



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

May 19, 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: CB04486
Received: 05/03/23

Enclosed are the results of analyses for samples received by our laboratory on 5/3/2023. 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 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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Reported:
5/19/23 12:22

Work Order:
CB04486

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
CB04486-01	VE853	GW			5/3/23 9:10	5/3/23 16:06
CB04486-02	Field Blank	GW			5/3/23 9:10	5/3/23 16:06



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Sample Results

Sample: VE853

CB04486-01 (GW) Sampled: 05/03/23 09:10

Analyte	Result	Qualifier	LOD	LOQ	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles										
11-chloroicosafafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.47	1.6	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.30	1.0	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	12		0.44	1.5	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	18		0.47	1.6	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.34	1.1	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	15		0.49	1.6	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	0.82	J	0.31	1.0	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.43	1.4	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0	ng/L	5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	90%		Limits: 70-130%			5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	88%		Limits: 70-130%			5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	84%		Limits: 70-130%			5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	91%		Limits: 70-130%			5/8/23 6:38	5/8/23 22:26	RAW	EPA 537.1, Rev 2.0	2



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Sample: Field Blank

CB04486-02 (GW) Sampled: 05/03/23 09:10

Analyte	Result	Qualifier	LOD	LOQ	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles										
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.31	1.0	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.47	1.6	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.30	1.0	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		0.44	1.5	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		0.47	1.6	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.34	1.1	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		0.49	1.6	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		0.31	1.0	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTTrDA)	ND		0.43	1.4	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0	ng/L	5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	89%		Limits: 70-130%			5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	88%		Limits: 70-130%			5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	94%		Limits: 70-130%			5/9/23 6:57	5/11/23 13:30	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	81%		Limits: 70-130%			5/9/23 6:57	5/11/23 13:30	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.

SAMPLE COLLECTION AND CHAIN OF CUSTODY RECORD

CB04486

Wisconsin Lab Cert. No. 7210264
WI DATCP 105-000330



CLIENT WISCONSIN DNR-DRINKING AND GROUNDWATER	
ADDRESS PO Box 7921, D615	
CITY MADISON	STATE WI
ZIP 53707	
PROJECT DESCRIPTION / NO. PFAS PRIVATE WELLS	QUOTATION NO.
DNR FID #	DNR LICENSE #
CONTACT MARK PAULI	PHONE 765-499-0612
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

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

ANALYZE PER ORDER OF ANALYSIS
EPAMETHOD 5371



NO.

ITEM NO.	NLS LAB NO.	SAMPLE ID	COLLECTION		MATRIX (See above)	ANALYZE PER ORDER OF ANALYSIS	NO.	COLLECTION REMARKS (i.e. DNR Well ID #)
			DATE	TIME				
1.		VE853	5/3/23	9:10	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) 5-3-2023	DATE/TIME 9:10
RELINQUISHED BY (signature) <i>William Roberts</i>	RECEIVED BY (signature)	DATE/TIME 10:55
DISPATCHED BY (signature)	METHOD OF TRANSPORT	DATE/TIME

REPORT TO

RECEIVED AT NLS BY (signature) <i>[Signature]</i>	DATE/TIME 5/3/23	CONDITION OK	TEMP 36
REMARKS & OTHER INFORMATION			
COOLER #	WDNR FACILITY NUMBER	E-MAIL ADDRESS	

INVOICE TO

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

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, NOT PER BOTTLE.
- 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.