

Monday, July 19, 2021

Daniel T Robb
City of West Branch
121 N. 4th Street
West Branch, MI 48661

Workorder: 370252
Project Name: Wastewater Treatment Biosolids Storage Tank

Daniel Robb,
Paragon Laboratories, Inc. received the samples associated with the workorder listed above for the analyses presented in the following report. The analyses pertain only to the aliquot of sample received.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number below.

Please note that any unused portion of the sample(s) will be discarded 40 days after sample receipt, unless requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact me at 734-469-5625.

Sincerely,



Margaret Snyder
Senior Account Coordinator

GLOSSARY

Abbreviation	Meaning	Explanation
ID	Identification	Preceeded by "Lab", it describes the unique 10-digit sample number assigned by the laboratory. Preceeded by "Sample", it describes the client-specified sample identifier.
Qual	Qualifier	Column that populates with an asterisk (*) when a related narrative comment appears in the Workorder Summary.
RL	Reporting Limit	The value at or above which a result is routinely reported.
MDL	Method Detection Limit	The minimum measured concentration that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results.
DF	Dilution Factor	The dilution applied to the sample during analysis to arrive at the final reported analyte result.
Min	Minimum	The minimum value that a result can be to meet the applicable specification, regulatory, permit, or client-specified limit.
Max	Maximum	The maximum value that a result can be to meet the applicable specification, regulatory, permit, or client-specified limit.
(S)	Surrogate	A compound that is added to the sample to mimic one or more compounds of interest. Its recovery is used to evaluate the efficiency of recovering the compound(s) of interest.
<	Less Than	Symbol that indicates that a result is less than the value following it.
>	Greater Than	Symbol that indicates that a result is greater than the value following it.

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SAMPLE SUMMARY

Lab ID	Sample ID	Sample Description	Matrix	Date Collected	Date Received	Collector
3702520001	Biosolids Storage Tank (BST)	Grab	SL	06/21/2021 13:50	06/22/2021 10:20	JW
3702520002	Biosolids Storage Tank - FB	Grab	W	06/21/2021 13:50	06/22/2021 10:20	JW
3702520003	Biosolids Storage Tank - TB		W	06/21/2021 00:00	06/22/2021 10:20	JW

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WORKORDER SUMMARY

Accreditations

Paragon Laboratories, Inc. is certified by the Michigan Department of Environment, Great Lakes, and Energy to analyze Drinking Water. (EGLE Lab No. 9901 Expires 2/25/2023)

Workorder Narrative

General Comment:

No suspected contamination during sampling process, therefore the trip blank was not analyzed.

Surrogate Results Narrative

3702520001 - Biosolids Storage Tank (BST) - M2PFDoA

Surrogate recovery is below the lower control limit, possibly due to matrix interferences.

3702520001 - Biosolids Storage Tank (BST) - M2PFTeDA

Surrogate recovery is below the lower control limit, possibly due to matrix interferences.

3702520001 - Biosolids Storage Tank (BST) - M3PFBS

Surrogate recovery is below the lower control limit, possibly due to matrix interferences.

3702520001 - Biosolids Storage Tank (BST) - M4PFHpA

Surrogate recovery is below the lower control limit, possibly due to matrix interferences.

3702520001 - Biosolids Storage Tank (BST) - M5PFHxA

Surrogate recovery is below the lower control limit, possibly due to matrix interferences.

3702520001 - Biosolids Storage Tank (BST) - M7PFUhDA

Surrogate recovery is below the lower control limit, possibly due to matrix interferences.

3702520001 - Biosolids Storage Tank (BST) - M8PFOSA

Surrogate recovery is below the lower control limit, possibly due to matrix interferences.

3702520002 - Biosolids Storage Tank - FB - d5-NetFOSAA

Surrogate recovery is above the upper control limit, possibly due to matrix interferences.

ANALYTICAL RESULTS

Lab ID:	3702520001	Date Collected:	06/21/2021 13:50	Matrix:	Sludge					
Sample ID:	Biosolids Storage Tank (BST)	Date Received:	06/22/2021 10:20	Collector:	JW					
Description:	Grab									
Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	3.3	% m/m		0.10		1			06/24/2021 10:05	CTJ
Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.										
11CI-PF3OUdS	590	ng/Kg-dry		100	65	1			07/12/2021 16:50	JKP
4:2 FTSA	<100	ng/Kg-dry		100	58	1			07/12/2021 16:50	JKP
6:2 FTSA	190	ng/Kg-dry		150	130	1			07/12/2021 16:50	JKP
8:2 FTSA	810	ng/Kg-dry		100	50	1			07/12/2021 16:50	JKP
9CI-PF3ONS	260	ng/Kg-dry		100	59	1			07/12/2021 16:50	JKP
ADONA	<100	ng/Kg-dry		100	68	1			07/12/2021 16:50	JKP
HFPO-DA	<150	ng/Kg-dry		150	130	1			07/12/2021 16:50	JKP
NEtFOSAA	5700	ng/Kg-dry		100	57	1			07/12/2021 16:50	JKP
NMeFOSAA	12000	ng/Kg-dry		200	190	1			07/12/2021 16:50	JKP
PFBA	1700	ng/Kg-dry		25	20	1			07/12/2021 16:50	JKP
PFBS	11000	ng/Kg-dry		10	9.2	1			07/12/2021 16:50	JKP
PFDA	1900	ng/Kg-dry		15	14	1			07/12/2021 16:50	JKP
PFDS	1400	ng/Kg-dry		15	15	1			07/12/2021 16:50	JKP
PFDoA	730	ng/Kg-dry		20	17	1			07/12/2021 16:50	JKP
PFHpA	280	ng/Kg-dry		20	16	1			07/12/2021 16:50	JKP
PFHpS	<15	ng/Kg-dry		15	12	1			07/12/2021 16:50	JKP
PFHxA	6200	ng/Kg-dry		10	7.5	1			07/12/2021 16:50	JKP
PFHxS	390	ng/Kg-dry		10	5.8	1			07/12/2021 16:50	JKP
PFNA	1200	ng/Kg-dry		10	5.2	1			07/12/2021 16:50	JKP
PFNS	<30	ng/Kg-dry		30	29	1			07/12/2021 16:50	JKP
PFOA	1400	ng/Kg-dry		10	9.3	1			07/12/2021 16:50	JKP
PFOS	18000	ng/Kg-dry		20	20	1			07/12/2021 16:50	JKP
PFOSA	260	ng/Kg-dry		15	10	1			07/12/2021 16:50	JKP
PPPeA	9200	ng/Kg-dry		15	12	1			07/12/2021 16:50	JKP
PPPeS	<15	ng/Kg-dry		15	15	1			07/12/2021 16:50	JKP
PFTeDA	470	ng/Kg-dry		25	23	1			07/12/2021 16:50	JKP
PFTrDA	190	ng/Kg-dry		20	10	1			07/12/2021 16:50	JKP
PFUnDA	720	ng/Kg-dry		10	8.7	1			07/12/2021 16:50	JKP
PFecHS	<15	ng/Kg-dry		15	9.6	1			07/12/2021 16:50	JKP
Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits					Qual
13C-HFPO-DA (S)	ng/Kg-dry	240000	180000	76	70 - 130					
d3-NMeFOSAA (S)	ng/Kg-dry	24000	20000	84	70 - 130					
d5-NEtFOSAA (S)	ng/Kg-dry	24000	22000	91	70 - 130					
M2-4:2 FTS (S)	ng/Kg-dry	24000	17000	71	70 - 130					
M2-6:2 FTS (S)	ng/Kg-dry	24000	26000	109	70 - 130					
M2-8:2 FTS (S)	ng/Kg-dry	24000	20000	85	70 - 130					
M2PFDoA (S)	ng/Kg-dry	24000	8300	35	70 - 130					*

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ANALYTICAL RESULTS

M2PFTeDA (S)	ng/Kg-dry	24000	4600	19	70 - 130	*
M3PFBS (S)	ng/Kg-dry	24000	16000	67	70 - 130	*
M3PFHxS (S)	ng/Kg-dry	24000	18000	76	70 - 130	
M4PFBA (S)	ng/Kg-dry	24000	19000	81	70 - 130	
M4PFHpA (S)	ng/Kg-dry	24000	16000	67	70 - 130	*
M5PFHxA (S)	ng/Kg-dry	24000	15000	63	70 - 130	*
M5PFPeA (S)	ng/Kg-dry	24000	23000	95	70 - 130	
M6PFDA (S)	ng/Kg-dry	24000	20000	83	70 - 130	
M7PFUnDA (S)	ng/Kg-dry	24000	14000	60	70 - 130	*
M8PFOA (S)	ng/Kg-dry	24000	20000	83	70 - 130	
M8PFOS (S)	ng/Kg-dry	24000	20000	85	70 - 130	
M8PFOSA (S)	ng/Kg-dry	24000	5800	24	70 - 130	*
M9PFNA (S)	ng/Kg-dry	24000	24000	100	70 - 130	

Sample Preparation by ASTM D7968 Mod.

