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July 02, 2021

Bill Goetsch Michigan Agribusiness Solutions 3050 Freeway Lane Saginaw, MI 48601

Phone: (616) 232-0517

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RE: Trace ID: 21F0448

Enclosed are your analytical results associated with your project for Roscommon PFAS 6/10/21. The results of this report relate only to the samples listed in the body of this report.

The results were obtained from Merit Laboratories, Inc

Thank you for working with Trace. If you have questions concerning this report, please contact me at 231.773.5998 or by email at tbrewer@trace-labs.com.

Sincerely,

Tim Brewer Project Manager

Enclosures





Report ID: S25175.01(01) Generated on 06/30/2021

Report to

Attention: Tim Brewer Trace Analytical Laboratories 2241 Black Creek Rd. Muskegon, MI 49444

Phone: O: 231-773-5998 x238 FAX: Email: TBrewer@trace-labs.com

Addtional Contacts: Jon Mink

Report Summary

Lab Sample ID(s): S25175.01-S25175.04

Project: 21F0448

Collected Date(s): 06/10/2021

Submitted Date/Time: 06/11/2021 10:45

Sampled by: Unknown P.O. #: 21F0448-01

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Report produced by

Merit Laboratories, Inc. 2680 East Lansing Drive East Lansing, MI 48823

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Maya Murshak Technical Director

Naya Mushah



General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples

for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report



Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
В	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
Н	Sample submitted and run outside of holding time
1	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
0	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
Т	No correction for total solids
X	Elevated reporting limit due to matrix interference
Υ	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
е	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
X	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



Method Summary

Method Version

ASTM D7968-17M ASTM Method D7968 - 17 Modified (Isotopic Dilution)

SM2540B Standard Method 2540 B 2011

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11CI-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9
9CI-PF3ONS	9-chlorohexadecafluoro-3-oxanone1-sulfonic acid	756426-58-1
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
HFPO-DA	Hexafluoropropylene oxide dimer	13252-13-6



Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S25175.01	Roscommon Lagoon #1 21F0448-01	Sludge	06/10/21 09:30
S25175.02	Roscommon Lagoon #2 21F0448-02	Sludge	06/10/21 11:30
S25175.03	Roscommon Lagoon #3 21F0448-03	Sludge	06/10/21 10:15
S25175.04	Roscommon Lagoon #4 21F0448-04	Sludge	06/10/21 11:00



Lab Sample ID: S25175.01

Sample Tag: Roscommon Lagoon #1 21F0448-01

Collected Date/Time: 06/10/2021 09:30

Matrix: Sludge COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.5	IR
1	500ml Plastic	None	Yes	5.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	9.36/6.86/10	ASTM D7968-17M	06/21/21 16:00	KCV	

