



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

February 15, 2023

Matt Silver
Wisconsin Department of Natural Resources
101 S Webster St
Madison, WI 53707

RE: 2023 Drinking Water Testing
Work Order: CB00865
Received: 01/27/23

Enclosed are the results of analyses for samples received by our laboratory on 1/27/2023. If you have any questions concerning this report, please feel free to contact a client service representative at clientservices@nlslab.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Tom Priebe".

Tom Priebe For Client Services
Northern Lake Service, Inc.



Wisconsin Department of Natural Resources
101 S Webster St
Madison, WI 53707

Project: 2023 Drinking Water Testing
Project Number: PFAS Private Well
Project Manager: Matt Silver

Reported:
2/15/23 8:54

Work Order:
CB00865

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
CB00865-01	ZO615	DW			1/27/23 9:30	1/27/23 11:06
CB00865-03	RI284	DW			1/27/23 10:15	1/27/23 11:06
CB00865-04	RI284 Field Blank	DW			1/27/23 0:00	1/27/23 11:06

Cancelled Tests:

LabNumber	SampleName	Analysis	Cancelled	Initials
CB00865-02	ZO615 Field Blank	Perfluorinated Chemicals by EPA Method 537.1 FB	2/6/23 10:22	CSC



Wisconsin Department of Natural Resources
101 S Webster St
Madison, WI 53707

Project: 2023 Drinking Water Testing
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Reported:
2/15/23 8:54

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CB00865

Sample Results

Sample: Z0615

CB00865-01 (DW) Sampled: 01/27/23 09:30

Analyte	Result	Qualifier	Dilution	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles		FBNA										
11-chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1	0.32	1.0		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1	0.35	1.1		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		1	0.38	1.2		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	0.42	1.4		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NETFOSAA)	ND		1	0.48	1.6		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1	0.41	1.3		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		1	0.31	1.0		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	0.34	1.1		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	0.23	0.79		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		1	0.45	1.5		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		1	0.48	1.6		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		1	0.35	1.1		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		1	0.47	1.5		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		1	0.50	1.6		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		1	0.32	1.0		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	0.35	1.1		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		1	0.44	1.4		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	0.31	1.0		ng/L	2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-PFHxA	98%			Limits: 70-130%				2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-HFPODA	96%			Limits: 70-130%				2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-PFDA	96%			Limits: 70-130%				2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) d5-NETFOSAA	86%			Limits: 70-130%				2/3/23 5:26	2/3/23 19:07	RAW	EPA 537.1, Rev 2.0	2

Sample: RI284

CB00865-03 (DW) Sampled: 01/27/23 10:15

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



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Sample Results (Continued)

Sample: RI284 (Continued)

CB00865-03 (DW) Sampled: 01/27/23 10:15

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	0.33	1.1		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1	0.36	1.2		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxo-3H-perfluorononanoic acid (ADONA)	ND		1	0.39	1.3		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	0.44	1.5		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NETFOSAA)	ND		1	0.50	1.7		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1	0.43	1.4		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		1	0.32	1.1		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	0.35	1.2		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	0.24	0.82		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		1	0.47	1.6		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	0.52	J	1	0.50	1.7		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		1	0.36	1.2		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		1	0.49	1.6		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	1.2	J	1	0.52	1.7		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	0.38	J	1	0.33	1.1		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	0.36	1.2		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		1	0.46	1.5		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	0.32	1.1		ng/L	2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-PFHxA	96%			Limits: 70-130%				2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-HFPODA	83%			Limits: 70-130%				2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-PFDA	91%			Limits: 70-130%				2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) d5-NETFOSAA	80%			Limits: 70-130%				2/7/23 5:33	2/8/23 12:02	RAW	EPA 537.1, Rev 2.0	2

Sample: RI284 Field Blank

CB00865-04 (DW) Sampled: 01/27/23 00:00

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



Wisconsin Department of Natural Resources
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Madison, WI 53707

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2/15/23 8:54

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Sample Results (Continued)

Sample: RI284 Field Blank (Continued)

CB00865-04 (DW) Sampled: 01/27/23 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	0.96		ng/L	2/7/23 5:33	2/8/23 12:28	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	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxo-3H-perfluorononanoic acid (ADONA)	ND		1	0.36	1.2		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	0.39	1.3		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NETFOSAA)	ND		1	0.45	1.5		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1	0.38	1.2		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		1	0.29	0.96		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	0.32	1.1		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	0.22	0.74		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		1	0.42	1.4		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		1	0.45	1.5		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		1	0.33	1.1		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		1	0.44	1.4		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		1	0.47	1.5		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		1	0.30	0.96		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	0.33	1.1		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		1	0.41	1.3		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	0.29	0.96		ng/L	2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	86%			Limits: 70-130%				2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	78%			Limits: 70-130%				2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	87%			Limits: 70-130%				2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NETFOSAA	88%			Limits: 70-130%				2/7/23 5:33	2/8/23 12:28	RAW	EPA 537.1, Rev 2.0	2



Wisconsin Department of Natural Resources
101 S Webster St
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Project: 2023 Drinking Water Testing
Project Number: PFAS Private Well
Project Manager: Matt Silver

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2/15/23 8:54

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List of Certifications

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



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Qualifiers and Definitions

Item	Definition
FBNA	The field sample had no detects, therefore the corresponding trip blank/field reagent blank was not analyzed.
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.

CB00865



SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 721026460
 Wisconsin DNR and Groundwater
 105-000330

CLIENT: Wisconsin DNR - Luck, Rick and Groundwater
 ADDRESS: PO Box 7921, Oshkosh, WI 54901
 CITY: Oshkosh, WI 54901
 STATE: WI ZIP: 54901
 PROJECT DESCRIPTION / NO.: Phos Phosphate well QUOTATION NO. 33707
 DNR FIELD # _____ DNR LICENSE # _____
 CONTACT: Matt Silver PHONE: 608-206-0167
 PURCHASE ORDER NO.: 37000-0000022345 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 _____

USE BOXES BELOW: Indicate Y or N if GW Sample is field filtered.
 Indicate G or C if WW Sample is Grab or Composite.

ITEM NO.	NLS LAB NO.	SAMPLE ID	WFR	DATE	COLLECTION TIME	MATRIX (See above)	ANALYZE PER ORDER OF ANALYSIS	NO.	COLLECTION REMARKS (i.e. DNR Well ID #)
1.		Z0 615		1/27/23	9:30	GW	ESPA MGR 05371		(2) SAMPLE (i) FIB
2.		RI 284		↓	10:15	GW			(2) SAMPLE (i) FIB
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									

COLLECTED BY (signature): *William Robert* CUSTODY SEAL NO. (IF ANY):
 RECEIVED BY (signature): *William Robert* DATE/TIME: 1-27-23 9:30
 DISPATCHED BY (signature): *William Robert* DATE/TIME: 1-27-23 11:15
 METHOD OF TRANSPORT: *hand delivered*

RECEIVED AT NLS BY (signature): *William Robert* DATE/TIME: 1/27/23 11:15
 REMARKS & OTHER INFORMATION: *hand delivered*

COOLER # _____ WIDNR FACILITY NUMBER _____ E-MAIL ADDRESS _____
 PRESERVATIVE: N = nitric acid OIL = sodium hydroxide
 NP = no preservative Z = zinc acetate IIA = hydrochloric & ascorbic acid
 S = sulfuric acid M = methanol H = hydrochloric acid

REPORT TO _____
 INVOICE TO _____

CONDITION: *on ice* TEMP: *3.0°C*

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.