Tumble Extraction for PFAS

2.0001

grams

1

06/29/2021 11:11

JKP

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ANALYTICAL RESULTS

Lab ID:	3702520002	Date Collected:	06/21/2021 13:50	Matrix:	Water (W)					
Sample ID:	Biosolids Storage Tank - FB	Date Received:	06/22/2021 10:20	Collector:	JW					
Description:	Grab									
Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUDS	<50		ng/L	50	18	1			06/25/2021 00:32	JKP
4:2 FTSA	<50		ng/L	50	29	1			06/25/2021 00:32	JKP
6:2 FTSA	<50		ng/L	50	13	1			06/25/2021 00:32	JKP
8:2 FTSA	<50		ng/L	50	24	1			06/25/2021 00:32	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			06/25/2021 00:32	JKP
ADONA	<50		ng/L	50	24	1			06/25/2021 00:32	JKP
HFPO-DA	<100		ng/L	100	63	1			06/25/2021 00:32	JKP
NEtFOSAA	<50		ng/L	50	25	1			06/25/2021 00:32	JKP
NMeFOSAA	<50		ng/L	50	15	1			06/25/2021 00:32	JKP
PFBA	<2.0		ng/L	2.0	0.90	1			06/25/2021 00:32	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			06/25/2021 00:32	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			06/25/2021 00:32	JKP
PFDS	<10		ng/L	10	5.6	1			06/25/2021 00:32	JKP
PFDoA	<5.0		ng/L	5.0	2.1	1			06/25/2021 00:32	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			06/25/2021 00:32	JKP
PFHpS	<10		ng/L	10	4.8	1			06/25/2021 00:32	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			06/25/2021 00:32	JKP
PFHxS	<5.0		ng/L	5.0	2.6	1			06/25/2021 00:32	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			06/25/2021 00:32	JKP
PFNS	<10		ng/L	10	5.2	1			06/25/2021 00:32	JKP
PFOA	<2.0		ng/L	2.0	0.80	1			06/25/2021 00:32	JKP
PFOS	<2.0		ng/L	2.0	0.80	1			06/25/2021 00:32	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			06/25/2021 00:32	JKP
PPPeA	<5.0		ng/L	5.0	2.3	1			06/25/2021 00:32	JKP
PPPeS	<10		ng/L	10	4.5	1			06/25/2021 00:32	JKP
PFTeDA	<10		ng/L	10	4.8	1			06/25/2021 00:32	JKP
PFTrDA	<10		ng/L	10	4.4	1			06/25/2021 00:32	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			06/25/2021 00:32	JKP
PFecHS	<5.0		ng/L	5.0	2.9	1			06/25/2021 00:32	JKP
Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits					Qual
13C-HFPO-DA (S)	ng/L	1600	1700	108	70 - 130					
d3-NMeFOSAA (S)	ng/L	1600	1700	107	70 - 130					*
d5-NEtFOSAA (S)	ng/L	1600	2300	147	70 - 130					
M2-4:2 FTS (S)	ng/L	1600	1600	97	70 - 130					
M2-6:2 FTS (S)	ng/L	1600	1900	116	70 - 130					
M2-8:2 FTS (S)	ng/L	1600	1800	115	70 - 130					
M2PFDoA (S)	ng/L	160	170	105	70 - 130					
M2PFTeDA (S)	ng/L	160	140	87	70 - 130					
M3PFBS (S)	ng/L	160	160	102	70 - 130					
M3PFHxS (S)	ng/L	160	160	102	70 - 130					

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ANALYTICAL RESULTS

M4PFBA (S)	ng/L	160	170	108	70 - 130
M4PFHpA (S)	ng/L	160	160	98	70 - 130
M5PFHxA (S)	ng/L	160	160	99	70 - 130
M5PFPeA (S)	ng/L	160	180	112	70 - 130
M6PFDA (S)	ng/L	160	190	118	70 - 130
M7PFUnDA (S)	ng/L	160	190	118	70 - 130
M8PFOA (S)	ng/L	160	170	103	70 - 130
M8PFOS (S)	ng/L	160	160	99	70 - 130
M8PFOSA (S)	ng/L	160	160	100	70 - 130
M9PFNA (S)	ng/L	160	180	111	70 - 130

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS

Complete

1

06/24/2021 09:41

JKP

ANALYTICAL RESULTS

Lab ID: 3702520003 Date Collected: 06/21/2021 00:00 Matrix: Water (W)
Sample ID: Biosolids Storage Tank - TB Date Received: 06/22/2021 10:20 Collector: JW
Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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No results available.

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Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7968 Mod.

Matrix: Sludge

HBN: 37854

PFAS - Method Blank (MB)

Analyte	QC ID	Result	Detection Limit	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	07122021-1	< 10	10	ng/Kg-dry	-	-	
PFHxA	07122021-1	< 10	10	ng/Kg-dry	-	-	
PFHpA	07122021-1	< 20	20	ng/Kg-dry	-	-	
PFHxS	07122021-1	< 10	10	ng/Kg-dry	-	-	
PFOA	07122021-1	< 10	10	ng/Kg-dry	-	-	
PFOS	07122021-1	< 20	20	ng/Kg-dry	-	-	
PFNA	07122021-1	< 10	10	ng/Kg-dry	-	-	
PFDA	07122021-1	< 15	15	ng/Kg-dry	-	-	
d3-NMeFOSAA (S)	07122021-1	920	-	ng/Kg-dry	115%	70-130%	
NMeFOSAA	07122021-1	< 200	200	ng/Kg-dry	-	-	
PFUnDA	07122021-1	< 10	10	ng/Kg-dry	-	-	
d5-NEtFOSAA (S)	07122021-1	930	-	ng/Kg-dry	116%	70-130%	
NEtFOSAA	07122021-1	< 100	100	ng/Kg-dry	-	-	
PFDoA	07122021-1	< 20	20	ng/Kg-dry	-	-	
PFTrDA	07122021-1	< 20	20	ng/Kg-dry	-	-	
PFTeDA	07122021-1	< 25	25	ng/Kg-dry	-	-	
M4 PFBA (S)	07122021-1	730	-	ng/Kg-dry	91%	70-130%	
PFBA	07122021-1	< 25	25	ng/Kg-dry	-	-	
PPPeA	07122021-1	< 15	15	ng/Kg-dry	-	-	
M5 PFPeA (S)	07122021-1	760	-	ng/Kg-dry	94%	70-130%	
M2-4:2 FTS (S)	07122021-1	600	-	ng/Kg-dry	75%	70-130%	
4:2 FTSA	07122021-1	< 100	100	ng/Kg-dry	-	-	
PFPeS	07122021-1	< 15	15	ng/Kg-dry	-	-	
M2-6:2 FTS (S)	07122021-1	660	-	ng/Kg-dry	82%	70-130%	
6:2 FTSA	07122021-1	< 150	150	ng/Kg-dry	-	-	
PFHpS	07122021-1	< 15	15	ng/Kg-dry	-	-	
M2-8:2 FTS (S)	07122021-1	580	-	ng/Kg-dry	72%	70-130%	
8:2 FTSA	07122021-1	< 100	100	ng/Kg-dry	-	-	
PFNS	07122021-1	< 30	30	ng/Kg-dry	-	-	
PFDS	07122021-1	< 15	15	ng/Kg-dry	-	-	
PFOSA	07122021-1	< 15	15	ng/Kg-dry	-	-	
M3 PFBS (S)	07122021-1	700	-	ng/Kg-dry	87%	70-130%	
M4 PFHpA (S)	07122021-1	750	-	ng/Kg-dry	93%	70-130%	
M3 PFHxS (S)	07122021-1	700	-	ng/Kg-dry	88%	70-130%	
M9 PFNA (S)	07122021-1	900	-	ng/Kg-dry	112%	70-130%	
M7 PFUnDA (S)	07122021-1	870	-	ng/Kg-dry	108%	70-130%	
M2 PFDoA (S)	07122021-1	950	-	ng/Kg-dry	119%	70-130%	
M2 PFTeDA (S)	07122021-1	910	-	ng/Kg-dry	114%	70-130%	
M5 PFHxA (S)	07122021-1	770	-	ng/Kg-dry	96%	70-130%	
M8 PFOA (S)	07122021-1	820	-	ng/Kg-dry	103%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7968 Mod.

Matrix: Sludge

HBN: 37854

PFAS - Method Blank (MB) Continued

Analyte	QC ID	Result	Detection Limit	Units	Percent Recovery	Control Limits	Qualifier *
M8 PFOS (S)	07122021-1	750	-	ng/Kg-dry	93%	70-130%	
M6 PFDA (S)	07122021-1	910	-	ng/Kg-dry	113%	70-130%	
M8 PFOSA (S)	07122021-1	560	-	ng/Kg-dry	70%	70-130%	
HFPO-DA	07122021-1	< 150	150	ng/Kg-dry	-	-	
13C-HFPO-DA (S)	07122021-1	8400	-	ng/Kg-dry	105%	70-130%	
11CI-PF3OUDS	07122021-1	< 100	100	ng/Kg-dry	-	-	
9CI-PF3ONS	07122021-1	< 100	100	ng/Kg-dry	-	-	
ADONA	07122021-1	< 100	100	ng/Kg-dry	-	-	
PFeCHS	07122021-1	< 20	15	ng/Kg-dry	-	-	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

PFAS - Method Blank 2 (MB2)

Analyte	QC ID	Result	Detection Limit	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	07122021-2	< 10	10	ng/Kg-dry	-	-	
PFHxA	07122021-2	< 10	10	ng/Kg-dry	-	-	
PFHpA	07122021-2	< 20	20	ng/Kg-dry	-	-	
PFHxS	07122021-2	< 10	10	ng/Kg-dry	-	-	
PFOA	07122021-2	< 10	10	ng/Kg-dry	-	-	
PFOS	07122021-2	< 20	20	ng/Kg-dry	-	-	
PFNA	07122021-2	< 10	10	ng/Kg-dry	-	-	
PFDA	07122021-2	< 15	15	ng/Kg-dry	-	-	
d3-NMeFOSAA (S)	07122021-2	900	-	ng/Kg-dry	113%	70-130%	
NMeFOSAA	07122021-2	< 200	200	ng/Kg-dry	-	-	
PFUnDA	07122021-2	< 10	10	ng/Kg-dry	-	-	
d5-NEtFOSAA (S)	07122021-2	880	-	ng/Kg-dry	109%	70-130%	
NetFOSAA	07122021-2	< 100	100	ng/Kg-dry	-	-	
PFDoA	07122021-2	< 20	20	ng/Kg-dry	-	-	
PFTrDA	07122021-2	< 20	20	ng/Kg-dry	-	-	
PFTeDA	07122021-2	< 25	25	ng/Kg-dry	-	-	
M4 PFBA (S)	07122021-2	730	-	ng/Kg-dry	92%	70-130%	
PFBA	07122021-2	< 25	25	ng/Kg-dry	-	-	
PFPeA	07122021-2	< 15	15	ng/Kg-dry	-	-	
M5 PFPeA (S)	07122021-2	790	-	ng/Kg-dry	99%	70-130%	
M2-4:2 FTS (S)	07122021-2	580	-	ng/Kg-dry	73%	70-130%	
4:2 FTSA	07122021-2	< 100	100	ng/Kg-dry	-	-	
PFPeS	07122021-2	< 15	15	ng/Kg-dry	-	-	
M2-6:2 FTS (S)	07122021-2	660	-	ng/Kg-dry	83%	70-130%	
6:2 FTSA	07122021-2	< 150	150	ng/Kg-dry	-	-	
PFHpS	07122021-2	< 15	15	ng/Kg-dry	-	-	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7968 Mod.

