



ANALYTICAL SUMMARY REPORT

January 16, 2024

City of Missoula
435 Ryman St
Missoula, MT 59802-4207

Work Order: B23121814

Project Name: PFAS

Energy Laboratories Inc Billings MT received the following 6 samples for City of Missoula on 12/29/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23121814-001	Landfill Leachate	12/28/23 11:30	12/29/23	Aqueous	PFAS Compounds in Aqueous Matrices PFAS 537 Modified Extraction
B23121814-002	Influent, WW	12/28/23 8:00	12/29/23	Aqueous	Same As Above
B23121814-003	Effluent, WW	12/28/23 8:00	12/29/23	Aqueous	Same As Above
B23121814-004	Compost, Finished	12/28/23 9:00	12/29/23	Soil	Moisture Moisture Prep SW3550C PFAS Compounds in Soil PFAS 537 Modified Extraction Percent Moisture
B23121814-005	Dewatered Sludge	12/28/23 9:00	12/29/23	Soil	Same As Above
B23121814-006	Field Reagent Blank	12/28/23 8:00	12/29/23	Aqueous	PFAS Compounds in Aqueous Matrices PFAS 537 Modified Extraction

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:

CLIENT: City of Missoula
Project: PFAS
Work Order: B23121814

Report Date: 01/16/24

CASE NARRATIVE

PFAS Analyte Translation

Analyte Acronym	Analyte Name
PFBA	Perfluorobutanoic Acid
PFPeA	Perfluoropentanoic Acid
PFHxA	Perfluorohexanoic Acid
PFHpA	Perfluoroheptanoic Acid
PFOA	Perfluorooctanoic Acid
PFNA	Perfluorononanoic Acid
PFDA	Perfluorodecanoic Acid
PFUnA	Perfluoroundecanoic Acid
PFDoA	Perfluorododecanoic Acid
PFTTrDA	Perfluorotridecanoic Acid
PFTA	Perfluorotetradecanoic Acid
PFBS	Perfluorobutanesulfonic Acid
PFPeS	Perfluoropentanesulfonic Acid
PFHxS	Perfluorohexanesulfonic Acid
PFHpS	Perfluoroheptanesulfonic Acid
PFOS	Perfluorooctanesulfonic Acid
PFNS	Perfluorononanesulfonic Acid
PFDS	Perfluorodecanesulfonic Acid
FOSA	Perfluorooctanesulfonamide
NEtFOSAA	N-ethylPerfluorooctanesulfonamidoacetic Acid
NMeFOSAA	N-methylPerfluorooctanesulfonamidoacetic Acid
8:2 FTS	1H, 1H, 2H, 2H-perfluorodecane sulfonic acid
4:2 FTS	1H, 1H, 2H, 2H-perfluorohexane sulfonic acid
6:2 FTS	1H, 1H, 2H, 2H-perfluorooctane sulfonic acid
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic Acid
ADONA	4,8-dioxa-3H-perfluorononanoic Acid
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic Acid
HFPO-DA	Hexafluoropropylene Oxide Dimer Acid



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-001
Client Sample ID: Landfill Leachate

Report Date: 01/16/24
Collection Date: 12/28/23 11:30
Date Received: 12/29/23
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PFAS COMPOUNDS IN AQUEOUS MATRICES							
PFBA	785	ng/L		20		E537M	01/05/24 12:20 / mkb
PFPeA	1130	ng/L		20		E537M	01/05/24 12:20 / mkb
PFHxA	1580	ng/L		20		E537M	01/05/24 12:20 / mkb
PFHpA	422	ng/L		20		E537M	01/05/24 12:20 / mkb
PFOA	880	ng/L		20		E537M	01/05/24 12:20 / mkb
PFNA	42	ng/L		2.0		E537M	01/04/24 18:30 / mkb
PFDA	17	ng/L		2.0		E537M	01/04/24 18:30 / mkb
PFUnA	1.4	ng/L	J	2.0		E537M	01/04/24 18:30 / mkb
PFDaA	0.89	ng/L	J	2.0		E537M	01/04/24 18:30 / mkb
PFTTrDA	ND	ng/L		2.0		E537M	01/04/24 18:30 / mkb
PFTA	ND	ng/L		2.0		E537M	01/04/24 18:30 / mkb
PFBS	62	ng/L		2.0		E537M	01/04/24 18:30 / mkb
PFPeS	31	ng/L		2.0		E537M	01/04/24 18:30 / mkb
PFHxS	294	ng/L		18		E537M	01/05/24 12:20 / mkb
PFHpS	2.2	ng/L		2.0		E537M	01/04/24 18:30 / mkb
PFOS	57	ng/L		2.0		E537M	01/04/24 18:30 / mkb
PFNS	ND	ng/L		2.0		E537M	01/04/24 18:30 / mkb
PFDS	ND	ng/L		2.0		E537M	01/04/24 18:30 / mkb
FOSA	6.2	ng/L		2.0		E537M	01/04/24 18:30 / mkb
NEtFOSAA	77	ng/L		3.0		E537M	01/04/24 18:30 / mkb
NMeFOSAA	100	ng/L		2.0		E537M	01/04/24 18:30 / mkb
8:2 FTS	13	ng/L		3.0		E537M	01/04/24 18:30 / mkb
4:2 FTS	5.7	ng/L		2.0		E537M	01/04/24 18:30 / mkb
6:2 FTS	74	ng/L		8.0		E537M	01/04/24 18:30 / mkb
11Cl-PF3OUdS	ND	ng/L		2.0		E537M	01/04/24 18:30 / mkb
ADONA	ND	ng/L		2.0		E537M	01/04/24 18:30 / mkb
9Cl-PF3ONS	ND	ng/L		2.0		E537M	01/04/24 18:30 / mkb
HFPO-DA	ND	ng/L		3.0		E537M	01/04/24 18:30 / mkb
IS: M4PFBA	2.00	%REC	S	50-150		E537M	01/04/24 18:30 / mkb
IS: M3PFHxS	69.0	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: M4PFHpA	34.0	%REC	S	50-150		E537M	01/04/24 18:30 / mkb
IS: M8PFOA	50.0	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: M9PFNA	73.0	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: M6PFDA	72.0	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: M7PFUnA	94.0	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: M2PFDaA	72.0	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: M2PFTeDA	53.0	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: M3PFBS	28.0	%REC	S	50-150		E537M	01/04/24 18:30 / mkb
IS: M5PFPeA	13.0	%REC	S	50-150		E537M	01/04/24 18:30 / mkb
IS: M5PFHxA	14.0	%REC	S	50-150		E537M	01/04/24 18:30 / mkb
IS: M8PFOS	83.0	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: M8FOSA	68.0	%REC		50-150		E537M	01/04/24 18:30 / mkb

