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ANALYTICAL REPORT

Eurofins Michigan
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Laboratory Job ID: 190-28390-1
Client Project/Site: City of Bronson WWTP

For:
City of Bronson
141 S Matteson Street
Bronson, Michigan 49028

Attn: Brandon Mersman

Sue Schafer

Authorized for release by:
4/19/2022 8:15:31 PM

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Sample Summary

Client: City of Bronson
Project/Site: City of Bronson WWTP

Job ID: 190-28390-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-28390-1	Biosolids Storage Digester	Solid	04/05/22 13:45	04/06/22 14:47
190-28390-2	Effluent	Water	04/05/22 13:50	04/06/22 14:47

Job ID: 190-28390-1

Laboratory: Eurofins Michigan

Narrative

Job Narrative
190-28390-1

Comments
The PFC_IDA Perfluorinated Hydrocarbons analysis was performed at the Eurofins Environment Testing, Sacramento laboratory.

Receipt
The samples were received on 4/6/2022 2:47 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.0º C.

LCMS
Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery of 13C4 PFBA associated with the following sample is below the method recommended limit: Biosolids Storage Digester (190-28390-1). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

Method 537 (modified): Results for samples Biosolids Storage Digester (190-28390-1) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: Biosolids Storage Digester (190-28390-1). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 3535: The following samples contained floating particulates in the sample bottle prior to extraction: Effluent (190-28390-2).

preparation batch 320-578826
Method: 3535 PFC-W
Matrix: Aqueous

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-578826.

Method: 3535 PFC-W
Matrix: Aqueous

Method SHAKE: The following sample was yellow after extraction:Biosolids Storage Digester (190-28390-1).

preparation batch 320-579192
Method: PFC_IDA/Shake_Bath_14D
Matrix: Solid

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client: City of Bronson
Project/Site: City of Bronson WWTP

Job ID: 190-28390-1

Client Sample ID: Biosolids Storage Digester

Date Collected: 04/05/22 13:45
Date Received: 04/06/22 14:47

Lab Sample ID: 190-28390-1

Matrix: Solid
Percent Solids: 2.3

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
9Cl-PF3ONS	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
11Cl-PF3OUdS	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
4:2 FTS	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
6:2 FTS	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
8:2 FTS	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
HFPO-DA (GenX)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorobutanesulfonic acid (PFBS)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorodecanesulfonic acid (PFDS)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorodecanoic acid (PFDA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorododecanoic acid (PFDoA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluoroheptanesulfonic acid (PFHpS)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluoroheptanoic acid (PFHpA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorohexanesulfonic acid (PFHxS)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorohexanoic acid (PFHxA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorononanesulfonic acid (PFNS)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorononanoic acid (PFNA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorooctanesulfonamide (FOSA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorooctanesulfonic acid (PFOS)	**20**		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorooctanoic acid (PFOA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluoropentanesulfonic acid (PFPeS)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluoropentanoic acid (PFPeA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorotetradecanoic acid (PFTeA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluorotridecanoic acid (PFTriA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1
Perfluoroundecanoic acid (PFUnA)	<8.0		8.0		ug/Kg	☼	04/10/22 21:36	04/12/22 19:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*105*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C3 HFPO-DA	*79*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C3 PFBS	*70*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C2 PFDA	*89*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C2 PFDoA	*83*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C4 PFHpA	*81*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C2 PFHxA	*76*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C5 PFNA	*87*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C4 PFOA	*90*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C4 PFOS	*80*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C5 PFPeA	*42*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
13C2 PFUnA	*84*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
d5-NEtFOSAA	*100*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
d3-NMeFOSAA	*85*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
M2-4:2 FTS	*76*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
M2-6:2 FTS	*121*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*

Client: City of Bronson
Project/Site: City of Bronson WWTP

Job ID: 190-28390-1

Client Sample ID: Biosolids Storage Digester

Date Collected: 04/05/22 13:45
Date Received: 04/06/22 14:47

Lab Sample ID: 190-28390-1

Matrix: Solid
Percent Solids: 2.3

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*121*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*
18O2 PFHxS	*83*		*25 - 150*	*04/10/22 21:36*	*04/12/22 19:26*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<80		80	ug/Kg	☼	04/10/22 21:36	04/14/22 00:44	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*10*	**5-*	*25 - 150*	*04/10/22 21:36*	*04/14/22 00:44*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**97.7**		0.1	%			04/07/22 15:38	1
Percent Solids	**2.3**		0.1	%			04/07/22 15:38	1