Matrix: Sludge

HBN: 37854

PFAS - Method Blank 2 (MB2) Continued

Analyte	QC ID	Result	Detection Limit	Units	Percent Recovery	Control Limits	Qualifier *
M2-8:2 FTS (S)	07122021-2	550	-	ng/Kg-dry	69%	70-130%	L
8:2 FTSA	07122021-2	< 100	100	ng/Kg-dry	-	-	
PFNS	07122021-2	< 30	30	ng/Kg-dry	-	-	
PFDS	07122021-2	< 15	15	ng/Kg-dry	-	-	
PFOSA	07122021-2	< 15	15	ng/Kg-dry	-	-	
M3 PFBS (S)	07122021-2	710	-	ng/Kg-dry	89%	70-130%	
M4 PFHpA (S)	07122021-2	750	-	ng/Kg-dry	94%	70-130%	
M3 PFHxS (S)	07122021-2	740	-	ng/Kg-dry	93%	70-130%	
M9 PFNA (S)	07122021-2	900	-	ng/Kg-dry	113%	70-130%	
M7 PFUnDA (S)	07122021-2	920	-	ng/Kg-dry	115%	70-130%	
M2 PFDoA (S)	07122021-2	980	-	ng/Kg-dry	122%	70-130%	
M2 PFTeDA (S)	07122021-2	990	-	ng/Kg-dry	124%	70-130%	
M5 PFHxA (S)	07122021-2	750	-	ng/Kg-dry	94%	70-130%	
M8 PFOA (S)	07122021-2	820	-	ng/Kg-dry	102%	70-130%	
M8 PFOS (S)	07122021-2	700	-	ng/Kg-dry	88%	70-130%	
M6 PFDA (S)	07122021-2	890	-	ng/Kg-dry	112%	70-130%	
M8 PFOSA (S)	07122021-2	570	-	ng/Kg-dry	71%	70-130%	
HFPO-DA	07122021-2	< 150	150	ng/Kg-dry	-	-	
13C-HFPO-DA (S)	07122021-2	8400	-	ng/Kg-dry	104%	70-130%	
11Cl-PF3OUDs	07122021-2	< 100	100	ng/Kg-dry	-	-	
9Cl-PF3ONS	07122021-2	< 100	100	ng/Kg-dry	-	-	
ADONA	07122021-2	< 100	100	ng/Kg-dry	-	-	
PFecHS	07122021-2	< 15	15	ng/Kg-dry	-	-	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

PFAS - Reporting Limit Check Sample (RLCS)

Analyte	QC ID	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	07122021-1	15	25	ng/Kg-dry	60%	35-150%	
PFHxA	07122021-1	30	25	ng/Kg-dry	118%	35-150%	
PFHpA	07122021-1	24	25	ng/Kg-dry	95%	35-150%	
PFHxS	07122021-1	25	25	ng/Kg-dry	99%	35-150%	
PFOA	07122021-1	25	25	ng/Kg-dry	101%	35-150%	
PFOS	07122021-1	17	25	ng/Kg-dry	69%	35-150%	
PFNA	07122021-1	27	25	ng/Kg-dry	108%	35-150%	
PFDA	07122021-1	28	25	ng/Kg-dry	113%	35-150%	
d3-NMeFOSAA (S)	07122021-1	850	800	ng/Kg-dry	107%	70-130%	
NMeFOSAA	07122021-1	280	250	ng/Kg-dry	114%	35-150%	
PFUnDA	07122021-1	30	25	ng/Kg-dry	119%	35-150%	
d5-NEtFOSAA (S)	07122021-1	840	800	ng/Kg-dry	105%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7968 Mod.

Matrix: Sludge

HBN: 37854

PFAS - Reporting Limit Check Sample (RLCS)

Analyte	QC ID	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
NEtFOSAA	07122021-1	280	250	ng/Kg-dry	110%	35-150%	
PFDoA	07122021-1	26	25	ng/Kg-dry	105%	35-150%	
PFTrDA	07122021-1	25	25	ng/Kg-dry	99%	35-150%	
PFTeDA	07122021-1	31	25	ng/Kg-dry	124%	35-150%	
M4 PFBA (S)	07122021-1	700	800	ng/Kg-dry	88%	70-130%	
PFBA	07122021-1	21	25	ng/Kg-dry	83%	35-150%	
PFPeA	07122021-1	30	25	ng/Kg-dry	120%	35-150%	
M5 PFPeA (S)	07122021-1	740	800	ng/Kg-dry	93%	70-130%	
M2-4:2 FTS (S)	07122021-1	560	800	ng/Kg-dry	70%	70-130%	
4:2 FTSA	07122021-1	190	250	ng/Kg-dry	76%	35-150%	
PFPeS	07122021-1	20	25	ng/Kg-dry	81%	35-150%	
M2-6:2 FTS (S)	07122021-1	650	800	ng/Kg-dry	82%	70-130%	
6:2 FTSA	07122021-1	170	250	ng/Kg-dry	70%	35-150%	
PFHpS	07122021-1	28	25	ng/Kg-dry	112%	35-150%	
M2-8:2 FTS (S)	07122021-1	570	800	ng/Kg-dry	71%	70-130%	
8:2 FTSA	07122021-1	190	250	ng/Kg-dry	77%	35-150%	
PFNS	07122021-1	24	25	ng/Kg-dry	95%	35-150%	
PFDS	07122021-1	21	25	ng/Kg-dry	82%	35-150%	
PFOSA	07122021-1	18	25	ng/Kg-dry	72%	35-150%	
M3 PFBS (S)	07122021-1	670	800	ng/Kg-dry	84%	70-130%	
M4 PFHpA (S)	07122021-1	720	800	ng/Kg-dry	90%	70-130%	
M3 PFHxS (S)	07122021-1	680	800	ng/Kg-dry	85%	70-130%	
M9 PFNA (S)	07122021-1	870	800	ng/Kg-dry	109%	70-130%	
M7 PFUnDA (S)	07122021-1	880	800	ng/Kg-dry	110%	70-130%	
M2 PFDoA (S)	07122021-1	900	800	ng/Kg-dry	112%	70-130%	
M2 PFTeDA (S)	07122021-1	880	800	ng/Kg-dry	110%	70-130%	
M5 PFHxA (S)	07122021-1	730	800	ng/Kg-dry	92%	70-130%	
M8 PFOA (S)	07122021-1	760	800	ng/Kg-dry	95%	70-130%	
M8 PFOS (S)	07122021-1	750	800	ng/Kg-dry	94%	70-130%	
M6 PFDA (S)	07122021-1	850	800	ng/Kg-dry	106%	70-130%	
M8 PFOSA (S)	07122021-1	550	800	ng/Kg-dry	68%	70-130%	L
HFPO-DA	07122021-1	260	250	ng/Kg-dry	103%	35-150%	
13C-HFPO-DA (S)	07122021-1	8500	8000	ng/Kg-dry	107%	70-130%	
11CI-PF3OUds	07122021-1	220	250	ng/Kg-dry	88%	35-150%	
9CI-PF3ONS	07122021-1	240	250	ng/Kg-dry	96%	35-150%	
ADONA	07122021-1	240	250	ng/Kg-dry	95%	35-150%	
PFecHS	07122021-1	2	25	ng/Kg-dry	9%	35-150%	L

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7968 Mod.

Matrix: Sludge

HBN: 37854

PFAS - Laboratory Control Spike (LCS)