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 S - Spike recovery outside of advisory limits



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-001
Client Sample ID: Landfill Leachate

Report Date: 01/16/24
Collection Date: 12/28/23 11:30
Date Received: 12/29/23
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PFAS COMPOUNDS IN AQUEOUS MATRICES							
IS: d5-N-EtFOSAA	71.0	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: d3-N-MeFOSAA	88.0	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: M2-8:2FTS	109	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: M2-4:2FTS	43.0	%REC	S	50-150		E537M	01/04/24 18:30 / mkb
IS: M2-6:2FTS	87.0	%REC		50-150		E537M	01/04/24 18:30 / mkb
IS: M3HFPO-DA	22.0	%REC	S	50-150		E537M	01/04/24 18:30 / mkb

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
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MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-002
Client Sample ID: Influent, WW

Report Date: 01/16/24
Collection Date: 12/28/23 08:00
DateReceived: 12/29/23
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PFAS COMPOUNDS IN AQUEOUS MATRICES							
PFBA	1.1	ng/L	J	5.0		E537M	01/04/24 19:08 / mkb
PFPeA	1.6	ng/L	J	2.0		E537M	01/04/24 19:08 / mkb
PFHxA	2.2	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFHpA	0.70	ng/L	J	2.0		E537M	01/04/24 19:08 / mkb
PFOA	1.5	ng/L	J	2.0		E537M	01/04/24 19:08 / mkb
PFNA	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFDA	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFUnA	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFDoA	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFTTrDA	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFTA	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFBS	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFPeS	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFHxS	0.86	ng/L	J	2.0		E537M	01/04/24 19:08 / mkb
PFHpS	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFOS	2.3	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFNS	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
PFDS	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
FOSA	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
NEtFOSAA	0.66	ng/L	J	3.0		E537M	01/04/24 19:08 / mkb
NMeFOSAA	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
8:2 FTS	ND	ng/L		3.0		E537M	01/04/24 19:08 / mkb
4:2 FTS	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
6:2 FTS	12	ng/L		8.0		E537M	01/04/24 19:08 / mkb
11Cl-PF3OUdS	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
ADONA	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
9Cl-PF3ONS	ND	ng/L		2.0		E537M	01/04/24 19:08 / mkb
HFPO-DA	ND	ng/L		3.0		E537M	01/04/24 19:08 / mkb
IS: M4PFBA	47.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb
IS: M3PFHxS	70.0	%REC		50-150		E537M	01/04/24 19:08 / mkb
IS: M4PFHpA	48.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb
IS: M8PFOA	69.0	%REC		50-150		E537M	01/04/24 19:08 / mkb
IS: M9PFNA	50.0	%REC		50-150		E537M	01/04/24 19:08 / mkb
IS: M6PFDA	28.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb
IS: M7PFUnA	28.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb
IS: M2PFDoA	21.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb
IS: M2PFTeDA	16.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb
IS: M3PFBS	67.0	%REC		50-150		E537M	01/04/24 19:08 / mkb
IS: M5PFPeA	46.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb
IS: M5PFHxA	52.0	%REC		50-150		E537M	01/04/24 19:08 / mkb
IS: M8PFOS	39.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb
IS: M8FOSA	11.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb

Report Definitions:
 RL - Analyte Reporting Limit
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MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 S - Spike recovery outside of advisory limits



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-002
Client Sample ID: Influent, WW

Report Date: 01/16/24
Collection Date: 12/28/23 08:00
Date Received: 12/29/23
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PFAS COMPOUNDS IN AQUEOUS MATRICES							
IS: d5-N-EtFOSAA	9.00	%REC	S	50-150		E537M	01/04/24 19:08 / mkb
IS: d3-N-MeFOSAA	19.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb
IS: M2-8:2FTS	35.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb
IS: M2-4:2FTS	105	%REC		50-150		E537M	01/04/24 19:08 / mkb
IS: M2-6:2FTS	121	%REC		50-150		E537M	01/04/24 19:08 / mkb
IS: M3HFPO-DA	48.0	%REC	S	50-150		E537M	01/04/24 19:08 / mkb

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
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ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-003
Client Sample ID: Effluent, WW

