

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

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

SR = Surrogate recovery was outside QC limits.

C13-PFHxA recovered below QC limits.

Sample: 1122081 Well #9 Collected: 05/17/19 Analyzed: 05/30/19 - Analytes: 12

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	[2.4]	ppt		1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	[1.5]	ppt		1	0.80	2.6		J
perfluorohexanesulfonic acid (PFHxS)	[3.98]	ppt		1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	9.36	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt		1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	8.65	ppt		1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt		1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt		1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt		1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt		1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt		1	2.8	8.9		
C13-PFHxA (SURR)	52.464%			1				SR S
C13-PFDA (SURR)	93.205%			1				S

NOTES APPLICABLE TO THIS ANALYSIS:

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

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

SR = Surrogate recovery was outside QC limits.

C13-PFHxA recovered below QC limits.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive.

ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis
Customer: Wausau Waterworks NLS Project: 321644
Project Description: PFOA/PFAS/VOC
Project Title: PWS#73701023 Template: 537PPT Printed: 06/06/2019 17:32

Sample: 1122082 Well #11 Collected: 05/17/19 Analyzed: 05/30/19 - Analytes: 12

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	[3.77]	ppt		1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	4.62	ppt		1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	2.8	8.8		
perfluorooctanoic acid (PFOA)	14.4	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt		1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	8.65	ppt		1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt		1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt		1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt		1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt		1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt		1	2.8	8.9		
C13-PFHxA (SURR)	54.43%			1				SR S
C13-PFDA (SURR)	100.411%			1				S

NOTES APPLICABLE TO THIS ANALYSIS:
J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.
S = This compound is a surrogate used to evaluate the quality control of a method.
SR = Surrogate recovery was outside QC limits.
C13-PFHxA recovered below QC limits.

Sample: 1122083 Well #7 Collected: 05/17/19 Analyzed: 05/30/19 - Analytes: 12

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	[3.39]	ppt		1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	3.76	ppt		1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	2.8	8.8		
perfluorooctanoic acid (PFOA)	11.5	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt		1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	14.3	ppt		1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt		1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt		1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt		1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt		1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt		1	2.8	8.9		
C13-PFHxA (SURR)	49.319%			1				SR S
C13-PFDA (SURR)	93.454%			1				S

NOTES APPLICABLE TO THIS ANALYSIS:
J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.
S = This compound is a surrogate used to evaluate the quality control of a method.
SR = Surrogate recovery was outside QC limits.
C13-PFHxA recovered below QC limits.

ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis
Customer: Wausau Waterworks NLS Project: 321644
Project Description: PFOA/PFAS/VOC
Project Title: PWS#73701023 Template: 537PPT Printed: 06/06/2019 17:32

Sample: 1122084 Well #10 Collected: 05/17/19 Analyzed: 05/30/19 - Analytes: 12

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	4.64	ppt		1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	5.39	ppt		1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	2.8	8.8		
perfluorooctanoic acid (PFOA)	14.1	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt		1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	12.6	ppt		1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt		1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt		1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt		1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt		1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt		1	2.8	8.9		
C13-PFHxA (SURR)	54.313%			1				SR S
C13-PFDA (SURR)	99.78%			1				S

NOTES APPLICABLE TO THIS ANALYSIS:
S = This compound is a surrogate used to evaluate the quality control of a method.
SR = Surrogate recovery was outside QC limits.
C13-PFHxA recovered below QC limits.

Sample: 1122085 Well #6 Collected: 05/17/19 Analyzed: 05/30/19 - Analytes: 12

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	6.6	21		
perfluorohexanoic acid (PFHxA)	[3.33]	ppt		1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	3.35	ppt		1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[3.4]	ppt		1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	13.4	ppt		1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt		1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	14.1	ppt		1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt		1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt		1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt		1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt		1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt		1	2.8	8.9		
C13-PFHxA (SURR)	52.711%			1				SR S
C13-PFDA (SURR)	96.266%			1				S

NOTES APPLICABLE TO THIS ANALYSIS:
J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.
S = This compound is a surrogate used to evaluate the quality control of a method.
SR = Surrogate recovery was outside QC limits.
C13-PFHxA recovered below QC limits.

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis

Customer: Wausau Waterworks **NLS Project: 379230**

Project Description: Investigative PFAS

Project Title: **Template: WIPFAS** **Printed: 01/25/2022 11:01**

Sample: 1296219 Well #3 Collected: 01/07/22 Analyzed: 01/20/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	[2.77]	ng/L	1	0.96	4.0	J
Perfluoropentanoic acid (PFPeA)	[3.48]	ng/L	1	0.85	4.0	J
Perfluorohexanoic acid (PFHxA)	4.63	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	[3.19]	ng/L	1	1.0	4.0	J
Perfluorooctanoic acid (PFOA)	16.8	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	[2.88]	ng/L	1	0.63	3.5	J
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	[1.44]	ng/L	1	0.92	3.7	J
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	16.1	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	[3.87]	ng/L	1	0.97	4.0	J
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	[3.07]	ng/L	1	1.0	4.0	J
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	16	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

NOTES APPLICABLE TO THIS ANALYSIS:

J = Result enclosed in brackets is between LOD and MRL, a region of less certain quantitation.

4:2 FTSA and 6:2 FTSA associated extracted internal standard percent recoveries were outside QC limits.

All LOD/MRLs adjusted to reflect dilution.

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis

Customer: Wausau Waterworks NLS Project: 379230

Project Description: Investigative PFAS

Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296220 Well #3 FB Collected: 01/07/22 Analyzed: 01/24/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	<0.96	ng/L	1	0.96	4.0	
Perfluoropentanoic acid (PFPeA)	<0.85	ng/L	1	0.85	4.0	
Perfluorohexanoic acid (PFHxA)	<0.94	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	<1.0	ng/L	1	1.0	4.0	
Perfluorooctanoic acid (PFOA)	<0.75	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	<0.63	ng/L	1	0.63	3.5	
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	<0.92	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	<1.1	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	<0.97	ng/L	1	0.97	4.0	
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	<1.0	ng/L	1	1.0	4.0	
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	<1.7	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis
Customer: Wausau Waterworks NLS Project: 379230
Project Description: Investigative PFAS
Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296221 Well #10 Collected: 01/07/22 Analyzed: 01/20/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	[2.95]	ng/L	1	0.96	4.0	J
Perfluoropentanoic acid (PFPeA)	5.19	ng/L	1	0.85	4.0	
Perfluorohexanoic acid (PFHxA)	6.11	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	5.01	ng/L	1	1.0	4.0	
Perfluorooctanoic acid (PFOA)	20.6	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	<0.63	ng/L	1	0.63	3.5	
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	<0.92	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	8.7	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	[1.58]	ng/L	1	0.97	4.0	J
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	[1.32]	ng/L	1	1.0	4.0	J
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	7.78	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

NOTES APPLICABLE TO THIS ANALYSIS:
J = Result enclosed in brackets is between LOD and MRL, a region of less certain quantitation.
4:2 FTSA and 6:2 FTSA associated extracted internal standard percent recoveries were outside QC limits.
NEtFOSA retention time to exact labeled analog retention time was outside QC limits.

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis
Customer: Wausau Waterworks NLS Project: 379230
Project Description: Investigative PFAS
Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296222 Well #10 FB Collected: 01/07/22 Analyzed: 01/24/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	<0.96	ng/L	1	0.96	4.0	
Perfluoropentanoic acid (PFPeA)	<0.85	ng/L	1	0.85	4.0	
Perfluorohexanoic acid (PFHxA)	<0.94	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	<1.0	ng/L	1	1.0	4.0	
Perfluorooctanoic acid (PFOA)	<0.75	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	<0.63	ng/L	1	0.63	3.5	
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	<0.92	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	<1.1	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	<0.97	ng/L	1	0.97	4.0	
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	<1.0	ng/L	1	1.0	4.0	
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	<1.7	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis
Customer: Wausau Waterworks NLS Project: 379230
Project Description: Investigative PFAS
Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296223 EP300 Collected: 01/10/22 Analyzed: 01/20/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	MCL	Note
Perfluorobutanoic acid (PFBA)	[2.86]	ng/L	1	0.96	4.0		J
Perfluoropentanoic acid (PFPeA)	[3.25]	ng/L	1	0.85	4.0		J
Perfluorohexanoic acid (PFHxA)	4.12	ng/L	1	0.94	4.0		
Perfluoroheptanoic acid (PFHpA)	[3.23]	ng/L	1	1.0	4.0		J
Perfluorooctanoic acid (PFOA)	16.8	ng/L	1	0.75	4.0		
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0		
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0		
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0		
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0		
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0		
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0		
Perfluorobutanesulfonic acid (PFBS)	[2.37]	ng/L	1	0.63	3.5		J
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8		
Perfluorohexanesulfonic acid (PFHxS)	[1.7]	ng/L	1	0.92	3.7		J
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8		
Perfluorooctanesulfonic acid (PFOS)	12	ng/L	1	1.1	3.7		
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8		
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9		
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9		
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7		
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8		
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8		
Perfluorooctane sulfonamide (FOSA)	[2.43]	ng/L	1	0.97	4.0		J
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0		
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	[1.67]	ng/L	1	1.0	4.0		J
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0		
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	8.6	ng/L	1	1.7	4.0		
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0		
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0		
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0		
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8		
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8		

NOTES APPLICABLE TO THIS ANALYSIS:
J = Result enclosed in brackets is between LOD and MRL, a region of less certain quantitation.
4:2 FTSA associated extracted internal standard percent recovery was outside QC limits.

