



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

September 18, 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: CB10610
Received: 09/06/23

Enclosed are the results of analyses for samples received by our laboratory on 9/6/2023. 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:
9/18/23 9:03

Work Order:
CB10610

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
CB10610-01	QT442	DW			9/6/23 8:30	9/6/23 9:17
CB10610-02	QT442 Field Blank	DW			9/6/23 8:30	9/6/23 9:17



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Sample Results

Sample: **QT442**

CB10610-01 (DW) Sampled: 09/06/23 08:30

Analyte	Result	Qualifier	LOD	LOQ	MCL	Units	Date Prepared	Date Analyzed	Analyst	Method	Lab Cert Code
Semi-Volatiles											
11-chloroicosafafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.30	0.98		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.33	1.1		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.36	1.2		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.40	1.4		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.46	1.6		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.39	1.3		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	1.5		0.29	0.98		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.32	1.1		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.75		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	1.2	J	0.43	1.5		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	0.76	J	0.46	1.6		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.33	1.1		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.45	1.5		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	5.3		0.48	1.6		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	1.4		0.30	0.98		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.33	1.1		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.42	1.4		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.29	0.98		ng/L	9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	106%		Limits: 70-130%				9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	102%		Limits: 70-130%				9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	105%		Limits: 70-130%				9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	96%		Limits: 70-130%				9/12/23 5:20	9/12/23 19:55	RAW	EPA 537.1, Rev 2.0	2



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Sample: QT442 Field Blank

CB10610-02 (DW) Sampled: 09/06/23 08:30

Analyte	Result	Qualifier	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		0.31	1.0		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.47	1.6		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.30	1.0		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		0.44	1.5		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		0.47	1.6		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.34	1.1		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		0.49	1.6		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		0.31	1.0		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		0.43	1.4		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0		ng/L	9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	95%		Limits: 70-130%				9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	92%		Limits: 70-130%				9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	102%		Limits: 70-130%				9/7/23 5:27	9/7/23 16:14	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	99%		Limits: 70-130%				9/7/23 5:27	9/7/23 16:14	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	8/31/24



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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: $(\text{mg/kg dry}) / 10000$.
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

CB10610



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. 0000022899	FAX

Wisconsin Lab Cert. No. 7210:
WI DATCP 105-000330

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 G or C if WW Sample is Grab or Composite

ANALYZE PER ORDER OF ANALYSIS	EPAMETHOD 5371																						
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NO.

ITEM NO.	NLS LAB NO.	SAMPLE ID	COLLECTION		MATRIX (See above)	ANALYZE PER ORDER OF ANALYSIS	EPAMETHOD	DATE	TIME	TEMP.	CONDITION	PRESERVATIVE	COOLER #	REMARKS (i.e. DNR Well ID #)
			DATE	TIME										
1.		QT442	9/6/23	08:30	GW	X								(2) SAMPLE / (1) FB
2.														
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

COLLECTED BY (signature) <i>William Robert</i>	CUSTODY SEAL NO. (IF ANY)	DATE/TIME 9-6-2023 8:30
RELINQUISHED BY (signature) <i>William Robert</i>	RECEIVED BY (signature) <i>William Robert</i>	DATE/TIME 9-6-2023 9:18
DISPATCHED BY (signature) <i>William Robert</i>	METHOD OF TRANSPORT SO	DATE/TIME
RECEIVED AT NLS BY (signature) <i>William Robert</i>	DATE/TIME 9-6-2023 9:17	CONDITION Dried
COOLER #	REMARKS & OTHER INFORMATION	TEMP. 2°C
PRESERVATIVE: N = nitric acid Z = zinc acetate S = sulfuric acid	OH = sodium hydroxide HA = hydrochloric & ascorbic acid M = methanol H = hydrochloric acid	WDR FACILITY NUMBER
		E-MAIL ADDRESS

REPORT TO
INVOICE TO

- 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.