Analytical Laboratory Report

Report ID: S33435.01(01)+QC01
Generated on 03/23/2022

Report to

Attention: Gerry Osborn
Infrastructure Alternatives
9270 10 Mile Road NE
Rockford, MI 49341

Phone: 616-889-5430 FAX:
Email: gosborn@IAIWater.com

Addtional Contacts: Nick Harris

Report produced by

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

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S33435.01
Project: Cedar Springs WWTP
Collected Date(s): 03/02/2022
Submitted Date/Time: 03/02/2022 13:50
Sampled by: Nick Harris
P.O. #:

Table of Contents

Maya Murshak
Technical Director

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.

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
B	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
H	Sample submitted and run outside of holding time
I	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
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	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 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
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9
9Cl-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

Analytical Laboratory Report

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S33435.01	Sludge Storage Tank North	Sludge	03/02/22 10:35

Analytical Laboratory Report

Lab Sample ID: S33435.01
Sample Tag: Sludge Storage Tank North
Collected Date/Time: 03/02/2022 10:35
Matrix: Sludge
COC Reference: 140301

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	17.8	IR
1	250ml Plastic	None	Yes	17.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	6.98/7.08/10	ASTM D7968-17M	03/04/22 15:30	KCV	

Inorganics

Method: SM2540B, Run Date: 03/02/22 17:00, Analyst: MAM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	1.3	1		%	1		

Organics

28 PFAs, Method: ASTM D7968-17M, Run Date: 03/07/22 16:20, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	15		ug/kg	296	375-22-4	X
PFPeA*	16	1.5		ug/kg	296	2706-90-3	
4:2 FTSA*	Not detected	1.5		ug/kg	296	757124-72-4	I
PFHxA*	11	1.5		ug/kg	296	307-24-4	
PFBS*	3.2	1.5		ug/kg	296	375-73-5	
PFHpA*	Not detected	1.5		ug/kg	296	375-85-9	
PFPeS*	Not detected	1.5		ug/kg	296	2706-91-4	
6:2 FTSA*	Not detected	1.5		ug/kg	296	27619-97-2	I
PFOA*	5.1	1.5		ug/kg	296	335-67-1	
PFHxS*	Not detected	1.5		ug/kg	296	355-46-4	
PFHxS-LN*	Not detected	1.5		ug/kg	296	355-46-4-LN	
PFHxS-BR*	Not detected	1.5		ug/kg	296	355-46-4-BR	
PFNA*	Not detected	1.5		ug/kg	296	375-95-1	
8:2 FTSA*	Not detected	1.5		ug/kg	296	39108-34-4	I
PFHpS*	Not detected	1.5		ug/kg	296	375-92-8	
PFDA*	2.7	1.5		ug/kg	296	335-76-2	
N-MeFOSAA*	4.6	1.5		ug/kg	296	2355-31-9	
EtFOSAA*	6.5	1.5		ug/kg	296	2991-50-6	I
PFOS*	8.2	1.5		ug/kg	296	1763-23-1	
PFOS-LN*	6.7	1.5		ug/kg	296	1763-23-1-LN	
PFOS-BR*	Not detected	1.5		ug/kg	296	1763-23-1-BR	
PFUnDA*	Not detected	1.5		ug/kg	296	2058-94-8	
PFNS*	Not detected	1.5		ug/kg	296	68259-12-1	
PFDoDA*	Not detected	1.5		ug/kg	296	307-55-1	
PFDS*	Not detected	1.5		ug/kg	296	335-77-3	
PFTrDA*	Not detected	1.5		ug/kg	296	72629-94-8	
FOSA*	Not detected	1.5		ug/kg	296	754-91-6	
PFTeDA*	Not detected	1.5		ug/kg	296	376-06-7	
11Cl-PF3OUdS*	Not detected	1.5		ug/kg	296	763051-92-9	

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

Lab Sample ID: S33435.01 (continued)
Sample Tag: Sludge Storage Tank North

28 PFAs, Method: ASTM D7968-17M, Run Date: 03/07/22 16:20, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
9Cl-PF3ONS*	Not detected	1.5		ug/kg	296	756426-58-1	
ADONA*	Not detected	1.5		ug/kg	296	919005-14-4	
HFPO-DA*	Not detected	1.5		ug/kg	296	13252-13-6	