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis
Customer: Wausau Waterworks NLS Project: 379230
Project Description: Investigative PFAS
Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296224 EP300 FB Collected: 01/10/22 Analyzed: 01/24/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	<0.96	ng/L	1	0.96	4.0	
Perfluoropentanoic acid (PFPeA)	<0.85	ng/L	1	0.85	4.0	
Perfluorohexanoic acid (PFHxA)	<0.94	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	<1.0	ng/L	1	1.0	4.0	
Perfluorooctanoic acid (PFOA)	<0.75	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	<0.63	ng/L	1	0.63	3.5	
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	<0.92	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	<1.1	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	<0.97	ng/L	1	0.97	4.0	
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	<1.0	ng/L	1	1.0	4.0	
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	<1.7	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis
Customer: Wausau Waterworks NLS Project: 379230
Project Description: Investigative PFAS
Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296225 Well #7 Collected: 01/10/22 Analyzed: 01/20/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	[3.22]	ng/L	1	0.96	4.0	J
Perfluoropentanoic acid (PFPeA)	4.1	ng/L	1	0.85	4.0	
Perfluorohexanoic acid (PFHxA)	4.89	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	[3.93]	ng/L	1	1.0	4.0	J
Perfluorooctanoic acid (PFOA)	19.1	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	[0.86]	ng/L	1	0.63	3.5	J
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	<0.92	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	11.7	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	[2.14]	ng/L	1	0.97	4.0	J
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	[2.03]	ng/L	1	1.0	4.0	J
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	7.25	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

NOTES APPLICABLE TO THIS ANALYSIS:
J = Result enclosed in brackets is between LOD and MRL, a region of less certain quantitation.
4:2 FTSA and 6:2 FTSA associated extracted internal standard percent recoveries were outside QC limits.

Sample: 1296226 Well #7 FB Collected: 01/10/22 Analyzed: 01/24/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	<0.96	ng/L	1	0.96	4.0	
Perfluoropentanoic acid (PFPeA)	<0.85	ng/L	1	0.85	4.0	
Perfluorohexanoic acid (PFHxA)	<0.94	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	<1.0	ng/L	1	1.0	4.0	
Perfluorooctanoic acid (PFOA)	<0.75	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	<0.63	ng/L	1	0.63	3.5	
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	<0.92	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	<1.1	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	<0.97	ng/L	1	0.97	4.0	
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	<1.0	ng/L	1	1.0	4.0	
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	<1.7	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis
Customer: Wausau Waterworks NLS Project: 379230
Project Description: Investigative PFAS
Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296227 Well #9 Collected: 01/10/22 Analyzed: 01/20/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	[2.03]	ng/L	1	0.96	4.0	J
Perfluoropentanoic acid (PFPeA)	[0.89]	ng/L	1	0.85	4.0	J
Perfluorohexanoic acid (PFHxA)	[1.89]	ng/L	1	0.94	4.0	J
Perfluoroheptanoic acid (PFHpA)	[1.38]	ng/L	1	1.0	4.0	J
Perfluorooctanoic acid (PFOA)	16.1	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	5.04	ng/L	1	0.63	3.5	
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	3.85	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	7.67	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	<0.97	ng/L	1	0.97	4.0	
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	<1.0	ng/L	1	1.0	4.0	
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	<1.7	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

NOTES APPLICABLE TO THIS ANALYSIS:
J = Result enclosed in brackets is between LOD and MRL, a region of less certain quantitation.
4:2 FTSA associated extracted internal standard percent recovery was outside QC limits.

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis
Customer: Wausau Waterworks NLS Project: 379230
Project Description: Investigative PFAS
Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296228 Well #9 FB Collected: 01/10/22 Analyzed: 01/24/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	<0.96	ng/L	1	0.96	4.0	
Perfluoropentanoic acid (PFPeA)	<0.85	ng/L	1	0.85	4.0	
Perfluorohexanoic acid (PFHxA)	<0.94	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	<1.0	ng/L	1	1.0	4.0	
Perfluorooctanoic acid (PFOA)	<0.75	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	<0.63	ng/L	1	0.63	3.5	
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	<0.92	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	<1.1	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	<0.97	ng/L	1	0.97	4.0	
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	<1.0	ng/L	1	1.0	4.0	
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	<1.7	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis
Customer: Wausau Waterworks NLS Project: 379230
Project Description: Investigative PFAS
Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296229 Well #6 Collected: 01/10/22 Analyzed: 01/20/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	[2.87]	ng/L	1	0.96	4.0	J
Perfluoropentanoic acid (PFPeA)	[3.31]	ng/L	1	0.85	4.0	J
Perfluorohexanoic acid (PFHxA)	4.93	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	[3.65]	ng/L	1	1.0	4.0	J
Perfluorooctanoic acid (PFOA)	22.1	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	[2.24]	ng/L	1	0.63	3.5	J
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	[3.37]	ng/L	1	0.92	3.7	J
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	13.2	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	[2.87]	ng/L	1	0.97	4.0	J
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	[1.75]	ng/L	1	1.0	4.0	J
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	9.06	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

NOTES APPLICABLE TO THIS ANALYSIS:

J = Result enclosed in brackets is between LOD and MRL, a region of less certain quantitation.

4:2 FTSA and 6:2 FTSA associated extracted internal standard percent recoveries were outside QC limits.

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis
Customer: Wausau Waterworks NLS Project: 379230
Project Description: Investigative PFAS
Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296230 Well #6 FB Collected: 01/10/22 Analyzed: 01/24/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	<0.96	ng/L	1	0.96	4.0	
Perfluoropentanoic acid (PFPeA)	<0.85	ng/L	1	0.85	4.0	
Perfluorohexanoic acid (PFHxA)	<0.94	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	<1.0	ng/L	1	1.0	4.0	
Perfluorooctanoic acid (PFOA)	<0.75	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	<0.63	ng/L	1	0.63	3.5	
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	<0.92	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	<1.1	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	<0.97	ng/L	1	0.97	4.0	
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	<1.0	ng/L	1	1.0	4.0	
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	<1.7	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis
Customer: Wausau Waterworks NLS Project: 379230
Project Description: Investigative PFAS
Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296231 Well #11 Collected: 01/10/22 Analyzed: 01/20/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	[3.14]	ng/L	1	0.96	4.0	J
Perfluoropentanoic acid (PFPeA)	5.5	ng/L	1	0.85	4.0	
Perfluorohexanoic acid (PFHxA)	7.1	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	5.07	ng/L	1	1.0	4.0	
Perfluorooctanoic acid (PFOA)	23	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	<0.63	ng/L	1	0.63	3.5	
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	<0.92	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	8.73	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	[1.88]	ng/L	1	0.97	4.0	J
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	[1.77]	ng/L	1	1.0	4.0	J
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	6.88	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

NOTES APPLICABLE TO THIS ANALYSIS:

J = Result enclosed in brackets is between LOD and MRL, a region of less certain quantitation.
4:2 FTSA and 6:2 FTSA associated extracted internal standard percent recoveries were outside QC limits.
NEtFOSA confirmation ion transition ratio was outside QC limits.

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis

Customer: Wausau Waterworks NLS Project: 379230

Project Description: Investigative PFAS

Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296232 Well #11 FB Collected: 01/10/22 Analyzed: 01/24/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	<0.96	ng/L	1	0.96	4.0	
Perfluoropentanoic acid (PFPeA)	<0.85	ng/L	1	0.85	4.0	
Perfluorohexanoic acid (PFHxA)	<0.94	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	<1.0	ng/L	1	1.0	4.0	
Perfluorooctanoic acid (PFOA)	<0.75	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	<0.63	ng/L	1	0.63	3.5	
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	<0.92	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	<1.1	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	<0.97	ng/L	1	0.97	4.0	
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	<1.0	ng/L	1	1.0	4.0	
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	<1.7	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis
Customer: Wausau Waterworks NLS Project: 379230
Project Description: Investigative PFAS
Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296233 EP200 Collected: 01/14/22 Analyzed: 01/20/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	MCL	Note
Perfluorobutanoic acid (PFBA)	[2.94]	ng/L	1	0.96	4.0		J
Perfluoropentanoic acid (PFPeA)	5.03	ng/L	1	0.85	4.0		
Perfluorohexanoic acid (PFHxA)	6.03	ng/L	1	0.94	4.0		
Perfluoroheptanoic acid (PFHpA)	4.24	ng/L	1	1.0	4.0		
Perfluorooctanoic acid (PFOA)	21.7	ng/L	1	0.75	4.0		
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0		
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0		
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0		
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0		
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0		
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0		
Perfluorobutanesulfonic acid (PFBS)	[1.08]	ng/L	1	0.63	3.5		J
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8		
Perfluorohexanesulfonic acid (PFHxS)	[1.03]	ng/L	1	0.92	3.7		J
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8		
Perfluorooctanesulfonic acid (PFOS)	9.24	ng/L	1	1.1	3.7		
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8		
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9		
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9		
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7		
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8		
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8		
Perfluorooctane sulfonamide (FOSA)	[2.49]	ng/L	1	0.97	4.0		J
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0		
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	[1.19]	ng/L	1	1.0	4.0		J
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0		
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	7.02	ng/L	1	1.7	4.0		
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0		
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0		
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0		
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8		
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8		

NOTES APPLICABLE TO THIS ANALYSIS:
J = Result enclosed in brackets is between LOD and MRL, a region of less certain quantitation.
4:2 FTSA and 6:2 FTSA associated extracted internal standard percent recoveries were outside QC limits.