Client Sample ID: Effluent

Date Collected: 04/05/22 13:50
Date Received: 04/06/22 14:47

Lab Sample ID: 190-28390-2

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
9Cl-PF3ONS	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
11Cl-PF3OUdS	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
4:2 FTS	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
6:2 FTS	<4.6		4.6		ng/L		04/08/22 11:24	04/11/22 22:36	1
8:2 FTS	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
HFPO-DA (GenX)	<3.7		3.7		ng/L		04/08/22 11:24	04/11/22 22:36	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<4.6		4.6		ng/L		04/08/22 11:24	04/11/22 22:36	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<4.6		4.6		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorobutanesulfonic acid (PFBS)	**6.6**		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorobutanoic acid (PFBA)	<4.6		4.6		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluoroheptanesulfonic acid (PFHpS)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorohexanoic acid (PFHxA)	**5.7**		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorononanoic acid (PFNA)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorooctanesulfonic acid (PFOS)	**5.4**		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorooctanoic acid (PFOA)	**1.9**		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluoropentanoic acid (PFPeA)	**6.1**		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8		ng/L		04/08/22 11:24	04/11/22 22:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*92*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C3 HFPO-DA	*85*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C4 PFBA	*72*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C3 PFBS	*74*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C2 PFDA	*76*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C2 PFDoA	*67*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C4 PFHpA	*84*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C2 PFHxA	*80*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C5 PFNA	*84*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C4 PFOA	*83*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C4 PFOS	*73*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C5 PFPeA	*69*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C2 PFTeDA	*60*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
13C2 PFUnA	*69*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*
d5-NEtFOSAA	*85*		*25 - 150*	*04/08/22 11:24*	*04/11/22 22:36*	*1*

Client: City of Bronson
Project/Site: City of Bronson WWTP

Job ID: 190-28390-1

Client Sample ID: Effluent
Date Collected: 04/05/22 13:50
Date Received: 04/06/22 14:47

Lab Sample ID: 190-28390-2
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	82		25 - 150	04/08/22 11:24	04/11/22 22:36	1
M2-4:2 FTS	92		25 - 150	04/08/22 11:24	04/11/22 22:36	1
M2-6:2 FTS	113		25 - 150	04/08/22 11:24	04/11/22 22:36	1
M2-8:2 FTS	83		25 - 150	04/08/22 11:24	04/11/22 22:36	1
18O2 PFHxS	80		25 - 150	04/08/22 11:24	04/11/22 22:36	1

Isotope Dilution Summary

Client: City of Bronson
Project/Site: City of Bronson WWTP

Job ID: 190-28390-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOSA	HFPODA	PFBA	C3PFBS	PFDA	PFDoA	C4PFHA	PFHxA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
190-28390-1	Biosolids Storage Digester	105	79		70	89	83	81	76
190-28390-1 - DL	Biosolids Storage Digester			10 *5-					
LCS 320-579192/2-A	Lab Control Sample	70	78	36	80	83	78	82	79
MB 320-579192/1-A	Method Blank	71	79	42	76	83	81	83	81

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFNA	PFOA	PFOS	PFPeA	PFTDA	PFUnA	d5NEFOS	d3NMFOS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
190-28390-1	Biosolids Storage Digester	87	90	80	42	69	84	100	85
190-28390-1 - DL	Biosolids Storage Digester								
LCS 320-579192/2-A	Lab Control Sample	85	80	82	77	76	84	87	84
MB 320-579192/1-A	Method Blank	84	82	89	78	73	81	81	82

		Percent Isotope Dilution Recovery (Acceptance Limits)			
		M242FTS	M262FTS	M282FTS	PFHxS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)
190-28390-1	Biosolids Storage Digester	76	121	121	83
190-28390-1 - DL	Biosolids Storage Digester				
LCS 320-579192/2-A	Lab Control Sample	85	85	86	83
MB 320-579192/1-A	Method Blank	79	84	90	78

Surrogate Legend

PFOSA = 13C8 FOSA
HFPODA = 13C3 HFPO-DA
PFBA = 13C4 PFBA
C3PFBS = 13C3 PFBS
PFDA = 13C2 PFDA
PFDoA = 13C2 PFDoA
C4PFHA = 13C4 PFHpA
PFHxA = 13C2 PFHxA
PFNA = 13C5 PFNA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFPeA = 13C5 PFPeA
PFTDA = 13C2 PFTeDA
PFUnA = 13C2 PFUnA
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFHxS = 18O2 PFHxS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOSA	HFPODA	PFBA	C3PFBS	PFDA	PFDoA	C4PFHA	PFHxA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
190-28390-2	Effluent	92	85	72	74	76	67	84	80
LCS 320-578826/2-A	Lab Control Sample	99	97	83	80	95	92	90	85
LCSD 320-578826/3-A	Lab Control Sample Dup	94	86	80	79	92	89	83	82