Quality Control Report

Report ID: S33435.01(01)+QC01
Generated on 03/23/2022

Report to

Attention: Gerry Osborn
Infrastructure Alternatives
9270 10 Mile Road NE
Rockford, MI 49341

Phone: 616-889-5430 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S33435.01
Project: Cedar Springs WWTP
Submitted Date/Time: 03/02/2022 13:50
Sampled by: Nick Harris
P.O. #:

QC Report Sections

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S33435.01
Sample Tag: Sludge Storage Tank North
Collected Date/Time: 03/02/2022 10:35
Matrix: Sludge
COC Reference: 140301

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Total Solids	SM2540B	03/02/22 17:00	TS220302A	TS220302A	No	BLK/LCS/DUP
Organics - Volatiles						
28 PFAs	ASTM D7968-17M	03/07/22 16:20	AK220307	PF220304S1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Inorganics, Prep Batch ID: TS220302A

Surrogates: No, QC Types: BLK/LCS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S33435.01	Total Solids	SM2540B	03/02/22 17:00	TS220302A

Organics - Volatiles, Prep Batch ID: PF220304S1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S33435.01	28 PFAs	ASTM D7968-17M	03/07/22 16:20	AK220307

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: PF220304S1

QC Types: BLK/LCS/LCSD/MS/DUP

Blank (BLK)

Lab Sample ID: AK220307.BLK220304

Run in Batch: AK220307, Run Date: 03/07/2022 12:45, Prep Date: 03/04/2022, Matrix: SO, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: AK220307.LCS220304

Run in Batch: AK220307, Run Date: 03/07/2022 12:02, Prep Date: 03/04/2022, Matrix: SO, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK220307.LCSD220304, Parent Sample ID: AK220307.LCS220304

Run in Batch: AK220307, Run Date: 03/07/2022 12:24, Prep Date: 03/04/2022, Matrix: SO, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: AK220307.3347904M, Parent Sample ID: S33479.04

Run in Batch: AK220307, Run Date: 03/07/2022 17:46, Prep Date: 03/04/2022, Matrix: SO, Dilution: 33.9

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Duplicate (DUP)

Lab Sample ID: AK220307.3310601D, Parent Sample ID: S33106.01

Run in Batch: AK220307, Run Date: 03/07/2022 15:16, Prep Date: 03/04/2022, Matrix: SO, Dilution: 8.42

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S33435.01

Sample Tag: Sludge Storage Tank North

Collected Date/Time: 03/02/2022 10:35

Matrix: Sludge

COC Reference: 140301

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK220307, Run Date: 03/07/2022 16:20, Matrix: SO, Dilution: 296

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	**204.2**	50.0	150.0
M2-6:2FTSA	*	**252.4**	50.0	150.0
M2-8:2FTSA	*	**283.6**	50.0	150.0
M2PFTeDA		**80.0**	12.0	218.0
M3PFBS		**83.4**	50.0	150.0
M3PFHxS		**128.1**	50.0	150.0
M4PFHpA		**83.1**	50.0	150.0
M5PFHxA		**75.7**	50.0	150.0
M5PFPeA		**87.9**	50.0	150.0
M6PFDA		**73.9**	50.0	150.0
M7PFUnDA		**96.9**	50.0	150.0
M8FOSA		**121.3**	50.0	150.0
M8PFOA		**74.0**	50.0	150.0
M8PFOS		**88.8**	50.0	150.0
M9-PFNA		**92.3**	50.0	150.0
MPFBA		**71.6**	50.0	150.0
MPFDoDA		**93.7**	50.0	150.0
d3N-MeFOSAA		**128.8**	50.0	150.0
d5EtFOSAA	*	**157.1**	50.0	150.0
MHFPO-DA		**123.6**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF220304S1

QC Types: BLK/LCS/LCSD/MS/DUP

Blank (BLK)

Lab Sample ID: AK220307.BLK220304

Run in Batch: AK220307, Run Date: 03/07/2022 12:45, Prep Date: 03/04/2022, Matrix: SO, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**93.9**	50.0	150.0
M2-6:2FTSA		**77.8**	50.0	150.0
M2-8:2FTSA		**102.6**	50.0	150.0
M2PFTeDA		**103.9**	12.0	218.0
M3PFBS		**100.4**	50.0	150.0
M3PFHxS		**111.2**	50.0	150.0
M4PFHpA		**104.4**	50.0	150.0
M5PFHxA		**95.6**	50.0	150.0
M5PFPeA		**100.7**	50.0	150.0
M6PFDA		**81.9**	50.0	150.0
M7PFUnDA		**102.3**	50.0	150.0
M8FOSA		**107.6**	50.0	150.0
M8PFOA		**85.1**	50.0	150.0
M8PFOS		**100.2**	50.0	150.0
M9-PFNA		**115.6**	50.0	150.0
MPFBA		**104.1**	50.0	150.0
MPFDoDA		**89.2**	50.0	150.0
d3N-MeFOSAA		**116.9**	50.0	150.0
d5EtFOSAA		**93.1**	50.0	150.0
MHFPO-DA		**105.0**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK220307.LCS220304