ANALYTICAL RESULTS: Perfluorinated Chemicals by Method WIPFAS Water Analysis

Customer: Wausau Waterworks NLS Project: 379230

Project Description: Investigative PFAS

Project Title: Template: WIPFAS Printed: 01/25/2022 11:01

Sample: 1296234 EP200 FB Collected: 01/14/22 Analyzed: 01/24/22 - Analytes: 33

ANALYTE NAME	RESULT	UNITS	DIL	LOD	MRL	Note
Perfluorobutanoic acid (PFBA)	<0.96	ng/L	1	0.96	4.0	
Perfluoropentanoic acid (PFPeA)	<0.85	ng/L	1	0.85	4.0	
Perfluorohexanoic acid (PFHxA)	<0.94	ng/L	1	0.94	4.0	
Perfluoroheptanoic acid (PFHpA)	<1.0	ng/L	1	1.0	4.0	
Perfluorooctanoic acid (PFOA)	<0.75	ng/L	1	0.75	4.0	
Perfluorononanoic acid (PFNA)	<0.93	ng/L	1	0.93	4.0	
Perfluorodecanoic acid (PFDA)	<1.4	ng/L	1	1.4	4.0	
Perfluoroundecanoic acid (PFUnA)	<1.8	ng/L	1	1.8	4.0	
Perfluorododecanoic acid (PFDoA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotridecanoic acid (PFTriA)	<1.7	ng/L	1	1.7	4.0	
Perfluorotetradecanoic acid (PFTeA)	<1.2	ng/L	1	1.2	4.0	
Perfluorobutanesulfonic acid (PFBS)	<0.63	ng/L	1	0.63	3.5	
Perfluoropentanesulfonic acid (PFPeS)	<0.86	ng/L	1	0.86	3.8	
Perfluorohexanesulfonic acid (PFHxS)	<0.92	ng/L	1	0.92	3.7	
Perfluoroheptanesulfonic acid (PFHpS)	<0.73	ng/L	1	0.73	3.8	
Perfluorooctanesulfonic acid (PFOS)	<1.1	ng/L	1	1.1	3.7	
Perfluorononanesulfonic acid (PFNS)	<0.63	ng/L	1	0.63	3.8	
Perfluorodecanesulfonic acid (PFDS)	<0.62	ng/L	1	0.62	3.9	
Perfluorododecanesulfonic acid (PFDoS)	<1.3	ng/L	1	1.3	3.9	
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<1.3	ng/L	1	1.3	3.7	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	ng/L	1	1.7	3.8	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.5	ng/L	1	1.5	3.8	
Perfluorooctane sulfonamide (FOSA)	<0.97	ng/L	1	0.97	4.0	
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.2	ng/L	1	1.2	4.0	
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	<1.0	ng/L	1	1.0	4.0	
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	<1.1	ng/L	1	1.1	4.0	
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	<1.7	ng/L	1	1.7	4.0	
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)	<1.4	ng/L	1	1.4	4.0	
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	<1.0	ng/L	1	1.0	4.0	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<0.72	ng/L	1	0.72	4.0	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.73	ng/L	1	0.73	3.8	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.83	ng/L	1	0.83	3.7	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)	<1.1	ng/L	1	1.1	3.8	

Wausau Waterworks	Project: 2023 WDNR Drinking Water Requirerments		
Drinking Water Division	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	1/31/23 12:55	CB00494

Sample Results (Continued)

Sample: EP400 (Continued)

CB00494-03 (DW) Sampled: 01/17/23 07:00

Analyte	Result	Qualifier	Dilution	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles (Continued)												
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1	0.31	1.0		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1	0.34	1.1		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		1	0.37	1.2		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	0.41	1.4		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	6.1		1	0.47	1.6		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.41	J	1	0.40	1.3		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		1	0.30	1.0		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	0.33	1.1		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	0.23	0.77		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	3.1		1	0.44	1.5		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	4.6		1	0.47	1.6		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		1	0.34	1.1		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		1	0.46	1.5		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	7.4		1	0.49	1.6		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	1.5		1	0.31	1.0		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	0.34	1.1		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		1	0.43	1.4		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	0.30	1.0		ng/L	1/24/23 6:48	1/25/23 16:27	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*97%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:27*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*92%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:27*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*98%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:27*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*97%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:27*	*RAW*	*EPA 537.1, Rev 2.0*	2

Sample: EP400 Field Blank

CB00494-04 (DW) Sampled: 01/17/23 00:00

Analyte	Result	Qualifier	Dilution	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles												

Wausau Waterworks	Project: 2023 WDNR Drinking Water Requirements		
Drinking Water Division	Project Number: 2023 WDNR Drinking Water Requirements	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	1/31/23 12:55	CB00494

Sample Results (Continued)

Sample: EP400 Field Blank (Continued)

CB00494-04 (DW) Sampled: 01/17/23 00:00

Analyte	Result	Qualifier	Dilution	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles (Continued)												
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1	0.29	0.94		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1	0.32	1.0		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		1	0.35	1.1		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	0.39	1.3		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1	0.44	1.5		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1	0.38	1.2		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		1	0.28	0.94		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	0.31	1.0		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	0.22	0.73		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		1	0.42	1.4		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		1	0.44	1.5		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		1	0.32	1.0		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		1	0.43	1.4		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		1	0.46	1.5		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		1	0.29	0.94		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	0.32	1.0		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		1	0.41	1.3		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	0.28	0.94		ng/L	1/24/23 6:48	1/25/23 16:53	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*94%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:53*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*89%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:53*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*98%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:53*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*98%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:53*	*RAW*	*EPA 537.1, Rev 2.0*	2

Wausau Waterworks	Project: 2023 WDNR Drinking Water Requirements		
Drinking Water Division	Project Number: 2023 WDNR Drinking Water Requirements	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	1/31/23 12:55	CB00494

Sample Results

Sample: EP500

CB00494-01 (DW) Sampled: 01/17/23 11:59

Analyte	Result	Qualifier	Dilution	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles												
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1	0.31	1.0		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1	0.34	1.1		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		1	0.37	1.2		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	0.41	1.4		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	6.2		1	0.47	1.6		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1	0.40	1.3		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	0.34	J	1	0.30	1.0		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	0.33	1.1		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	0.23	0.77		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	3.4		1	0.44	1.5		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	5.0		1	0.47	1.6		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	0.35	J	1	0.34	1.1		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		1	0.46	1.5		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	8.0		1	0.49	1.6		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	1.9		1	0.31	1.0		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	0.34	1.1		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		1	0.43	1.4		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	0.30	1.0		ng/L	1/24/23 6:48	1/25/23 15:35	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*104%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 15:35*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*94%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 15:35*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*100%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 15:35*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*95%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 15:35*	*RAW*	*EPA 537.1, Rev 2.0*	2

Sample: EP500 Field Blank

CB00494-02 (DW) Sampled: 01/17/23 00:00

Analyte	Result	Qualifier	Dilution	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles												

Wausau Waterworks	Project: 2023 WDNR Drinking Water Requirerments		
Drinking Water Division	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	1/31/23 12:55	CB00494

Sample Results (Continued)

Sample: EP500 Field Blank (Continued)

CB00494-02 (DW) Sampled: 01/17/23 00:00

Analyte	Result	Qualifier	Dilution	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles (Continued)												
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1	0.30	0.98		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1	0.33	1.1		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		1	0.36	1.2		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	0.40	1.4		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1	0.46	1.6		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1	0.39	1.3		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		1	0.29	0.98		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	0.32	1.1		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	0.23	0.75		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		1	0.43	1.5		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		1	0.46	1.6		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		1	0.33	1.1		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		1	0.45	1.5		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		1	0.48	1.6		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		1	0.30	0.98		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	0.33	1.1		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		1	0.42	1.4		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	0.29	0.98		ng/L	1/24/23 6:48	1/25/23 16:01	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*91%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:01*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*90%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:01*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*94%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:01*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*92%*			Limits:	*70-130%*			*1/24/23 6:48*	*1/25/23 16:01*	*RAW*	*EPA 537.1, Rev 2.0*	2

Sample: EP400

CB00494-03 (DW) Sampled: 01/17/23 07:00

Analyte	Result	Qualifier	Dilution	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles												

Northern Lake Service, Inc • 400 N Lake Ave • Crandon, WI 54520
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April 28, 2023

Scott Boers
Wausau Waterworks
1801 Burek Ave
Wausau, WI 54403

Project: Quarterly FAS Testing
Project Number: 2023 WDNR Drinking Water Requirerments
Work Order: CB03613
Received: 04/13/23
PWS ID: 73701023

Enclosed are the results of analyses for samples received by our laboratory on 4/13/2023. If you have any questions concerning this report, please feel free to contact a client service representative at clientservices@nlslab.com.

Sincerely,

Tom Priebe For Client Services
Northern Lake Service, Inc.

Northern Lake Service Inc.

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800-278-1254 • www.nlslab.com

Wausau Waterworks	Project: Quarterly FAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	4/28/23 8:08	CB03613

Sample Summary

Descriptions of all qualifiers listed throughout this report can be found on the Qualifiers and Definitions Page.

Lab ID	Sample	Matrix	Sample Type	Qualifiers	Date Sampled	Date Received
CB03613-01	EP400 (PFAS)	DW			4/12/23 3:00	4/13/23 9:00
CB03613-02	Field Blank	DW			4/12/23 3:00	4/13/23 9:00
CB03613-03	EP500 (PFAS)	DW			4/12/23 10:25	4/13/23 9:00
CB03613-04	Field Blank	DW			4/12/23 10:25	4/13/23 9:00

Wausau Waterworks	Project: Quarterly FAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	4/28/23 8:08	CB03613

Sample Results

Sample: EP400 (PFAS)

CB03613-01 (DW) Sampled: 04/12/23 03:00

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles											
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4.5		0.47	1.6		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	0.31	J	0.30	1.0		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	2.7		0.44	1.5		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	3.5		0.47	1.6		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.34	1.1		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	6.1		0.49	1.6		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	0.68	J	0.31	1.0		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.43	1.4		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0		ng/L	4/19/23 5:41	4/19/23 19:34	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*93%*		*Limits: 70-130%*				*4/19/23 5:41*	*4/19/23 19:34*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*88%*		*Limits: 70-130%*				*4/19/23 5:41*	*4/19/23 19:34*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*92%*		*Limits: 70-130%*				*4/19/23 5:41*	*4/19/23 19:34*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*80%*		*Limits: 70-130%*				*4/19/23 5:41*	*4/19/23 19:34*	*RAW*	*EPA 537.1, Rev 2.0*	2

Wausau Waterworks	Project: Quarterly FAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	4/28/23 8:08	CB03613

