



Northern Lake Service, Inc • 400 N Lake Ave • Crandon, WI 54520  
800-278-1254 • [www.nlslab.com](http://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: CB02668  
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](mailto: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  
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Project Manager: Mark Pauli

**Reported:**  
4/6/23 14:42

**Work Order:**  
CB02668

### 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
CB02668-01	QA068	DW			3/20/23 13:10	3/20/23 15:15
CB02668-02	Field Blank	DW			3/20/23 0:00	3/20/23 15:15



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**Sample Results**

**Sample: QA068**

**CB02668-01 (DW) Sampled: 03/20/23 13:10**

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
<b>Semi-Volatiles</b>											
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.32	1.0		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.35	1.1		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.38	1.2		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.42	1.4		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.48	1.6		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.41	1.3		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.31	1.0		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.34	1.1		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.79		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	0.93	J	0.45	1.5		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	1.2	J	0.48	1.6		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.35	1.1		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.47	1.5		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	1.6		0.50	1.6		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	0.89	J	0.32	1.0		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.35	1.1		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.44	1.4		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.31	1.0		ng/L	3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-PFHxA	96%		Limits: 70-130%				3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-HFPODA	87%		Limits: 70-130%				3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-PFDA	89%		Limits: 70-130%				3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) d5-NEtFOSAA	75%		Limits: 70-130%				3/27/23 5:15	3/27/23 18:30	RAW	EPA 537.1, Rev 2.0	2

**Sample: Field Blank**

**CB02668-02 (DW) Sampled: 03/20/23 00:00**

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



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Sample Results (Continued)

Sample: Field Blank (Continued)

CB02668-02 (DW) Sampled: 03/20/23 00:00

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
<b>Semi-Volatiles (Continued)</b>											
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0		ng/L	3/30/23 8:19	3/31/23 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	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 11:25	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	90%		Limits: 70-130%				3/30/23 8:19	3/31/23 11:25	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	83%		Limits: 70-130%				3/30/23 8:19	3/31/23 11:25	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	89%		Limits: 70-130%				3/30/23 8:19	3/31/23 11:25	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	88%		Limits: 70-130%				3/30/23 8:19	3/31/23 11:25	RAW	EPA 537.1, Rev 2.0	2



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**List of Certifications**

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



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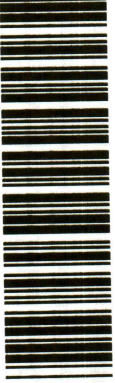
### Qualifiers and Definitions

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.



CB02668



**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, D6LS	STATE WI
CITY MADISON	ZIP 53707
PROJECT DESCRIPTION / NO. PPAS PRIVATE WELLS	
DNR LICENSE #	
CONTACT MARK PAULI	PHONE 765-499-0612
PURCHASE ORDER NO. 000022899	

**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.

ANALYZE PER ORDER OF ANALYSIS	DATE	TIME	MATRIX (See above)	COLLECTION REMARKS (i.e. DNR Well ID#)
	3/20/23	13:10	GW	(2) SAMPLES / (C) FS

ITEM NO.	MIS LABELING	SAMPLE ID	DATE	TIME	MATRIX (See above)	COLLECTION REMARKS (i.e. DNR Well ID#)
1.		QAT068	3/20/23	13:10	GW	(2) SAMPLES / (C) FS
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

COLLECTED BY (signature) *William Roberts* CUSTODY SEAL NO. (IF ANY) 3-20-23 DATE/TIME 13:10  
 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) *[Signature]* DATE/TIME 03/20/23 15:15 CONDITION: 15:15 TEMP: 0.2  
 REMARKS & OTHER INFORMATION  
 COOLER #  
 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.  
 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.