



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

March 24, 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: CB02029
Received: 03/03/23

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

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Reported:
3/24/23 9:41

Work Order:
CB02029

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
CB02029-01	QA075	DW			3/3/23 9:20	3/3/23 15:00
CB02029-02	Field Blank	DW			3/3/23 0:00	3/3/23 15:00

Analysis Qualifiers:

LabNumber	Analysis	Qualifier
CB02029-01	537.1 Perfluorinated Chemicals by LC/MS/MS	InVol
CB02029-01RE1	537.1 Perfluorinated Chemicals by LC/MS/MS	InVol



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Sample Results

Sample: QA075

CB02029-01 (DW) Sampled: 03/03/23 09:20

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		1	7.8	25		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1	8.5	28		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		1	9.2	30		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	10	35		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1	12	40		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1	10	32		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		1	7.5	25		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	8.3	28		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	5.8	19		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	3700		10	110	380		ng/L	3/10/23 7:03	3/14/23 9:23	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	3000		10	120	400		ng/L	3/10/23 7:03	3/14/23 9:23	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	50		1	8.5	28		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	86		1	12	38		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	14000		10	120	400		ng/L	3/10/23 7:03	3/14/23 9:23	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	130		1	7.8	25		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	8.5	28		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		1	11	35		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	7.5	25		ng/L	3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	95%			Limits: 70-130%				3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	92%			Limits: 70-130%				3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	105%			Limits: 70-130%				3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	86%			Limits: 70-130%				3/10/23 7:03	3/13/23 13:57	RAW	EPA 537.1, Rev 2.0	2

Sample: Field Blank

CB02029-02 (DW) Sampled: 03/03/23 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)

CB02029-02 (DW) Sampled: 03/03/23 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	3/15/23 7:07	3/17/23 0:37	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	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		1	0.37	1.2		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		1	0.41	1.4		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1	0.47	1.6		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1	0.40	1.3		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		1	0.30	1.0		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		1	0.33	1.1		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		1	0.23	0.77		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		1	0.44	1.5		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		1	0.47	1.6		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		1	0.34	1.1		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		1	0.46	1.5		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		1	0.49	1.6		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		1	0.31	1.0		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		1	0.34	1.1		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTTrDA)	ND		1	0.43	1.4		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		1	0.30	1.0		ng/L	3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	98%			Limits: 70-130%				3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	101%			Limits: 70-130%				3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	98%			Limits: 70-130%				3/15/23 7:07	3/17/23 0:37	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	87%			Limits: 70-130%				3/15/23 7:07	3/17/23 0:37	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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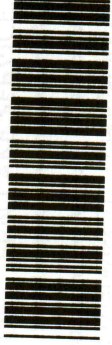
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Qualifiers and Definitions

Item	Definition
InVol	The initial volume used was 10.
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.

CB02029



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, DOWS**
 CITY: **MAISON** STATE: **WI** ZIP: **53707**
 PROJECT DESCRIPTION / NO.: **PAS PRIVATE WELLS** QUOTATION NO.
 DNR RID #: _____ DNR LICENSE # _____
 CONTACT: **MARK PAULI** PHONE: **725-499-0612**
 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 being analyzed.
 Indicate G or C if WW Sample is Grab or Composite.

ANALYZE PER ORDER OF ANALYSIS
Y **ERAMETHO 5371**

ITEM NO.	MIS LAB NO.	SAMPLE ID	COLLECTION DATE	TIME	MATRIX (See above)	COLLECTION REMARKS (i.e. DNR Well ID #)
1.		QA075	3/3/23	9:20	GW	(2) SAMPLES (1) FB
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

REPORT TO _____
 INVOICE TO _____

COLLECTED BY (signature) *William Robert* DATE/TIME **3-3-23 9:20**
 CUSTODY SEAL NO. (IF ANY) _____
 RELINQUISHED BY (signature) *William Robert* DATE/TIME **3-3-23 15:00**
 RECEIVED BY (signature) _____
 DISPATCHED BY (signature) _____ METHOD OF TRANSPORT **hand**

DATE/TIME	CONDITION	REMARKS & OTHER INFORMATION	TEAR
3-3-23 15:00	OK	ON CD	2006

WDNR FACILITY NUMBER _____ E-MAIL ADDRESS _____

RECEIVED AT (signature) _____
 COOLER # _____
 PRESERVATIVE: N = nitric acid OI = sodium hydroxide
 NP = no preservative Z = zinc acetate IIA = hydrochloric & ascorbic acid
 M = methanol H = hydrochloric acid
 S = sulfuric acid

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 INVOCED TO AGREE TO STANDARD TERMS & CONDITIONS ON REVERSE.