Sample: Field Blank

CB03613-02 (DW) Sampled: 04/12/23 03:00

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles											
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.47	1.6		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.30	1.0		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		0.44	1.5		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		0.47	1.6		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.34	1.1		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		0.49	1.6		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		0.31	1.0		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.43	1.4		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0		ng/L	4/24/23 5:17	4/24/23 16:57	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*91%*		*Limits: 70-130%*				*4/24/23 5:17*	*4/24/23 16:57*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*91%*		*Limits: 70-130%*				*4/24/23 5:17*	*4/24/23 16:57*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*92%*		*Limits: 70-130%*				*4/24/23 5:17*	*4/24/23 16:57*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*80%*		*Limits: 70-130%*				*4/24/23 5:17*	*4/24/23 16:57*	*RAW*	*EPA 537.1, Rev 2.0*	2

Wausau Waterworks	Project: Quarterly FAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	4/28/23 8:08	CB03613

Sample: EP500 (PFAS)

CB03613-03 (DW) Sampled: 04/12/23 10:25

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles											
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.30	0.98		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.33	1.1		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.36	1.2		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.40	1.4		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.9		0.46	1.6		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.39	1.3		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.29	0.98		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.32	1.1		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.75		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	2.1		0.43	1.5		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	2.9		0.46	1.6		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.33	1.1		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.45	1.5		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	5.0		0.48	1.6		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	0.66	J	0.30	0.98		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.33	1.1		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.42	1.4		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.29	0.98		ng/L	4/19/23 5:41	4/19/23 19:59	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*90%*		*Limits: 70-130%*				*4/19/23 5:41*	*4/19/23 19:59*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*86%*		*Limits: 70-130%*				*4/19/23 5:41*	*4/19/23 19:59*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*88%*		*Limits: 70-130%*				*4/19/23 5:41*	*4/19/23 19:59*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*85%*		*Limits: 70-130%*				*4/19/23 5:41*	*4/19/23 19:59*	*RAW*	*EPA 537.1, Rev 2.0*	2

Wausau Waterworks	Project: Quarterly FAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	4/28/23 8:08	CB03613

Sample: Field Blank

CB03613-04 (DW) Sampled: 04/12/23 10:25

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles											
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.47	1.6		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.30	1.0		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		0.44	1.5		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		0.47	1.6		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.34	1.1		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		0.49	1.6		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		0.31	1.0		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.43	1.4		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0		ng/L	4/24/23 5:17	4/24/23 17:23	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*88%*		*Limits: 70-130%*				*4/24/23 5:17*	*4/24/23 17:23*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*87%*		*Limits: 70-130%*				*4/24/23 5:17*	*4/24/23 17:23*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*91%*		*Limits: 70-130%*				*4/24/23 5:17*	*4/24/23 17:23*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*83%*		*Limits: 70-130%*				*4/24/23 5:17*	*4/24/23 17:23*	*RAW*	*EPA 537.1, Rev 2.0*	2

Northern Lake Service Inc.

Northern Lake Service, Inc • 400 N Lake Ave • Crandon, WI 54520
800-278-1254 • www.nlslab.com

Wausau Waterworks	Project: Quarterly FAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	4/28/23 8:08	CB03613

List of Certifications

Code	Description	Number	Expires
2	NLS (Crandon) WDNR Laboratory ID No.	721026460	8/31/23

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Wausau Waterworks	Project: Quarterly FAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	4/28/23 8:08	CB03613

Qualifiers and Definitions

Item	Definition
J	Result is between LOD and LOQ and considered to be within a region of less-certain quantitation.
ND	Analyte NOT DETECTED at or above the LOD or MRL.
LOD	Limit of Detection.
LOQ	Limit of Quantitation.
NA	Not Applicable.
Dry	Dry Weight Basis.
Wet	Wet Weight Basis.
% Dry	Equal to: (mg/kg dry) / 10000.
1000 ug/L	Equal to: 1 mg/L.
MCL	Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

All LOD/LOQs adjusted to reflect preparation volumes, dilutions, and/or solids content.

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721026460
WI DATCP 105-000330

CB03613

CLIENT	Wausau Water Works
ADDRESS	1801 Burek Ave.
CITY / STATE / ZIP	Wausau / WI / 54401
PROJECT DESCRIPTION / NO.	QUOTATION NO.
DNR FID #	DNR LICENSE #
CONTACT	PHONE 715 261 7265
PURCHASE ORDER NO.	FAX

MATRIX:
SW = surface water
WW = waste water
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
SOIL = soil
SED = sediment
PROD = product
SL = sludge
OTHER

NO. 184561

ITEM NO.	NLS LAB. NO.	SAMPLE ID	COLLECTION DATE	COLLECTION TIME	MATRIX (See above)	ANALYZE PER ORDER OF ANALYSIS: PFAS PARAMETER	N	Indicate G or C if WW Sample is Grab or Composite.	COLLECTION REMARKS (i.e. DNR Well ID #)
1.									
2.		EP 400	4/12/23	3:00AM	DW		G		
3.									
4.		EP 500	4/12/23	10:25AM	DW		G		
5.									
6.									
7.									
8.									
9.									
10.									

ONE SAMPLE PER LINE

COLLECTED BY (signature) Dawn Juraw	CUSTODY SEAL NO. (IF ANY)	DATE/TIME 10:25AM 4/12/23
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
DISPATCHED BY (signature)	METHOD OF TRANSPORT SD	DATE/TIME

RECEIVED AT NLS BY (signature)	DATE/TIME 4/13/23 0900	CONDITION on ice	TEMP. 4.6°C
COOLER #	REMARKS & OTHER INFORMATION		
	WDNR FACILITY NUMBER	E-MAIL ADDRESS	

REPORT TO

INVOICE TO

PRESERVATIVE:
NP = no preservative
S = sulfuric acid
N = nitric acid
Z = zinc acetate
M = methanol
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid

IMPORTANT:
1. TO MEET REGULATORY REQUIREMENTS, THIS FORM **MUST** BE COMPLETED IN DETAIL AND INCLUDED IN THE COOLER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, **NOT** PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.
4. PARTIES COLLECTING SAMPLE, LISTED AS **REPORT TO** AND LISTED AS **INVOICE TO** AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.

ORIGINAL COPY

NORTHERN LAKE SERVICE, INC.
STANDARD TERMS AND CONDITIONS

The following terms and conditions shall be applicable in the absence of written contract.

A. RELATIONSHIP OF THE PARTIES

The relationship between the parties shall be limited to the performance of service as set forth in this AGREEMENT and shall constitute neither a joint venture nor an employer-employee relationship. Neither party may obligate the other to any expense or liability outside of this AGREEMENT except upon written consent of the other.

B. PERFORMANCE

The standard of care applicable to Laboratory's services shall be the degree of skill and diligence normally exercised by testing laboratories performing the same or similar services. Laboratory warrants that it is properly certified to perform the laboratory services in the state where the services are required.

C. PAYMENT

(1) Unless, the Laboratory has in possession a completed NORTHERN LAKE SERVICE, INC. Standard Statement of Responsibility and Authorization to Release Analytical Data (see Addendum), signed by Client's Customer prior to commencement of services (if applicable), all invoices will be paid by Client and subject to Laboratory standard credit terms. Standard credit terms are net 30 days and 1.5% per month on past due accounts.

a. Client will promptly review invoices and forward to Client's Customer for payment (if applicable). Said review will occur within 15 days of invoice date.

(2) Client will reimburse Laboratory within 30 days for all collection and legal fees incurred by the Laboratory in collection of debts from both Client and Client's Customer.

D. INSURANCE

(1) Laboratory shall procure and maintain, at its sole cost and expense, the following insurance:

a. Workers' Compensation and Employers' Liability Insurance as prescribed by applicable law.

b. Commercial General Liability Insurance, the limits of which shall not be less than $1,000,000 per occurrence.

c. Professional Liability Coverage in the amount of $1,000,000.

(2) If requested Certificate of Insurance evidencing the above coverage shall be issued to the Client prior to commencement of work. The certificate must specify that Client will be given in writing, 10 days advance notice of cancellation, termination, or alteration of the policies.

E. INDEMNIFICATION

(1) Laboratory shall indemnify and hold Client, its officers, agents, and employees harmless from and against any and all claims based or arising out of damage to property or injuries to persons, which are directly caused by the sole negligence or intentional wrongful acts or omissions of the Laboratory, its agents, or employees, in performing the services authorized by this AGREEMENT, provided that Laboratory shall have no duty to indemnify Client against liability for damages to the extent caused by the negligence or intentionally wrongful acts or omissions of Client.

(2) Client shall indemnify and hold Laboratory, its officers, agents, and employees harmless from and against any and all claims based or arising out of damage to property or injuries to persons, which are directly caused by the negligence or intentional wrongful acts or omissions of the Client, its agents, or employees, in performing the services authorized by this AGREEMENT, provided that Client shall have no duty to indemnify Laboratory against liability for damages to the extent caused by the sole negligence or intentionally wrongful acts or omissions of Laboratory.

(3) The indemnity owed and liability of the Laboratory shall be limited to the greater of total amount invoiced for the project or $50,000.00. However, total indemnity and liability of the Laboratory will under no circumstances exceed the aggregate insurance limits as stipulated in Section D.

F. COMPLIANCE WITH LAWS, REGULATIONS, PERMITTING, AND LICENSING REQUIREMENTS

The Laboratory shall comply with all laws, regulations, codes, and ordinances that are applicable to Laboratory's work to be performed under this AGREEMENT. The Laboratory shall procure and maintain at its own expense, all permits and licenses, required by law, to perform the services authorized under this AGREEMENT.

G. HEALTH AND SAFETY

Laboratory shall comply with all health, safety, and training obligations required by law. Compliance with these health, safety and training requirements is the sole responsibility of Laboratory. Client is not in any way responsible for the health, safety, or training of Laboratory's employees.

H. DISPUTES

(1) If a dispute arises concerning services performed or fees invoiced, Client agrees to notify Laboratory within 14 days of the time Client knew or should have known of the dispute. The invoice will be apportioned and fees for services not in question will be paid according to Section 2.0. Resolution of disputes will be handled in the following manner.

a. Client's project manager and Laboratory's project manager will seek a negotiated resolution.

b. If direct negotiations fail within fourteen days, both parties agree the issue shall be settled by arbitration administered by the American Arbitration Association in accordance with its Commercial Arbitration Rules, and judgement on the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

(2) Participation of Client and Laboratory in this process shall be a condition precedent for either party to seek redress through any other means legally available.