Inorganics

Method: SM2540B, Run Date: 06/12/21 09:10, Analyst: ELR

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	3.5	1		%	1		

Organics

28 PFAs, Method: ASTM D7968-17M, Run Date: 06/23/21 01:47, Analyst: KCV

PFBA* Not detected 2.3 ug/kg 114 375-22-4 PFPA* Not detected 1.1 ug/kg 114 2706-90-3 4:2 FTSA* Not detected 1.1 ug/kg 114 757124-72-4 I PFHX* Not detected 1.1 ug/kg 114 307-24-4 I PFBS* Not detected 1.1 ug/kg 114 375-73-5 I PFHA* Not detected 1.1 ug/kg 114 375-85-9 I PFPBS* Not detected 1.1 ug/kg 114 2706-91-4 I <t< th=""><th>Parameter</th><th>Result</th><th>RL</th><th>MDL</th><th>Units</th><th>Dilution</th><th>CAS#</th><th>Flags</th></t<>	Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
4:2 FTSA* Not detected 1.1 ug/kg 114 757124-72-4 I PFHXA* Not detected 1.1 ug/kg 114 307-24-4 I PFBS* Not detected 1.1 ug/kg 114 375-73-5 I PFHpA* Not detected 1.1 ug/kg 114 375-85-9 I PFPeS* Not detected 1.1 ug/kg 114 2706-91-4 I 6:2 FTSA* Not detected 1.1 ug/kg 114 2766-91-4 I 6:2 FTSA* Not detected 1.1 ug/kg 114 2766-91-4 I PFOA* 1.5 1.1 ug/kg 114 335-67-1 I PFHXS* Not detected 1.1 ug/kg 114 355-46-4 I PFHXS-LN* Not detected 1.1 ug/kg 114 355-46-4-LN I PFNA* 2.1 1.1 ug/kg 114 375-92-8 I PFNA* Not detected 1.1 ug/kg 114 375-92-8 I <tr< td=""><td>PFBA*</td><td>Not detected</td><td>2.3</td><td></td><td>ug/kg</td><td>114</td><td>375-22-4</td><td></td></tr<>	PFBA*	Not detected	2.3		ug/kg	114	375-22-4	
PFHXA* Not detected 1.1 ug/kg 114 307-24-4 PFBS* Not detected 1.1 ug/kg 114 375-73-5 PFHpA* Not detected 1.1 ug/kg 114 375-85-9 PFPeS* Not detected 1.1 ug/kg 114 27619-97-2 I 6:2 FTSA* Not detected 1.1 ug/kg 114 375-85-9 I PFOA* 1.5 1.1 ug/kg 114 27619-97-2 I I PFHXS* Not detected 1.1 ug/kg 114 335-67-1 I <td>PFPeA*</td> <td>Not detected</td> <td>1.1</td> <td></td> <td>ug/kg</td> <td>114</td> <td>2706-90-3</td> <td></td>	PFPeA*	Not detected	1.1		ug/kg	114	2706-90-3	
PFBS* Not detected 1.1 ug/kg 114 375-73-5 PFHpA* Not detected 1.1 ug/kg 114 375-85-9 PFPeS* Not detected 1.1 ug/kg 114 2706-91-4 6:2 FTSA* Not detected 1.1 ug/kg 114 27619-97-2 I PFOA* 1.5 1.1 ug/kg 114 355-67-1 1 PFHXS*-LN* Not detected 1.1 ug/kg 114 355-46-4 1 PFHXS-BR* Not detected 1.1 ug/kg 114 355-46-4-LN 1 PFNA* 2.1 1.1 ug/kg 114 355-46-4-BR 1 PFNA* 2.1 1.1 ug/kg 114 355-46-4-BR 1 PFNA* 2.1 1.1 ug/kg 114 375-95-1 1 8:2 FTSA* Not detected 1.1 ug/kg 114 375-92-8 1 PFDA* 2.1 1.1 ug/kg	4:2 FTSA*	Not detected	1.1		ug/kg	114	757124-72-4	1