Analyte	QC ID	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	07122021-1	400	500	ng/Kg-dry	80%	70-130%	
PFHxA	07122021-1	450	500	ng/Kg-dry	91%	50-130%	
PFHpA	07122021-1	460	500	ng/Kg-dry	92%	50-130%	
PFHxS	07122021-1	410	500	ng/Kg-dry	81%	70-130%	
PFOA	07122021-1	500	500	ng/Kg-dry	101%	70-130%	
PFOS	07122021-1	460	500	ng/Kg-dry	91%	70-130%	
PFNA	07122021-1	560	500	ng/Kg-dry	113%	70-130%	
PFDA	07122021-1	550	500	ng/Kg-dry	110%	70-130%	
d3-NMeFOSAA (S)	07122021-1	910	800	ng/Kg-dry	114%	70-130%	
NMeFOSAA	07122021-1	5200	5000	ng/Kg-dry	105%	70-130%	
PFUnDA	07122021-1	550	500	ng/Kg-dry	111%	70-130%	
d5-NEtFOSAA (S)	07122021-1	870	800	ng/Kg-dry	109%	70-130%	
NEtFOSAA	07122021-1	5100	5000	ng/Kg-dry	102%	70-130%	
PFDoA	07122021-1	550	500	ng/Kg-dry	109%	70-130%	
PFTrDA	07122021-1	610	500	ng/Kg-dry	121%	70-130%	
PFTeDA	07122021-1	570	500	ng/Kg-dry	114%	70-130%	
M4 PFBA (S)	07122021-1	740	800	ng/Kg-dry	93%	70-130%	
PFBA	07122021-1	420	500	ng/Kg-dry	83%	50-130%	
PPPeA	07122021-1	450	500	ng/Kg-dry	91%	70-130%	
M5 PFPeA (S)	07122021-1	800	800	ng/Kg-dry	100%	70-130%	
M2-4:2 FTS (S)	07122021-1	670	800	ng/Kg-dry	84%	70-130%	
4:2 FTSA	07122021-1	3700	5000	ng/Kg-dry	74%	70-130%	
PPPeS	07122021-1	390	500	ng/Kg-dry	78%	70-130%	
M2-6:2 FTS (S)	07122021-1	740	800	ng/Kg-dry	92%	70-130%	
6:2 FTSA	07122021-1	3600	5000	ng/Kg-dry	72%	70-130%	
PFHpS	07122021-1	480	500	ng/Kg-dry	95%	70-130%	
M2-8:2 FTS (S)	07122021-1	630	800	ng/Kg-dry	79%	70-130%	
8:2 FTSA	07122021-1	3600	5000	ng/Kg-dry	72%	70-130%	
PFNS	07122021-1	440	500	ng/Kg-dry	88%	70-130%	
PFDS	07122021-1	420	500	ng/Kg-dry	84%	70-130%	
PFOSA	07122021-1	350	500	ng/Kg-dry	70%	70-130%	
M3 PFBS (S)	07122021-1	670	800	ng/Kg-dry	84%	70-130%	
M4 PFHpA (S)	07122021-1	750	800	ng/Kg-dry	94%	70-130%	
M3 PFHxS (S)	07122021-1	720	800	ng/Kg-dry	89%	70-130%	
M9 PFNA (S)	07122021-1	930	800	ng/Kg-dry	116%	70-130%	
M7 PFUnDA (S)	07122021-1	890	800	ng/Kg-dry	112%	70-130%	
M2 PFDoA (S)	07122021-1	990	800	ng/Kg-dry	124%	70-130%	
M2 PFTeDA (S)	07122021-1	960	800	ng/Kg-dry	121%	70-130%	
M5 PFHxA (S)	07122021-1	750	800	ng/Kg-dry	94%	70-130%	
M8 PFOA (S)	07122021-1	830	800	ng/Kg-dry	103%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7968 Mod.

Matrix: Sludge

HBN: 37854

PFAS - Laboratory Control Spike (LCS) Continued

Analyte	QC ID	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
M8 PFOS (S)	07122021-1	750	800	ng/Kg-dry	94%	70-130%	
M6 PFDA (S)	07122021-1	880	800	ng/Kg-dry	109%	70-130%	
M8 PFOSA (S)	07122021-1	580	800	ng/Kg-dry	73%	70-130%	
HFPO-DA	07122021-1	5500	5000	ng/Kg-dry	109%	70-130%	
13C-HFPO-DA (S)	07122021-1	8200	8000	ng/Kg-dry	102%	70-130%	
11CI-PF3OUDs	07122021-1	4200	5000	ng/Kg-dry	85%	70-130%	
9CI-PF3ONS	07122021-1	4600	5000	ng/Kg-dry	92%	70-130%	
ADONA	07122021-1	4800	5000	ng/Kg-dry	96%	70-130%	
PFecHS	07122021-1	350	500	ng/Kg-dry	70%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

PFAS - Matrix Spike (MS)

Analyte	QC ID	Sample Value	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	3702520001	11000	23000	15000	ng/Kg-dry	80%	70-130%	
PFHxA	3702520001	6200	15000	15000	ng/Kg-dry	59%	50-130%	
PFHpA	3702520001	280	9300	15000	ng/Kg-dry	60%	50-130%	
PFHxS	3702520001	390	12000	15000	ng/Kg-dry	75%	70-130%	
PFOA	3702520001	1400	13000	15000	ng/Kg-dry	79%	70-130%	
PFOS	3702520001	18000	27000	15000	ng/Kg-dry	64%	70-130%	L
PFNA	3702520001	1200	16000	15000	ng/Kg-dry	96%	70-130%	
PFDA	3702520001	1900	13000	15000	ng/Kg-dry	75%	70-130%	
d3-NMeFOSAA (S)	3702520001	-	19000	24000	ng/Kg-dry	80%	70-130%	
NMeFOSAA	3702520001	12000	120000	150000	ng/Kg-dry	74%	70-130%	
PFUnDA	3702520001	720	9900	15000	ng/Kg-dry	61%	70-130%	L
d5-NEtFOSAA (S)	3702520001	-	21000	24000	ng/Kg-dry	86%	70-130%	
NEtFOSAA	3702520001	5700	140000	150000	ng/Kg-dry	87%	70-130%	
PFDoA	3702520001	730	5600	15000	ng/Kg-dry	33%	70-130%	L
PFTrDA	3702520001	190	4900	15000	ng/Kg-dry	32%	70-130%	L
PFTeDA	3702520001	470	2700	15000	ng/Kg-dry	15%	70-130%	L
M4 PFBA (S)	3702520001	-	18000	24000	ng/Kg-dry	77%	70-130%	
PFBA	3702520001	1700	13000	15000	ng/Kg-dry	75%	50-130%	
PFPeA	3702520001	9200	21000	15000	ng/Kg-dry	77%	70-130%	
M5 PFPeA (S)	3702520001	-	22000	24000	ng/Kg-dry	91%	70-130%	
M2-4:2 FTS (S)	3702520001	-	19000	24000	ng/Kg-dry	80%	70-130%	
4:2 FTSA	3702520001	< 100	130000	150000	ng/Kg-dry	86%	70-130%	
PFPeS	3702520001	< 15	6400	15000	ng/Kg-dry	43%	70-130%	L
M2-6:2 FTS (S)	3702520001	-	32000	24000	ng/Kg-dry	133%	70-130%	H
6:2 FTSA	3702520001	190	190000	150000	ng/Kg-dry	124%	70-130%	
PFHpS	3702520001	< 15	12000	15000	ng/Kg-dry	80%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L) due to matrix.

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7968 Mod.

Matrix: Sludge

HBN: 37854

PFAS - Matrix Spike (MS) Continued

Analyte	QC ID	Sample Value	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
M2-8:2 FTS (S)	3702520001	-	25000	24000	ng/Kg-dry	103%	70-130%	
8:2 FTSA	3702520001	810	170000	150000	ng/Kg-dry	113%	70-130%	
PFNS	3702520001	< 30	9500	15000	ng/Kg-dry	64%	70-130%	L
PFDS	3702520001	1400	8600	15000	ng/Kg-dry	48%	70-130%	L
PFOA	3702520001	260	3900	15000	ng/Kg-dry	24%	70-130%	L
M3 PFBS (S)	3702520001	-	16000	24000	ng/Kg-dry	65%	70-130%	L
M4 PFHpA (S)	3702520001	-	15000	24000	ng/Kg-dry	62%	70-130%	L
M3 PFHxS (S)	3702520001	-	17000	24000	ng/Kg-dry	71%	70-130%	
M9 PFNA (S)	3702520001	-	23000	24000	ng/Kg-dry	94%	70-130%	
M7 PFUnDA (S)	3702520001	-	13000	24000	ng/Kg-dry	55%	70-130%	L
M2 PFDoA (S)	3702520001	-	8200	24000	ng/Kg-dry	34%	70-130%	L
M2 PFTeDA (S)	3702520001	-	3600	24000	ng/Kg-dry	15%	70-130%	L
M5 PFHxA (S)	3702520001	-	14000	24000	ng/Kg-dry	59%	70-130%	L
M8 PFOA (S)	3702520001	-	18000	24000	ng/Kg-dry	75%	70-130%	
M8 PFOS (S)	3702520001	-	20000	24000	ng/Kg-dry	83%	70-130%	
M6 PFDA (S)	3702520001	-	19000	24000	ng/Kg-dry	78%	70-130%	
M8 PFOA (S)	3702520001	-	6100	24000	ng/Kg-dry	26%	70-130%	L
HFPO-DA	3702520001	< 150	110000	150000	ng/Kg-dry	75%	70-130%	
13C-HFPO-DA (S)	3702520001	-	180000	240000	ng/Kg-dry	73%	70-130%	
11CI-PF3OUDs	3702520001	590	73000	150000	ng/Kg-dry	48%	70-130%	L
9CI-PF3ONS	3702520001	260	100000	150000	ng/Kg-dry	68%	70-130%	L
ADONA	3702520001	< 100	110000	150000	ng/Kg-dry	72%	70-130%	
PFecHS	3702520001	< 15	8100	15000	ng/Kg-dry	54%	70-130%	L

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L) due to matrix.

PFAS - Matrix Spike Duplicate (MSD)

Analyte	QC ID	Sample Value	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	3702520001	11000	24000	15000	ng/Kg-dry	83%	70-130%	
PFHxA	3702520001	6200	15000	15000	ng/Kg-dry	61%	50-130%	
PFHpA	3702520001	280	9400	15000	ng/Kg-dry	61%	50-130%	
PFHxS	3702520001	390	11000	15000	ng/Kg-dry	71%	70-130%	
PFOA	3702520001	1400	14000	15000	ng/Kg-dry	84%	70-130%	
PFOS	3702520001	18000	26000	15000	ng/Kg-dry	58%	70-130%	L
PFNA	3702520001	1200	15000	15000	ng/Kg-dry	94%	70-130%	
PFDA	3702520001	1900	13000	15000	ng/Kg-dry	78%	70-130%	
d3-NMeFOSAA (S)	3702520001	-	20000	24000	ng/Kg-dry	85%	70-130%	
NMeFOSAA	3702520001	12000	130000	150000	ng/Kg-dry	81%	70-130%	
PFUnDA	3702520001	720	10000	15000	ng/Kg-dry	62%	70-130%	L
d5-NEtFOSAA (S)	3702520001	-	22000	24000	ng/Kg-dry	90%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L) due to matrix.

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7968 Mod.