Run in Batch: AK220307, Run Date: 03/07/2022 12:02, Prep Date: 03/04/2022, Matrix: SO, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**100.7**	50.0	150.0
M2-6:2FTSA		**93.9**	50.0	150.0
M2-8:2FTSA		**106.5**	50.0	150.0
M2PFTeDA		**103.1**	12.0	218.0
M3PFBS		**90.8**	50.0	150.0
M3PFHxS		**105.0**	50.0	150.0
M4PFHpA		**106.3**	50.0	150.0
M5PFHxA		**99.1**	50.0	150.0
M5PFPeA		**96.1**	50.0	150.0
M6PFDA		**93.1**	50.0	150.0
M7PFUnDA		**102.4**	50.0	150.0
M8FOSA		**109.4**	50.0	150.0
M8PFOA		**84.7**	50.0	150.0
M8PFOS		**89.3**	50.0	150.0
M9-PFNA		**98.7**	50.0	150.0
MPFBA		**98.5**	50.0	150.0
MPFDoDA		**97.9**	50.0	150.0
d3N-MeFOSAA		**98.1**	50.0	150.0
d5EtFOSAA		**100.3**	50.0	150.0
MHFPO-DA		**97.1**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK220307.LCSD220304, Parent Sample ID: AK220307.LCS220304

Run in Batch: AK220307, Run Date: 03/07/2022 12:24, Prep Date: 03/04/2022, Matrix: SO, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**92.1**	50.0	150.0
M2-6:2FTSA		**84.6**	50.0	150.0
M2-8:2FTSA		**102.4**	50.0	150.0
M2PFTeDA		**118.9**	12.0	218.0
M3PFBS		**94.4**	50.0	150.0
M3PFHxS		**110.3**	50.0	150.0
M4PFHpA		**108.3**	50.0	150.0
M5PFHxA		**100.5**	50.0	150.0
M5PFPeA		**99.4**	50.0	150.0
M6PFDA		**88.6**	50.0	150.0
M7PFUnDA		**100.8**	50.0	150.0
M8FOSA		**102.5**	50.0	150.0
M8PFOA		**80.4**	50.0	150.0
M8PFOS		**102.1**	50.0	150.0
M9-PFNA		**93.2**	50.0	150.0
MPFBA		**103.4**	50.0	150.0
MPFDoDA		**101.5**	50.0	150.0
d3N-MeFOSAA		**104.6**	50.0	150.0
d5EtFOSAA		**99.6**	50.0	150.0
MHFPO-DA		**104.6**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK220307.3347904M, Parent Sample ID: S33479.04

Run in Batch: AK220307, Run Date: 03/07/2022 17:46, Prep Date: 03/04/2022, Matrix: SO, Dilution: 33.9

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	**177.1**	50.0	150.0
M2-6:2FTSA	*	**192.9**	50.0	150.0
M2-8:2FTSA	*	**260.4**	50.0	150.0
M2PFTeDA	*	**1.4**	12.0	218.0
M3PFBS		**71.5**	50.0	150.0
M3PFHxS		**80.8**	50.0	150.0
M4PFHpA		**66.5**	50.0	150.0
M5PFHxA		**55.5**	50.0	150.0
M5PFPeA		**66.3**	50.0	150.0
M6PFDA	*	**46.7**	50.0	150.0
M7PFUnDA		**52.2**	50.0	150.0
M8FOSA		**106.5**	50.0	150.0
M8PFOA		**55.1**	50.0	150.0
M8PFOS		**71.4**	50.0	150.0
M9-PFNA		**64.0**	50.0	150.0
MPFBA	*	**44.2**	50.0	150.0
MPFDoDA	*	**32.8**	50.0	150.0
d3N-MeFOSAA		**78.9**	50.0	150.0
d5EtFOSAA		**100.6**	50.0	150.0
MHFPO-DA	*	**47.6**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: AK220307.3310601D, Parent Sample ID: S33106.01