Isotope Dilution Summary

Client: City of Bronson
Job ID: 190-28390-1
Project/Site: City of Bronson WWTP

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	HFPODA (25-150)	PFBA (25-150)	C3PFBS (25-150)	PFDA (25-150)	PFDoA (25-150)	C4PFHA (25-150)	PFHxA (25-150)
MB 320-578826/1-A	Method Blank	105	97	86	84	96	101	96	89

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFNA (25-150)	PFOA (25-150)	PFOS (25-150)	PFPeA (25-150)	PFTDA (25-150)	PFUnA (25-150)	d5NEFOS (25-150)	d3NMFOS (25-150)
190-28390-2	Effluent	84	83	73	69	60	69	85	82
LCS 320-578826/2-A	Lab Control Sample	95	92	87	77	94	91	102	98
LCSD 320-578826/3-A	Lab Control Sample Dup	86	90	85	73	84	85	99	90
MB 320-578826/1-A	Method Blank	97	100	90	86	91	95	106	101

		Percent Isotope Dilution Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	PFHxS (25-150)
190-28390-2	Effluent	92	113	83	80
LCS 320-578826/2-A	Lab Control Sample	97	110	94	91
LCSD 320-578826/3-A	Lab Control Sample Dup	97	103	88	84
MB 320-578826/1-A	Method Blank	115	111	99	95

Surrogate Legend

PFOSA = 13C8 FOSA
HFPODA = 13C3 HFPO-DA
PFBA = 13C4 PFBA
C3PFBS = 13C3 PFBS
PFDA = 13C2 PFDA
PFDoA = 13C2 PFDoA
C4PFHA = 13C4 PFHpA
PFHxA = 13C2 PFHxA
PFNA = 13C5 PFNA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFPeA = 13C5 PFPeA
PFTDA = 13C2 PFTeDA
PFUnA = 13C2 PFUnA
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFHxS = 18O2 PFHxS

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-578826/1-A
Matrix: Water
Analysis Batch: 579386

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 578826

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
9Cl-PF3ONS	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
11Cl-PF3OUdS	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
4:2 FTS	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
6:2 FTS	<5.0		5.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
8:2 FTS	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
HFPO-DA (GenX)	<4.0		4.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<5.0		5.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<5.0		5.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorobutanoic acid (PFBA)	<5.0		5.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorooctanesulfonamide (FOSA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		04/08/22 11:24	04/11/22 20:25	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*105*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C3 HFPO-DA	*97*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C4 PFBA	*86*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C3 PFBS	*84*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C2 PFDA	*96*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C2 PFDoA	*101*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C4 PFHpA	*96*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C2 PFHxA	*89*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C5 PFNA	*97*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C4 PFOA	*100*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C4 PFOS	*90*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C5 PFPeA	*86*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C2 PFTeDA	*91*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
13C2 PFUnA	*95*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*
d5-NEtFOSAA	*106*		*25 - 150*	*04/08/22 11:24*	*04/11/22 20:25*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-578826/1-A
Matrix: Water
Analysis Batch: 579386

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 578826

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	101		25 - 150	04/08/22 11:24	04/11/22 20:25	1
M2-4:2 FTS	115		25 - 150	04/08/22 11:24	04/11/22 20:25	1
M2-6:2 FTS	111		25 - 150	04/08/22 11:24	04/11/22 20:25	1
M2-8:2 FTS	99		25 - 150	04/08/22 11:24	04/11/22 20:25	1
18O2 PFHxS	95		25 - 150	04/08/22 11:24	04/11/22 20:25	1

Lab Sample ID: LCS 320-578826/2-A
Matrix: Water
Analysis Batch: 579386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 578826