Matrix: Sludge

HBN: 37854

PFAS - Matrix Spike Duplicate (MSD) Continued

Analyte	QC ID	Sample Value	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
NEtFOSAA	3702520001	5700	140000	150000	ng/Kg-dry	90%	70-130%	
PFDoA	3702520001	730	6100	15000	ng/Kg-dry	36%	70-130%	L
PFTrDA	3702520001	190	5300	15000	ng/Kg-dry	34%	70-130%	L
PFTeDA	3702520001	470	2800	15000	ng/Kg-dry	16%	70-130%	L
M4 PFBA (S)	3702520001	-	19000	24000	ng/Kg-dry	78%	70-130%	
PFBA	3702520001	1700	13000	15000	ng/Kg-dry	74%	50-130%	
PPeA	3702520001	9200	21000	15000	ng/Kg-dry	77%	70-130%	
M5 PFPeA (S)	3702520001	-	22000	24000	ng/Kg-dry	93%	70-130%	
M2-4:2 FTS (S)	3702520001	-	20000	24000	ng/Kg-dry	84%	70-130%	
4:2 FTSA	3702520001	< 100	130000	150000	ng/Kg-dry	90%	70-130%	
PFPeS	3702520001	< 15	7100	15000	ng/Kg-dry	47%	70-130%	L
M2-6:2 FTS (S)	3702520001	-	31000	24000	ng/Kg-dry	131%	70-130%	H
6:2 FTSA	3702520001	190	190000	150000	ng/Kg-dry	129%	70-130%	
PFHpS	3702520001	< 15	12000	15000	ng/Kg-dry	79%	70-130%	
M2-8:2 FTS (S)	3702520001	-	26000	24000	ng/Kg-dry	109%	70-130%	
8:2 FTSA	3702520001	810	170000	150000	ng/Kg-dry	115%	70-130%	
PFNS	3702520001	< 30	9400	15000	ng/Kg-dry	63%	70-130%	L
PFDS	3702520001	1400	7900	15000	ng/Kg-dry	44%	70-130%	L
PFOSA	3702520001	260	3600	15000	ng/Kg-dry	22%	70-130%	L
M3 PFBS (S)	3702520001	-	16000	24000	ng/Kg-dry	67%	70-130%	L
M4 PFHpA (S)	3702520001	-	15000	24000	ng/Kg-dry	62%	70-130%	L
M3 PFHxS (S)	3702520001	-	17000	24000	ng/Kg-dry	73%	70-130%	
M9 PFNA (S)	3702520001	-	23000	24000	ng/Kg-dry	96%	70-130%	
M7 PFUnDA (S)	3702520001	-	15000	24000	ng/Kg-dry	61%	70-130%	L
M2 PFDoA (S)	3702520001	-	8600	24000	ng/Kg-dry	36%	70-130%	L
M2 PFTeDA (S)	3702520001	-	3900	24000	ng/Kg-dry	16%	70-130%	L
M5 PFHxA (S)	3702520001	-	14000	24000	ng/Kg-dry	60%	70-130%	L
M8 PFOA (S)	3702520001	-	19000	24000	ng/Kg-dry	77%	70-130%	
M8 PFOS (S)	3702520001	-	21000	24000	ng/Kg-dry	86%	70-130%	
M6 PFDA (S)	3702520001	-	19000	24000	ng/Kg-dry	79%	70-130%	
M8 PFOSA (S)	3702520001	-	6100	24000	ng/Kg-dry	25%	70-130%	L
HFPO-DA	3702520001	< 150	120000	150000	ng/Kg-dry	78%	70-130%	
13C-HFPO-DA (S)	3702520001	-	180000	240000	ng/Kg-dry	75%	70-130%	
11CI-PF3OUDs	3702520001	590	76000	150000	ng/Kg-dry	51%	70-130%	L
9CI-PF3ONS	3702520001	260	110000	150000	ng/Kg-dry	71%	70-130%	
ADONA	3702520001	< 100	110000	150000	ng/Kg-dry	74%	70-130%	
PFecHS	3702520001	< 15	7700	15000	ng/Kg-dry	52%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L) due to matrix.

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7968 Mod.

Matrix: Sludge

HBN: 37854

PFAS - Sample Matrix Spike / Matrix Spike Duplicate (MS/MSD)

Analyte	QC ID	MS Value	MSD Value	Units	RPD (%)	Control Limits	Qualifier *
PFBS	3702520001	23000	24000	ng/Kg-dry	2%	30%	
PFHxA	3702520001	15000	15000	ng/Kg-dry	2%	30%	
PFHpA	3702520001	9300	9400	ng/Kg-dry	2%	30%	
PFHxS	3702520001	12000	11000	ng/Kg-dry	5%	30%	
PFOA	3702520001	13000	14000	ng/Kg-dry	5%	30%	
PFOS	3702520001	27000	26000	ng/Kg-dry	3%	30%	
PFNA	3702520001	16000	15000	ng/Kg-dry	1%	30%	
PFDA	3702520001	13000	13000	ng/Kg-dry	3%	30%	
d3-NMeFOSAA (S)	3702520001	19000	20000	ng/Kg-dry	7%	30%	
NMeFOSAA	3702520001	120000	130000	ng/Kg-dry	8%	30%	
PFUnDA	3702520001	9900	10000	ng/Kg-dry	1%	30%	
d5-NEtFOSAA (S)	3702520001	21000	22000	ng/Kg-dry	5%	30%	
NetFOSAA	3702520001	140000	140000	ng/Kg-dry	3%	30%	
PFDoA	3702520001	5600	6100	ng/Kg-dry	8%	30%	
PFTrDA	3702520001	4900	5300	ng/Kg-dry	8%	30%	
PFTeDA	3702520001	2700	2800	ng/Kg-dry	5%	30%	
M4 PFBA (S)	3702520001	18000	19000	ng/Kg-dry	2%	30%	
PFBA	3702520001	13000	13000	ng/Kg-dry	2%	30%	
PFPeA	3702520001	21000	21000	ng/Kg-dry	0%	30%	
M5 PFPeA (S)	3702520001	22000	22000	ng/Kg-dry	1%	30%	
M2-4:2 FTS (S)	3702520001	19000	20000	ng/Kg-dry	5%	30%	
4:2 FTSA	3702520001	130000	130000	ng/Kg-dry	5%	30%	
PFPeS	3702520001	6400	7100	ng/Kg-dry	9%	30%	
M2-6:2 FTS (S)	3702520001	32000	31000	ng/Kg-dry	1%	30%	
6:2 FTSA	3702520001	190000	190000	ng/Kg-dry	4%	30%	
PFHpS	3702520001	12000	12000	ng/Kg-dry	1%	30%	
M2-8:2 FTS (S)	3702520001	25000	26000	ng/Kg-dry	6%	30%	
8:2 FTSA	3702520001	170000	170000	ng/Kg-dry	2%	30%	
PFNS	3702520001	9500	9400	ng/Kg-dry	1%	30%	
PFDS	3702520001	8600	7900	ng/Kg-dry	8%	30%	
PFOSA	3702520001	3900	3600	ng/Kg-dry	8%	30%	
M3 PFBS (S)	3702520001	16000	16000	ng/Kg-dry	4%	30%	
M4 PFHpA (S)	3702520001	15000	15000	ng/Kg-dry	1%	30%	
M3 PFHxS (S)	3702520001	17000	17000	ng/Kg-dry	2%	30%	
M9 PFNA (S)	3702520001	23000	23000	ng/Kg-dry	2%	30%	
M7 PFUnDA (S)	3702520001	13000	15000	ng/Kg-dry	9%	30%	
M2 PFDoA (S)	3702520001	8200	8600	ng/Kg-dry	5%	30%	
M2 PFTeDA (S)	3702520001	3600	3900	ng/Kg-dry	8%	30%	
M5 PFHxA (S)	3702520001	14000	14000	ng/Kg-dry	2%	30%	
M8 PFOA (S)	3702520001	18000	19000	ng/Kg-dry	3%	30%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7968 Mod.

Matrix: Sludge

HBN: 37854

PFAS - Sample Matrix Spike / Matrix Spike Duplicate (MS/MSD) Continued

Analyte	QC ID	MS Value	MSD Value	Units	RPD (%)	Control Limits	Qualifier *
M8 PFOS (S)	3702520001	20000	21000	ng/Kg-dry	4%	30%	
M6 PFDA (S)	3702520001	19000	19000	ng/Kg-dry	1%	30%	
M8 PFOSA (S)	3702520001	6100	6100	ng/Kg-dry	1%	30%	
HFPO-DA	3702520001	110000	120000	ng/Kg-dry	4%	30%	
13C-HFPO-DA (S)	3702520001	180000	180000	ng/Kg-dry	2%	30%	
11CI-PF3Ouds	3702520001	73000	76000	ng/Kg-dry	4%	30%	
9CI-PF3ONS	3702520001	100000	110000	ng/Kg-dry	4%	30%	
ADONA	3702520001	110000	110000	ng/Kg-dry	3%	30%	
PFecHS	3702520001	8100	7700	ng/Kg-dry	5%	30%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7979 Mod.