I. OWNERSHIP AND RETENTION OF DOCUMENTS

(1) All specifications, notes, data, materials, report reproducibles, and other work developed as a part of each work order will be the property of Client. Any reuse of these documents by the Client, not occurring as a part of this AGREEMENT, will be without any liability to the Laboratory. Laboratory may not use these for purposes other than this AGREEMENT without Clients written permission.

(2) All analytical data and applicable reports remain the property of the Laboratory until such time as payment is received for said data.

(3) Laboratory shall retain all pertinent records relating to services performed for a period of five years following submission of a report, during which period the records will be made available to Client upon reasonable notice.

J. SEVERABILITY AND SURVIVAL

If any element of this AGREEMENT is held to violate a law, then the element shall be deemed void, and all remaining provisions shall continue in force. However, Laboratory and Client will in good faith attempt to replace any invalid or unenforceable provision with one that is valid and enforceable, and which comes as close as possible to expressing the intent of the original provision. All terms and conditions of this AGREEMENT allocating liability between Laboratory and Client shall survive the completion of the services hereunder and the termination of this AGREEMENT.

K. TERMINATION

(1) Client may terminate this AGREEMENT, by providing ten days written notice (1) for convenience, or (2) if Client is terminated for any reason by Client's Customer. Laboratory may terminate this AGREEMENT if Client fails to meet the payment provisions specified in Section 2.0. In the event of termination, Laboratory will be paid an amount in proportion to the amount of work completed.

(2) If the Laboratory fails to perform the services required for reasons that are not beyond Laboratory's control, than it shall be deemed in default. In the event of such default, Client may terminate this AGREEMENT immediately and shall have no obligation to make any further payment to Laboratory except for work completed prior to termination.

L. FORCE MAJEURE

Neither party to this AGREEMENT will be liable to the other party for delays in performing the services, nor for the direct or indirect cost resulting from such delays that may result from labor strikes, riots, war, acts of governmental authorities, extraordinary weather conditions or other natural catastrophe, year 2000 date delays, or any other cause beyond the reasonable control or contemplation of either party.

M. EQUAL EMPLOYMENT OPPORTUNITY/AFFIRMATIVE ACTION.

(1) Laboratory will not refuse to hire, accept, register, classify or refer for employment or discharge any employee or applicant because of age, race, creed, color, sex, national origin, religion or disability of the applicant or employee unless based on a good faith occupational qualification.

(2) The Laboratory will not maintain nor provide for its employees any segregated facilities at any of its establishments, will not permit its employees to perform their services at any location under its control where segregated facilities are maintained.

(3) Further, Laboratory will comply, as may be applicable, with all Affirmative Action requirements, utilization of Small Business and Small Disadvantage or Women-Owned Business concerns.

DNR Drinking Water Program
West Central Region
1300 W Clairemont
Eau Claire WI 54701

PFAS ANALYSIS
(ENCLOSE FORM WHEN SENDING SAMPLE TO LAB)

Public Water Supply
Form Number: 4464
Revision: 20230105
Generated: 1/12/2023

Section I: System Information (to be completed by Department of Natural Resources/SAMPLER)

System Name: **WAUSAU WATERWORKS** PWS ID: **73701023**

DNR Contact: **KYLE PRIEST (715)315-8094** Region: **6** Type: **MC**

System Address: **407 GRANT ST** City: **WAUSAU** County: **MARATHON**

Entry Point ID: **400** WI Unique Well No: Note: **System Chlorinates.**

Sampler Contact Info: (Notify DNR Contact of Corrections)	**Sampler:** (Leave Blank If You Don't Use These Services)
(715)571-7752 WATER SUPERINTENDENT SCOTT BOERS 407 GRANT STREET WAUSAU WI 54403	Provide information to have results faxed or emailed or to change a billing address, if your lab offers these services Fax Number: Email: Billing Address:

Sample Source: (Location)	**Sample Type:** (Check Only One)
W - Well Source	X D - Compliance Sample
X E - Entry Point	C - Confirmation Sample
D - Distribution System	I - Investigation Sample
	W - Raw Water Sample

Special Instructions:

Collect Sample between: **4/1/2023** and **6/30/2023**

Section II: Sample Information (to be completed by SAMPLER -- ALL ITEMS REQUIRED)

Sample Collection Date: 4 / 12 / 23 (mm/dd/yyyy) Time: 3 : 00 ☒ a.m. ☐ p.m.

Address where sample was collected: 1801 Burek Ave., Wausau, WI

Monitoring Site ID: EP400 Sample Tap Location (e.g. kitchen sink): Lab Tap

First Initial and Last Name of Sampler: D - Jensen Sampler Phone: 715 261 7265

Section III: To be completed by LAB. Report results on back for PWS and electronically to DNR within 10 days per NR 809.80

☐ **Check here if some or all of the parameters were analyzed by a subcontracted lab.**
NOTE: A separate form must be completed by each lab with data for only the parameters which that lab analyzed.

Laboratory ID: Laboratory Name:

Date Sample Received: / / Time: : Lab Sample ID:

Signature of Receiving Lab Official: Date Reported to PWS: / /

Condition of Sample Upon Receipt:

Notice: This form must be submitted with laboratory samples analyzed to determine compliance with ch. NR 809, Wis. Adm. Code, Safe Drinking Water. Completion of this form or a similar form approved by the Department is mandatory. Failure to submit a completed form to the Department is a violation punishable by a forfeiture of no less than $10 nor more than $5000, or by a fine of not less than $10 nor more than $100 or imprisonment of not less than 30 days, or both. Each day of continued violation is a separate offense (ss. 144.99, Wis. Stats.). Authorization for these requirement is under s. 280.13(d), Wis. Stats. and ch. NR 809.80. Personally identifiable information on this form will be used for no other purpose. Reference Requirement #98681906.

PFAS ANALYSIS System Name: **WAUSAU WATERWORKS**

To be completed by the laboratory performing analysis. PWS ID: **73701023** Lab Sample ID:

Storet Code		Parameter	SDWA Method	MDL	Results	MCL	Units
* 99597	X	PERFLUORO-N-OCTANOIC ACID				70	NG/L
* 99598	X	PERFLUORO-N-OCTANESULFONIC ACID				70	NG/L
97433		11-CHLOROEICOSAFLUORO-3-OXAUNDECANE-1-SULFONIC ACID					NG/L
97434		4,8-DIOXA-3H-PERFLUORONONANOIC ACID					NG/L
97415		4:2 FLUOROTELOMER SULFONIC ACID					NG/L
97414		6:2 FLUOROTELOMER SULFONIC ACID					NG/L
97413		8:2 FLUOROTELOMER SULFONIC ACID					NG/L
97432		9-CHLOROHEXADECAFLUORO-3-OXANONANE-1-SULFONIC ACID					NG/L
97435		HEXAFLUOROPROPYLENE OXIDE DIMER ACID					NG/L
97436		N-ETHYL PERFLUOROOCTANESULFONAMIDO-ACETIC ACID					NG/L
97437		N-METHYL PERFLUOROOCTANESULFONAMIDO-ACETIC ACID					NG/L
99987		PERFLUORO-N-BUTANESULFONIC ACID					NG/L
99991		PERFLUORO-N-BUTANOIC ACID					NG/L
99996		PERFLUORO-N-DECANOIC ACID					NG/L
99998		PERFLUORO-N-DODECANOIC ACID					NG/L
99989		PERFLUORO-N-HEPTANESULFONIC ACID					NG/L
99994		PERFLUORO-N-HEPTANOIC ACID					NG/L
99988		PERFLUORO-N-HEXANESULFONIC ACID					NG/L
99993		PERFLUORO-N-HEXANOIC ACID					NG/L
99995		PERFLUORO-N-NONANOIC ACID					NG/L
99992		PERFLUORO-N-PENTANOIC ACID					NG/L
99924		PERFLUORO-N-TETRADECANOIC ACID					NG/L
99923		PERFLUORO-N-TRIDECANOIC ACID					NG/L
99997		PERFLUORO-N-UNDECANOIC ACID					NG/L
97425		PERFLUOROPENTANESULFONIC ACID					NG/L
95507		NONAFLUORO-3,6-DIOXAPHEPTANOIC ACID					NG/L
95504		PERFLUORO(2-ETHOXYETHANE)SULFONIC ACID					NG/L
95501		PERFLUORO-4-METHOXYBUTANOIC ACID					NG/L
95498		PERFLUORO-3-METHOXYPROPANOIC ACID					NG/L

***The full suite of PFAS contaminants listed under EPA Method 537.1 or EPA Method 533 must be analyzed as part of the perfluoro-n-octanoic acid (PFOA) and perfluoro-n-octanesulfonic acid (PFOS) analysis. Any detection of any other PFAS contaminant identified as part of the analysis must also be reported to the DNR as specified under NR 809.207(2), Safe Drinking Water, Wis. Adm. Code.**

Approved By: QA Officer: Date:

Laboratory Manager: Date:

Comments:

DNR Drinking Water Program
West Central Region
1300 W Clairemont
Eau Claire WI 54701

PFAS ANALYSIS
(ENCLOSE FORM WHEN SENDING SAMPLE TO LAB)

Public Water Supply
Form Number: 4464
Revision: 20230105
Generated: 1/12/2023

Section I: System Information (to be completed by Department of Natural Resources/SAMPLER)

System Name: **WAUSAU WATERWORKS** PWS ID: **73701023**

DNR Contact: **KYLE PRIEST (715)315-8094** Region: **6** Type: **MC**

System Address: **407 GRANT ST** City: **WAUSAU** County: **MARATHON**

Entry Point ID: **500** WI Unique Well No: Note: **System Chlorinates.**

Sampler Contact Info: (Notify DNR Contact of Corrections)	**Sampler:** (Leave Blank If You Don't Use These Services) Provide information to have results faxed or emailed or to change a billing address, if your lab offers these services
(715)571-7752 WATER SUPERINTENDENT SCOTT BOERS 407 GRANT STREET WAUSAU WI 54403	Fax Number: Email: Billing Address:

Sample Source: (Location)	**Sample Type:** (Check Only One)
W - Well Source	X D - Compliance Sample
X E - Entry Point	C - Confirmation Sample
D - Distribution System	I - Investigation Sample
	W - Raw Water Sample

Special Instructions:

Collect Sample between: **4/1/2023** and **6/30/2023**

Section II: Sample Information (to be completed by SAMPLER -- ALL ITEMS REQUIRED)

Sample Collection Date: 4 /12 /23 (mm/dd/yyyy) Time: 10 :25 ☒a.m. ☐p.m.