Report Date: 01/16/24
Collection Date: 12/28/23 08:00
DateReceived: 12/29/23
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PFAS COMPOUNDS IN AQUEOUS MATRICES							
PFBA	1.7	ng/L	J	5.0		E537M	01/04/24 19:45 / mkb
PFPeA	4.6	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFHxA	11	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFHpA	0.73	ng/L	J	2.0		E537M	01/04/24 19:45 / mkb
PFOA	4.3	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFNA	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFDA	0.57	ng/L	J	2.0		E537M	01/04/24 19:45 / mkb
PFUnA	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFDoA	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFTeDA	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFTA	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFBS	0.92	ng/L	J	2.0		E537M	01/04/24 19:45 / mkb
PFPeS	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFHxS	1.2	ng/L	J	2.0		E537M	01/04/24 19:45 / mkb
PFHpS	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFOS	2.2	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFNS	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
PFDS	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
FOSA	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
NEtFOSAA	ND	ng/L		3.0		E537M	01/04/24 19:45 / mkb
NMeFOSAA	0.58	ng/L	J	2.0		E537M	01/04/24 19:45 / mkb
8:2 FTS	ND	ng/L		3.0		E537M	01/04/24 19:45 / mkb
4:2 FTS	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
6:2 FTS	1.2	ng/L	J	8.0		E537M	01/04/24 19:45 / mkb
11Cl-PF3OUdS	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
ADONA	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
9Cl-PF3ONS	ND	ng/L		2.0		E537M	01/04/24 19:45 / mkb
HFPO-DA	ND	ng/L		3.0		E537M	01/04/24 19:45 / mkb
IS: M4PFBA	80.0	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M3PFHxS	123	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M4PFHpA	117	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M8PFOA	137	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M9PFNA	132	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M6PFDA	118	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M7PFUnA	127	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M2PFDoA	105	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M2PFTeDA	63.0	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M3PFBS	108	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M5PFPeA	95.0	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M5PFHxA	102	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M8PFOS	113	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M8FOSA	91.0	%REC		50-150		E537M	01/04/24 19:45 / mkb

Report Definitions:
 RL - Analyte Reporting Limit
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MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-003
Client Sample ID: Effluent, WW

Report Date: 01/16/24
Collection Date: 12/28/23 08:00
Date Received: 12/29/23
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PFAS COMPOUNDS IN AQUEOUS MATRICES							
IS: d5-N-EtFOSAA	92.0	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: d3-N-MeFOSAA	123	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M2-8:2FTS	135	%REC		50-150		E537M	01/04/24 19:45 / mkb
IS: M2-4:2FTS	194	%REC	S	50-150		E537M	01/04/24 19:45 / mkb
IS: M2-6:2FTS	198	%REC	S	50-150		E537M	01/04/24 19:45 / mkb
IS: M3HFPO-DA	91.0	%REC		50-150		E537M	01/04/24 19:45 / mkb

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
S - Spike recovery outside of advisory limits

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-004
Client Sample ID: Compost, Finished

Report Date: 01/16/24
Collection Date: 12/28/23 09:00
DateReceived: 12/29/23
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Moisture	46	wt%		0.2		SW3550C	01/08/24 14:55 / jlb
PFAS COMPOUNDS IN SOIL MATRICES							
PFBA	6.3	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
PFPeA	8.6	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
PFHxA	40	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
PFHpA	3.4	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
PFOA	22	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
PFNA	2.7	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
PFDA	7.3	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
PFUnA	1.3	ng/g-dry	J	2.0		E537M	01/05/24 19:28 / mkb
PFDoA	2.1	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
PFTeDA	ND	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
PFTA	0.73	ng/g-dry	J	2.0		E537M	01/05/24 19:28 / mkb
PFBS	11	ng/g-dry		1.7		E537M	01/05/24 19:28 / mkb
PFPeS	ND	ng/g-dry		1.8		E537M	01/05/24 19:28 / mkb
PFHxS	0.65	ng/g-dry	J	1.8		E537M	01/05/24 19:28 / mkb
PFHpS	ND	ng/g-dry		1.9		E537M	01/05/24 19:28 / mkb
PFOS	12	ng/g-dry		1.8		E537M	01/05/24 19:28 / mkb
PFNS	ND	ng/g-dry		1.9		E537M	01/05/24 19:28 / mkb
PFDS	1.4	ng/g-dry	J	1.9		E537M	01/05/24 19:28 / mkb
FOSA	0.80	ng/g-dry	J	2.0		E537M	01/05/24 19:28 / mkb
NEtFOSAA	3.7	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
NMeFOSAA	8.3	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
8:2 FTS	1.3	ng/g-dry	J	1.9		E537M	01/05/24 19:28 / mkb
4:2 FTS	ND	ng/g-dry		1.8		E537M	01/05/24 19:28 / mkb
6:2 FTS	1.5	ng/g-dry	J	1.9		E537M	01/05/24 19:28 / mkb
11Cl-PF3OUdS	ND	ng/g-dry		1.8		E537M	01/05/24 19:28 / mkb
ADONA	ND	ng/g-dry		1.8		E537M	01/05/24 19:28 / mkb
9Cl-PF3ONS	ND	ng/g-dry		1.8		E537M	01/05/24 19:28 / mkb
HFPO-DA	ND	ng/g-dry		2.0		E537M	01/05/24 19:28 / mkb
IS: M4PFBA	48.0	%REC	S	50-150		E537M	01/05/24 19:28 / mkb
IS: M3PFHxS	55.0	%REC		50-150		E537M	01/05/24 19:28 / mkb
IS: M4PFHpA	56.0	%REC		50-150		E537M	01/05/24 19:28 / mkb
IS: M8PFOA	53.0	%REC		50-150		E537M	01/05/24 19:28 / mkb
IS: M9PFNA	58.0	%REC		50-150		E537M	01/05/24 19:28 / mkb
IS: M6PFDA	49.0	%REC	S	50-150		E537M	01/05/24 19:28 / mkb
IS: M7PFUnA	44.0	%REC	S	50-150		E537M	01/05/24 19:28 / mkb
IS: M2PFDoA	50.0	%REC		50-150		E537M	01/05/24 19:28 / mkb
IS: M2PFTeDA	40.0	%REC	S	50-150		E537M	01/05/24 19:28 / mkb
IS: M3PFBS	56.0	%REC		50-150		E537M	01/05/24 19:28 / mkb
IS: M5PFPeA	54.0	%REC		50-150		E537M	01/05/24 19:28 / mkb
IS: M5PFHxA	56.0	%REC		50-150		E537M	01/05/24 19:28 / mkb

