



Analytical Laboratory Report

Report ID: S33436.01(01)+QC01
Generated on 03/23/2022

Report to

Attention: Gerry Osborn
Infrastructure Alternatives
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Rockford, MI 49341

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Report produced by

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Report Summary

Lab Sample ID(s): S33436.01
Project: Cedarfield MHC Estates WWTP
Collected Date(s): 03/02/2022
Submitted Date/Time: 03/02/2022 13:50
Sampled by: Nick Harris
P.O. #:

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Maya Murshak
Technical Director



Analytical Laboratory Report

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
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
PFTTrDA	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
S33436.01	Sludge Storage Tank	Sludge	03/02/22 11:20



Analytical Laboratory Report

Lab Sample ID: S33436.01

Sample Tag: Sludge Storage Tank

Collected Date/Time: 03/02/2022 11:20

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)*	12.20/6.96/10	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*	3.7	1		%	1		

Organics

28 PFAs, Method: ASTM D7968-17M, Run Date: 03/07/22 16:42, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	6.7		ug/kg	51.6	375-22-4	IX
PFPeA*	0.57	0.52		ug/kg	51.6	2706-90-3	I
4:2 FTSA*	Not detected	0.52		ug/kg	51.6	757124-72-4	I
PFHxA*	1.3	0.52		ug/kg	51.6	307-24-4	I
PFBS*	Not detected	0.52		ug/kg	51.6	375-73-5	
PFHpA*	Not detected	0.52		ug/kg	51.6	375-85-9	
PFPeS*	Not detected	0.52		ug/kg	51.6	2706-91-4	
6:2 FTSA*	Not detected	0.52		ug/kg	51.6	27619-97-2	I
PFOA*	1.1	0.52		ug/kg	51.6	335-67-1	I
PFHxS*	Not detected	0.52		ug/kg	51.6	355-46-4	
PFHxS-LN*	Not detected	0.52		ug/kg	51.6	355-46-4-LN	
PFHxS-BR*	Not detected	0.52		ug/kg	51.6	355-46-4-BR	
PFNA*	Not detected	0.52		ug/kg	51.6	375-95-1	
8:2 FTSA*	Not detected	0.52		ug/kg	51.6	39108-34-4	I
PFHpS*	Not detected	0.52		ug/kg	51.6	375-92-8	
PFDA*	2	0.52		ug/kg	51.6	335-76-2	I
N-MeFOSAA*	3	0.52		ug/kg	51.6	2355-31-9	
EtFOSAA*	2.4	0.52		ug/kg	51.6	2991-50-6	
PFOS*	10	0.52		ug/kg	51.6	1763-23-1	
PFOS-LN*	8.4	0.52		ug/kg	51.6	1763-23-1-LN	
PFOS-BR*	2	0.52		ug/kg	51.6	1763-23-1-BR	
PFUnDA*	Not detected	0.52		ug/kg	51.6	2058-94-8	I
PFNS*	Not detected	0.52		ug/kg	51.6	68259-12-1	
PFDoDA*	0.99	0.52		ug/kg	51.6	307-55-1	I
PFDS*	2.1	0.52		ug/kg	51.6	335-77-3	
PFTTrDA*	Not detected	0.52		ug/kg	51.6	72629-94-8	I
FOSA*	0.72	0.52		ug/kg	51.6	754-91-6	
PFTeDA*	Not detected	0.52		ug/kg	51.6	376-06-7	I1
11CI-PF3OUdS*	Not detected	0.52		ug/kg	51.6	763051-92-9	

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

1-IS recovery <10%



Analytical Laboratory Report

Lab Sample ID: S33436.01 (continued)
Sample Tag: Sludge Storage Tank

28 PFAs, Method: ASTM D7968-17M, Run Date: 03/07/22 16:42, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
9CI-PF3ONS*	Not detected	0.52		ug/kg	51.6	756426-58-1	
ADONA*	Not detected	0.52		ug/kg	51.6	919005-14-4	I
HFPO-DA*	Not detected	0.52		ug/kg	51.6	13252-13-6	