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9Cl-PF3ONS	37.3	37.0		ng/L		99	75 - 135
11Cl-PF3OUdS	37.7	37.8		ng/L		100	54 - 114
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.7	41.5		ng/L		110	79 - 139
4:2 FTS	37.4	36.8		ng/L		98	79 - 139
6:2 FTS	37.9	32.3		ng/L		85	59 - 175
8:2 FTS	38.3	39.0		ng/L		102	75 - 135
HFPO-DA (GenX)	40.0	39.5		ng/L		99	51 - 173
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	38.8		ng/L		97	76 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	38.3		ng/L		96	76 - 136
Perfluorobutanesulfonic acid (PFBS)	35.4	37.2		ng/L		105	67 - 127
Perfluorobutanoic acid (PFBA)	40.0	40.0		ng/L		100	76 - 136
Perfluorodecanesulfonic acid (PFDS)	38.6	36.9		ng/L		96	71 - 131
Perfluorodecanoic acid (PFDA)	40.0	39.1		ng/L		98	76 - 136
Perfluorododecanoic acid (PFDoA)	40.0	41.6		ng/L		104	71 - 131
Perfluoroheptanesulfonic acid (PFHpS)	38.1	38.1		ng/L		100	76 - 136
Perfluoroheptanoic acid (PFHpA)	40.0	39.8		ng/L		100	72 - 132
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.8		ng/L		96	59 - 119
Perfluorohexanoic acid (PFHxA)	40.0	41.2		ng/L		103	73 - 133
Perfluorononanesulfonic acid (PFNS)	38.4	37.0		ng/L		96	75 - 135
Perfluorononanoic acid (PFNA)	40.0	40.5		ng/L		101	75 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	33.6		ng/L		84	73 - 133
Perfluorooctanesulfonic acid (PFOS)	37.1	35.7		ng/L		96	70 - 130
Perfluorooctanoic acid (PFOA)	40.0	39.4		ng/L		98	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	40.7		ng/L		108	66 - 126
Perfluoropentanoic acid (PFPeA)	40.0	44.5		ng/L		111	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	35.3		ng/L		88	70 - 130
Perfluorotridecanoic acid (PFTriA)	40.0	39.0		ng/L		97	71 - 131

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-578826/2-A
Matrix: Water
Analysis Batch: 579386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 578826

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoroundecanoic acid (PFUnA)			40.0	41.9		ng/L		105	68 - 128		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*99*		*25 - 150*
13C3 HFPO-DA	*97*		*25 - 150*
13C4 PFBA	*83*		*25 - 150*
13C3 PFBS	*80*		*25 - 150*
13C2 PFDA	*95*		*25 - 150*
13C2 PFDoA	*92*		*25 - 150*
13C4 PFHpA	*90*		*25 - 150*
13C2 PFHxA	*85*		*25 - 150*
13C5 PFNA	*95*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*
13C4 PFOS	*87*		*25 - 150*
13C5 PFPeA	*77*		*25 - 150*
13C2 PFTeDA	*94*		*25 - 150*
13C2 PFUnA	*91*		*25 - 150*
d5-NEtFOSAA	*102*		*25 - 150*
d3-NMeFOSAA	*98*		*25 - 150*
M2-4:2 FTS	*97*		*25 - 150*
M2-6:2 FTS	*110*		*25 - 150*
M2-8:2 FTS	*94*		*25 - 150*
18O2 PFHxS	*91*		*25 - 150*

Lab Sample ID: LCSD 320-578826/3-A
Matrix: Water
Analysis Batch: 579386

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 578826

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
9Cl-PF3ONS			37.3	39.5		ng/L		106	75 - 135	7	30
11Cl-PF3OUdS			37.7	39.9		ng/L		106	54 - 114	6	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.7	43.7		ng/L		116	79 - 139	5	30
4:2 FTS			37.4	40.0		ng/L		107	79 - 139	8	30
6:2 FTS			37.9	38.7		ng/L		102	59 - 175	18	30
8:2 FTS			38.3	44.4		ng/L		116	75 - 135	13	30
HFPO-DA (GenX)			40.0	45.5		ng/L		114	51 - 173	14	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	40.3		ng/L		101	76 - 136	4	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	43.3		ng/L		108	76 - 136	12	30
Perfluorobutanesulfonic acid (PFBS)			35.4	37.9		ng/L		107	67 - 127	2	30
Perfluorobutanoic acid (PFBA)			40.0	44.1		ng/L		110	76 - 136	10	30
Perfluorodecanesulfonic acid (PFDS)			38.6	39.8		ng/L		103	71 - 131	8	30
Perfluorodecanoic acid (PFDA)			40.0	39.2		ng/L		98	76 - 136	0	30
Perfluorododecanoic acid (PFDoA)			40.0	44.9		ng/L		112	71 - 131	8	30

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-578826/3-A
Matrix: Water
Analysis Batch: 579386