Run in Batch: AK220307, Run Date: 03/07/2022 15:16, Prep Date: 03/04/2022, Matrix: SO, Dilution: 8.42

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	**233.3**	50.0	150.0
M2-6:2FTSA	*	**174.1**	50.0	150.0
M2-8:2FTSA		**104.6**	50.0	150.0
M2PFTeDA	*	**1.9**	12.0	218.0
M3PFBS		**68.7**	50.0	150.0
M3PFHxS		**74.0**	50.0	150.0
M4PFHpA	*	**32.2**	50.0	150.0
M5PFHxA	*	**25.1**	50.0	150.0
M5PFPeA	*	**24.1**	50.0	150.0
M6PFDA	*	**10.1**	50.0	150.0
M7PFUnDA	*	**4.5**	50.0	150.0
M8FOSA	*	**36.4**	50.0	150.0
M8PFOA	*	**26.1**	50.0	150.0
M8PFOS	*	**34.5**	50.0	150.0
M9-PFNA	*	**26.6**	50.0	150.0
MPFBA	*	**5.7**	50.0	150.0
MPFDoDA	*	**4.1**	50.0	150.0
d3N-MeFOSAA	*	**10.6**	50.0	150.0
d5EtFOSAA	*	**13.6**	50.0	150.0
MHFPO-DA	*	**35.3**	50.0	150.0

Inorganics, Prep Batch ID: TS220302A

Surrogates: No, QC Types: BLK/LCS/DUP

Blank (BLK)

Lab Sample ID: TS220302A.LRB1

Run in Batch: TS220302A, Run Date: 03/02/2022 17:00, Prep Date: 03/02/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Solids		ND	1	%

Laboratory Control Sample (LCS)

Lab Sample ID: TS220302A.LCS1

Run in Batch: TS220302A, Run Date: 03/02/2022 17:00, Prep Date: 03/02/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Solids		100	90	110

Duplicate (DUP)

Lab Sample ID: TS220302A.DP1, Parent Sample ID: S33402.01

Run in Batch: TS220302A, Run Date: 03/02/2022 17:00, Prep Date: 03/02/2022, Matrix: Soil, Dilution: 1

Analyte	Flags	RPD	RPD CL
Total Solids		0	5

Duplicate (DUP)

Lab Sample ID: TS220302A.DP2, Parent Sample ID: S33433.03

Run in Batch: TS220302A, Run Date: 03/02/2022 17:00, Prep Date: 03/02/2022, Matrix: Soil, Dilution: 1

Analyte	Flags	RPD	RPD CL
Total Solids		1	5

Organics - Volatiles, Prep Batch ID: PF220304S1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/DUP

Blank (BLK)

Lab Sample ID: AK220307.BLK220304

Run in Batch: AK220307, Run Date: 03/07/2022 12:45, Prep Date: 03/04/2022, Matrix: SO, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	5	ng/kg
PFPeA		ND	2	ng/kg
4:2 FTSA		ND	1	ng/kg
PFHxA		ND	1	ng/kg
PFBS		ND	1	ng/kg
HFPO-DA		ND	1	ng/kg
PFHpA		ND	1	ng/kg
PFPeS		ND	1	ng/kg
ADONA		ND	1	ng/kg
6:2 FTSA		ND	1	ng/kg
PFOA		ND	1	ng/kg
PFHxS-BR		ND	1	ng/kg
PFHxS		ND	1	ng/kg
PFHxS-LN		ND	1	ng/kg
PFNA		ND	1	ng/kg
8:2 FTSA		ND	1	ng/kg
PFHpS		ND	1	ng/kg
N-MeFOSAA		ND	1	ng/kg
PFDA		ND	1	ng/kg
EtFOSAA		ND	2	ng/kg
PFOS		ND	1	ng/kg
PFOS-BR		ND	1	ng/kg
PFOS-LN		ND	1	ng/kg
PFUnDA		ND	1	ng/kg
9CL-PF3ONS		ND	1	ng/kg
PFNS		ND	1	ng/kg
PFDoDA		ND	1	ng/kg
PFDS		ND	1	ng/kg
PFTrDA		ND	1	ng/kg
11CL-PF3OUdS		ND	1	ng/kg
FOSA		ND	1	ng/kg
PFTeDA		ND	2	ng/kg