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
S - Spike recovery outside of advisory limits



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-004
Client Sample ID: Compost, Finished

Report Date: 01/16/24
Collection Date: 12/28/23 09:00
Date Received: 12/29/23
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PFAS COMPOUNDS IN SOIL MATRICES							
IS: M8PFOS	49.0	%REC	S	50-150		E537M	01/05/24 19:28 / mkb
IS: M8FOSA	38.0	%REC	S	50-150		E537M	01/05/24 19:28 / mkb
IS: d5-N-EtFOSAA	31.0	%REC	S	50-150		E537M	01/05/24 19:28 / mkb
IS: d3-N-MeFOSAA	35.0	%REC	S	50-150		E537M	01/05/24 19:28 / mkb
IS: M2-8:2FTS	34.0	%REC	S	50-150		E537M	01/05/24 19:28 / mkb
IS: M2-4:2FTS	75.0	%REC		50-150		E537M	01/05/24 19:28 / mkb
IS: M2-6:2FTS	56.0	%REC		50-150		E537M	01/05/24 19:28 / mkb
IS: M3HFPO-DA	51.0	%REC		50-150		E537M	01/05/24 19:28 / mkb

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
S - Spike recovery outside of advisory limits

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-005
Client Sample ID: Dewatered Sludge

Report Date: 01/16/24
Collection Date: 12/28/23 09:00
DateReceived: 12/29/23
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Moisture	88	wt%		0.2		SW3550C	01/08/24 14:57 / jlb
PFAS COMPOUNDS IN SOIL MATRICES							
PFBA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
PFPeA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
PFHxA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
PFHpA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
PFOA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
PFNA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
PFDA	3.2	ng/g-dry	J	8.4	E537M		01/05/24 20:24 / mkb
PFUnA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
PFDoA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
PFTeDA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
PFTA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
PFBS	ND	ng/g-dry		7.5	E537M		01/05/24 20:24 / mkb
PFPeS	ND	ng/g-dry		7.9	E537M		01/05/24 20:24 / mkb
PFHxS	ND	ng/g-dry		7.7	E537M		01/05/24 20:24 / mkb
PFHpS	ND	ng/g-dry		8.0	E537M		01/05/24 20:24 / mkb
PFOS	6.5	ng/g-dry	J	7.8	E537M		01/05/24 20:24 / mkb
PFNS	ND	ng/g-dry		8.1	E537M		01/05/24 20:24 / mkb
PFDS	ND	ng/g-dry		8.1	E537M		01/05/24 20:24 / mkb
FOSA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
NEtFOSAA	4.5	ng/g-dry	J	8.4	E537M		01/05/24 20:24 / mkb
NMeFOSAA	6.4	ng/g-dry	J	8.4	E537M		01/05/24 20:24 / mkb
8:2 FTS	ND	ng/g-dry		8.1	E537M		01/05/24 20:24 / mkb
4:2 FTS	ND	ng/g-dry		7.9	E537M		01/05/24 20:24 / mkb
6:2 FTS	ND	ng/g-dry		8.0	E537M		01/05/24 20:24 / mkb
11Cl-PF3OUdS	ND	ng/g-dry		7.9	E537M		01/05/24 20:24 / mkb
ADONA	ND	ng/g-dry		7.9	E537M		01/05/24 20:24 / mkb
9Cl-PF3ONS	ND	ng/g-dry		7.8	E537M		01/05/24 20:24 / mkb
HFPO-DA	ND	ng/g-dry		8.4	E537M		01/05/24 20:24 / mkb
IS: M4PFBA	51.0	%REC		50-150	E537M		01/05/24 20:24 / mkb
IS: M3PFHxS	45.0	%REC	S	50-150	E537M		01/05/24 20:24 / mkb
IS: M4PFHpA	34.0	%REC	S	50-150	E537M		01/05/24 20:24 / mkb
IS: M8PFOA	43.0	%REC	S	50-150	E537M		01/05/24 20:24 / mkb
IS: M9PFNA	46.0	%REC	S	50-150	E537M		01/05/24 20:24 / mkb
IS: M6PFDA	46.0	%REC	S	50-150	E537M		01/05/24 20:24 / mkb
IS: M7PFUnA	40.0	%REC	S	50-150	E537M		01/05/24 20:24 / mkb
IS: M2PFDoA	41.0	%REC	S	50-150	E537M		01/05/24 20:24 / mkb
IS: M2PFTeDA	30.0	%REC	S	50-150	E537M		01/05/24 20:24 / mkb
IS: M3PFBS	36.0	%REC	S	50-150	E537M		01/05/24 20:24 / mkb
IS: M5PFPeA	50.0	%REC		50-150	E537M		01/05/24 20:24 / mkb
IS: M5PFHxA	43.0	%REC	S	50-150	E537M		01/05/24 20:24 / mkb

