



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

March 27, 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: CB02222
Received: 03/08/23

Enclosed are the results of analyses for samples received by our laboratory on 3/8/2023. 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

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Project Manager: Mark Pauli

Reported:
3/27/23 9:54

Work Order:
CB02222

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
CB02222-01	QA061	DW			3/8/23 16:00	3/8/23 16:50
CB02222-02	Field Blank	DW			3/8/23 0:00	3/8/23 16:50



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Sample Results

Sample: QA061

CB02222-01 (DW) Sampled: 03/08/23 16:00

Analyte	Result	Qualifier	Dilution	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles												
11-chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1	0.31	1.0		ng/L	3/13/23 7:26	3/14/23 16:49	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	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		1	0.37	1.2		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	0.41	1.4		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1	0.47	1.6		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1	0.40	1.3		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	4.5		1	0.30	1.0		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	0.33	1.1		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	0.23	0.77		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		1	0.44	1.5		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		1	0.47	1.6		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		1	0.34	1.1		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		1	0.46	1.5		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	1.0	J	1	0.49	1.6		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	0.83	J	1	0.31	1.0		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	0.34	1.1		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		1	0.43	1.4		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	0.30	1.0		ng/L	3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	99%			Limits: 70-130%				3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	98%			Limits: 70-130%				3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	99%			Limits: 70-130%				3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	86%			Limits: 70-130%				3/13/23 7:26	3/14/23 16:49	RAW	EPA 537.1, Rev 2.0	2

Sample: Field Blank

CB02222-02 (DW) Sampled: 03/08/23 00:00

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: Field Blank (Continued)

CB02222-02 (DW) Sampled: 03/08/23 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	3/20/23 6:51	3/22/23 23:19	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	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		1	0.37	1.2		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	0.41	1.4		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1	0.47	1.6		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1	0.40	1.3		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		1	0.30	1.0		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	0.33	1.1		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	0.23	0.77		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		1	0.44	1.5		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		1	0.47	1.6		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		1	0.34	1.1		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		1	0.46	1.5		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		1	0.49	1.6		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		1	0.31	1.0		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	0.34	1.1		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTTrDA)	ND		1	0.43	1.4		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	0.30	1.0		ng/L	3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	101%			Limits: 70-130%				3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	96%			Limits: 70-130%				3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	100%			Limits: 70-130%				3/20/23 6:51	3/22/23 23:19	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	91%			Limits: 70-130%				3/20/23 6:51	3/22/23 23:19	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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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.

CB02222

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

Wisconsin Lab Cert. No. 7210264
WTDATCP 103-000330

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: **765-499-0612**

PURCHASE ORDER NO. **000022899** FAX _____

- MATRIX:
- SW = surface water
 - WW = waste water
 - GW = ground water
 - DW = drinking water
 - TIS = tissue
 - AIR = air
 - SOIL = soil
 - SED = sediment
 - PROD = product
 - SL = sludge
 - OTHER _____

Indicate Y or N if GW Sample is field filtered.

Indicate G or C if WW Sample is Grab or Composite.

EPA METHOD 5371

ANALYZE PER ORDER OF ANALYSIS

NO.

ITEM NO.	ANIS LAB NO.	SAMPLE ID	DATE	COLLECTION TIME	MATRIX (See above)	COLLECTION REMARKS (i.e. DNR Well ID #)	
						DATE	TIME
1.		BA061	3/8/23	16:00	GW		(2) Samples / CFB
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

COLLECTED BY (signature): *William Robert* DATE/TIME: **3-8-23** 16:00

REUNQUISHED BY (signature): *William Robert* DATE/TIME: **3-8-23** 16:50

DISPATCHED BY (signature): *[Signature]* DATE/TIME: _____

CUSTOMY SEAL NO. (IF ANY): _____

RECEIVED BY (signature): _____ DATE/TIME: _____

METHOD OF TRANSPORT: _____

RECEIVED AT MLS BY (signature): *[Signature]* DATE/TIME: **3/8/23** 16:50

TEMP: **0.4**

CONDITION: _____

REMARKS & OTHER INFORMATION: _____

WDNR FACILITY NUMBER: _____ E-MAIL ADDRESS: _____

REPORT TO: _____ INVOICE TO: _____

COOLER # _____

PRESERVATIVE: N = nitric acid OH = sodium hydroxide
 Z = zinc acetate HA = hydrochloric & ascorbic acid
 M = methanol H = hydrochloric acid
 S = sulfuric 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 SAMPLE, LISTED AS REPORT TO AND LISTED AS INVOICED TO AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.