Matrix: Water

HBN: 37719

PFAS - Method Blank (MB)

Analyte	QC ID	Result	Detection Limit	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	06242021-1	< 5.0	5.0	ng/L	-	-	
PFHxA	06242021-1	< 5.0	5.0	ng/L	-	-	
PFHpA	06242021-1	< 5.0	5.0	ng/L	-	-	
PFHxS	06242021-1	< 5.0	5.0	ng/L	-	-	
PFOA	06242021-1	< 2.0	2.0	ng/L	-	-	
PFOS	06242021-1	< 2.0	2.0	ng/L	-	-	
PFNA	06242021-1	< 5.0	5.0	ng/L	-	-	
PFDA	06242021-1	< 5.0	5.0	ng/L	-	-	
d3-NMeFOSAA (S)	06242021-1	1600	-	ng/L	100%	70-130%	
NMeFOSAA	06242021-1	< 50	50	ng/L	-	-	
PFUnDA	06242021-1	< 5.0	5.0	ng/L	-	-	
d5-NEtFOSAA (S)	06242021-1	1700	-	ng/L	108%	70-130%	
NEtFOSAA	06242021-1	< 50	50	ng/L	-	-	
PFDoA	06242021-1	< 5.0	5.0	ng/L	-	-	
PFTrDA	06242021-1	< 10	10	ng/L	-	-	
PFTeDA	06242021-1	< 10	10	ng/L	-	-	
M4 PFBA (S)	06242021-1	160	-	ng/L	102%	70-130%	
PFBA	06242021-1	< 2.0	2.0	ng/L	-	-	
PFPeA	06242021-1	< 5.0	5.0	ng/L	-	-	
M5 PFPeA (S)	06242021-1	170	-	ng/L	106%	70-130%	
M2-4:2 FTS (S)	06242021-1	1400	-	ng/L	90%	70-130%	
4:2 FTSA	06242021-1	< 50	50	ng/L	-	-	
PFPeS	06242021-1	< 10	10	ng/L	-	-	
M2-6:2 FTS (S)	06242021-1	1600	-	ng/L	100%	70-130%	
6:2 FTSA	06242021-1	< 50	50	ng/L	-	-	
PFHps	06242021-1	< 10	10	ng/L	-	-	
M2-8:2 FTS (S)	06242021-1	1700	-	ng/L	104%	70-130%	
8:2 FTSA	06242021-1	< 50	50	ng/L	-	-	
PFNS	06242021-1	< 10	10	ng/L	-	-	
PFDS	06242021-1	< 10	10	ng/L	-	-	
PFOSA	06242021-1	< 5.0	5.0	ng/L	-	-	
M3 PFBS (S)	06242021-1	150	-	ng/L	93%	70-130%	
M4 PFHpA (S)	06242021-1	160	-	ng/L	98%	70-130%	
M3 PFHxS (S)	06242021-1	160	-	ng/L	100%	70-130%	
M9 PFNA (S)	06242021-1	170	-	ng/L	107%	70-130%	
M7 PFUnDA (S)	06242021-1	170	-	ng/L	109%	70-130%	
M2 PFDoA (S)	06242021-1	170	-	ng/L	104%	70-130%	
M2 PFTeDA (S)	06242021-1	130	-	ng/L	80%	70-130%	
M5 PFHxA (S)	06242021-1	160	-	ng/L	100%	70-130%	
M8 PFOA (S)	06242021-1	160	-	ng/L	99%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7979 Mod.

Matrix: Water

HBN: 37719

PFAS - Method Blank (MB) Continued

Analyte	QC ID	Result	Detection Limit	Units	Percent Recovery	Control Limits	Qualifier *
M8 PFOS (S)	06242021-1	150	-	ng/L	94%	70-130%	
M6 PFDA (S)	06242021-1	180	-	ng/L	112%	70-130%	
M8 PFOSA (S)	06242021-1	160	-	ng/L	99%	70-130%	
HFPO-DA	06242021-1	< 100	100	ng/L	-	-	
13C-HFPO-DA (S)	06242021-1	1700	-	ng/L	105%	70-130%	
11CI-PF3OUDs	06242021-1	< 50	50	ng/L	-	-	
9CI-PF3ONS	06242021-1	< 50	50	ng/L	-	-	
ADONA	06242021-1	< 50	50	ng/L	-	-	
PFechS	06242021-1	< 5.0	5.0	ng/L	-	-	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

PFAS - Method Blank 2 (MB2)

Analyte	QC ID	Result	Detection Limit	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	06242021-2	< 5.0	5.0	ng/L	-	-	
PFHxA	06242021-2	< 5.0	5.0	ng/L	-	-	
PFHpA	06242021-2	< 5.0	5.0	ng/L	-	-	
PFHxS	06242021-2	< 5.0	5.0	ng/L	-	-	
PFOA	06242021-2	< 2.0	2.0	ng/L	-	-	
PFOS	06242021-2	< 2.0	2.0	ng/L	-	-	
PFNA	06242021-2	< 5.0	5.0	ng/L	-	-	
PFDA	06242021-2	< 5.0	5.0	ng/L	-	-	
d3-NMeFOSAA (S)	06242021-2	1600	-	ng/L	102%	70-130%	
NMeFOSAA	06242021-2	< 50	50	ng/L	-	-	
PFUnDA	06242021-2	< 5.0	5.0	ng/L	-	-	
d5-NEtFOSAA (S)	06242021-2	1700	-	ng/L	108%	70-130%	
NEtFOSAA	06242021-2	< 50	50	ng/L	-	-	
PFDoA	06242021-2	< 5.0	5.0	ng/L	-	-	
PFTrDA	06242021-2	< 10	10	ng/L	-	-	
PFTeDA	06242021-2	< 10	10	ng/L	-	-	
M4 PFBA (S)	06242021-2	160	-	ng/L	101%	70-130%	
PFBA	06242021-2	< 2.0	2.0	ng/L	-	-	
PPPeA	06242021-2	< 5.0	5.0	ng/L	-	-	
M5 PPpEA (S)	06242021-2	160	-	ng/L	102%	70-130%	
M2-4:2 FTS (S)	06242021-2	1400	-	ng/L	86%	70-130%	
4:2 FTSA	06242021-2	< 50	50	ng/L	-	-	
PPPeS	06242021-2	< 10	10	ng/L	-	-	
M2-6:2 FTS (S)	06242021-2	1700	-	ng/L	104%	70-130%	
6:2 FTSA	06242021-2	< 50	50	ng/L	-	-	
PFHpS	06242021-2	< 10	10	ng/L	-	-	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7979 Mod.

Matrix: Water

HBN: 37719

PFAS - Method Blank 2 (MB2) Continued

Analyte	QC ID	Result	Detection Limit	Units	Percent Recovery	Control Limits	Qualifier *
M2-8:2 FTS (S)	06242021-2	1700	-	ng/L	104%	70-130%	
8:2 FTSA	06242021-2	< 50	50	ng/L	-	-	
PFNS	06242021-2	< 10	10	ng/L	-	-	
PFDS	06242021-2	< 10	10	ng/L	-	-	
PFOSA	06242021-2	< 5.0	5.0	ng/L	-	-	
M3 PFBS (S)	06242021-2	160	-	ng/L	98%	70-130%	
M4 PFHpA (S)	06242021-2	150	-	ng/L	92%	70-130%	
M3 PFHxS (S)	06242021-2	150	-	ng/L	94%	70-130%	
M9 PFNA (S)	06242021-2	170	-	ng/L	104%	70-130%	
M7 PFUnDA (S)	06242021-2	170	-	ng/L	105%	70-130%	
M2 PFDoA (S)	06242021-2	160	-	ng/L	100%	70-130%	
M2 PFTeDA (S)	06242021-2	130	-	ng/L	83%	70-130%	
M5 PFHxA (S)	06242021-2	160	-	ng/L	103%	70-130%	
M8 PFOA (S)	06242021-2	160	-	ng/L	99%	70-130%	
M8 PFOS (S)	06242021-2	140	-	ng/L	88%	70-130%	
M6 PFDA (S)	06242021-2	170	-	ng/L	109%	70-130%	
M8 PFOSA (S)	06242021-2	160	-	ng/L	98%	70-130%	
HFPO-DA	06242021-2	< 100	100	ng/L	-	-	
13C-HFPO-DA (S)	06242021-2	1600	-	ng/L	99%	70-130%	
11CI-PF3OUdS	06242021-2	< 50	50	ng/L	-	-	
9CI-PF3ONS	06242021-2	< 50	50	ng/L	-	-	
ADONA	06242021-2	< 50	50	ng/L	-	-	
PFechS	06242021-2	< 5.0	5.0	ng/L	-	-	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

PFAS - Reporting Limit Check Sample (RLCS)

Analyte	QC ID	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	06242021-1	5.5	5.0	ng/L	110%	35-150%	
PFHxA	06242021-1	5.6	5.0	ng/L	111%	35-150%	
PFHpA	06242021-1	6.0	5.0	ng/L	121%	35-150%	
PFHxS	06242021-1	3.9	5.0	ng/L	78%	35-150%	
PFOA	06242021-1	6.7	5.0	ng/L	133%	35-150%	
PFOS	06242021-1	6.9	5.0	ng/L	139%	35-150%	
PFNA	06242021-1	6.9	5.0	ng/L	137%	35-150%	
PFDA	06242021-1	6.5	5.0	ng/L	131%	35-150%	
d3-NMeFOSAA (S)	06242021-1	1700	1600	ng/L	104%	70-130%	
NMeFOSAA	06242021-1	51	50	ng/L	102%	35-150%	
PFUnDA	06242021-1	5.1	5.0	ng/L	102%	35-150%	
d5-NetFOSAA (S)	06242021-1	1800	1600	ng/L	113%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7979 Mod.