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-005
Client Sample ID: Dewatered Sludge

Report Date: 01/16/24
Collection Date: 12/28/23 09:00
Date Received: 12/29/23
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PFAS COMPOUNDS IN SOIL MATRICES							
IS: M8PFOS	45.0	%REC	S	50-150		E537M	01/05/24 20:24 / mkb
IS: M8FOSA	32.0	%REC	S	50-150		E537M	01/05/24 20:24 / mkb
IS: d5-N-EtFOSAA	30.0	%REC	S	50-150		E537M	01/05/24 20:24 / mkb
IS: d3-N-MeFOSAA	36.0	%REC	S	50-150		E537M	01/05/24 20:24 / mkb
IS: M2-8:2FTS	35.0	%REC	S	50-150		E537M	01/05/24 20:24 / mkb
IS: M2-4:2FTS	51.0	%REC		50-150		E537M	01/05/24 20:24 / mkb
IS: M2-6:2FTS	46.0	%REC	S	50-150		E537M	01/05/24 20:24 / mkb
IS: M3HFPO-DA	17.0	%REC	S	50-150		E537M	01/05/24 20:24 / mkb

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
S - Spike recovery outside of advisory limits

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-006
Client Sample ID: Field Reagent Blank

Report Date: 01/16/24
Collection Date: 12/28/23 08:00
Date Received: 12/29/23
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PFAS COMPOUNDS IN AQUEOUS MATRICES							
PFBA	ND	ng/L		5.0		E537M	01/04/24 18:12 / mkb
PFPeA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFHxA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFHpA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFOA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFNA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFDA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFUnA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFDaA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFTrDA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFTA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFBS	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFPeS	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFHxS	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFHpS	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFOS	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFNS	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
PFDS	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
FOSA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
NEtFOSAA	ND	ng/L		3.0		E537M	01/04/24 18:12 / mkb
NMeFOSAA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
8:2 FTS	ND	ng/L		3.0		E537M	01/04/24 18:12 / mkb
4:2 FTS	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
6:2 FTS	ND	ng/L		8.0		E537M	01/04/24 18:12 / mkb
11Cl-PF3OUdS	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
ADONA	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
9Cl-PF3ONS	ND	ng/L		2.0		E537M	01/04/24 18:12 / mkb
HFPO-DA	ND	ng/L		3.0		E537M	01/04/24 18:12 / mkb
IS: M4PFBA	100	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M3PFHxS	104	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M4PFHpA	96.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M8PFOA	96.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M9PFNA	99.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M6PFDA	85.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M7PFUnA	98.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M2PFDaA	95.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M2PFTeDA	91.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M3PFBS	95.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M5PFPeA	98.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M5PFHxA	100	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M8PFOS	102	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M8FOSA	78.0	%REC		50-150		E537M	01/04/24 18:12 / mkb

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: City of Missoula
Project: PFAS
Lab ID: B23121814-006
Client Sample ID: Field Reagent Blank

Report Date: 01/16/24
Collection Date: 12/28/23 08:00
Date Received: 12/29/23
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PFAS COMPOUNDS IN AQUEOUS MATRICES							
IS: d5-N-EtFOSAA	91.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: d3-N-MeFOSAA	102	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M2-8:2FTS	93.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M2-4:2FTS	93.0	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M2-6:2FTS	100	%REC		50-150		E537M	01/04/24 18:12 / mkb
IS: M3HFPO-DA	96.0	%REC		50-150		E537M	01/04/24 18:12 / mkb

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: City of Missoula

Work Order: B23121814

Report Date: 01/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E537M										Batch: 186091
Lab ID: MB-186091	28	Method Blank				Run: SCIEX 4500_240104A				01/04/24 16:57
PFBA		ND	ng/L	5.0						
PFPeA		ND	ng/L	2.0						
PFHxA		ND	ng/L	2.0						
PFHpA		ND	ng/L	2.0						
PFOA		ND	ng/L	2.0						
PFNA		ND	ng/L	2.0						
PFDA		ND	ng/L	2.0						
PFUnA		ND	ng/L	2.0						
PFDaA		ND	ng/L	2.0						
PFTTrDA		ND	ng/L	2.0						
PFTA		ND	ng/L	2.0						
PFBS		ND	ng/L	2.0						
PFPeS		ND	ng/L	2.0						
PFHxS		ND	ng/L	2.0						
PFHpS		ND	ng/L	2.0						
PFOS		ND	ng/L	2.0						
PFNS		ND	ng/L	2.0						
PFDS		ND	ng/L	2.0						
FOSA		ND	ng/L	2.0						
NEtFOSAA		ND	ng/L	3.0						
NMeFOSAA		ND	ng/L	2.0						
8:2 FTS		ND	ng/L	3.0						
4:2 FTS		ND	ng/L	2.0						
6:2 FTS		ND	ng/L	8.0						
11Cl-PF3OUdS		ND	ng/L	2.0						
ADONA		ND	ng/L	2.0						
9Cl-PF3ONS		ND	ng/L	2.0						
HFPO-DA		ND	ng/L	3.0						
Lab ID: LCS-186091	28	Laboratory Control Sample				Run: SCIEX 4500_240104A				01/04/24 17:53
PFBA	28	ng/L	5.0	93	73	129				
PFPeA	27	ng/L	2.0	90	72	129				
PFHxA	27	ng/L	2.0	90	72	129				
PFHpA	29	ng/L	2.0	95	72	130				
PFOA	28	ng/L	2.0	92	71	133				
PFNA	27	ng/L	2.0	89	69	130				
PFDA	27	ng/L	2.0	91	71	129				
PFUnA	28	ng/L	2.0	93	69	133				
PFDaA	27	ng/L	2.0	89	72	134				
PFTTrDA	28	ng/L	2.0	95	65	144				
PFTA	28	ng/L	2.0	94	71	132				
PFBS	24	ng/L	2.0	90	72	130				
PFPeS	26	ng/L	2.0	92	71	127				
PFHxS	25	ng/L	2.0	90	68	131				
PFHpS	27	ng/L	2.0	95	69	134				