PFHpA* Not detected 1.1 ug/kg 114 375-85-9 PFPeS* Not detected 1.1 ug/kg 114 2706-91-4 6:2 FTSA* Not detected 1.1 ug/kg 114 27619-97-2 I PFOA* 1.5 1.1 ug/kg 114 335-67-1 PFHXS* Not detected 1.1 ug/kg 114 355-46-4 PFHXS-LN* Not detected 1.1 ug/kg 114 355-46-4-LN PFHXS-BR* Not detected 1.1 ug/kg 114 355-46-4-BR PFNA* 2.1 1.1 ug/kg 114 375-95-1 8:2 FTSA* Not detected 1.1 ug/kg 114 375-95-1 8:2 FTSA* Not detected 1.1 ug/kg 114 375-92-8 PFDA* Not detected 1.1 ug/kg 114 335-76-2 N-MeFOSAA* 2.0 1.1 ug/kg 114 2955-31-9 I EtFOSA*	PFHxA*	Not detected	1.1		ug/kg	114	307-24-4	
PFPeS* Not detected 1.1 ug/kg 114 2706-91-4 6:2 FTSA* Not detected 1.1 ug/kg 114 27619-97-2 I PFOA* 1.5 1.1 ug/kg 114 335-67-1 I PFHxS* Not detected 1.1 ug/kg 114 355-46-4 I PFHxS-LN* Not detected 1.1 ug/kg 114 355-46-4-LN I PFHxS-BR* Not detected 1.1 ug/kg 114 355-46-4-BR I PFNA* 2.1 1.1 ug/kg 114 375-95-1 I </td <td>PFBS*</td> <td>Not detected</td> <td>1.1</td> <td></td> <td>ug/kg</td> <td>114</td> <td>375-73-5</td> <td></td>	PFBS*	Not detected	1.1		ug/kg	114	375-73-5	
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PFHxS* Not detected 1.1 ug/kg 114 355-46-4 PFHxS-LN* Not detected 1.1 ug/kg 114 355-46-4-LN PFHxS-BR* Not detected 1.1 ug/kg 114 355-46-4-BR PFNA* 2.1 1.1 ug/kg 114 375-95-1 8:2 FTSA* Not detected 1.1 ug/kg 114 39108-34-4 I PFNS* Not detected 1.1 ug/kg 114 375-92-8 PFDA* 2.1 1.1 ug/kg 114 335-76-2 N-MeFOSAA* 20 1.1 ug/kg 114 2355-31-9 I EtFOSAA* 42 1.1 ug/kg 114 2991-50-6 I PFOS* 2.7 1.1 ug/kg 114 1763-23-1 PFOS-LN* 1.9 1.1 ug/kg 114 1763-23-1-LN PFOS-BR* Not detected 1.1 ug/kg 114 1763-23-1-BR PFUnDA* 8.2 1.1 ug/kg 114 2058-94-8 PFNS*	6:2 FTSA*	Not detected	1.1		ug/kg	114	27619-97-2	1
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PFNA* 2.1 1.1 ug/kg 114 375-95-1 8:2 FTSA* Not detected 1.1 ug/kg 114 39108-34-4 I PFDA* Not detected 1.1 ug/kg 114 375-92-8 PFDA* 2.1 1.1 ug/kg 114 335-76-2 N-MeFOSAA* 20 1.1 ug/kg 114 2355-31-9 I EtFOSAA* 42 1.1 ug/kg 114 2991-50-6 I PFOS* 2.7 1.1 ug/kg 114 1763-23-1 PFOS-LN* 1.9 1.1 ug/kg 114 1763-23-1-LN PFOS-BR* Not detected 1.1 ug/kg 114 1763-23-1-BR PFUNDA* 8.2 1.1 ug/kg 114 2058-94-8 PFNS* Not detected 1.1 ug/kg 114 68259-12-1	PFHxS-LN*	Not detected	1.1		ug/kg	114	355-46-4-LN	
8:2 FTSA* Not detected 1.1 ug/kg 114 39108-34-4 I PFHpS* Not detected 1.1 ug/kg 114 375-92-8 PFDA* 2.1 1.1 ug/kg 114 335-76-2 N-MeFOSAA* 20 1.1 ug/kg 114 2355-31-9 I EtFOSAA* 42 1.1 ug/kg 114 2991-50-6 I PFOS* 2.7 1.1 ug/kg 114 1763-23-1 PFOS-LN* 1.9 1.1 ug/kg 114 1763-23-1-LN PFOS-BR* Not detected 1.1 ug/kg 114 1763-23-1-BR PFUnDA* 8.2 1.1 ug/kg 114 2058-94-8 PFNS* Not detected 1.1 ug/kg 114 68259-12-1	PFHxS-BR*	Not detected	1.1		ug/kg	114	355-46-4-BR	
