



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

April 06, 2023

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

Project: 2023 Drinking Water Testing - Starks Expanded Area
Project Number: PFAS Private Wells
Work Order: CB02670
Received: 03/20/23

Enclosed are the results of analyses for samples received by our laboratory on 3/20/2023. 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 that reads "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 - Starks Expanded Area
Project Number: PFAS Private Wells
Project Manager: Mark Pauli

Reported:
4/6/23 14:41

Work Order:
CB02670

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
CB02670-01	QA069	DW			3/20/23 14:30	3/20/23 15:15
CB02670-02	Field Blank	DW			3/20/23 0:00	3/20/23 15:15



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Sample Results

Sample: QA069

CB02670-01 (DW) Sampled: 03/20/23 14:30

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles											
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.47	1.6		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	1.6		0.30	1.0		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	2.3		0.33	1.1		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	3.2		0.44	1.5		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	18		0.47	1.6		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	1.9		0.34	1.1		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	1.7		0.46	1.5		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	16		0.49	1.6		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	30		0.31	1.0		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.43	1.4		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0		ng/L	3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	95%		Limits: 70-130%				3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	89%		Limits: 70-130%				3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	95%		Limits: 70-130%				3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	88%		Limits: 70-130%				3/27/23 5:15	3/27/23 19:21	RAW	EPA 537.1, Rev 2.0	2

Sample: Field Blank

CB02670-02 (DW) Sampled: 03/20/23 00:00

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



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Sample Results (Continued)

Sample: Field Blank (Continued)

CB02670-02 (DW) Sampled: 03/20/23 00:00

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles (Continued)											
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.47	1.6		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.30	1.0		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		0.44	1.5		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		0.47	1.6		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.34	1.1		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		0.49	1.6		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		0.31	1.0		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTTrDA)	ND		0.43	1.4		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0		ng/L	3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	89%		Limits: 70-130%				3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	83%		Limits: 70-130%				3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	92%		Limits: 70-130%				3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	85%		Limits: 70-130%				3/30/23 8:19	3/31/23 11:51	RAW	EPA 537.1, Rev 2.0	2



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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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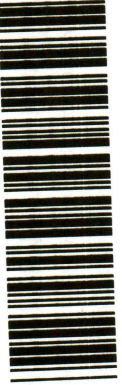
Work Order:
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Qualifiers and Definitions

Item	Definition
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.

CB02670



SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

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

CLIENT: WISCONSIN DNR-DRINKING AND GROUNDWATER

ADDRESS: PO BOX 7921, D&LS

CITY: MADISON STATE: WI ZIP: 53707

PROJECT DESCRIPTION / NO.: PPM PRIVATE WELLS QUOTATION NO.

DNR ID #: DNR LICENSE #

CONTACT: MARK PAULI PHONE: 765-499-0612

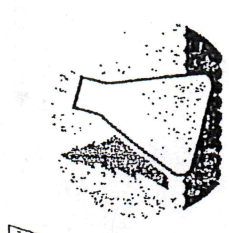
PURCHASE ORDER NO.: 000022899 FAX:

- 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.

NO.

ITEM NO.	MIS-LABING	SAMPLE ID	COLLECTION		MATRIX (See above)	COLLECTION REMARKS (Le. DNR Web ID #)
			DATE	TIME		
1.		QA069	3/20/23	14:30	GW	(2) STAGONE (1) RB
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						



COLLECTED BY (signature): William Roberts CUSTODY SEAL NO. (IF ANY): 3-20-23 DATE/TIME: 14:30

RELINQUISHED BY (signature): William Roberts RECEIVED BY (signature): DATE/TIME: 15:15

DISPATCHED BY (signature): METHOD OF TRANSPORT: DATE/TIME:

RECEIVED AT MLS BY (signature): DATE/TIME: 03/20/23 15:15 CONDITION: TEMP: 0.2

COOLER # _____ REMARKS & OTHER INFORMATION _____

WPNR FACILITY NUMBER _____ E-MAIL ADDRESS _____

PRESERVATIVE:
 N = nitric acid
 Z = zinc acetate
 M = methanol
 S = sulfuric acid

OH = sodium hydroxide
 HA = hydrochloric & ascorbic acid
 H = hydrochloric acid

IMPORTANT

- TO MEET REGULATORY REQUIREMENTS, THIS FORM MUST BE COMPLETED IN DETAIL AND INCLUDED IN THE COOLER CONTAINING THE SAMPLES DESCRIBED.
- PLEASE USE ONE LINE PER SAMPLE-CLIENT MAY KEEP PINK COPY.
- RETURN THIS FORM WITH SAMPLES-CLIENT MAY KEEP PINK COPY.
- PARTIES COLLECTING SAMPLES LISTED AS REPORT TO AND LISTED AS INVOICED TO AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.

REPORT TO _____

INVOICE TO _____