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: City of Missoula

Work Order: B23121814

Report Date: 01/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E537M										Batch: 186091
Lab ID: LCS-186091	28	Laboratory Control Sample			Run: SCIEX 4500_240104A			01/04/24 17:53		
PFOS	25	ng/L	2.0	88	65	140				
PFNS	27	ng/L	2.0	93	69	127				
PFDS	25	ng/L	2.0	88	53	142				
FOSA	28	ng/L	2.0	92	67	137				
NEtFOSAA	30	ng/L	3.0	99	61	135				
NMeFOSAA	29	ng/L	2.0	96	65	136				
8:2 FTS	26	ng/L	3.0	90	67	138				
4:2 FTS	25	ng/L	2.0	87	63	143				
6:2 FTS	35	ng/L	8.0	123	64	140				
11Cl-PF3OUdS	23	ng/L	2.0	80	70	130				
ADONA	28	ng/L	2.0	98	70	130				
9Cl-PF3ONS	27	ng/L	2.0	98	70	130				
HFPO-DA	26	ng/L	3.0	88	70	130				
Lab ID: B23121814-003AMS	28	Sample Matrix Spike			Run: SCIEX 4500_240104A			01/04/24 20:22		
PFBA	26	ng/L	5.0	90	73	129				
PFPeA	28	ng/L	2.0	87	72	129				
PFHxA	36	ng/L	2.0	91	72	129				
PFHpA	27	ng/L	2.0	96	72	130				
PFOA	31	ng/L	2.0	98	71	133				
PFNA	27	ng/L	2.0	98	69	130				
PFDA	26	ng/L	2.0	95	71	129				
PFUnA	23	ng/L	2.0	83	69	133				
PFDaA	24	ng/L	2.0	89	72	134				
PFTTrDA	18	ng/L	2.0	66	65	144				
PFTA	23	ng/L	2.0	84	71	132				
PFBS	22	ng/L	2.0	85	72	130				
PFPeS	22	ng/L	2.0	84	71	127				
PFHxS	23	ng/L	2.0	86	68	131				
PFHpS	25	ng/L	2.0	95	69	134				
PFOS	26	ng/L	2.0	95	65	140				
PFNS	24	ng/L	2.0	91	69	127				
PFDS	21	ng/L	2.0	79	53	142				
FOSA	25	ng/L	2.0	93	67	137				
NEtFOSAA	26	ng/L	3.0	97	61	135				
NMeFOSAA	22	ng/L	2.0	79	65	136				
8:2 FTS	25	ng/L	3.0	94	67	138				
4:2 FTS	26	ng/L	2.0	102	63	143				
6:2 FTS	27	ng/L	8.0	98	64	140				
11Cl-PF3OUdS	19	ng/L	2.0	75	70	130				
ADONA	26	ng/L	2.0	100	70	130				
9Cl-PF3ONS	24	ng/L	2.0	96	70	130				
HFPO-DA	23	ng/L	3.0	85	70	130				

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: City of Missoula

Work Order: B23121814

Report Date: 01/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E537M										Batch: 186091
Lab ID: B23121814-003AMSD	28	Sample Matrix Spike Duplicate				Run: SCIEX 4500_240104A			01/04/24 20:59	
PFBA	27	ng/L	5.0	93	73	129	2.1	30		
PFPeA	29	ng/L	2.0	91	72	129	2.8	30		
PFHxA	34	ng/L	2.0	85	72	129	5.4	30		
PFHpA	26	ng/L	2.0	92	72	130	5.0	30		
PFOA	27	ng/L	2.0	85	71	133	13	30		
PFNA	26	ng/L	2.0	95	69	130	3.5	30		
PFDA	26	ng/L	2.0	93	71	129	2.9	30		
PFUnA	24	ng/L	2.0	88	69	133	4.2	30		
PFDaA	25	ng/L	2.0	94	72	134	3.9	30		
PFTTrDA	20	ng/L	2.0	73	65	144	8.8	30		
PFTA	25	ng/L	2.0	91	71	132	6.6	30		
PFBS	23	ng/L	2.0	92	72	130	6.2	30		
PFPeS	21	ng/L	2.0	81	71	127	4.8	30		
PFHxS	24	ng/L	2.0	90	68	131	3.1	30		
PFHpS	24	ng/L	2.0	95	69	134	1.2	30		
PFOS	25	ng/L	2.0	91	65	140	4.6	30		
PFNS	24	ng/L	2.0	93	69	127	0.9	30		
PFDS	21	ng/L	2.0	80	53	142	0	30		
FOSA	25	ng/L	2.0	94	67	137	0.2	30		
NEtFOSAA	28	ng/L	3.0	104	61	135	6.5	30		
NMeFOSAA	25	ng/L	2.0	89	65	136	11	30		
8:2 FTS	22	ng/L	3.0	85	67	138	11	30		
4:2 FTS	23	ng/L	2.0	91	63	143	12	30		
6:2 FTS	29	ng/L	8.0	107	64	140	7.9	30		
11Cl-PF3OUdS	20	ng/L	2.0	78	70	130	3.1	30		
ADONA	26	ng/L	2.0	103	70	130	1.8	30		
9Cl-PF3ONS	24	ng/L	2.0	97	70	130	0.2	30		
HFPO-DA	25	ng/L	3.0	92	70	130	6.3	30		