PFHpS* Not detected 1.1 ug/kg 114 375-92-8 PFDA* 2.1 1.1 ug/kg 114 335-76-2 N-MeFOSAA* 20 1.1 ug/kg 114 2355-31-9 I EtFOSAA* 42 1.1 ug/kg 114 2991-50-6 I PFOS* 2.7 1.1 ug/kg 114 1763-23-1 PFOS-LN* 1.9 1.1 ug/kg 114 1763-23-1-LN PFOS-BR* Not detected 1.1 ug/kg 114 1763-23-1-BR PFUNDA* 8.2 1.1 ug/kg 114 2058-94-8 PFNS* Not detected 1.1 ug/kg 114 68259-12-1	PFNA*	2.1	1.1		ug/kg	114	375-95-1	
PFDA* 2.1 1.1 ug/kg 114 335-76-2 N-MeFOSAA* 20 1.1 ug/kg 114 2355-31-9 I EtFOSAA* 42 1.1 ug/kg 114 2991-50-6 I PFOS* 2.7 1.1 ug/kg 114 1763-23-1 PFOS-LN* 1.9 1.1 ug/kg 114 1763-23-1-LN PFOS-BR* Not detected 1.1 ug/kg 114 1763-23-1-BR PFUNDA* 8.2 1.1 ug/kg 114 2058-94-8 PFNS* Not detected 1.1 ug/kg 114 68259-12-1	8:2 FTSA*	Not detected	1.1		ug/kg	114	39108-34-4	1
N-MeFOSAA* 20 1.1 EtFOSAA* 42 1.1 PFOS* 2.7 1.1 Ug/kg 114 2991-50-6 I PFOS-LN* 1.9 1.1 Ug/kg 114 1763-23-1 PFOS-BR* Not detected 1.1 Ug/kg 114 1763-23-1-LN PFUnDA* 8.2 1.1 Ug/kg 114 1763-23-1-BR PFUnDA* Not detected 1.1 Ug/kg 114 2058-94-8 PFNS*	PFHpS*	Not detected	1.1		ug/kg	114	375-92-8	
EtFOSAA* 42 1.1 ug/kg 114 2991-50-6 I PFOS* 2.7 1.1 ug/kg 114 1763-23-1 PFOS-LN* 1.9 1.1 ug/kg 114 1763-23-1-LN PFOS-BR* Not detected 1.1 ug/kg 114 1763-23-1-BR PFUnDA* 8.2 1.1 ug/kg 114 2058-94-8 PFNS* Not detected 1.1 ug/kg 114 68259-12-1	PFDA*	2.1	1.1		ug/kg	114	335-76-2	
PFOS* 2.7 1.1 ug/kg 114 1763-23-1 PFOS-LN* 1.9 1.1 ug/kg 114 1763-23-1-LN PFOS-BR* Not detected 1.1 ug/kg 114 1763-23-1-BR PFUnDA* 8.2 1.1 ug/kg 114 2058-94-8 PFNS* Not detected 1.1 ug/kg 114 68259-12-1	N-MeFOSAA*	20	1.1		ug/kg	114	2355-31-9	1
PFOS-LN* 1.9 1.1 ug/kg 114 1763-23-1-LN PFOS-BR* Not detected 1.1 ug/kg 114 1763-23-1-BR PFUnDA* 8.2 1.1 ug/kg 114 2058-94-8 PFNS* Not detected 1.1 ug/kg 114 68259-12-1	EtFOSAA*	42	1.1		ug/kg	114	2991-50-6	1
PFOS-BR* Not detected 1.1 ug/kg 114 1763-23-1-BR PFUnDA* 8.2 1.1 ug/kg 114 2058-94-8 PFNS* Not detected 1.1 ug/kg 114 68259-12-1	PFOS*	2.7	1.1		ug/kg	114	1763-23-1	
PFUnDA* 8.2 1.1 ug/kg 114 2058-94-8 PFNS* Not detected 1.1 ug/kg 114 68259-12-1	PFOS-LN*	1.9	1.1		ug/kg	114	1763-23-1-LN	
PFNS* Not detected 1.1 ug/kg 114 68259-12-1	PFOS-BR*	Not detected	1.1		ug/kg	114	1763-23-1-BR	
	PFUnDA*	8.2	1.1		ug/kg	114	2058-94-8	
PFDoDA* 5.3 1.1 ug/kg 114 307-55-1	PFNS*	Not detected	1.1		ug/kg	114	68259-12-1	
	PFDoDA*	5.3	1.1		ug/kg	114	307-55-1	
PFDS* 6.9 1.1 ug/kg 114 335-77-3	PFDS*	6.9	1.1		ug/kg	114	335-77-3	
PFTrDA* 4.9 1.1 ug/kg 114 72629-94-8	PFTrDA*	4.9	1.1		ug/kg	114	72629-94-8	
FOSA* 2.2 1.1 ug/kg 114 754-91-6	FOSA*	2.2	1.1		ug/kg	114	754-91-6	
PFTeDA* 3 1.1 ug/kg 114 376-06-7	PFTeDA*	3	1.1		ug/kg	114	376-06-7	
11CI-PF3OUdS* Not detected 1.1 ug/kg 114 763051-92-9	11CI-PF3OUdS*	Not detected	1.1		ug/kg	114	763051-92-9	
9CI-PF3ONS* Not detected 1.1 ug/kg 114 756426-58-1	9CI-PF3ONS*	Not detected	1.1		ug/kg	114	756426-58-1	



