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ANALYTICAL REPORT

Eurofins Michigan
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Laboratory Job ID: 190-28309-1
Client Project/Site: City of Bronson-PFAS

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

Attn: Brandon Mersman

Sue Schafer

Authorized for release by:
4/6/2022 3:09:32 PM

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Sample Summary

Client: City of Bronson
Project/Site: City of Bronson-PFAS

Job ID: 190-28309-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-28309-1	Bio-solids	Solid	03/22/22 13:30	03/23/22 17:00

Case Narrative

Client: City of Bronson
Project/Site: City of Bronson-PFAS

Job ID: 190-28309-1

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Laboratory: Eurofins Michigan

Narrative

Job Narrative
190-28309-1

Comments
No additional comments.

Receipt
The sample was received on 3/23/2022 5:00 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.0º C.

Receipt Exceptions

The container label for the following sample(s) did not match the information listed on the Chain-of-Custody (COC):
No sample id listed on client label. CoC lists id as Bio-Solids
Bio-solids (190-28309-1).

LCMS
Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: Bio-solids (190-28309-1). 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(s).

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was below the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty. However, analyst judgment was used to positively identify the analyte.

Bio-solids (190-28309-1)

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 SHAKE: The following sample's ID did match. Client ID did not have "Bio-Solids".

Method Code: PFC_IDA
Matrix: Solid
preparation batch 320-576444

Method SHAKE: Due to the matrix, the initial volumes used for the following samples deviated from the standard procedure: Bio-solids (190-28309-1). The reporting limits (RLs) have been adjusted proportionately.

Method Code: PFC_IDA
Matrix: Solid
preparation batch 320-576444

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-PFAS

Job ID: 190-28309-1

Client Sample ID: Bio-solids

Date Collected: 03/22/22 13:30
Date Received: 03/23/22 17:00

Lab Sample ID: 190-28309-1

Matrix: Solid
Percent Solids: 1.3

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
9Cl-PF3ONS	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
11Cl-PF3OUdS	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
4:2 FTS	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
6:2 FTS	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
8:2 FTS	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
HFPO-DA (GenX)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorobutanesulfonic acid (PFBS)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorobutanoic acid (PFBA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorodecanesulfonic acid (PFDS)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorodecanoic acid (PFDA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorododecanoic acid (PFDoA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluoroheptanesulfonic acid (PFHpS)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluoroheptanoic acid (PFHpA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorohexanesulfonic acid (PFHxS)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorohexanoic acid (PFHxA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorononanesulfonic acid (PFNS)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorononanoic acid (PFNA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorooctanesulfonamide (FOSA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorooctanesulfonic acid (PFOS)	**81**	**I**	60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorooctanoic acid (PFOA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluoropentanesulfonic acid (PFPeS)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluoropentanoic acid (PFPeA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorotetradecanoic acid (PFTeA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluorotridecanoic acid (PFTriA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1
Perfluoroundecanoic acid (PFUnA)	<60		60		ug/Kg	☼	03/29/22 11:32	04/01/22 02:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*98*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C3 HFPO-DA	*73*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C4 PFBA	*14*	*5-	*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C3 PFBS	*75*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C2 PFDA	*87*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C2 PFDoA	*82*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C4 PFHpA	*85*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C2 PFHxA	*86*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C5 PFNA	*86*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C4 PFOA	*88*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C4 PFOS	*85*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C5 PFPeA	*63*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C2 PFTeDA	*73*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
13C2 PFUnA	*90*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
d5-NEtFOSAA	*96*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
d3-NMeFOSAA	*87*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*

Client: City of Bronson
Project/Site: City of Bronson-PFAS

Job ID: 190-28309-1

Client Sample ID: Bio-solids

Date Collected: 03/22/22 13:30
Date Received: 03/23/22 17:00

Lab Sample ID: 190-28309-1

Matrix: Solid
Percent Solids: 1.3

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*111*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
M2-6:2 FTS	*129*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
M2-8:2 FTS	*140*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*
18O2 PFHxS	*83*		*25 - 150*	*03/29/22 11:32*	*04/01/22 02:20*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**98.7**		0.1	%			03/28/22 12:15	1
Percent Solids	**1.3**		0.1	%			03/28/22 12:15	1

Isotope Dilution Summary

Client: City of Bronson
Project/Site: City of Bronson-PFAS

Job ID: 190-28309-1

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)
190-28309-1	Bio-solids	98	73	14 *5-	75	87	82	85	86
LCS 320-576444/2-A	Lab Control Sample	99	74	30	78	86	84	84	85
MB 320-576444/1-A	Method Blank	100	72	32	76	89	83	85	84

		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)
190-28309-1	Bio-solids	86	88	85	63	73	90	96	87
LCS 320-576444/2-A	Lab Control Sample	83	87	84	72	75	87	96	82
MB 320-576444/1-A	Method Blank	87	89	84	74	76	90	96	90

		Percent Isotope Dilution Recovery (Acceptance Limits)			
		M242FTS	M262FTS	M282FTS	PFHxS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)
190-28309-1	Bio-solids	111	129	140	83
LCS 320-576444/2-A	Lab Control Sample	107	110	106	86
MB 320-576444/1-A	Method Blank	104	106	103	84