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Lab ID: MB-186091	20	Method Blank				Run: SCIEX 4500_240104A			01/04/24 16:57	
IS: M4PFBA	1.1	% recovery	105	50	150					
IS: M3PFHxS	1.0	% recovery	102	50	150					
IS: M4PFHpA	1.0	% recovery	103	50	150					
IS: M8PFOA	1.0	% recovery	104	50	150					
IS: M9PFNA	1.1	% recovery	107	50	150					
IS: M6PFDA	0.98	% recovery	98	50	150					
IS: M7PFUnA	1.0	% recovery	102	50	150					
IS: M2PFDaA	0.94	% recovery	94	50	150					
IS: M2PFTeDA	0.90	% recovery	90	50	150					
IS: M3PFBS	1.0	% recovery	103	50	150					
IS: M5PFPeA	1.1	% recovery	106	50	150					
IS: M5PFHxA	1.0	% recovery	100	50	150					
IS: M8PFOS	1.1	% recovery	106	50	150					
IS: M8FOSA	0.75	% recovery	75	50	150					
IS: d5-N-EtFOSAA	0.91	% recovery	91	50	150					

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: City of Missoula

Work Order: B23121814

Report Date: 01/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E537M										Batch: 186091
Lab ID: MB-186091	20	Method Blank		Run: SCIEX 4500_240104A			01/04/24 16:57			
IS: d3-N-MeFOSAA		1.0	% recovery	105		50	150			
IS: M2-8:2FTS		1.1	% recovery	110		50	150			
IS: M2-4:2FTS		0.94	% recovery	94		50	150			
IS: M2-6:2FTS		0.96	% recovery	96		50	150			
IS: M3HFPO-DA		1.1	% recovery	107		50	150			
Lab ID: LCS-186091	20	Laboratory Control Sample		Run: SCIEX 4500_240104A			01/04/24 17:53			
IS: M4PFBA		0.99	% recovery	99		50	150			
IS: M3PFHxS		1.0	% recovery	100		50	150			
IS: M4PFHpA		0.98	% recovery	98		50	150			
IS: M8PFOA		1.0	% recovery	101		50	150			
IS: M9PFNA		1.0	% recovery	101		50	150			
IS: M6PFDA		0.95	% recovery	95		50	150			
IS: M7PFUnA		0.91	% recovery	91		50	150			
IS: M2PFDoA		0.91	% recovery	91		50	150			
IS: M2PFTeDA		0.93	% recovery	93		50	150			
IS: M3PFBS		0.93	% recovery	93		50	150			
IS: M5PFPeA		0.97	% recovery	97		50	150			
IS: M5PFHxA		0.94	% recovery	94		50	150			
IS: M8PFOS		0.99	% recovery	99		50	150			
IS: M8FOSA		0.74	% recovery	74		50	150			
IS: d5-N-EtFOSAA		0.81	% recovery	81		50	150			
IS: d3-N-MeFOSAA		0.88	% recovery	88		50	150			
IS: M2-8:2FTS		0.83	% recovery	83		50	150			
IS: M2-4:2FTS		0.96	% recovery	96		50	150			
IS: M2-6:2FTS		0.91	% recovery	91		50	150			
IS: M3HFPO-DA		0.92	% recovery	92		50	150			
Lab ID: B23121814-003AMS	20	Sample Matrix Spike		Run: SCIEX 4500_240104A			01/04/24 20:22			
IS: M4PFBA		0.76	% recovery	76		50	150			
IS: M3PFHxS		1.2	% recovery	122		50	150			
IS: M4PFHpA		1.1	% recovery	113		50	150			
IS: M8PFOA		1.3	% recovery	134		50	150			
IS: M9PFNA		1.2	% recovery	124		50	150			
IS: M6PFDA		1.1	% recovery	113		50	150			
IS: M7PFUnA		1.2	% recovery	116		50	150			
IS: M2PFDoA		0.98	% recovery	98		50	150			
IS: M2PFTeDA		0.53	% recovery	53		50	150			
IS: M3PFBS		1.1	% recovery	107		50	150			
IS: M5PFPeA		0.91	% recovery	91		50	150			
IS: M5PFHxA		1.0	% recovery	100		50	150			
IS: M8PFOS		1.1	% recovery	113		50	150			
IS: M8FOSA		0.91	% recovery	91		50	150			
IS: d5-N-EtFOSAA		0.88	% recovery	88		50	150			
IS: d3-N-MeFOSAA		1.2	% recovery	120		50	150			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: City of Missoula

Work Order: B23121814

Report Date: 01/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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Method: E537M

Batch: 186091

Lab ID: B23121814-003AMS 20 Sample Matrix Spike Run: SCIEX 4500_240104A 01/04/24 20:22

IS: M2-8:2FTS	1.1	% recovery	114	50	150	
IS: M2-4:2FTS	1.8	% recovery	182	50	150	S
IS: M2-6:2FTS	1.9	% recovery	194	50	150	S
IS: M3HFPO-DA	0.96	% recovery	96	50	150	

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Lab ID: B23121814-003AMSD 20 Sample Matrix Spike Duplicate Run: SCIEX 4500_240104A 01/04/24 20:59