Lab Sample ID: S25175.01 (continued)

Sample Tag: Roscommon Lagoon #1 21F0448-01

28 PFAs, Method: ASTM D7968-17M, Run Date: 06/23/21 01:47, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
ADONA*	Not detected	1.1		ug/kg	114	919005-14-4	_
HFPO-DA*	Not detected	1.1		ug/kg	114	13252-13-6	1



Lab Sample ID: S25175.02

Sample Tag: Roscommon Lagoon #2 21F0448-02

Collected Date/Time: 06/10/2021 11:30

Matrix: Sludge COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.5	IR
1	500ml Plastic	None	Yes	5.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.20/6.87/10	ASTM D7968-17M	06/21/21 16:00	KCV	

Inorganics

Method: SM2540B, Run Date: 06/12/21 09:10, Analyst: ELR

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	1.8	1		%	1		

Organics

28 PFAs, Method: ASTM D7968-17M, Run Date: 06/23/21 02:07, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	2.6		ug/kg	128	375-22-4	
PFPeA*	Not detected	1.3		ug/kg	128	2706-90-3	
4:2 FTSA*	Not detected	1.3		ug/kg	128	757124-72-4	1
PFHxA*	Not detected	1.3		ug/kg	128	307-24-4	
PFBS*	Not detected	1.3		ug/kg	128	375-73-5	
PFHpA*	Not detected	1.3		ug/kg	128	375-85-9	
PFPeS*	Not detected	1.3		ug/kg	128	2706-91-4	
6:2 FTSA*	Not detected	1.3		ug/kg	128	27619-97-2	1
PFOA*	Not detected	1.3		ug/kg	128	335-67-1	
PFHxS*	Not detected	1.3		ug/kg	128	355-46-4	
PFHxS-LN*	Not detected	1.3		ug/kg	128	355-46-4-LN	
PFHxS-BR*	Not detected	1.3		ug/kg	128	355-46-4-BR	
PFNA*	Not detected	1.3		ug/kg	128	375-95-1	
8:2 FTSA*	Not detected	1.3		ug/kg	128	39108-34-4	1
PFHpS*	Not detected	1.3		ug/kg	128	375-92-8	
PFDA*	2.5	1.3		ug/kg	128	335-76-2	
N-MeFOSAA*	9.1	1.3		ug/kg	128	2355-31-9	1
EtFOSAA*	34	1.3		ug/kg	128	2991-50-6	1
PFOS*	2.6	1.3		ug/kg	128	1763-23-1	
PFOS-LN*	1.8	1.3		ug/kg	128	1763-23-1-LN	
PFOS-BR*	Not detected	1.3		ug/kg	128	1763-23-1-BR	
PFUnDA*	14	1.3		ug/kg	128	2058-94-8	
PFNS*	Not detected	1.3		ug/kg	128	68259-12-1	
PFDoDA*	5.9	1.3		ug/kg	128	307-55-1	
PFDS*	4.7	1.3		ug/kg	128	335-77-3	
PFTrDA*	5.9	1.3		ug/kg	128	72629-94-8	
FOSA*	Not detected	1.3		ug/kg	128	754-91-6	
PFTeDA*	2.2	1.3		ug/kg	128	376-06-7	
11CI-PF3OUdS*	Not detected	1.3		ug/kg	128	763051-92-9	
9CI-PF3ONS*	Not detected	1.3		ug/kg	128	756426-58-1	



Lab Sample ID: S25175.02 (continued)

Sample Tag: Roscommon Lagoon #2 21F0448-02

28 PFAs, Method: ASTM D7968-17M, Run Date: 06/23/21 02:07, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
ADONA*	Not detected	1.3		ug/kg	128	919005-14-4	
HFPO-DA*	Not detected	1.3		ug/kg	128	13252-13-6	1



Lab Sample ID: S25175.03

Sample Tag: Roscommon Lagoon #3 21F0448-03

Collected Date/Time: 06/10/2021 10:15

Matrix: Sludge COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.5	IR
1	500ml Plastic	None	Yes	5.5	IR

Extraction / Prep.

 Parameter
 Result
 Method
 Run Date
 Analyst
 Flags

 Initial wt. (g) / Final wt. (g) / Volume (ml)*
 13.02/6.94/10
 ASTM D7968-17M
 06/21/21 16:00
 KCV

