

Report ID: S33962.01(01) Generated on 03/31/2022

Report to

Attention: Don Popma Biotech Agronomics, Inc. 1651 Beulah Highway Beulah, MI 49617

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

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Report Summary

Lab Sample ID(s): S33962.01 Project: Caledonia WWTP Collected Date(s): 03/17/2022

Submitted Date/Time: 03/17/2022 14:08

Sampled by: Don Popma

P.O. #:

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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).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

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.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

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
Wisconsin DNR	FID# 399147320

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
р	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
х	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 2015

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 (1 samples)

Sample ID Sample Tag Matrix Collected Date/Time

S33962.01 Biosolids Sludge 03/17/22 10:40



Lab Sample ID: S33962.01

Sample Tag: Biosolids

Collected Date/Time: 03/17/2022 10:40

Matrix: Sludge

COC Reference: 138137

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.3	IR
1	250ml Plastic	None	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.22/7.03/10	ASTM D7968-17M	03/25/22 10:00	KCV	

Inorganics

Method: SM2540B, Run Date: 03/18/22 14:19, Analyst: MAM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags	
Total Solids*	2.0	1		%	1			

Organics

28 PFAs, Method: ASTM D7968-17M, Run Date: 03/26/22 21:28, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	3.4		ug/kg	96.3	375-22-4	IX
PFPeA*	1.2	0.96		ug/kg	96.3	2706-90-3	1
4:2 FTSA*	Not detected	0.96		ug/kg	96.3	757124-72-4	1
PFHxA*	1.5	0.96		ug/kg	96.3	307-24-4	1
PFBS*	1	0.96		ug/kg	96.3	375-73-5	
PFHpA*	Not detected	0.96		ug/kg	96.3	375-85-9	
PFPeS*	Not detected	0.96		ug/kg	96.3	2706-91-4	
6:2 FTSA*	Not detected	0.96		ug/kg	96.3	27619-97-2	1
PFOA*	3.9	0.96		ug/kg	96.3	335-67-1	
PFHxS*	Not detected	0.96		ug/kg	96.3	355-46-4	
PFHxS-LN*	Not detected	0.96		ug/kg	96.3	355-46-4-LN	
PFHxS-BR*	Not detected	0.96		ug/kg	96.3	355-46-4-BR	
PFNA*	Not detected	0.96		ug/kg	96.3	375-95-1	
8:2 FTSA*	Not detected	0.96		ug/kg	96.3	39108-34-4	1
PFHpS*	Not detected	0.96		ug/kg	96.3	375-92-8	
PFDA*	6.3	0.96		ug/kg	96.3	335-76-2	
N-MeFOSAA*	5.1	0.96		ug/kg	96.3	2355-31-9	
EtFOSAA*	5	0.96		ug/kg	96.3	2991-50-6	1
PFOS*	6.2	0.96		ug/kg	96.3	1763-23-1	
PFOS-LN*	4.9	0.96		ug/kg	96.3	1763-23-1-LN	
PFOS-BR*	1.3	0.96		ug/kg	96.3	1763-23-1-BR	
PFUnDA*	1.2	0.96		ug/kg	96.3	2058-94-8	
PFNS*	Not detected	0.96		ug/kg	96.3	68259-12-1	
PFDoDA*	1.7	0.96		ug/kg	96.3	307-55-1	
PFDS*	Not detected	0.96		ug/kg	96.3	335-77-3	
PFTrDA*	Not detected	0.96		ug/kg	96.3	72629-94-8	
FOSA*	Not detected	0.96		ug/kg	96.3	754-91-6	
PFTeDA*	Not detected	0.96		ug/kg	96.3	376-06-7	
11CI-PF3OUdS*	Not detected	0.96		ug/kg	96.3	763051-92-9	
9CI-PF3ONS*	Not detected	0.96		ug/kg	96.3	756426-58-1	

I-Matrix interference with internal standard X-Elevated reporting limit due to matrix interference



Lab Sample ID: S33962.01 (continued)

Sample Tag: Biosolids

28 PFAs, Method: ASTM D7968-17M, Run Date: 03/26/22 21:28, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
ADONA*	Not detected	0.96		ug/kg	96.3	919005-14-4	
HFPO-DA*	Not detected	0.96		ug/kg	96.3	13252-13-6	1

I-Matrix interference with internal standard

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Merit Laboratories Login Checklist

Lab Set ID:S33962

Client:BIOTECHAGRO (Biotech Agronomics, Inc.)

Project: Caledonia WWTP

Submitted: 03/17/2022 14:08 Login User: JRM

Attention: Don Popma

Address: Biotech Agronomics, Inc. 1651 Beulah Highway Beulah, MI 49617

Phone: 616-835-0100 FAX: Email: dpopma@biotechag.com

Selec	tion			Description	Note
Samp	ole Recei	ving			
01.	X Yes	No	□ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.3
02.	X Yes	No	N/A	Received on ice/ cooling process begun	
03.	Yes	X No	□ N/A	Samples shipped	
04.	Yes	X No	□ N/A	Samples left in 24 hr. drop box	
05.	Yes	No	X N/A	Are there custody seals/tape or is the drop box locked	
Chaiı	n of Custo	ody			
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:	
Drose	ervation				
1 1030	J. 141.0				
10.	X Yes	No	□ N/A	Do sample have correct chemical preservation	
		□ No	N/A X N/A	Do sample have correct chemical preservation Completed pH checks on preserved samples? (no VOAs)	
10.	X Yes			<u> </u>	
10. 11. 12.	X Yes	□ No X No	X N/A	Completed pH checks on preserved samples? (no VOAs)	
10. 11. 12.	X Yes Yes Yes	□ No X No	X N/A	Completed pH checks on preserved samples? (no VOAs)	
10. 11. 12.	X Yes Yes Yes Condition	No X No ons	X N/A	Completed pH checks on preserved samples? (no VOAs) Did any samples need to be preserved in the lab?	
10. 11. 12. Bottle 13.	X Yes Yes Yes Condition X Yes	No X No Ons	▼ N/A □ N/A	Completed pH checks on preserved samples? (no VOAs) Did any samples need to be preserved in the lab? All bottles intact	
10. 11. 12. Bottl 13.	X Yes Yes Yes Condition X Yes X Yes	No X No ons No	X N/A N/A N/A	Completed pH checks on preserved samples? (no VOAs) Did any samples need to be preserved in the lab? All bottles intact Appropriate analytical bottles are used	
10. 11. 12. Bottl 13. 14.	X Yes Yes Yes Condition X Yes X Yes X Yes	No No No No No No No	N/A N/A	Completed pH checks on preserved samples? (no VOAs) Did any samples need to be preserved in the lab? All bottles intact Appropriate analytical bottles are used Merit bottles used	
10. 11. 12. Bottl 13. 14. 15.	X Yes Yes Yes Condition X Yes X Yes X Yes X Yes	No No No No No No No No		Completed pH checks on preserved samples? (no VOAs) Did any samples need to be preserved in the lab? All bottles intact Appropriate analytical bottles are used Merit bottles used Sufficient sample volume received	

Corrective action for all	exceptions is to call	the client and to	notify the project	manager.
Client Review By:			Date:	



2680 East Lansing Dr., East Lansing, MI 48823 Phone (517) 332-0167 Fax (517) 332-4034 www.meritlabs.com

C.O.C. PAGE	#	OF

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