Laboratory Control Sample (LCS)

Lab Sample ID: AK220307.LCS220304

Run in Batch: AK220307, Run Date: 03/07/2022 12:02, Prep Date: 03/04/2022, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		98.8	70.0	130.0
PFPeA		102.0	70.0	130.0
4:2 FTSA		86.4	70.0	130.0
PFHxA		106.0	70.0	130.0
PFBS		105.6	70.0	130.0
HFPO-DA		102.4	70.0	130.0
PFHpA		81.8	70.0	130.0
PFPeS		110.6	70.0	130.0
ADONA		85.4	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF220304S1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/DUP

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK220307.LCS220304

Run in Batch: AK220307, Run Date: 03/07/2022 12:02, Prep Date: 03/04/2022, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		97.6	70.0	130.0
PFOA		110.0	70.0	130.0
PFHxS		99.2	70.0	130.0
PFNA		101.0	70.0	130.0
8:2 FTSA		86.6	70.0	130.0
PFHpS		99.4	70.0	130.0
N-MeFOSAA		96.4	70.0	130.0
PFDA		85.4	70.0	130.0
EtFOSAA		83.4	70.0	130.0
PFOS		96.8	70.0	130.0
PFUnDA		102.2	70.0	130.0
9CL-PF3ONS		102.8	70.0	130.0
PFNS		96.8	70.0	130.0
PFDoDA		101.6	70.0	130.0
PFDS		119.8	70.0	130.0
PFTrDA		110.8	70.0	130.0
11CL-PF3OUdS		117.0	70.0	130.0
FOSA		101.0	70.0	130.0
PFTeDA		98.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK220307.LCSD220304, Parent Sample ID: AK220307.LCS220304

Run in Batch: AK220307, Run Date: 03/07/2022 12:24, Prep Date: 03/04/2022, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		99.2	70.0	130.0	0.4	30.0
PFPeA		101.2	70.0	130.0	0.8	30.0
4:2 FTSA		89.8	70.0	130.0	3.9	30.0
PFHxA		104.8	70.0	130.0	1.1	30.0
PFBS		102.4	70.0	130.0	3.1	30.0
HFPO-DA		88.8	70.0	130.0	14.2	30.0
PFHpA		79.4	70.0	130.0	3.0	30.0
PFPeS		115.2	70.0	130.0	4.1	30.0
ADONA		100.0	70.0	130.0	15.7	30.0
6:2 FTSA		107.6	70.0	130.0	9.7	30.0
PFOA		120.2	70.0	130.0	8.9	30.0
PFHxS		103.6	70.0	130.0	4.3	30.0
PFNA		113.2	70.0	130.0	11.4	30.0
8:2 FTSA		88.2	70.0	130.0	1.8	30.0
PFHpS		89.6	70.0	130.0	10.4	30.0
N-MeFOSAA		101.8	70.0	130.0	5.4	30.0
PFDA		100.2	70.0	130.0	15.9	30.0
EtFOSAA		88.0	70.0	130.0	5.4	30.0
PFOS		88.0	70.0	130.0	9.5	30.0
PFUnDA		96.8	70.0	130.0	5.4	30.0
9CL-PF3ONS		93.8	70.0	130.0	9.2	30.0
PFNS		89.4	70.0	130.0	7.9	30.0

Organics - Volatiles, Prep Batch ID: PF220304S1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/DUP

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK220307.LCSD220304, Parent Sample ID: AK220307.LCS220304

Run in Batch: AK220307, Run Date: 03/07/2022 12:24, Prep Date: 03/04/2022, Matrix: SO, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDoDA		97.0	70.0	130.0	4.6	30.0
PFDS		102.8	70.0	130.0	15.3	30.0
PFTrDA		119.0	70.0	130.0	7.1	30.0
11CL-PF3OUdS		105.0	70.0	130.0	10.8	30.0
FOSA		115.6	70.0	130.0	13.5	30.0
PFTeDA		98.0	70.0	130.0	0.8	30.0

Matrix Spike (MS)

Lab Sample ID: AK220307.3347904M, Parent Sample ID: S33479.04

Run in Batch: AK220307, Run Date: 03/07/2022 17:46, Prep Date: 03/04/2022, Matrix: SO, Dilution: 33.9