Matrix: Water

HBN: 37719

PFAS - Reporting Limit Check Sample (RLCS) Continued

Analyte	QC ID	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
NEtFOSAA	06242021-1	57	50	ng/L	114%	35-150%	
PFDoA	06242021-1	4.7	5.0	ng/L	94%	35-150%	
PFTrDA	06242021-1	5.0	5.0	ng/L	101%	35-150%	
PFTeDA	06242021-1	4.9	5.0	ng/L	97%	35-150%	
M4 PFBA (S)	06242021-1	160	160	ng/L	103%	70-130%	
PFBA	06242021-1	6.9	5.0	ng/L	138%	35-150%	
PFPeA	06242021-1	7.2	5.0	ng/L	143%	35-150%	
M5 PFPeA (S)	06242021-1	170	160	ng/L	104%	70-130%	
M2-4:2 FTS (S)	06242021-1	1500	1600	ng/L	91%	70-130%	
4:2 FTSA	06242021-1	50	50	ng/L	101%	35-150%	
PFPeS	06242021-1	2.7	5.0	ng/L	54%	35-150%	
M2-6:2 FTS (S)	06242021-1	1600	1600	ng/L	102%	70-130%	
6:2 FTSA	06242021-1	73	50	ng/L	146%	35-150%	
PFHpS	06242021-1	2.8	5.0	ng/L	56%	35-150%	
M2-8:2 FTS (S)	06242021-1	1700	1600	ng/L	107%	70-130%	
8:2 FTSA	06242021-1	55	50	ng/L	110%	35-150%	
PFNS	06242021-1	4.4	5.0	ng/L	88%	35-150%	
PFDS	06242021-1	4.6	5.0	ng/L	92%	35-150%	
PFOSA	06242021-1	4.3	5.0	ng/L	86%	35-150%	
M3 PFBS (S)	06242021-1	150	160	ng/L	96%	70-130%	
M4 PFHpA (S)	06242021-1	150	160	ng/L	96%	70-130%	
M3 PFHxS (S)	06242021-1	150	160	ng/L	97%	70-130%	
M9 PFNA (S)	06242021-1	170	160	ng/L	106%	70-130%	
M7 PFUnDA (S)	06242021-1	180	160	ng/L	111%	70-130%	
M2 PFDoA (S)	06242021-1	160	160	ng/L	103%	70-130%	
M2 PFTeDA (S)	06242021-1	130	160	ng/L	81%	70-130%	
M5 PFHxA (S)	06242021-1	160	160	ng/L	102%	70-130%	
M8 PFOA (S)	06242021-1	160	160	ng/L	101%	70-130%	
M8 PFOS (S)	06242021-1	150	160	ng/L	91%	70-130%	
M6 PFDA (S)	06242021-1	180	160	ng/L	113%	70-130%	
M8 PFOSA (S)	06242021-1	160	160	ng/L	99%	70-130%	
HFPO-DA	06242021-1	37	50	ng/L	74%	35-150%	
13C-HFPO-DA (S)	06242021-1	1700	1600	ng/L	106%	70-130%	
11CI-PF3OUDs	06242021-1	44	50	ng/L	89%	35-150%	
9CI-PF3ONS	06242021-1	50	50	ng/L	99%	35-150%	
ADONA	06242021-1	50	50	ng/L	99%	35-150%	
PFechS	06242021-1	4.6	5.0	ng/L	92%	35-150%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7979 Mod.

Matrix: Water

HBN: 37719

PFAS - Laboratory Control Spike (LCS)

Analyte	QC ID	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	06242021-1	100	100	ng/L	104%	70-130%	
PFHxA	06242021-1	100	100	ng/L	103%	50-130%	
PFHpA	06242021-1	100	100	ng/L	103%	50-130%	
PFHxS	06242021-1	91	100	ng/L	91%	70-130%	
PFOA	06242021-1	110	100	ng/L	111%	70-130%	
PFOS	06242021-1	100	100	ng/L	103%	70-130%	
PFNA	06242021-1	110	100	ng/L	113%	70-130%	
PFDA	06242021-1	110	100	ng/L	114%	70-130%	
d3-NMeFOSAA (S)	06242021-1	1600	1600	ng/L	101%	70-130%	
NMeFOSAA	06242021-1	990	1000	ng/L	99%	70-130%	
PFUnDA	06242021-1	110	100	ng/L	113%	70-130%	
d5-NEtFOSAA (S)	06242021-1	1700	1600	ng/L	108%	70-130%	
NEtFOSAA	06242021-1	1100	1000	ng/L	106%	70-130%	
PFDoA	06242021-1	110	100	ng/L	106%	70-130%	
PFTrDA	06242021-1	110	100	ng/L	114%	70-130%	
PFTeDA	06242021-1	93	100	ng/L	93%	70-130%	
M4 PFBA (S)	06242021-1	170	160	ng/L	106%	70-130%	
PFBA	06242021-1	110	100	ng/L	115%	50-130%	
PFPeA	06242021-1	110	100	ng/L	107%	70-130%	
M5 PFPeA (S)	06242021-1	170	160	ng/L	107%	70-130%	
M2-4:2 FTS (S)	06242021-1	1500	1600	ng/L	94%	70-130%	
4:2 FTSA	06242021-1	920	1000	ng/L	92%	70-130%	
PFPeS	06242021-1	90	100	ng/L	90%	70-130%	
M2-6:2 FTS (S)	06242021-1	1600	1600	ng/L	101%	70-130%	
6:2 FTSA	06242021-1	990	1000	ng/L	99%	70-130%	
PFHpS	06242021-1	98	100	ng/L	98%	70-130%	
M2-8:2 FTS (S)	06242021-1	1700	1600	ng/L	107%	70-130%	
8:2 FTSA	06242021-1	1000	1000	ng/L	101%	70-130%	
PFNS	06242021-1	98	100	ng/L	98%	70-130%	
PFDS	06242021-1	110	100	ng/L	108%	70-130%	
PFOSA	06242021-1	93	100	ng/L	93%	70-130%	
M3 PFBS (S)	06242021-1	150	160	ng/L	95%	70-130%	
M4 PFHpA (S)	06242021-1	150	160	ng/L	97%	70-130%	
M3 PFHxS (S)	06242021-1	160	160	ng/L	97%	70-130%	
M9 PFNA (S)	06242021-1	180	160	ng/L	112%	70-130%	
M7 PFUnDA (S)	06242021-1	180	160	ng/L	113%	70-130%	
M2 PFDoA (S)	06242021-1	180	160	ng/L	111%	70-130%	
M2 PFTeDA (S)	06242021-1	150	160	ng/L	95%	70-130%	
M5 PFHxA (S)	06242021-1	160	160	ng/L	99%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7979 Mod.

Matrix: Water

HBN: 37719

PFAS - Laboratory Control Spike (LCS) Continued

Analyte	QC ID	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
M8 PFOA (S)	06242021-1	160	160	ng/L	101%	70-130%	
M8 PFOS (S)	06242021-1	150	160	ng/L	92%	70-130%	
M6 PFDA (S)	06242021-1	180	160	ng/L	113%	70-130%	
M8 PFOSA (S)	06242021-1	150	160	ng/L	92%	70-130%	
HFPO-DA	06242021-1	910	1000	ng/L	91%	70-130%	
13C-HFPO-DA (S)	06242021-1	1600	1600	ng/L	99%	70-130%	
11CI-PF3OUdS	06242021-1	960	1000	ng/L	96%	70-130%	
9CI-PF3ONS	06242021-1	990	1000	ng/L	99%	70-130%	
ADONA	06242021-1	960	1000	ng/L	96%	70-130%	
PFecHS	06242021-1	89	100	ng/L	89%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

PFAS - Matrix Spike (MS)

Analyte	QC ID	Sample Value	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	3701240001	27	130	100	ng/L	107%	70-130%	
PFHxA	3701240001	43	150	100	ng/L	107%	50-130%	
PFHpA	3701240001	< 5.0	100	100	ng/L	99%	50-130%	
PFHxs	3701240001	< 5.0	96	100	ng/L	93%	70-130%	
PFOA	3701240001	13	120	100	ng/L	106%	70-130%	
PFOS	3701240001	3.1	100	100	ng/L	97%	70-130%	
PFNA	3701240001	< 5.0	110	100	ng/L	112%	70-130%	
PFDA	3701240001	< 5.0	110	100	ng/L	112%	70-130%	
d3-NMeFOSAA (S)	3701240001	-	1600	1600	ng/L	101%	70-130%	
NMeFOSAA	3701240001	< 50	1000	1000	ng/L	101%	70-130%	
PFUnDA	3701240001	< 5.0	120	100	ng/L	120%	70-130%	
d5-NEtFOSAA (S)	3701240001	-	1700	1600	ng/L	106%	70-130%	
NEtFOSAA	3701240001	< 50	1100	1000	ng/L	112%	70-130%	
PFDoA	3701240001	< 5.0	110	100	ng/L	114%	70-130%	
PFTrDA	3701240001	< 10	110	100	ng/L	111%	70-130%	
PFTeDA	3701240001	< 10	99	100	ng/L	99%	70-130%	
M4 PFBA (S)	3701240001	-	170	160	ng/L	106%	70-130%	
PFBA	3701240001	26	130	100	ng/L	108%	50-130%	
PPPeA	3701240001	87	200	100	ng/L	108%	70-130%	
M5 PPpEA (S)	3701240001	-	170	160	ng/L	108%	70-130%	
M2-4:2 FTS (S)	3701240001	-	1300	1600	ng/L	84%	70-130%	
4:2 FTSA	3701240001	< 50	860	1000	ng/L	86%	70-130%	
PPPeS	3701240001	< 10	94	100	ng/L	94%	70-130%	
M2-6:2 FTS (S)	3701240001	-	1600	1600	ng/L	100%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L) due to matrix.

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7979 Mod.

Matrix: Water

HBN: 37719

PFAS - Matrix Spike (MS) Continued

Analyte	QC ID	Sample Value	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
6:2 FTSA	3701240001	< 50	1000	1000	ng/L	104%	70-130%	
PFHpS	3701240001	< 10	99	100	ng/L	99%	70-130%	
M2-8:2 FTS (S)	3701240001	-	1600	1600	ng/L	102%	70-130%	
8:2 FTSA	3701240001	< 50	1100	1000	ng/L	105%	70-130%	
PFNS	3701240001	< 10	100	100	ng/L	101%	70-130%	
PFDS	3701240001	< 10	100	100	ng/L	104%	70-130%	
PFOSA	3701240001	< 5.0	100	100	ng/L	100%	70-130%	
M3 PFBS (S)	3701240001	-	160	160	ng/L	97%	70-130%	
M4 PFHpA (S)	3701240001	-	150	160	ng/L	94%	70-130%	
M3 PFHxS (S)	3701240001	-	150	160	ng/L	95%	70-130%	
M9 PFNA (S)	3701240001	-	170	160	ng/L	105%	70-130%	
M7 PFUnDA (S)	3701240001	-	180	160	ng/L	115%	70-130%	
M2 PFDoA (S)	3701240001	-	170	160	ng/L	106%	70-130%	
M2 PFTeDA (S)	3701240001	-	150	160	ng/L	96%	70-130%	
M5 PFHxA (S)	3701240001	-	160	160	ng/L	99%	70-130%	
M8 PFOA (S)	3701240001	-	160	160	ng/L	102%	70-130%	
M8 PFOS (S)	3701240001	-	160	160	ng/L	97%	70-130%	
M6 PFDA (S)	3701240001	-	180	160	ng/L	110%	70-130%	
M8 PFOSA (S)	3701240001	-	170	160	ng/L	103%	70-130%	
HFPO-DA	3701240001	< 100	1000	1000	ng/L	100%	70-130%	
13C-HFPO-DA (S)	3701240001	-	1500	1600	ng/L	95%	70-130%	
11CI-PF3OuDs	3701240001	< 50	950	1000	ng/L	95%	70-130%	
9CI-PF3ONS	3701240001	< 50	990	1000	ng/L	99%	70-130%	
ADONA	3701240001	< 50	970	1000	ng/L	97%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L) due to matrix.