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 578826

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoroheptanesulfonic acid (PFHpS)			38.1	40.6		ng/L		107	76 - 136	7	30
Perfluoroheptanoic acid (PFHpA)			40.0	46.3		ng/L		116	72 - 132	15	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	36.5		ng/L		100	59 - 119	5	30
Perfluorohexanoic acid (PFHxA)			40.0	43.5		ng/L		109	73 - 133	5	30
Perfluorononanesulfonic acid (PFNS)			38.4	39.7		ng/L		103	75 - 135	7	30
Perfluorononanoic acid (PFNA)			40.0	46.1		ng/L		115	75 - 135	13	30
Perfluorooctanesulfonamide (FOSA)			40.0	36.1		ng/L		90	73 - 133	7	30
Perfluorooctanesulfonic acid (PFOS)			37.1	37.9		ng/L		102	70 - 130	6	30
Perfluorooctanoic acid (PFOA)			40.0	41.7		ng/L		104	70 - 130	6	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	40.6		ng/L		108	66 - 126	0	30
Perfluoropentanoic acid (PFPeA)			40.0	46.7		ng/L		117	71 - 131	5	30
Perfluorotetradecanoic acid (PFTeA)			40.0	39.7		ng/L		99	70 - 130	12	30
Perfluorotridecanoic acid (PFTriA)			40.0	41.8		ng/L		104	71 - 131	7	30
Perfluoroundecanoic acid (PFUnA)			40.0	45.6		ng/L		114	68 - 128	9	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*94*		*25 - 150*
13C3 HFPO-DA	*86*		*25 - 150*
13C4 PFBA	*80*		*25 - 150*
13C3 PFBS	*79*		*25 - 150*
13C2 PFDA	*92*		*25 - 150*
13C2 PFDoA	*89*		*25 - 150*
13C4 PFHpA	*83*		*25 - 150*
13C2 PFHxA	*82*		*25 - 150*
13C5 PFNA	*86*		*25 - 150*
13C4 PFOA	*90*		*25 - 150*
13C4 PFOS	*85*		*25 - 150*
13C5 PFPeA	*73*		*25 - 150*
13C2 PFTeDA	*84*		*25 - 150*
13C2 PFUnA	*85*		*25 - 150*
d5-NEtFOSAA	*99*		*25 - 150*
d3-NMeFOSAA	*90*		*25 - 150*
M2-4:2 FTS	*97*		*25 - 150*
M2-6:2 FTS	*103*		*25 - 150*
M2-8:2 FTS	*88*		*25 - 150*
18O2 PFHxS	*84*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-579192/1-A
Matrix: Solid
Analysis Batch: 579581

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 579192

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
9Cl-PF3ONS	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
11Cl-PF3OUdS	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
4:2 FTS	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
6:2 FTS	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
8:2 FTS	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
HFPO-DA (GenX)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorobutanoic acid (PFBA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorodecanesulfonic acid (PFDS)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorodecanoic acid (PFDA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorododecanoic acid (PFDoA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluoroheptanoic acid (PFHpA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorohexanesulfonic acid (PFHxS)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorohexanoic acid (PFHxA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorononanesulfonic acid (PFNS)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorononanoic acid (PFNA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorooctanesulfonamide (FOSA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorooctanesulfonic acid (PFOS)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorooctanoic acid (PFOA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluoropentanesulfonic acid (PFPeS)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluoropentanoic acid (PFPeA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorotetradecanoic acid (PFTeA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluorotridecanoic acid (PFTriA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1
Perfluoroundecanoic acid (PFUnA)	<0.20		0.20		ug/Kg		04/09/22 09:43	04/11/22 18:10	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*71*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C3 HFPO-DA	*79*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C4 PFBA	*42*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C3 PFBS	*76*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C2 PFDA	*83*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C2 PFDoA	*81*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C4 PFHpA	*83*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C2 PFHxA	*81*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C5 PFNA	*84*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C4 PFOA	*82*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C4 PFOS	*89*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C5 PFPeA	*78*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C2 PFTeDA	*73*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
13C2 PFUnA	*81*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*
d5-NEtFOSAA	*81*		*25 - 150*	*04/09/22 09:43*	*04/11/22 18:10*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-579192/1-A
Matrix: Solid
Analysis Batch: 579581

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 579192

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	82		25 - 150	04/09/22 09:43	04/11/22 18:10	1
M2-4:2 FTS	79		25 - 150	04/09/22 09:43	04/11/22 18:10	1
M2-6:2 FTS	84		25 - 150	04/09/22 09:43	04/11/22 18:10	1
M2-8:2 FTS	90		25 - 150	04/09/22 09:43	04/11/22 18:10	1
18O2 PFHxS	78		25 - 150	04/09/22 09:43	04/11/22 18:10	1