Address where sample was collected: 1801 Burek Ave., Wausau, WI

Monitoring Site ID: EP500 Sample Tap Location (e.g. kitchen sink): Lab Tap

First Initial and Last Name of Sampler: D - Jensen Sampler Phone: 715 261 7265

Section III: To be completed by LAB. Report results on back for PWS and electronically to DNR within 10 days per NR 809.80

☐ **Check here if some or all of the parameters were analyzed by a subcontracted lab.**
NOTE: A separate form must be completed by each lab with data for only the parameters which that lab analyzed.

Laboratory ID: Laboratory Name:

Date Sample Received: / / Time: : Lab Sample ID:

Signature of Receiving Lab Official: Date Reported to PWS: / /

Condition of Sample Upon Receipt:

Notice: This form must be submitted with laboratory samples analyzed to determine compliance with ch. NR 809, Wis. Adm. Code, Safe Drinking Water. Completion of this form or a similar form approved by the Department is mandatory. Failure to submit a completed form to the Department is a violation punishable by a forfeiture of no less than $10 nor more than $5000, or by a fine of not less than $10 nor more than $100 or imprisonment of not less than 30 days, or both. Each day of continued violation is a separate offense (ss. 144.99, Wis. Stats.). Authorization for these requirement is under s. 280.13(d), Wis. Stats. and ch. NR 809.80. Personally identifiable information on this form will be used for no other purpose. Reference Requirement #98682087.

PFAS ANALYSIS System Name: **WAUSAU WATERWORKS**

To be completed by the laboratory performing analysis. PWS ID: **73701023** Lab Sample ID:

Storet Code		Parameter	SDWA Method	MDL	Results	MCL	Units
* 99597	X	PERFLUORO-N-OCTANOIC ACID				70	NG/L
* 99598	X	PERFLUORO-N-OCTANESULFONIC ACID				70	NG/L
97433		11-CHLOROEICOSAFLUORO-3-OXAUNDECANE-1-SULFONIC ACID					NG/L
97434		4,8-DIOXA-3H-PERFLUORONONANOIC ACID					NG/L
97415		4:2 FLUOROTELOMER SULFONIC ACID					NG/L
97414		6:2 FLUOROTELOMER SULFONIC ACID					NG/L
97413		8:2 FLUOROTELOMER SULFONIC ACID					NG/L
97432		9-CHLOROHEXADECAFLUORO-3-OXANONANE-1-SULFONIC ACID					NG/L
97435		HEXAFLUOROPROPYLENE OXIDE DIMER ACID					NG/L
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99991		PERFLUORO-N-BUTANOIC ACID					NG/L
99996		PERFLUORO-N-DECANOIC ACID					NG/L
99998		PERFLUORO-N-DODECANOIC ACID					NG/L
99989		PERFLUORO-N-HEPTANESULFONIC ACID					NG/L
99994		PERFLUORO-N-HEPTANOIC ACID					NG/L
99988		PERFLUORO-N-HEXANESULFONIC ACID					NG/L
99993		PERFLUORO-N-HEXANOIC ACID					NG/L
99995		PERFLUORO-N-NONANOIC ACID					NG/L
99992		PERFLUORO-N-PENTANOIC ACID					NG/L
99924		PERFLUORO-N-TETRADECANOIC ACID					NG/L
99923		PERFLUORO-N-TRIDECANOIC ACID					NG/L
99997		PERFLUORO-N-UNDECANOIC ACID					NG/L
97425		PERFLUOROPENTANESULFONIC ACID					NG/L
95507		NONAFLUORO-3,6-DIOXAPHEPTANOIC ACID					NG/L
95504		PERFLUORO(2-ETHOXYETHANE)SULFONIC ACID					NG/L
95501		PERFLUORO-4-METHOXYBUTANOIC ACID					NG/L
95498		PERFLUORO-3-METHOXYPROPANOIC ACID					NG/L

***The full suite of PFAS contaminants listed under EPA Method 537.1 or EPA Method 533 must be analyzed as part of the perfluoro-n-octanoic acid (PFOA) and perfluoro-n-octanesulfonic acid (PFOS) analysis. Any detection of any other PFAS contaminant identified as part of the analysis must also be reported to the DNR as specified under NR 809.207(2), Safe Drinking Water, Wis. Adm. Code.**

Approved By: QA Officer: Date:

Laboratory Manager: Date:

Comments:

Northern Lake Service, Inc • 400 N Lake Ave • Crandon, WI 54520
800-278-1254 • www.nlslab.com

July 06, 2023

Scott Boers
Wausau Waterworks
1801 Burek Ave
Wausau, WI 54403

Project: Investigative PFAS Testing
Project Number: 2023 WDNR Drinking Water Requirerments
Work Order: CB07018
Received: 06/23/23
PWS ID: 73701023

Enclosed are the results of analyses for samples received by our laboratory on 6/23/2023. If you have any questions concerning this report, please feel free to contact a client service representative at clientservices@nlslab.com.

Sincerely,

Ronald T. Krueger For Client Services
Northern Lake Service, Inc.

Northern Lake Service Inc.

Northern Lake Service, Inc • 400 N Lake Ave • Crandon, WI 54520
800-278-1254 • www.nlslab.com

Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	7/6/23 10:20	CB07018

Sample Summary

Descriptions of all qualifiers listed throughout this report can be found on the Qualifiers and Definitions Page.

Lab ID	Sample	Matrix	Sample Type	Qualifiers	Date Sampled	Date Received
CB07018-01	Lab	DW			6/22/23 12:00	6/23/23 9:00
CB07018-02	Lab Field Blank	DW			6/22/23 12:00	6/23/23 9:00

Northern Lake Service Inc.

Northern Lake Service, Inc • 400 N Lake Ave • Crandon, WI 54520
800-278-1254 • www.nlslab.com

Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	7/6/23 10:20	CB07018

Sample Results

Sample: Lab

CB07018-01 (DW) Sampled: 06/22/23 12:00

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles											
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.32	1.0		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.35	1.1		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.38	1.2		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.42	1.4		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	5.4		0.48	1.6		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.41	1.3		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	0.42	J	0.31	1.0		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.34	1.1		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.79		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	3.3		0.45	1.5		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	3.5		0.48	1.6		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.35	1.1		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.47	1.5		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	8.3		0.50	1.6		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	1.6		0.32	1.0		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.35	1.1		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.44	1.4		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.31	1.0		ng/L	6/26/23 11:15	6/27/23 21:41	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*100%*		*Limits:*	*70-130%*			*6/26/23 11:15*	*6/27/23 21:41*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*95%*		*Limits:*	*70-130%*			*6/26/23 11:15*	*6/27/23 21:41*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*103%*		*Limits:*	*70-130%*			*6/26/23 11:15*	*6/27/23 21:41*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*92%*		*Limits:*	*70-130%*			*6/26/23 11:15*	*6/27/23 21:41*	*RAW*	*EPA 537.1, Rev 2.0*	2

Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	7/6/23 10:20	CB07018

Sample: Lab Field Blank

CB07018-02 (DW) Sampled: 06/22/23 12:00

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles											
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.47	1.6		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.30	1.0		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		0.44	1.5		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		0.47	1.6		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.34	1.1		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		0.49	1.6		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		0.31	1.0		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.43	1.4		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0		ng/L	6/28/23 9:43	7/1/23 15:22	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*88%*		*Limits: 70-130%*				*6/28/23 9:43*	*7/1/23 15:22*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*88%*		*Limits: 70-130%*				*6/28/23 9:43*	*7/1/23 15:22*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*91%*		*Limits: 70-130%*				*6/28/23 9:43*	*7/1/23 15:22*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*84%*		*Limits: 70-130%*				*6/28/23 9:43*	*7/1/23 15:22*	*RAW*	*EPA 537.1, Rev 2.0*	2

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Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	7/6/23 10:20	CB07018

List of Certifications

Code	Description	Number	Expires
2	NLS (Crandon) WDNR Laboratory ID No.	721026460	8/31/23

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Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	7/6/23 10:20	CB07018

Qualifiers and Definitions

Item	Definition
J	Result is between LOD and LOQ and considered to be within a region of less-certain quantitation.
ND	Analyte NOT DETECTED at or above the LOD or MRL.
LOD	Limit of Detection.
LOQ	Limit of Quantitation.
NA	Not Applicable.
Dry	Dry Weight Basis.
Wet	Wet Weight Basis.
% Dry	Equal to: (mg/kg dry) / 10000.
1000 ug/L	Equal to: 1 mg/L.
MCL	Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

All LOD/LOQs adjusted to reflect preparation volumes, dilutions, and/or solids content.

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORI

CB07018

Wisconsin Lab Cert. No. 721026
WI DATCP 105-000330

CLIENT	Wausau Water Works
ADDRESS	1801 Burek Ave
CITY	Wausau STATE WI ZIP 54401
PROJECT DESCRIPTION / NO.	QUOTATION NO.
DNR FID #	DNR LICENSE #
CONTACT Scott Boers	PHONE 715-571-7752
PURCHASE ORDER NO.	FAX

MATRIX:
SW = surface water
WW = waste water
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
SOIL = soil
SED = sediment
PROD = product
SL = sludge
OTHER

ANALYZE PER ORDER OF ANALYSIS

Indicate G or C if WW Sample is Grab or Composite.