I-Matrix interference with internal standard



Quality Control Report

Report ID: S33436.01(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:

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2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S33436.01
Project: Cedarfield MHC Estates WWTP
Submitted Date/Time: 03/02/2022 13:50
Sampled by: Nick Harris
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QC Report Sections

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Internal Standards per QC Sample (Pages 13-17)
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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: S33436.01

Sample Tag: Sludge Storage Tank

Collected Date/Time: 03/02/2022 11:20

Matrix: Sludge

COC Reference: 140301

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<i>Inorganics</i>						
Total Solids	SM2540B	03/02/22 17:00	TS220302A	TS220302A	No	BLK/LCS/DUP
<i>Organics - Volatiles</i>						
28 PFAs	ASTM D7968-17M	03/07/22 16:42	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
S33436.01	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
S33436.01	28 PFAs	ASTM D7968-17M	03/07/22 16:42	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
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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
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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
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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
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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
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No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S33436.01

Sample Tag: Sludge Storage Tank

Collected Date/Time: 03/02/2022 11:20

Matrix: Sludge

COC Reference: 140301

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK220307, Run Date: 03/07/2022 16:42, Matrix: SO, Dilution: 51.6

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	153.0	50.0	150.0
M2-6:2FTSA	*	189.8	50.0	150.0
M2-8:2FTSA	*	179.3	50.0	150.0
M2PFTeDA	*	0.7	12.0	218.0
M3PFBS		61.6	50.0	150.0
M3PFHxS		72.9	50.0	150.0
M4PFHpA		61.7	50.0	150.0
M5PFHxA	*	44.7	50.0	150.0
M5PFPeA	*	39.6	50.0	150.0
M6PFDA	*	39.1	50.0	150.0
M7PFUnDA	*	42.5	50.0	150.0
M8FOSA		99.2	50.0	150.0
M8PFOA	*	48.3	50.0	150.0
M8PFOS		57.4	50.0	150.0
M9-PFNA		56.5	50.0	150.0
MPFBA	*	16.6	50.0	150.0
MPFDoDA	*	21.9	50.0	150.0
d3N-MeFOSAA		65.1	50.0	150.0
d5EtFOSAA		84.2	50.0	150.0
MHFPO-DA		56.9	50.0	150.0

QC Report - Internal Standards 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

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

QC Report - Internal Standards per QC Sample

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

QC Report - Internal Standards per QC Sample

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

QC Report - Internal Standards per QC Sample

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

QC Report - Internal Standards per QC Sample

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

QC Report - Batch QC Results

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

QC Report - Batch QC Results

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
PFFHpA		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
PFFHpS		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
PFTTrDA		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
PFFHpA		81.8	70.0	130.0
PFPeS		110.6	70.0	130.0
ADONA		85.4	70.0	130.0

QC Report - Batch QC Results

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
PFTTrDA		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

QC Report - Batch QC Results

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

QC Report - Batch QC Results

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
PFTTrDA		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:S33436

Client:INFALT (Infrastructure Alternatives)

Project: Cedarfield MHC Estates 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.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Samples are received at 4C +/- 2C Thermometer # IR 5.8
02.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Received on ice/ cooling process begun
03.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Samples shipped
04.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Samples left in 24 hr. drop box
05.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	COC adequately filled out
07.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	COC signed and relinquished to the lab
08.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Sample tag on bottles match COC
09.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Subcontracting needed? Subcontracted to:
Preservation		
10.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Do sample have correct chemical preservation
11.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Completed pH checks on preserved samples? (no VOAs)
12.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	All bottles intact
14.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Appropriate analytical bottles are used
15.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Merit bottles used
16.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Sufficient sample volume received
17.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Samples require laboratory filtration
18.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Samples submitted within holding time
19.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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: _____