Inorganics

Method: SM2540B, Run Date: 06/12/21 09:10, Analyst: ELR

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	4.5	1		%	1		

Organics

28 PFAs, Method: ASTM D7968-17M, Run Date: 06/23/21 02:26, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	0.73		ug/kg	36.5	375-22-4	1
PFPeA*	Not detected	0.37		ug/kg	36.5	2706-90-3	
4:2 FTSA*	Not detected	0.37		ug/kg	36.5	757124-72-4	1
PFHxA*	0.62	0.37		ug/kg	36.5	307-24-4	
PFBS*	Not detected	0.37		ug/kg	36.5	375-73-5	
PFHpA*	Not detected	0.37		ug/kg	36.5	375-85-9	
PFPeS*	Not detected	0.37		ug/kg	36.5	2706-91-4	
6:2 FTSA*	Not detected	0.37		ug/kg	36.5	27619-97-2	1
PFOA*	0.7	0.37		ug/kg	36.5	335-67-1	
PFHxS*	Not detected	0.37		ug/kg	36.5	355-46-4	
PFHxS-LN*	Not detected	0.37		ug/kg	36.5	355-46-4-LN	
PFHxS-BR*	Not detected	0.37		ug/kg	36.5	355-46-4-BR	
PFNA*	2.3	0.37		ug/kg	36.5	375-95-1	
8:2 FTSA*	Not detected	0.37		ug/kg	36.5	39108-34-4	1
PFHpS*	Not detected	0.37		ug/kg	36.5	375-92-8	
PFDA*	1.8	0.37		ug/kg	36.5	335-76-2	
N-MeFOSAA*	27	0.37		ug/kg	36.5	2355-31-9	
EtFOSAA*	94	0.37		ug/kg	36.5	2991-50-6	
PFOS*	2.3	0.37		ug/kg	36.5	1763-23-1	
PFOS-LN*	1.7	0.37		ug/kg	36.5	1763-23-1-LN	
PFOS-BR*	0.51	0.37		ug/kg	36.5	1763-23-1-BR	
PFUnDA*	13	0.37		ug/kg	36.5	2058-94-8	1
PFNS*	Not detected	0.37		ug/kg	36.5	68259-12-1	
PFDoDA*	5	0.37		ug/kg	36.5	307-55-1	1
PFDS*	7.1	0.37		ug/kg	36.5	335-77-3	
PFTrDA*	4	0.37		ug/kg	36.5	72629-94-8	1
FOSA*	2.7	0.37		ug/kg	36.5	754-91-6	
PFTeDA*	3.1	0.37		ug/kg	36.5	376-06-7	I 1
11CI-PF3OUdS*	Not detected	0.37		ug/kg	36.5	763051-92-9	

I-Matrix interference with internal standard

1-IS recovery <10%



Lab Sample ID: S25175.03 (continued)

Sample Tag: Roscommon Lagoon #3 21F0448-03

28 PFAs, Method: ASTM D7968-17M, Run Date: 06/23/21 02:26, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
9CI-PF3ONS*	Not detected	0.37		ug/kg	36.5	756426-58-1	_
ADONA*	Not detected	0.37		ug/kg	36.5	919005-14-4	
HFPO-DA*	Not detected	0.37		ug/kg	36.5	13252-13-6	1



Lab Sample ID: S25175.04

Sample Tag: Roscommon Lagoon #4 21F0448-04

Collected Date/Time: 06/10/2021 11:00

Matrix: Sludge COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.5	IR
1	500ml Plastic	None	Yes	5.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	13.67/6.81/10	ASTM D7968-17M	06/21/21 16:00	KCV	