NO.

ITEM NO.	NLS LAB. NO.	SAMPLE ID	COLLECTION DATE	COLLECTION TIME	MATRIX (See above)	COLLECTION REMARKS (i.e. DNR Well ID #)
1.		Lab	6-22-23	12:00pm	DW	PFAS
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

ONE SAMPLE PER LINE

COLLECTED BY (signature) Tim Mcsalk	CUSTODY SEAL NO. (IF ANY)	DATE/TIME
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME 6-22-23 12:00 pm
DISPATCHED BY (signature)	METHOD OF TRANSPORT Spec + Dec	DATE/TIME

RECEIVED AT NLS BY (signature) CPatterson	DATE/TIME 6/23/23 900	CONDITION on ice	TEMP 0.4°C
COOLER #	REMARKS & OTHER INFORMATION #9		
	WDNR FACILITY NUMBER	E-MAIL ADDRESS	

REPORT TO

INVOICE TO

PRESERVATIVE:
NP = no preservative
S = sulfuric acid
N = nitric acid
Z = zinc acetate
M = methanol
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid

IMPORTANT:
1. TO MEET REGULATORY REQUIREMENTS, THIS FORM MUST BE COMPLETED IN DETAIL AND INCLUDED IN THE COOLER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, NOT PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.
4. PARTIES COLLECTING SAMPLE, LISTED AS REPORT TO AND LISTED AS INVOICED TO AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.

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July 28, 2023

Scott Boers
Wausau Waterworks
1801 Burek Ave
Wausau, WI 54403

Project: Investigative PFAS Testing
Project Number: 2023 WDNR Drinking Water Requirerments
Work Order: CB08107
Received: 07/19/23
PWS ID: 73701023

Enclosed are the results of analyses for samples received by our laboratory on 7/19/2023. If you have any questions concerning this report, please feel free to contact a client service representative at clientservices@nlslab.com.

Sincerely,

Ronald T. Krueger For Client Services
Northern Lake Service, Inc.

Northern Lake Service Inc.

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800-278-1254 • www.nlslab.com

Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	7/28/23 7:08	CB08107

Sample Summary

Descriptions of all qualifiers listed throughout this report can be found on the Qualifiers and Definitions Page.

Lab ID	Sample	Matrix	Sample Type	Qualifiers	Date Sampled	Date Received
CB08107-01	Water Plant EP500	DW			7/18/23 11:26	7/19/23 9:00
CB08107-02	EP500 Field Blank	DW			7/18/23 11:26	7/19/23 9:00

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Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	7/28/23 7:08	CB08107

Sample Results

Sample: Water Plant EP500

CB08107-01 (DW) Sampled: 07/18/23 11:26

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles											
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.30	0.98		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.33	1.1		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.36	1.2		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.40	1.4		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	8.4		0.46	1.6		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.39	1.3		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	0.56	J	0.29	0.98		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.32	1.1		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.75		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	4.6		0.43	1.5		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	4.6		0.46	1.6		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	0.54	J	0.33	1.1		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	0.67	J	0.45	1.5		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	12		0.48	1.6		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	2.3		0.30	0.98		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.33	1.1		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.42	1.4		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.29	0.98		ng/L	7/21/23 9:16	7/23/23 12:15	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*88%*		*Limits: 70-130%*				*7/21/23 9:16*	*7/23/23 12:15*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*88%*		*Limits: 70-130%*				*7/21/23 9:16*	*7/23/23 12:15*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*96%*		*Limits: 70-130%*				*7/21/23 9:16*	*7/23/23 12:15*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*93%*		*Limits: 70-130%*				*7/21/23 9:16*	*7/23/23 12:15*	*RAW*	*EPA 537.1, Rev 2.0*	2

Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	7/28/23 7:08	CB08107

Sample: EP500 Field Blank

CB08107-02 (DW) Sampled: 07/18/23 11:26

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles											
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.47	1.6		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.30	1.0		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		0.44	1.5		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		0.47	1.6		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.34	1.1		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		0.49	1.6		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		0.31	1.0		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.43	1.4		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0		ng/L	7/26/23 5:17	7/26/23 21:47	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*77%*		*Limits: 70-130%*				*7/26/23 5:17*	*7/26/23 21:47*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*85%*		*Limits: 70-130%*				*7/26/23 5:17*	*7/26/23 21:47*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*93%*		*Limits: 70-130%*				*7/26/23 5:17*	*7/26/23 21:47*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*94%*		*Limits: 70-130%*				*7/26/23 5:17*	*7/26/23 21:47*	*RAW*	*EPA 537.1, Rev 2.0*	2

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Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	7/28/23 7:08	CB08107

List of Certifications

Code	Description	Number	Expires
2	NLS (Crandon) WDNR Laboratory ID No.	721026460	8/31/23

Northern Lake Service Inc.

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800-278-1254 • www.nlslab.com

Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54403	Project Manager: Scott Boers	7/28/23 7:08	CB08107

Qualifiers and Definitions

Item	Definition
J	Result is between LOD and LOQ and considered to be within a region of less-certain quantitation.
ND	Analyte NOT DETECTED at or above the LOD or MRL.
LOD	Limit of Detection.
LOQ	Limit of Quantitation.
NA	Not Applicable.
Dry	Dry Weight Basis.
Wet	Wet Weight Basis.
% Dry	Equal to: (mg/kg dry) / 10000.
1000 ug/L	Equal to: 1 mg/L.
MCL	Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

All LOD/LOQs adjusted to reflect preparation volumes, dilutions, and/or solids content.

SAMPLE COLLECTION AND CHAIN OF CUSTODY REC

CB08107

Wisconsin Lab Cert. No. 72
WI DATCP 105-000330

CLIENT	Wausau Water Works
ADDRESS	1801 Burek Ave
CITY / STATE / ZIP	Wausau / WI / 54401
PROJECT DESCRIPTION / NO.	QUOTATION NO.
DNR FID #	DNR LICENSE #
CONTACT	Scott Boers
PHONE	7152617265
PURCHASE ORDER NO.	FAX

MATRIX:
SW = surface water
WW = waste water
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
SOIL = soil
SED = sediment
PROD = product
SL = sludge
OTHER

Indicate G or C if WW Sample is Grab or Composite.

ITEM NO.	NLS LAB. NO.	SAMPLE ID	COLLECTION DATE	COLLECTION TIME	MATRIX (See above)	ANALYZE PER ORDER OF ANALYSIS		Disinfection By Products N		PFAS N									COLLECTION REMARKS (i.e. DNR Well ID #)
1.		VanEvt D16	7-18-23	10:38	DW			G											
2.																			
3.		Elm St. D7	7-18-23	10:56	DW			G											
4.																			
5.		Water Plant EP500	7-18-23	11:26	DW					G									
6.																			
7.																			
8.																			
9.																			
10.																			

ONE SAMPLE PER LINE

NO.

COLLECTED BY (signature)	CUSTODY SEAL NO. (IF ANY)	DATE/TIME
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
DISPATCHED BY (signature)	METHOD OF TRANSPORT	DATE/TIME

RECEIVED AT NLS BY (signature) MS	DATE/TIME 7/19 a	CONDITION	TEMP. 2°C #12
COOLER #	REMARKS & OTHER INFORMATION		
	WDNR FACILITY NUMBER	E-MAIL ADDRESS	

REPORT TO

INVOICE TO

PRESERVATIVE:
NP = no preservative
S = sulfuric acid
N = nitric acid
Z = zinc acetate
M = methanol
OH = sodium hydroxide
HA = hydrochloric & ascorbic acid
H = hydrochloric acid

IMPORTANT:

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM MUST BE COMPLETED IN DETAIL AND INCLUDED IN THE COOLER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, NOT PER BOTTLE.
3. RETURN THIS FORM WITH SAMPLES - CLIENT MAY KEEP PINK COPY.
4. PARTIES COLLECTING SAMPLE, LISTED AS REPORT TO AND LISTED AS INVOICED TO AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.

Dept. of Natural Resources
Bureau of Drinking Water
P.O. Box 7921
Madison WI 53707

PFAS ANALYSIS
(ENCLOSE FORM WHEN SENDING SAMPLE TO LAB)

Public Water Supply
Form Number: 5744
Revision: 20230517
Generated: 6/13/2023

Section I: System Information (to be completed by Department of Natural Resources/SAMPLER)

System Name: _____ PWS ID: _____

DNR Contact: _____ Region: ___ System Type: ☐MC ☐NN ☐OC ☐TN

System Address: _____ City: _____ County: _____

Entry Point ID: EP500 WI Unique Well No: _____ Note: _____

Sampler Contact Info: (Notify DNR Contact of Corrections)	**Sampler:** (Leave Blank If You Don't Use These Services) Provide information to have results faxed or emailed or to change a billing address, if your lab offers these services Fax Number: _____ Email: _____ Billing Address: _____

Sample Source: (Location)	**Sample Type:** (Check Only One)
__ W - Well Source	__ D - Compliance Sample
__ E - Entry Point	__ C - Confirmation Sample
__ D - Distribution System	X I - Investigation Sample
	__ W - Raw Water Sample

Special Instructions: _____

Collect Sample between: _____ and _____

Section II: Sample Information (to be completed by SAMPLER -- ALL ITEMS REQUIRED)

Sample Collection Date: 7 / 18 / 23 (mm/dd/yyyy) Time: 11 : 26 ☒a.m. ☐p.m.

Address where sample was collected: Wausau Water Works, 1801 Burek Ave., Wausau, WI

Monitoring Site ID: EP500 Sample Tap Location (e.g. kitchen sink): Lab Tap

First Initial and Last Name of Sampler: D - Jensen Sampler Phone: 715 261 7265

Section III: To be completed by LAB. Report results on back for PWS and electronically to DNR within 10 days per NR 809.80

☐ **Check here if some or all of the parameters were analyzed by a subcontracted lab.**
NOTE: A separate form must be completed by each lab with data for only the parameters which that lab analyzed.