Analyte	Flags	% Rec	LCL	UCL
PFBA		105.9	70.0	130.0
PFPeA		70.6	70.0	130.0
4:2 FTSA		94.1	70.0	130.0
PFHxA	*	52.9	70.0	130.0
PFBS		129.4	70.0	130.0
PFHpA		84.1	70.0	130.0
PFPeS		105.9	70.0	130.0
6:2 FTSA		123.5	70.0	130.0
PFOA	*	235.3	70.0	130.0
PFHxS		80.6	70.0	130.0
PFNA	*	152.9	70.0	130.0
8:2 FTSA		94.1	70.0	130.0
PFHpS		117.6	70.0	130.0
PFDA	*	147.1	70.0	130.0
N-MeFOSAA	*	182.4	70.0	130.0
EtFOSAA		108.2	70.0	130.0
PFOS	*	235.3	70.0	130.0
PFUnDA		94.7	70.0	130.0
PFNS		70.6	70.0	130.0
PFDoDA		116.5	70.0	130.0
PFDS		70.6	70.0	130.0
PFTrDA	*	32.9	70.0	130.0
FOSA		88.2	70.0	130.0
PFTeDA		105.9	70.0	130.0
11CL-PF3OUdS	*	39.4	70.0	130.0
9CL-PF3ONS		88.2	70.0	130.0
ADONA		100.0	70.0	130.0
HFPO-DA		105.9	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK220307.3310601D, Parent Sample ID: S33106.01

Run in Batch: AK220307, Run Date: 03/07/2022 15:16, Prep Date: 03/04/2022, Matrix: SO, Dilution: 8.42

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		NC	30.0

Organics - Volatiles, Prep Batch ID: PF220304S1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/DUP

Duplicate (DUP) (continued)

Lab Sample ID: AK220307.3310601D, Parent Sample ID: S33106.01

Run in Batch: AK220307, Run Date: 03/07/2022 15:16, Prep Date: 03/04/2022, Matrix: SO, Dilution: 8.42

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
PFHxA		6.1	30.0
PFBS		NC	30.0
PFHpA		15.4	30.0
PFPeS		NC	30.0
6:2 FTSA		21.2	30.0
PFOA		7.8	30.0
PFHxS		NC	30.0
PFHxS-LN		NC	30.0
PFHxS-BR		NC	30.0
PFNA		5.7	30.0
8:2 FTSA		12.9	30.0
PFHpS		NC	30.0
PFDA		3.8	30.0
N-MeFOSAA		16.7	30.0
EtFOSAA		14.3	30.0
PFOS		4.3	30.0
PFOS-LN		5.0	30.0
PFOS-BR		7.4	30.0
PFUnDA		11.5	30.0
PFNS		NC	30.0
PFDoDA		11.8	30.0
PFDS		NC	30.0
PFTrDA		NC	30.0
FOSA		0.0	30.0
PFTeDA		NC	30.0
11CL-PF3OUdS		NC	30.0
9CL-PF3ONS		NC	30.0
ADONA		NC	30.0
HFPO-DA		NC	30.0

Merit Laboratories Login Checklist

Lab Set ID: S33435
Client: INFALT (Infrastructure Alternatives)
Project: Cedar Springs WWTP
Submitted: 03/02/2022 13:50 Login User: MMC

Attention: Gerry Osborn
Address: Infrastructure Alternatives
9270 10 Mile Road NE
Rockford, MI 49341

Phone: 616-889-5430 FAX:
Email: gosborn@IAIWater.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.8
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	
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	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/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 headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

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

C.O.C. PAGE # _____ OF _____

140301

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Nick Harris / Gerry Osborn
COMPANY: Infra structure Alternatives
ADDRESS: 7388 Childsdale Ave NE
CITY: Rockford STATE: MI ZIP CODE: 49341
PHONE NO.: 616-889-3430 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: gosborn@iaiwater.com / nharris@IAIwater.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☑ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: Cedar Springs WWTP
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Nick Harris

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☑ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☑ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other _____

Special Instructions

MERIT LAB NO. FOR LAB USE ONLY	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFOS method D7968
33435.01	3-2-2022	10:35AM	Sludge Storage Tank North	SL	4								+

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Zach IAI ☑ Sampler DATE: 3-2-2022 TIME: 2:50pm
RECEIVED BY: SIGNATURE/ORGANIZATION: M Chilcote DATE: 3/2/22 TIME: 1950

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS:
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS:

NOTES: TEMP. ON ARRIVAL 5.8

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12