Lab Sample ID: LCS 320-579192/2-A
Matrix: Solid
Analysis Batch: 579581

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 579192

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9Cl-PF3ONS	1.86	1.84		ug/Kg		99	74 - 134
11Cl-PF3OUdS	1.88	1.82		ug/Kg		97	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	1.85		ug/Kg		98	79 - 139
4:2 FTS	1.87	1.70		ug/Kg		91	68 - 143
6:2 FTS	1.90	2.07		ug/Kg		109	73 - 139
8:2 FTS	1.92	1.84		ug/Kg		96	75 - 135
HFPO-DA (GenX)	2.00	2.06		ug/Kg		103	53 - 158
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.01		ug/Kg		100	72 - 132
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.95		ug/Kg		98	72 - 132
Perfluorobutanesulfonic acid (PFBS)	1.77	1.82		ug/Kg		103	69 - 129
Perfluorobutanoic acid (PFBA)	2.00	2.21		ug/Kg		110	76 - 136
Perfluorodecanesulfonic acid (PFDS)	1.93	1.95		ug/Kg		101	71 - 131
Perfluorodecanoic acid (PFDA)	2.00	2.07		ug/Kg		103	72 - 132
Perfluorododecanoic acid (PFDoA)	2.00	2.11		ug/Kg		105	71 - 131
Perfluoroheptanesulfonic acid (PFHpS)	1.90	2.03		ug/Kg		107	76 - 136
Perfluoroheptanoic acid (PFHpA)	2.00	2.02		ug/Kg		101	71 - 131
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.84		ug/Kg		101	62 - 122
Perfluorohexanoic acid (PFHxA)	2.00	1.99		ug/Kg		99	71 - 131
Perfluorononanesulfonic acid (PFNS)	1.92	1.80		ug/Kg		94	72 - 132
Perfluorononanoic acid (PFNA)	2.00	1.82		ug/Kg		91	73 - 133
Perfluorooctanesulfonamide (FOSA)	2.00	2.16		ug/Kg		108	77 - 137
Perfluorooctanesulfonic acid (PFOS)	1.86	1.88		ug/Kg		101	68 - 141
Perfluorooctanoic acid (PFOA)	2.00	2.02		ug/Kg		101	72 - 132
Perfluoropentanesulfonic acid (PFPeS)	1.88	2.13		ug/Kg		113	66 - 126
Perfluoropentanoic acid (PFPeA)	2.00	2.23		ug/Kg		112	69 - 129
Perfluorotetradecanoic acid (PFTeA)	2.00	2.19		ug/Kg		109	67 - 127
Perfluorotridecanoic acid (PFTriA)	2.00	2.20		ug/Kg		110	71 - 131

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-579192/2-A
Matrix: Solid
Analysis Batch: 579581

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 579192

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoroundecanoic acid (PFUnA)			2.00	2.03		ug/Kg		101	66 - 126		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*70*		*25 - 150*
13C3 HFPO-DA	*78*		*25 - 150*
13C4 PFBA	*36*		*25 - 150*
13C3 PFBS	*80*		*25 - 150*
13C2 PFDA	*83*		*25 - 150*
13C2 PFDoA	*78*		*25 - 150*
13C4 PFHpA	*82*		*25 - 150*
13C2 PFHxA	*79*		*25 - 150*
13C5 PFNA	*85*		*25 - 150*
13C4 PFOA	*80*		*25 - 150*
13C4 PFOS	*82*		*25 - 150*
13C5 PFPeA	*77*		*25 - 150*
13C2 PFTeDA	*76*		*25 - 150*
13C2 PFUnA	*84*		*25 - 150*
d5-NEtFOSAA	*87*		*25 - 150*
d3-NMeFOSAA	*84*		*25 - 150*
M2-4:2 FTS	*85*		*25 - 150*
M2-6:2 FTS	*85*		*25 - 150*
M2-8:2 FTS	*86*		*25 - 150*
18O2 PFHxS	*83*		*25 - 150*

QC Association Summary

Client: City of Bronson
Project/Site: City of Bronson WWTP

Job ID: 190-28390-1

LCMS

Prep Batch: 578826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-28390-2	Effluent	Total/NA	Water	3535	
MB 320-578826/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-578826/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-578826/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 579192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-28390-1 - DL	Biosolids Storage Digester	Total/NA	Solid	SHAKE	
190-28390-1	Biosolids Storage Digester	Total/NA	Solid	SHAKE	
MB 320-579192/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-579192/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 579386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-28390-2	Effluent	Total/NA	Water	537 (modified)	578826
MB 320-578826/1-A	Method Blank	Total/NA	Water	537 (modified)	578826
LCS 320-578826/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	578826
LCSD 320-578826/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	578826