Laboratory ID: _____ Laboratory Name: _____

Date Sample Received: ___ / ___ / _____ Time: _____ : _____ Lab Sample ID: _____

Signature of Receiving Lab Official: _____ Date Reported to PWS: ___ / ___ / _____

Condition of Sample Upon Receipt: _____

Notice: This form must be submitted with laboratory samples analyzed to determine compliance with ch. NR 809, Wis. Adm. Code, Safe Drinking Water. Completion of this form or a similar form approved by the Department is mandatory. Failure to submit a completed form to the Department is a violation punishable by a forfeiture of no less than $10 nor more than $5000, or by a fine of not less than $10 nor more than $100 or imprisonment of not less than 30 days, or both. Each day of continued violation is a separate offense (ss. 144.99, Wis. Stats.). Authorization for these requirement is under s. 280.13(d), Wis. Stats. and ch. NR 809.80. Personally identifiable information on this form will be used for no other purpose. Reference Requirement #96738670.

PFAS ANALYSIS System Name: _____

To be completed by the laboratory performing analysis. PWS ID: _____ Lab Sample ID: _____

Storet Code	Parameter	SDWA Method	MDL	Results	MCL	Units
* 99597	PFOA				70	NG/L
* 99598	PFOS				70	NG/L
97433	11-CHLOROEICOSAFLUORO-3-OXAUNDECANE-1-SULFONIC ACID					NG/L
97434	4,8-DIOXA-3H-PERFLUORONONANOIC ACID					NG/L
97415	4:2 FLUOROTELOMER SULFONIC ACID					NG/L
97414	6:2 FLUOROTELOMER SULFONIC ACID					NG/L
97413	8:2 FLUOROTELOMER SULFONIC ACID					NG/L
97432	9-CHLOROHEXADECAFLUORO-3-OXANONANE-1-SULFONIC ACID					NG/L
97435	HEXAFLUOROPROPYLENE OXIDE DIMER ACID					NG/L
97436	N-ETHYL PERFLUOROOCTANESULFONAMIDO-ACETIC ACID					NG/L
97437	N-METHYL PERFLUOROOCTANESULFONAMIDO-ACETIC ACID					NG/L
99987	PERFLUORO-N-BUTANESULFONIC ACID					NG/L
99991	PERFLUORO-N-BUTANOIC ACID					NG/L
99996	PERFLUORO-N-DECANOIC ACID					NG/L
99998	PERFLUORO-N-DODECANOIC ACID					NG/L
99989	PERFLUORO-N-HEPTANESULFONIC ACID					NG/L
99994	PERFLUORO-N-HEPTANOIC ACID					NG/L
99988	PERFLUORO-N-HEXANESULFONIC ACID					NG/L
99993	PERFLUORO-N-HEXANOIC ACID					NG/L
99995	PERFLUORO-N-NONANOIC ACID					NG/L
99992	PERFLUORO-N-PENTANOIC ACID					NG/L
99924	PERFLUORO-N-TETRADECANOIC ACID					NG/L
99923	PERFLUORO-N-TRIDECANOIC ACID					NG/L
99997	PERFLUORO-N-UNDECANOIC ACID					NG/L
97425	PERFLUOROPENTANESULFONIC ACID					NG/L
95507	NONAFLUORO-3,6-DIOXAPHEPTANOIC ACID					NG/L
95504	PERFLUORO(2-ETHOXYETHANE)SULFONIC ACID					NG/L
95501	PERFLUORO-4-METHOXYBUTANOIC ACID					NG/L
95498	PERFLUORO-3-METHOXYPROPANOIC ACID					NG/L

***The full suite of PFAS contaminants listed under EPA Method 537.1 or EPA Method 533 must be analyzed as part of the perfluoro-n-octanoic acid (PFOA) and perfluoro-n-octanesulfonic acid (PFOS) analysis. Any detection of any other PFAS contaminant identified as part of the analysis must also be reported to the DNR as specified under NR 809.207(2), Safe Drinking Water, Wis. Adm. Code.**

Approved By: QA Officer: _____ Date: _____

Laboratory Manager: _____ Date: _____

Comments: _____

Northern Lake Service, Inc • 400 N Lake Ave • Crandon, WI 54520
800-278-1254 • www.nlslab.com

August 24, 2023

Scott Boers
Wausau Waterworks
1801 Burek Ave
Wausau, WI 54401

Project: Investigative PFAS Testing
Project Number: 2023 WDNR Drinking Water Requirerments
Work Order: CB09517
Received: 08/11/23
PWS ID: 73701023

Enclosed are the results of analyses for samples received by our laboratory on 8/11/2023. If you have any questions concerning this report, please feel free to contact a client service representative at clientservices@nlslab.com.

Sincerely,

Tom Priebe For Client Services
Northern Lake Service, Inc.

Northern Lake Service Inc.

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800-278-1254 • www.nlslab.com

Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54401	Project Manager: Scott Boers	8/24/23 8:41	CB09517

Sample Summary

Descriptions of all qualifiers listed throughout this report can be found on the Qualifiers and Definitions Page.

Lab ID	Sample	Matrix	Sample Type	Qualifiers	Date Sampled	Date Received
CB09517-01	Lab	DW			8/10/23 11:42	8/11/23 8:00

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Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54401	Project Manager: Scott Boers	8/24/23 8:41	CB09517

Sample Results

Sample: Lab

CB09517-01 (DW) Sampled: 08/10/23 11:42

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles											
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4.7		0.47	1.6		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	0.36	J	0.30	1.0		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	2.3		0.44	1.5		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	2.5		0.47	1.6		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.34	1.1		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	6.1		0.49	1.6		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	1.1		0.31	1.0		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.43	1.4		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0		ng/L	8/16/23 5:27	8/17/23 16:22	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	*95%*		*Limits:*	*70-130%*			*8/16/23 5:27*	*8/17/23 16:22*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-HFPODA	*90%*		*Limits:*	*70-130%*			*8/16/23 5:27*	*8/17/23 16:22*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) C13-PFDA	*98%*		*Limits:*	*70-130%*			*8/16/23 5:27*	*8/17/23 16:22*	*RAW*	*EPA 537.1, Rev 2.0*	2
Surrogate: (SURR) d5-NEtFOSAA	*93%*		*Limits:*	*70-130%*			*8/16/23 5:27*	*8/17/23 16:22*	*RAW*	*EPA 537.1, Rev 2.0*	2

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Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54401	Project Manager: Scott Boers	8/24/23 8:41	CB09517

List of Certifications

Code	Description	Number	Expires
2	NLS (Crandon) WDNR Laboratory ID No.	721026460	8/31/23

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Wausau Waterworks	Project: Investigative PFAS Testing		
1801 Burek Ave	Project Number: 2023 WDNR Drinking Water Requirerments	**Reported:**	**Work Order:**
Wausau, WI 54401	Project Manager: Scott Boers	8/24/23 8:41	CB09517

Qualifiers and Definitions

Item	Definition
J	Result is between LOD and LOQ and considered to be within a region of less-certain quantitation.
ND	Analyte NOT DETECTED at or above the LOD or MRL.
LOD	Limit of Detection.
LOQ	Limit of Quantitation.
NA	Not Applicable.
Dry	Dry Weight Basis.
Wet	Wet Weight Basis.
% Dry	Equal to: (mg/kg dry) / 10000.
1000 ug/L	Equal to: 1 mg/L.
MCL	Maximum Contaminant Levels for Drinking Water Samples. Shaded results indicate >MCL.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

All LOD/LOQs adjusted to reflect preparation volumes, dilutions, and/or solids content.

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

CB09517

Wisconsin Lab Cert. No. 721026460
WI DATCP 105-000330

CLIENT	Wausau Water Works
ADDRESS	1801 Burek Ave
CITY	Wausau
STATE	WI
ZIP	54401
PROJECT DESCRIPTION / NO.	
QUOTATION NO.	
DNR FID #	
DNR LICENSE #	
CONTACT	
PHONE	
PURCHASE ORDER NO.	
FAX	

MATRIX:
SW = surface water
WW = waste water
GW = groundwater
DW = drinking water
TIS = tissue
AIR = air
SOIL = soil
SED = sediment
PROD = product
SL = sludge
OTHER

Indicate Y or N if GW Sample is field filtered.

Indicate G or C if WW Sample is Grab or Composite.

NO.

ITEM NO.	NLS LAB. NO.	SAMPLE ID	COLLECTION DATE	COLLECTION TIME	MATRIX (See above)	ANALYZE PER ORDER OF ANALYSIS: Per-Solvent-Inited Compounds	COLLECTION REMARKS (i.e. DNR Well ID #)
1.	PFAS	Lab	8-10-23	1142 Am	DW	X	
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

ONE SAMPLE PER LINE

COLLECTED BY (signature): Tim Muse	CUSTODY SEAL NO. (IF ANY)	DATE/TIME: 8-10-23 - 1142 Am
RELINQUISHED BY (signature)	RECEIVED BY (signature)	DATE/TIME
DISPATCHED BY (signature)	METHOD OF TRANSPORT: SD	DATE/TIME

RECEIVED AT NLS BY (signature)	DATE/TIME: 8/11/23 800	CONDITION: ON ICE	TEMP.: .1 (17)
COOLER #	REMARKS & OTHER INFORMATION		
PRESERVATIVE: NP = no preservative; S = sulfuric acid; N = nitric acid; Z = zinc acetate; M = methanol; OH = sodium hydroxide; HA = hydrochloric & ascorbic acid; H = hydrochloric acid	WDNR FACILITY NUMBER	E-MAIL ADDRESS	

REPORT TO

INVOICE TO

IMPORTANT:

1. TO MEET REGULATORY REQUIREMENTS, THIS FORM MUST BE COMPLETED IN DETAIL AND INCLUDED IN THE COOLER CONTAINING THE SAMPLES DESCRIBED.
2. PLEASE USE ONE LINE PER SAMPLE, NOT PER BOTTLE.
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4. PARTIES COLLECTING SAMPLE, LISTED AS REPORT TO AND LISTED AS INVOICED TO AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.