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 320-576444/1-A
Matrix: Solid
Analysis Batch: 576788

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 576444

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
9Cl-PF3ONS	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
11Cl-PF3OUdS	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
4:2 FTS	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
6:2 FTS	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
8:2 FTS	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
HFPO-DA (GenX)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorobutanoic acid (PFBA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorodecanesulfonic acid (PFDS)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorodecanoic acid (PFDA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorododecanoic acid (PFDoA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluoroheptanoic acid (PFHpA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorohexanesulfonic acid (PFHxS)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorohexanoic acid (PFHxA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorononanesulfonic acid (PFNS)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorononanoic acid (PFNA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorooctanesulfonamide (FOSA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorooctanesulfonic acid (PFOS)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorooctanoic acid (PFOA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluoropentanesulfonic acid (PFPeS)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluoropentanoic acid (PFPeA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorotetradecanoic acid (PFTeA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluorotridecanoic acid (PFTriA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1
Perfluoroundecanoic acid (PFUnA)	<0.20		0.20		ug/Kg		03/29/22 11:32	04/01/22 00:49	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*100*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C3 HFPO-DA	*72*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C4 PFBA	*32*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C3 PFBS	*76*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C2 PFDA	*89*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C2 PFDoA	*83*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C4 PFHpA	*85*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C2 PFHxA	*84*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C5 PFNA	*87*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C4 PFOA	*89*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C4 PFOS	*84*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C5 PFPeA	*74*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C2 PFTeDA	*76*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
13C2 PFUnA	*90*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*
d5-NEtFOSAA	*96*		*25 - 150*	*03/29/22 11:32*	*04/01/22 00:49*	*1*

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

Lab Sample ID: MB 320-576444/1-A
Matrix: Solid
Analysis Batch: 576788

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 576444

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	90		25 - 150	03/29/22 11:32	04/01/22 00:49	1
M2-4:2 FTS	104		25 - 150	03/29/22 11:32	04/01/22 00:49	1
M2-6:2 FTS	106		25 - 150	03/29/22 11:32	04/01/22 00:49	1
M2-8:2 FTS	103		25 - 150	03/29/22 11:32	04/01/22 00:49	1
18O2 PFHxS	84		25 - 150	03/29/22 11:32	04/01/22 00:49	1

Lab Sample ID: LCS 320-576444/2-A
Matrix: Solid
Analysis Batch: 576788

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 576444

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9Cl-PF3ONS	1.86	1.98		ug/Kg		106	74 - 134
11Cl-PF3OUdS	1.88	2.20		ug/Kg		117	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	2.24		ug/Kg		119	79 - 139
4:2 FTS	1.87	2.32		ug/Kg		124	68 - 143
6:2 FTS	1.90	1.96		ug/Kg		103	73 - 139
8:2 FTS	1.92	2.01		ug/Kg		105	75 - 135
HFPO-DA (GenX)	2.00	2.25		ug/Kg		113	53 - 158
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.10		ug/Kg		105	72 - 132
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.32		ug/Kg		116	72 - 132
Perfluorobutanesulfonic acid (PFBS)	1.77	2.07		ug/Kg		117	69 - 129
Perfluorobutanoic acid (PFBA)	2.00	2.26		ug/Kg		113	76 - 136
Perfluorodecanesulfonic acid (PFDS)	1.93	2.01		ug/Kg		104	71 - 131
Perfluorodecanoic acid (PFDA)	2.00	2.08		ug/Kg		104	72 - 132
Perfluorododecanoic acid (PFDoA)	2.00	2.22		ug/Kg		111	71 - 131
Perfluoroheptanesulfonic acid (PFHpS)	1.90	2.19		ug/Kg		115	76 - 136
Perfluoroheptanoic acid (PFHpA)	2.00	2.41		ug/Kg		121	71 - 131
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.90		ug/Kg		104	62 - 122
Perfluorohexanoic acid (PFHxA)	2.00	2.10		ug/Kg		105	71 - 131
Perfluorononanesulfonic acid (PFNS)	1.92	2.18		ug/Kg		113	72 - 132
Perfluorononanoic acid (PFNA)	2.00	2.32		ug/Kg		116	73 - 133
Perfluorooctanesulfonamide (FOSA)	2.00	1.85		ug/Kg		93	77 - 137
Perfluorooctanesulfonic acid (PFOS)	1.86	2.00		ug/Kg		108	68 - 141
Perfluorooctanoic acid (PFOA)	2.00	2.16		ug/Kg		108	72 - 132
Perfluoropentanesulfonic acid (PFPeS)	1.88	2.12		ug/Kg		113	66 - 126
Perfluoropentanoic acid (PFPeA)	2.00	2.35		ug/Kg		118	69 - 129
Perfluorotetradecanoic acid (PFTeA)	2.00	2.22		ug/Kg		111	67 - 127
Perfluorotridecanoic acid (PFTriA)	2.00	2.13		ug/Kg		106	71 - 131