Analysis Batch: 579581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-579192/1-A	Method Blank	Total/NA	Solid	537 (modified)	579192
LCS 320-579192/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	579192

Analysis Batch: 579613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-28390-1	Biosolids Storage Digester	Total/NA	Solid	537 (modified)	579192

Analysis Batch: 579884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-28390-1 - DL	Biosolids Storage Digester	Total/NA	Solid	537 (modified)	579192

General Chemistry

Analysis Batch: 578597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-28390-1	Biosolids Storage Digester	Total/NA	Solid	D 2216	

Lab Chronicle

Client: City of Bronson
Project/Site: City of Bronson WWTP

Job ID: 190-28390-1

Client Sample ID: Biosolids Storage Digester
Lab Sample ID: 190-28390-1
Date Collected: 04/05/22 13:45
Matrix: Solid
Date Received: 04/06/22 14:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	578597	04/07/22 15:38	TCS	TAL SAC

Client Sample ID: Biosolids Storage Digester
Lab Sample ID: 190-28390-1
Date Collected: 04/05/22 13:45
Matrix: Solid
Date Received: 04/06/22 14:47
Percent Solids: 2.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE	DL		579192	04/10/22 21:36	FX	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10	579884	04/14/22 00:44	AF	TAL SAC
Total/NA	Prep	SHAKE			579192	04/10/22 21:36	FX	TAL SAC
Total/NA	Analysis	537 (modified)		1	579613	04/12/22 19:26	AF	TAL SAC

Client Sample ID: Effluent
Lab Sample ID: 190-28390-2
Date Collected: 04/05/22 13:50
Matrix: Water
Date Received: 04/06/22 14:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			578826	04/08/22 11:24	DVC	TAL SAC
Total/NA	Analysis	537 (modified)		1	579386	04/11/22 22:36	K1S	TAL SAC

Laboratory References:

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Analyst References:

Lab: TAL SAC

Batch Type: Prep

DVC = Diana Castellanos

FX = Fong Xiong

Batch Type: Analysis

AF = Ashley Farias

K1S = Kotechakon Sorndee

TCS = Tammy Saechao

Definitions/Glossary

Client: City of Bronson
Project/Site: City of Bronson WWTP

Job ID: 190-28390-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: City of Bronson
Project/Site: City of Bronson WWTP

Job ID: 190-28390-1

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-22
Arkansas DEQ	State	88-0691	06-17-22
California	State	2897	01-31-23
Colorado	State	CA0004	08-31-22
Florida	NELAP	E87570	06-30-22
Georgia	State	4040	01-30-23
Hawaii	State	<cert No.>	01-29-23
Illinois	NELAP	200060	03-17-23
Kansas	NELAP	E-10375	02-28-22 *
Louisiana	NELAP	01944	06-30-22
Maine	State	CA00004	04-14-22
Michigan	State	9947	01-31-23
Nevada	State	CA00044	08-31-22
New Hampshire	NELAP	2997	04-18-22
New Jersey	NELAP	CA005	06-30-22
New York	NELAP	11666	04-02-23
Ohio	State	41252	01-29-23
Oregon	NELAP	4040	01-29-23
Texas	NELAP	T104704399-19-13	05-31-22
US Fish & Wildlife	US Federal Programs	58448	07-31-22
USDA	US Federal Programs	P330-18-00239	01-23-23
Utah	NELAP	CA000442021-12	03-01-22 *
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-22
West Virginia (DW)	State	9930C	12-31-22
Wisconsin	State	998204680	08-31-22
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Detection Summary

Client: City of Bronson
Project/Site: City of Bronson WWTP

Job ID: 190-28390-1

Client Sample ID: Biosolids Storage Digester — Lab Sample ID: 190-28390-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	20		8.0		ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: Effluent — Lab Sample ID: 190-28390-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	6.6		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	5.7		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.4		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.9		1.8		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	6.1		1.8		ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone: 810-229-2763 Fax: 810-229-0000

Chain of Custody Record

MICHIGAN 190

eurofins | Environment Testing America

Client Information	Sampler: Chuck Clark	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 190-27255-1467.1
Client Contact: Chuck Buckley	Phone: 517-462-8380	E-Mail: Sue.Schafer@Eurofinset.com	State of Origin:	Page: Page 1 of 1
Company: City of Bronson	PWSID:			Job #:

