



Northern Lake Service, Inc • 400 N Lake Ave • Crandon, WI 54520
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September 05, 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: CB09957
Received: 08/21/23

Enclosed are the results of analyses for samples received by our laboratory on 8/21/2023. 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
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Madison, WI 53707

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Reported:
9/5/23 7:34

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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
CB09957-01	QA084	DW			8/21/23 9:30	8/21/23 10:45
CB09957-02	QA084 Field Blank	DW			8/21/23 9:30	8/21/23 10:45



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Sample Results

Sample: QA084

CB09957-01 (DW) Sampled: 08/21/23 09:30

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		78	250		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		85	280		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		92	300		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		100	350		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		120	400		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		100	320		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		75	250		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		82	280		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		58	190		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	5300		110	380		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	4700		120	400		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		85	280		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		120	380		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	15000		120	400		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	99	J	78	250		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		85	280		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTrDA)	ND		110	350		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		75	250		ng/L	8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	87%		Limits: 70-130%				8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	89%		Limits: 70-130%				8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	98%		Limits: 70-130%				8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	93%		Limits: 70-130%				8/28/23 5:32	8/29/23 15:17	RAW	EPA 537.1, Rev 2.0	2



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Sample: QA084 Field Blank
CB09957-02 (DW) Sampled: 08/21/23 09:30

Analyte	Result	Qualifier	LOD	LOQ	MCL	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	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.34	1.1		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.37	1.2		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.41	1.4		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.47	1.6		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.40	1.3		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluorobutanesulfonic acid (PFBS)	ND		0.30	1.0		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluorodecanoic acid (PFDA)	ND		0.33	1.1		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluorododecanoic acid (PFDoA)	ND		0.23	0.77		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluoroheptanoic acid (PFHpA)	ND		0.44	1.5		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanoic acid (PFHxA)	ND		0.47	1.6		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluorohexanesulfonic acid (PFHxS)	ND		0.34	1.1		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluorononanoic acid (PFNA)	ND		0.46	1.5		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanoic acid (PFOA)	ND		0.49	1.6		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluorooctanesulfonic acid (PFOS)	ND		0.31	1.0		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluorotetradecanoic acid (PFTA)	ND		0.34	1.1		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluorotridecanoic acid (PFTTrDA)	ND		0.43	1.4		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
perfluoroundecanoic acid (PFUnA)	ND		0.30	1.0		ng/L	8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFHxA	89%		Limits: 70-130%				8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-HFPODA	88%		Limits: 70-130%				8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) C13-PFDA	101%		Limits: 70-130%				8/30/23 9:03	8/31/23 11:20	RAW	EPA 537.1, Rev 2.0	2
Surrogate: (SURR) d5-NEtFOSAA	92%		Limits: 70-130%				8/30/23 9:03	8/31/23 11:20	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: (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.