Inorganics

Method: SM2540B, Run Date: 06/12/21 09:10, Analyst: ELR

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	3.4	1		%	1		

Organics

28 PFAs, Method: ASTM D7968-17M, Run Date: 06/23/21 02:46, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	0.86		ug/kg	42.9	375-22-4	1
PFPeA*	Not detected	0.43		ug/kg	42.9	2706-90-3	
4:2 FTSA*	Not detected	0.43		ug/kg	42.9	757124-72-4	1
PFHxA*	Not detected	0.43		ug/kg	42.9	307-24-4	
PFBS*	Not detected	0.43		ug/kg	42.9	375-73-5	
PFHpA*	Not detected	0.43		ug/kg	42.9	375-85-9	
PFPeS*	Not detected	0.43		ug/kg	42.9	2706-91-4	
6:2 FTSA*	Not detected	0.43		ug/kg	42.9	27619-97-2	1
PFOA*	0.58	0.43		ug/kg	42.9	335-67-1	
PFHxS*	Not detected	0.43		ug/kg	42.9	355-46-4	
PFHxS-LN*	Not detected	0.43		ug/kg	42.9	355-46-4-LN	
PFHxS-BR*	Not detected	0.43		ug/kg	42.9	355-46-4-BR	
PFNA*	0.55	0.43		ug/kg	42.9	375-95-1	
8:2 FTSA*	Not detected	0.43		ug/kg	42.9	39108-34-4	1
PFHpS*	Not detected	0.43		ug/kg	42.9	375-92-8	
PFDA*	2.2	0.43		ug/kg	42.9	335-76-2	
N-MeFOSAA*	15	0.43		ug/kg	42.9	2355-31-9	
EtFOSAA*	62	0.43		ug/kg	42.9	2991-50-6	
PFOS*	2.3	0.43		ug/kg	42.9	1763-23-1	
PFOS-LN*	2	0.43		ug/kg	42.9	1763-23-1-LN	
PFOS-BR*	Not detected	0.43		ug/kg	42.9	1763-23-1-BR	
PFUnDA*	11	0.43		ug/kg	42.9	2058-94-8	
PFNS*	Not detected	0.43		ug/kg	42.9	68259-12-1	
PFDoDA*	4.9	0.43		ug/kg	42.9	307-55-1	
PFDS*	5.9	0.43		ug/kg	42.9	335-77-3	
PFTrDA*	3.3	0.43		ug/kg	42.9	72629-94-8	
FOSA*	2.4	0.43		ug/kg	42.9	754-91-6	
PFTeDA*	1.5	0.43		ug/kg	42.9	376-06-7	
11CI-PF3OUdS*	Not detected	0.43		ug/kg	42.9	763051-92-9	
9CI-PF3ONS*	Not detected	0.43		ug/kg	42.9	756426-58-1	



Lab Sample ID: S25175.04 (continued)

Sample Tag: Roscommon Lagoon #4 21F0448-04

28 PFAs, Method: ASTM D7968-17M, Run Date: 06/23/21 02:46, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
ADONA*	Not detected	0.43		ug/kg	42.9	919005-14-4	_
HFPO-DA*	Not detected	0.43		ug/kg	42.9	13252-13-6	1

Merit Laboratories Login Checklist

Lab Set ID:S25175

Client:TRACE (Trace Analytical Laboratories)

Project: 21F0448

Submitted:06/11/2021 10:45 Login User: MMC

Attention: Tim Brewer

Address: Trace Analytical Laboratories 2241 Black Creek Rd. Muskegon, MI 49444

Phone: O: 231-773-5998 FAX: Email: TBrewer@trace-labs.com

Selection	Description	Note	
Sample Receiving			
01. X Yes No N	A Samples are received at 4C +/- 2C Th	ermometer # IR 5.5	
02. X Yes No N	A Received on ice/ cooling process begur	1	
03. X Yes No N	'A Samples shipped	UPS	
04. Yes X No N	A Samples left in 24 hr. drop box		
05. X Yes No N	A Are there custody seals/tape or is the d	rop box locked	
Chain of Custody			
06. X Yes No N	A COC adequately filled out		
07. X Yes No N	A COC signed and relinquished to the lab		
08. X Yes No N	A Sample tag on bottles match COC		
09. Yes X No N	A Subcontracting needed? Subcontacted	to:	
Preservation			
10. X Yes No No	A Do sample have correct chemical prese	ervation	
11. Yes No X N	A Completed pH checks on preserved sar	mples? (no VOAs)	
12. Yes X No N	A Did any samples need to be preserved	in the lab?	
Bottle Conditions			
13. X Yes No No	A All bottles intact		
14. X Yes No N	A Appropriate analytical bottles are used		
15. X Yes No N	A Merit bottles used		
16. X Yes No N	A Sufficient sample volume received		
17. Yes X No N	'A Samples require laboratory filtration		
18. X Yes No N	'A Samples submitted within holding time		
19. Yes No X N	A Do water VOC or TOX bottles contain h	eadspace	

Corrective action for	or all exceptions is	to call the clier	t and to notify	the project ma	anager.
Client Review By:			Date:		
Chefit Review by.			Date.		