Address: 141 S Matteson Street	Due Date Requested: ASAP	Analysis Requested	Preservation Codes:
City: Bronson	TAT Requested (days):		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: MI, 49028	Compliance Project: Δ Yes Δ No		
Phone: 517-462-8380	PO #: Purchase Order not required		Other:
Email: bronsonh2o@hotmail.com	WO #:		
Project Name: City of Bronson - PFAS	Project #: 19001688		
Site: BRONSON WWTP	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - PFAS, Standard List (24 Analytes)	PFC_IDA - (MOD) PFAS, Standard List (24 Analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
Biosolids				Water						
STORAGE Drgester	4/5/22	1:45	C	Water / Solid			X			
EFFluent	4/5/22	1:50	G	Water			X			

190-28390 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
CHUCK BUCKLEY	4/5/22 2:00	BRONSON	UPS	4/5/22 3:00	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
			Jen Hall	4-6-22 1447	EEGA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 11/01/2020

eurofins | Environment Testing TestAmerica

☐ SDS or Known Hazard Information Supplied by Client
☐ Discrepancies
☐ Short Hold
☐ Rush ☐ 24 Hr ☐ 2-Day ☐ 3-Day ☐ 5-Day ☐ Other: _____

Client ID: City of Branson
Work Oder #: 190-28310

Cooler / Sample Receipt

After hours receipt: complete gray areas. Place cooler in walk-in, place form in Receiving box. Date: _____ Time: _____

Receipt Evaluation Performed by: Initials: TH Date: 4-6-22 Time: 1447

Method of Shipment:
Walk-In Client ☐ Eurofins TA Field/Courier
Other Client / 3rd Party Courier: _____
Fed Ex Tracking #: _____
UPS Tracking #: Ground
Other: _____

Shipping Container Type:
☑ Cooler ☐ Box
☐ None ☐ Other: _____

Custody Seals Intact:
☐ Yes ☐ No
☑ NA (not used or required)

Packing Materials:
☑ Plastic Bags ☐ Foam
☐ Bubble Wrap ☐ Paper
☐ Packing Peanuts ☐ None
☐ Other: _____

Cooling Materials:
☑ Ice (Solid) ☑ Ice (Melted)
☐ Blue Ice ☐ None
☐ Other: _____

Bacteriological Samples	Temp Corrected (°C)	Frozen? Yes	Frozen? No	Rec'd Within 2 Hrs? Yes	Rec'd Within 2 Hrs? No	Sample Flagged? Yes	Sample Flagged? No

Received on same day sampled? Yes (No)
Additional Sheets Required? Yes (No)

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Acceptable	Cooler ID	Affected Samples
CP313207	5.0	5.0		X	X Y _ N		
					_ Y _ N		
					_ Y _ N		

Receipt Questions**	Y	N	NA	"No" answers require additional comment
CoC present and ETA receipt signature, date, and time properly documented?	X			
Containers and Labels in good condition? *(unbroken, not leaking, appropriately filled, labels legible & attached)*	X			
Appropriate containers used and adequate volume provided?	X			Preserved bottles checked for pH?* Yes No
Number of sample containers match CoC?	X			pH strip lot # _____
Samples received within hold?	X			
Samples submitted for GRO and Volatiles analysis (8260, 624, 524) received without headspace?			X	
Was a Trip Blank received with VOA samples?			X	
Were the samples free of any questionable physical conformities? (i.e.; field duplicates or multiple bottles of the same sample do not significantly vary in appearance – color, solid proportions, etc.)	X			
Were the CoC bottle labels and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	X			
**May not be applicable if samples are not for compliance testing				*Excludes FOG, VOAs, TOC Vials, HEM

Client Contact Record

Contact Via: ☐ Phone ☐ Email ☐ Other: _____ Person Contacted: _____ Date/Time: _____
☐ Discrepancy allowance agreement is on record in the client project file

Discussion / Resolution

Any additional documentation and clarification from the client must be noted in the narrative and/or scanned into the CoC directory.

Reviewed by Teri Hall Date: 4-6-22

WI-MI-010_020720

Eurofins Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone: 810-229-2763 Fax: 810-229-0000

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 190-32121.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Sue.Schafer@et.eurofinsus.com	State of Origin: Michigan	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note):		Job #: 190-28390-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 4/19/2022			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: City of Bronson WWTP	Project #: 19001688			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Moisture	PFC_IDA/Shake_Bath_14D (MOD) PFAS 28	PFC_IDA/3535_PFC PFAS 28	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
Biosolids Storage Digester (190-28390-1)	4/5/22	13:45 Eastern		Solid			X	X		1	
Effluent (190-28390-2)	4/5/22	13:50 Eastern		Water					X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing North Central, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4-6-22 1700		[signature]	4/7/22 09:45	EETSAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021