PFAS - Matrix Spike Duplicate (MSD)

Analyte	QC ID	Sample Value	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
PFBS	3701240001	27	140	100	ng/L	108%	70-130%	
PFHxA	3701240001	43	150	100	ng/L	109%	50-130%	
PFHpA	3701240001	< 5.0	100	100	ng/L	97%	50-130%	
PFHxS	3701240001	< 5.0	100	100	ng/L	99%	70-130%	
PFOA	3701240001	13	120	100	ng/L	106%	70-130%	
PFOS	3701240001	3.1	99	100	ng/L	96%	70-130%	
PFNA	3701240001	< 5.0	110	100	ng/L	105%	70-130%	
PFDA	3701240001	< 5.0	110	100	ng/L	112%	70-130%	
d3-NMeFOSAA (S)	3701240001	-	1600	1600	ng/L	98%	70-130%	
NMeFOSAA	3701240001	< 50	990	1000	ng/L	98%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L) due to matrix.

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7979 Mod.

Matrix: Water

HBN: 37719

PFAS - Matrix Spike Duplicate (MSD)

Analyte	QC ID	Sample Value	Spike Value	True Value	Units	Percent Recovery	Control Limits	Qualifier *
PFUnDA	3701240001	< 5.0	110	100	ng/L	111%	70-130%	
d5-NEtFOSAA (S)	3701240001	-	1700	1600	ng/L	104%	70-130%	
NEtFOSAA	3701240001	< 50	1000	1000	ng/L	101%	70-130%	
PFDoA	3701240001	< 5.0	100	100	ng/L	104%	70-130%	
PFTrDA	3701240001	< 10	99	100	ng/L	99%	70-130%	
PFTeDA	3701240001	< 10	79	100	ng/L	79%	70-130%	
M4 PFBA (S)	3701240001	-	170	160	ng/L	106%	70-130%	
PFBA	3701240001	26	140	100	ng/L	113%	50-130%	
PFPeA	3701240001	87	200	100	ng/L	109%	70-130%	
M5 PFPeA (S)	3701240001	-	180	160	ng/L	110%	70-130%	
M2-4:2 FTS (S)	3701240001	-	1400	1600	ng/L	84%	70-130%	
4:2 FTSA	3701240001	< 50	840	1000	ng/L	85%	70-130%	
PFPeS	3701240001	< 10	85	100	ng/L	85%	70-130%	
M2-6:2 FTS (S)	3701240001	-	1600	1600	ng/L	100%	70-130%	
6:2 FTSA	3701240001	< 50	990	1000	ng/L	99%	70-130%	
PFHpS	3701240001	< 10	99	100	ng/L	99%	70-130%	
M2-8:2 FTS (S)	3701240001	-	1600	1600	ng/L	101%	70-130%	
8:2 FTSA	3701240001	< 50	1000	1000	ng/L	101%	70-130%	
PFNS	3701240001	< 10	100	100	ng/L	102%	70-130%	
PFDS	3701240001	< 10	110	100	ng/L	107%	70-130%	
PFOSA	3701240001	< 5.0	100	100	ng/L	102%	70-130%	
M3 PFBS (S)	3701240001	-	160	160	ng/L	100%	70-130%	
M4 PFHpA (S)	3701240001	-	150	160	ng/L	97%	70-130%	
M3 PFHxS (S)	3701240001	-	160	160	ng/L	99%	70-130%	
M9 PFNA (S)	3701240001	-	160	160	ng/L	103%	70-130%	
M7 PFUnDA (S)	3701240001	-	170	160	ng/L	109%	70-130%	
M2 PFDoA (S)	3701240001	-	160	160	ng/L	102%	70-130%	
M2 PFTeDA (S)	3701240001	-	130	160	ng/L	79%	70-130%	
M5 PFHxA (S)	3701240001	-	160	160	ng/L	99%	70-130%	
M8 PFOA (S)	3701240001	-	150	160	ng/L	97%	70-130%	
M8 PFOS (S)	3701240001	-	150	160	ng/L	94%	70-130%	
M6 PFDA (S)	3701240001	-	180	160	ng/L	112%	70-130%	
M8 PFOSA (S)	3701240001	-	170	160	ng/L	105%	70-130%	
HFPO-DA	3701240001	< 100	1000	1000	ng/L	104%	70-130%	
13C-HFPO-DA (S)	3701240001	-	1600	1600	ng/L	99%	70-130%	
11CI-PF3OUDS	3701240001	< 50	900	1000	ng/L	90%	70-130%	
9CI-PF3ONS	3701240001	< 50	960	1000	ng/L	96%	70-130%	
ADONA	3701240001	< 50	960	1000	ng/L	95%	70-130%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L) due to matrix.

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7979 Mod.

Matrix: Water

HBN: 37719

PFAS - Sample Matrix Spike / Matrix Spike Duplicate (MS/MSD)

Analyte	QC ID	MS Value	MSD Value	Units	RPD (%)	Control Limits	Qualifier *
PFBS	3701240001	130	140	ng/L	1%	30%	
PFHxA	3701240001	150	150	ng/L	2%	30%	
PFHpA	3701240001	100	100	ng/L	2%	30%	
PFHxS	3701240001	96	100	ng/L	6%	30%	
PFOA	3701240001	120	120	ng/L	0%	30%	
PFOS	3701240001	100	99	ng/L	2%	30%	
PFNA	3701240001	110	110	ng/L	7%	30%	
PFDA	3701240001	110	110	ng/L	0%	30%	
d3-NMeFOSAA (S)	3701240001	1600	1600	ng/L	4%	30%	
NMeFOSAA	3701240001	1000	990	ng/L	3%	30%	
PFUnDA	3701240001	120	110	ng/L	7%	30%	
d5-NEtFOSAA (S)	3701240001	1700	1700	ng/L	2%	30%	
NEtFOSAA	3701240001	1100	1000	ng/L	10%	30%	
PFDoA	3701240001	110	100	ng/L	9%	30%	
PFTrDA	3701240001	110	99	ng/L	11%	30%	
PFTeDA	3701240001	99	79	ng/L	23%	30%	
M4 PFBA (S)	3701240001	170	170	ng/L	0%	30%	
PFBA	3701240001	130	140	ng/L	4%	30%	
PFPeA	3701240001	200	200	ng/L	1%	30%	
M5 PFPeA (S)	3701240001	170	180	ng/L	2%	30%	
M2-4:2 FTS (S)	3701240001	1300	1400	ng/L	1%	30%	
4:2 FTSA	3701240001	860	840	ng/L	2%	30%	
PFPeS	3701240001	94	85	ng/L	10%	30%	
M2-6:2 FTS (S)	3701240001	1600	1600	ng/L	1%	30%	
6:2 FTSA	3701240001	1000	990	ng/L	5%	30%	
PFHpS	3701240001	99	99	ng/L	0%	30%	
M2-8:2 FTS (S)	3701240001	1600	1600	ng/L	0%	30%	
8:2 FTSA	3701240001	1100	1000	ng/L	4%	30%	
PFNS	3701240001	100	100	ng/L	0%	30%	
PFDS	3701240001	100	110	ng/L	2%	30%	
PFOSA	3701240001	100	100	ng/L	2%	30%	
M3 PFBS (S)	3701240001	160	160	ng/L	3%	30%	
M4 PFHpA (S)	3701240001	150	150	ng/L	3%	30%	
M3 PFHxS (S)	3701240001	150	160	ng/L	3%	30%	
M9 PFNA (S)	3701240001	170	160	ng/L	2%	30%	
M7 PFUnDA (S)	3701240001	180	170	ng/L	5%	30%	
M2 PFDoA (S)	3701240001	170	160	ng/L	4%	30%	
M2 PFTeDA (S)	3701240001	150	130	ng/L	19%	30%	
M5 PFHxA (S)	3701240001	160	160	ng/L	0%	30%	
M8 PFOA (S)	3701240001	160	150	ng/L	6%	30%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).

Quality Control (QC) Batch Report

Project ID: 370252

Method: ASTM D7979 Mod.

Matrix: Water

HBN: 37719

PFAS - Sample Matrix Spike / Matrix Spike Duplicate (MS/MSD)

Analyte	QC ID	MS Value	MSD Value	Units	RPD (%)	Control Limits	Qualifier *
M8 PFOS (S)	3701240001	160	150	ng/L	4%	30%	
M6 PFDA (S)	3701240001	180	180	ng/L	2%	30%	
M8 PFOSA (S)	3701240001	170	170	ng/L	2%	30%	
HFPO-DA	3701240001	1000	1000	ng/L	3%	30%	
13C-HFPO-DA (S)	3701240001	1500	1600	ng/L	5%	30%	
11CI-PF3OUDs	3701240001	950	900	ng/L	6%	30%	
9CI-PF3ONS	3701240001	990	960	ng/L	3%	30%	
ADONA	3701240001	970	960	ng/L	1%	30%	

*Qualifier indicates results outside of control limits, either high-biased (H) or low-biased (L).