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

Lab Sample ID: LCS 320-576444/2-A
Matrix: Solid
Analysis Batch: 576788

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 576444

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoroundecanoic acid (PFUnA)			2.00	2.26		ug/Kg		113	66 - 126		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*99*		*25 - 150*
13C3 HFPO-DA	*74*		*25 - 150*
13C4 PFBA	*30*		*25 - 150*
13C3 PFBS	*78*		*25 - 150*
13C2 PFDA	*86*		*25 - 150*
13C2 PFDoA	*84*		*25 - 150*
13C4 PFHpA	*84*		*25 - 150*
13C2 PFHxA	*85*		*25 - 150*
13C5 PFNA	*83*		*25 - 150*
13C4 PFOA	*87*		*25 - 150*
13C4 PFOS	*84*		*25 - 150*
13C5 PFPeA	*72*		*25 - 150*
13C2 PFTeDA	*75*		*25 - 150*
13C2 PFUnA	*87*		*25 - 150*
d5-NEtFOSAA	*96*		*25 - 150*
d3-NMeFOSAA	*82*		*25 - 150*
M2-4:2 FTS	*107*		*25 - 150*
M2-6:2 FTS	*110*		*25 - 150*
M2-8:2 FTS	*106*		*25 - 150*
18O2 PFHxS	*86*		*25 - 150*

QC Association Summary

Client: City of Bronson
Project/Site: City of Bronson-PFAS

Job ID: 190-28309-1

LCMS

Prep Batch: 576444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-28309-1	Bio-solids	Total/NA	Solid	SHAKE	
MB 320-576444/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-576444/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 576788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-28309-1	Bio-solids	Total/NA	Solid	537 (modified)	576444
MB 320-576444/1-A	Method Blank	Total/NA	Solid	537 (modified)	576444
LCS 320-576444/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	576444

General Chemistry

Analysis Batch: 576151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-28309-1	Bio-solids	Total/NA	Solid	D 2216	

Lab Chronicle

Client: City of Bronson
Project/Site: City of Bronson-PFAS

Job ID: 190-28309-1

Client Sample ID: Bio-solids
Date Collected: 03/22/22 13:30
Date Received: 03/23/22 17:00

Lab Sample ID: 190-28309-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	576151	03/28/22 12:15	KMW	TAL SAC

Client Sample ID: Bio-solids
Date Collected: 03/22/22 13:30
Date Received: 03/23/22 17:00

Lab Sample ID: 190-28309-1
Matrix: Solid
Percent Solids: 1.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			576444	03/29/22 11:32	OP	TAL SAC
Total/NA	Analysis	537 (modified)		1	576788	04/01/22 02:20	D1R	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

OP = Oscar Pascual-Diaz

Batch Type: Analysis

D1R = Dhatpakorn Ruangyotsakul

KMW = Kelly White

Definitions/Glossary

Client: City of Bronson
Project/Site: City of Bronson-PFAS

Job ID: 190-28309-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
I	Value is EMPC (estimated maximum possible concentration).

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-PFAS

Job ID: 190-28309-1

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
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-PFAS

Job ID: 190-28309-1

Client Sample ID: Bio-solids

Lab Sample ID: 190-28309-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	81	I	60		ug/Kg	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: Hank 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			
City: Bronson	TAT Requested (days):			
State, Zip: MI, 49028	Compliance Project: Δ Yes Δ No			
Phone:	PO #: Purchase Order not required			
Email: bronsonh2o@hotmail.com	WO #:			
Project Name: City of Bronson - PFAS	Project #: 19001688			
Site: BRONSON WWTP	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

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		
				Water						
BIO-SOLIDS	3/22/22	1:30	C	Water						
				Solid			X	X		

190-28309 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:

	Date/Time	Company		Date/Time	Company
Relinquished by: Chuck B	3/22/22 1:30		Received by: [illegible]	3/22/22	
Relinquished by:	Date/Time:	Company	Received by: [illegible]	3/23/22 MOD	EETA
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:

eurofins | Environment Testing TestAmerica

☐ SDS or Known Hazard Information Supplied by Client
☐ Discrepancies
☐ Short Hold
Client ID: City of Boonson
Work Oder #: 190-28309
☐ Rush ☐ 24 Hr ☐ 2-Day ☐ 3-Day ☐ 5-Day ☐ Other: _____
Receipt Evaluation Performed by: Initials: TRH Date: 3/23/22 Time: 1700

Cooler / Sample Receipt

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

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

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

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

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

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
CP313209	3.0	3.0		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 _____ Date: 3/23/22

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: 190-31989.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Sue.Schafer@Eurofinset.com	State of Origin: Michigan	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note):		Job #: 190-28309-1
Address: 880 Riverside Parkway,	Due Date Requested: 4/5/2022			
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-PFAS	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	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
Bio-solids (190-28309-1)	3/22/22	13:30 Eastern		Solid			X	X	1	

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	Jei Hal	3/24/22 1700			3/25/22 9:35	
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.: 1855815	Cooler Temperature(s) °C and Other Remarks: 3.7c

Ver: 06/08/2021