231-773-5998 Phone 888-979-4469 Fax www.trace-labs.com

SUBCONTRACT ORDER

21F0448

	THE COLUMN TO SELECT A COLUMN TO
SENDING LABORATORY:	RECEIVING LABORATORY:
Trace Analytical Laboratories, Inc.	Merit Laboratories, Inc
2241 Black Creek Road	2680 East Lansing Dr.
Muskegon, MI 49444 Phone: 231 773 5908	East Lansing, MI 48823 Phone (517) 332-0167
110110: 201117:000	
Project Manager: Tim Brewer	
PO # 21F0448	
Matrix: Sludge Sample ID: Roscommon Lagoon #1 21F0448-01	Sampled: 06/10/21 09:30 TAT: Standard
Analysis Needed: PFAS- Biosolids- EGLE List	
	-[
Sample ID: Roscommon Lagoon #2 21F0448-02	Salipied. Joy 10/21 11.30 171. Staildaid
Analysis Needed: PFAS- Biosolids- EGLE List	Comments: mer
Matrix: Sludge	Sampled: 06/10/21 10:15 TAT: Standard
Sample D: Roscommon Lagoon #3 21F0448-03	
7 2.	
Analysis Needed: PFAS- Biosolids- EGLE List	
101017	
Activised By Date	Received By Date
	loat 6
Released By Date	Received By Date Date Date Page 1 of 2

SUBCONTRACT ORDER

448

21F0	Sar
	Matrix: Sludge 1F0448-04
- 5	Matrix: 21F044
	mon Lagoon #4
	Matrix: Slud Sample ID: Roscommon Lagoon #4 21F0448-04

TAT: Standard mpled: 06/10/21 11:00

25175.04

PFAS- Biosolids- EGLE List

Analysis Needed:

Received By 6/10/2(Date Released By

Date

Page 2 of 2



231-773-5998 Phone 888-979-4469 Fax www.trace-labs.com

	Trace Analytical Laboratories, Inc. Phone 231.773.5998 2241 Black Creek Road Fax 888.979,4469	In executing this Chain of Custody, the client acknowledges the	Report Results To: Company Name: Michiga Report To: 8,11 Gazd Report To: 8,11 Gazd Report To: 8,11 Gazd Report To: 8,11 Gazd Mailing Address: 36 50 City, State, Zip Code: \$6	ABORATORIES, INC. ABORATORIES, INC. ABORATORIES, INC. Appliesiness Solutions Freeway have Cell Phone: 6/4-232-05/17 Cell Ph	Trace Analytical Laboratories, Inc. 2241 Black Creek Road Muskegon, MI 49444-2673 Bill To: Dom: Contact Name: Billing Address (if different): City, State, Zip Code: Phone Number: Billing Email Address: (Crystel 9) Michael Phone Number: Deprinking Water Depr	Phone 231.773.5998 Fax 888.979.4469 www.trace-labs.com Analy Keleased By teleased By teleased By at www.trace-labs.com/terms-of-agree	Trace Use: Checked By: Soil Volatiles Preserved (cit MeOH Low L Sampling Time: Received By Received By	Pate Time
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Trace Analytical Laboratories, Inc. Phone 231.773.5998 2241 Black Creek Road Fax 888.979.4469 Muskegon, MI 4944-2673 www.trace-labs.com ts To: Bill To: Muchican Leybisiness Solutions Po # Bill Section by 10 mich as business on the contact Name: Billing Address (if different):	TICAL LABORATORIES, INC. Muskegon, MI 49444-2673 www.trace-labs.com ts To: Bill To: Muskegon, MI 49444-2673 Bill To: Bill To: Po # Contact Name: Bill Speker bill Dimichas business incis ochach hill Dimichas business incis ochach name: Bill Speker bill Dimichas business incis ochach name: Billing Address (if different):	Call Phone: 6/L 232 45/7 Phone Number		TIM	City, State, Zip Code:		MeOH Low L	evel
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CERTIFICATE OF ANALYSIS



231-773-5998 Phone 888-979-4469 Fax www.trace-labs.com

21F0448	Sample Log In Checklist
Project Manager: Tim Brewer	Date: 6/10/21 Time: 15:45 Corrected Temperature Coole(20812743 (CF0.5°C) 20812743 (CF0.0°C) 20812743 (CF0.4°C) 20812743
(Date: 6/10/21 Time: 15:45 Logged by: NC Package Description: Coole(IR-9 (CF: 0.0°C) Package Temb °C Package Temp Slank Client Sample Package Temp °C Package Temp °C
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es No	
Received on ice or other coolant	
ce still present upon receipt Custody seals present	Yes No Custody seals intact (if applicable)
Trace Courier Client Drop-off	UPS Fex Ex US Mail Other
ample Condition	
s No N/A	
All sample containers arrive	d unbroken and labeled
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