



Northern Lake Service, Inc • 400 N Lake Ave • Crandon, WI 54520  
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May 09, 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: CB04005  
Received: 04/21/23

Enclosed are the results of analyses for samples received by our laboratory on 4/21/2023. 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  
Project Number: PFAS Private Wells  
Project Manager: Mark Pauli

**Reported:**  
5/9/23 13:00

**Work Order:**  
CB04005

### 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
CB04005-01	QA082	DW			4/21/23 9:20	4/21/23 11:35
CB04005-02	Field Blank	DW			4/21/23 9:20	4/21/23 11:35



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Sample Results

Sample: QA082  
CB04005-01 (DW) Sampled: 04/21/23 09:20

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
<b>Semi-Volatiles</b>											
11-chloroicosafafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.47	1.6		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.30	1.0		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		0.44	1.5		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		0.47	1.6		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	0.44	J	0.34	1.1		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		0.49	1.6		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	0.38	J	0.31	1.0		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.43	1.4		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0		ng/L	4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	100%		Limits: 70-130%				4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	95%		Limits: 70-130%				4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	99%		Limits: 70-130%				4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	90%		Limits: 70-130%				4/26/23 6:52	4/26/23 19:10	RAW	EPA 537.1, Rev 2.0	2



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Sample: Field Blank

CB04005-02 (DW) Sampled: 04/21/23 09:20

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
<b>Semi-Volatiles</b>											
11-chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.32	1.0		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.35	1.1		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.38	1.2		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.42	1.4		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.48	1.6		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.41	1.3		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.31	1.0		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.34	1.1		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.79		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		0.45	1.5		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		0.48	1.6		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.35	1.1		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.47	1.5		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		0.50	1.6		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		0.32	1.0		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.35	1.1		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTTrDA)	ND		0.44	1.4		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.31	1.0		ng/L	4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	84%		Limits: 70-130%				4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	82%		Limits: 70-130%				4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	90%		Limits: 70-130%				4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	84%		Limits: 70-130%				4/28/23 5:30	4/28/23 16:39	RAW	EPA 537.1, Rev 2.0	2



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CB04005

**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.

# SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

CB04005



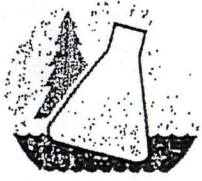
Wisconsin Lab Cert. No. 721026460  
WI DATCP 105-000330

CLIENT <b>WISCONSIN DNR-DRINKING AND GROUNDWATER</b>	
ADDRESS <b>PO Box 7921, DG 15</b>	
CITY <b>MADISON</b>	STATE <b>WI</b>
ZIP <b>53707</b>	
PROJECT DESCRIPTION / NO. <b>PFAS PRIVATE WELLS</b>	QUOTATION NO.
DNR FID #	DNR LICENSE #
CONTACT <b>MARK PAULI</b>	PHONE <b>765-499-0612</b>
PURCHASE ORDER NO. <b>0000022899</b>	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.

ANALYZE PER ORDER OF ANALYSIS  
**EPAMETHOD 537.1**



NO.

ITEM NO.	NLS LAB NO.	SAMPLE ID	COLLECTION		MATRIX (See above)	ANALYZE PER ORDER OF ANALYSIS	COLLECTION REMARKS (i.e. DNR Well ID #)																
			DATE	TIME																			
1.		BA082	4/21/23	9:20	GW	X																(2) SAMPLE / (1) FB	
2.																							
3.																							
4.																							
5.																							
6.																							
7.																							
8.																							
9.																							
10.																							

COLLECTED BY (signature) <i>William Roberts</i>	CUSTODY SEAL NO. (IF ANY)	DATE/TIME <b>4-21-23 9:20</b>	
RELINQUISHED BY (signature) <i>William Roberts</i>	RECEIVED BY (signature) <i>Gregory...</i>	DATE/TIME <b>4-21-23 11:35</b>	
DISPATCHED BY (signature) <i>Gregory...</i>	METHOD OF TRANSPORT	DATE/TIME	
RECEIVED AT NLS BY (signature) <i>Gregory...</i>	DATE/TIME <b>4/21/23 11:35</b>	CONDITION	TEMP <b>2.0°</b>
COOLER #	REMARKS & OTHER INFORMATION		
WPNR 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.