



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

March 17, 2023

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

RE: 2023 Drinking Water Testing - Starks Expanded Area
Work Order: CB01936
Received: 03/01/23

Enclosed are the results of analyses for samples received by our laboratory on 3/1/2023. 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 - Starks Expanded Area
Project Number: PFAS Private Wells
Project Manager: Mark Pauli

Reported:
3/17/23 12:23

Work Order:
CB01936

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
CB01936-01	AO680	DW			3/1/23 13:43	3/1/23 16:00
CB01936-02	Field Blank	DW			3/1/23 0:00	3/1/23 16:00



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:
3/17/23 12:23

Work Order:
CB01936

Sample Results

Sample: AO680

CB01936-01 (DW) Sampled: 03/01/23 13:43

Analyte	Result	Qualifier	Dilution	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		100	30	98		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		100	33	110		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		100	36	120		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		100	40	140		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		100	46	160		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		100	39	130		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		100	29	98		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		100	32	110		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		100	23	75		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	2200		100	43	150		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	1600		100	46	160		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	73	J	100	33	110		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	650		100	45	150		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	10000		200	96	310		ng/L	3/3/23 10:13	3/7/23 11:54	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	2100		100	30	98		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		100	33	110		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		100	42	140		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		100	29	98		ng/L	3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-PFHxA	106%					Limits: 70-130%		3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-HFPODA	103%					Limits: 70-130%		3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) C13-PFDA	107%					Limits: 70-130%		3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURRE) d5-NEtFOSAA	94%					Limits: 70-130%		3/3/23 10:13	3/7/23 9:43	RAW	EPA 537.1, Rev 2.0	2

Sample: Field Blank

CB01936-02 (DW) Sampled: 03/01/23 00:00

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



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:
3/17/23 12:23

Work Order:
CB01936

Sample Results (Continued)

Sample: Field Blank (Continued)

CB01936-02 (DW) Sampled: 03/01/23 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	0.31	1.0		ng/L	3/8/23 6:51	3/15/23 12:27	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	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		1	0.37	1.2		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	0.41	1.4		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1	0.47	1.6		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1	0.40	1.3		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		1	0.30	1.0		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	0.33	1.1		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	0.23	0.77		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		1	0.44	1.5		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		1	0.47	1.6		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		1	0.34	1.1		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		1	0.46	1.5		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		1	0.49	1.6		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		1	0.31	1.0		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	0.34	1.1		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTTrDA)	ND		1	0.43	1.4		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	0.30	1.0		ng/L	3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	92%					Limits: 70-130%		3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	93%					Limits: 70-130%		3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	97%					Limits: 70-130%		3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	88%					Limits: 70-130%		3/8/23 6:51	3/15/23 12:27	RAW	EPA 537.1, Rev 2.0	2



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:
3/17/23 12:23

Work Order:
CB01936

List of Certifications

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



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:
3/17/23 12:23

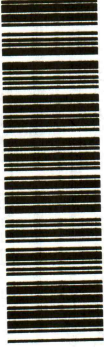
Work Order:
CB01936

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.

CB01936



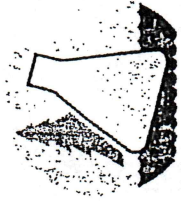
SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

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

CLIENT: **WISCONSIN DNR - DRINKING AND GROUNDWATER**
 ADDRESS: **PO BOX 7921, D615**
 CITY: **MADISON** STATE: **WI** ZIP: **53707**
 PROJECT DESCRIPTION/NO: **PHAS PRIVATE WELLS** QUOTATION NO.
 DNR FID #: _____ DNR LICENSE # _____
 CONTACT: **MARK PAULI** PHONE: **715-499-0612**
 PURCHASE ORDER NO: **0000022899** 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.	WIS LAB NO.	SAMPLE ID	COLLECTION		MATRIX (See above)	COLLECTION REMARKS (i.e. DNR Well ID #)
			DATE	TIME		
1.		A0680	3/1/23	1:43 PM	GW	X EPA METHOD 5371 2) SAMPLE (FB)
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

COLLECTED BY (signature) *William Robert* CUSTODY SEAL NO. (IF ANY)
 RELINQUISHED BY (signature) _____ RECEIVED BY (signature) _____ DATE/TIME 3-1-23 13:43
 DISPATCHED BY (signature) _____ METHOD OF TRANSPORT *Hand delivered* DATE/TIME 3-1-23 16:00

RECEIVED AT WIS BY (signature) _____ DATE/TIME 3/1/23 1600
 COOLER # _____
 PRESERVATIVE: N = nitric acid OH = sodium hydroxide
 NP = no preservative Z = zinc acetate HA = hydrochloric & ascorbic acid
 M = methanol H = hydrochloric acid
 S = sulfuric acid
 WDNR FACILITY NUMBER _____ E-MAIL ADDRESS _____
 REMARKS & OTHER INFORMATION _____
 CONDITION _____ TEMP. -5.8

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 SAMPLES - CLIENT MAY KEEP PINK COPY.
 3. RETURN THIS FORM WITH SAMPLES - LISTED AS REPORT TO AND LISTED AS INVOICED TO AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.
 4. PARTIES COLLECTING SAMPLE, LISTED AS REPORT TO AND LISTED AS INVOICED TO AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.