IS: M4PFBA	0.77	% recovery	77	50	150	
IS: M3PFHxS	1.3	% recovery	132	50	150	
IS: M4PFHpA	1.2	% recovery	125	50	150	
IS: M8PFOA	1.5	% recovery	149	50	150	
IS: M9PFNA	1.3	% recovery	133	50	150	
IS: M6PFDA	1.2	% recovery	123	50	150	
IS: M7PFUnA	1.2	% recovery	118	50	150	
IS: M2PFDoA	1.0	% recovery	104	50	150	
IS: M2PFTeDA	0.60	% recovery	60	50	150	
IS: M3PFBS	1.1	% recovery	106	50	150	
IS: M5PFPeA	0.93	% recovery	93	50	150	
IS: M5PFHxA	1.1	% recovery	106	50	150	
IS: M8PFOS	1.2	% recovery	121	50	150	
IS: M8FOSA	0.93	% recovery	93	50	150	
IS: d5-N-EtFOSAA	0.89	% recovery	89	50	150	
IS: d3-N-MeFOSAA	1.2	% recovery	118	50	150	
IS: M2-8:2FTS	1.2	% recovery	121	50	150	
IS: M2-4:2FTS	2.1	% recovery	210	50	150	S
IS: M2-6:2FTS	1.9	% recovery	193	50	150	S
IS: M3HFPO-DA	0.94	% recovery	94	50	150	

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: City of Missoula

Work Order: B23121814

Report Date: 01/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E537M										Batch: 186168
Lab ID: MB-186168	28	Method Blank				Run: SCIEX 4500_240105A				01/05/24 18:13
PFBA		ND	ng/g	1.0						
PFPeA		ND	ng/g	1.0						
PFHxA		ND	ng/g	1.0						
PFHpA		ND	ng/g	1.0						
PFOA		ND	ng/g	1.0						
PFNA		ND	ng/g	1.0						
PFDA		ND	ng/g	1.0						
PFUnA		ND	ng/g	1.0						
PFDoA		ND	ng/g	1.0						
PFTTrDA		ND	ng/g	1.0						
PFTA		ND	ng/g	1.0						
PFBS		ND	ng/g	1.0						
PFPeS		ND	ng/g	1.0						
PFHxS		ND	ng/g	1.0						
PFHpS		ND	ng/g	1.0						
PFOS		ND	ng/g	1.0						
PFNS		ND	ng/g	1.0						
PFDS		ND	ng/g	1.0						
FOSA		ND	ng/g	1.0						
NEtFOSAA		ND	ng/g	1.0						
NMeFOSAA		ND	ng/g	1.0						
8:2 FTS		ND	ng/g	1.0						
4:2 FTS		ND	ng/g	1.0						
6:2 FTS		ND	ng/g	1.0						
11Cl-PF3OUdS		ND	ng/g	1.0						
ADONA		ND	ng/g	1.0						
9Cl-PF3ONS		ND	ng/g	1.0						
HFPO-DA		ND	ng/g	1.0						
Lab ID: LCS-186168	28	Laboratory Control Sample				Run: SCIEX 4500_240105A				01/05/24 19:09
PFBA	42	ng/g	1.0	105	71	135				
PFPeA	41	ng/g	1.0	103	69	132				
PFHxA	42	ng/g	1.0	106	70	132				
PFHpA	43	ng/g	1.0	108	71	131				
PFOA	45	ng/g	1.0	112	69	133				
PFNA	42	ng/g	1.0	105	72	129				
PFDA	40	ng/g	1.0	100	69	133				
PFUnA	41	ng/g	1.0	102	64	136				
PFDoA	37	ng/g	1.0	94	69	135				
PFTTrDA	41	ng/g	1.0	101	66	139				
PFTA	42	ng/g	1.0	105	69	133				
PFBS	38	ng/g	1.0	106	72	128				
PFPeS	42	ng/g	1.0	110	73	123				
PFHxS	36	ng/g	1.0	98	67	130				
PFHpS	39	ng/g	1.0	102	70	132				

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: City of Missoula

Work Order: B23121814

Report Date: 01/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E537M										Batch: 186168
Lab ID: LCS-186168	28 Laboratory Control Sample				Run: SCIEX 4500_240105A				01/05/24 19:09	
PFOS	39	ng/g	1.0	105	68	136				
PFNS	41	ng/g	1.0	106	69	125				
PFDS	39	ng/g	1.0	102	59	134				
FOSA	40	ng/g	1.0	100	67	137				
NEtFOSAA	39	ng/g	1.0	97	61	139				
NMeFOSAA	38	ng/g	1.0	96	63	144				
8:2 FTS	38	ng/g	1.0	99	65	137				
4:2 FTS	36	ng/g	1.0	97	62	145				
6:2 FTS	34	ng/g	1.0	89	64	140				
11Cl-PF3OUdS	39	ng/g	1.0	104	70	130				
ADONA	39	ng/g	1.0	105	70	130				
9Cl-PF3ONS	42	ng/g	1.0	112	70	130				
HFPO-DA	36	ng/g	1.0	90	70	130				
Lab ID: B23121814-004AMS	28 Sample Matrix Spike				Run: SCIEX 4500_240105A				01/05/24 19:46	
PFBA	48	ng/g	1.0	105	71	135				
PFPeA	49	ng/g	1.0	101	69	132				
PFHxA	65	ng/g	1.0	62	70	132				S
PFHpA	48	ng/g	1.0	111	71	131				
PFOA	51	ng/g	1.0	73	69	133				
PFNA	44	ng/g	1.0	102	72	129				
PFDA	43	ng/g	1.0	89	69	133				
PFUnA	42	ng/g	1.0	101	64	136				
PFDoA	44	ng/g	1.0	105	69	135				
PFTTrDA	38	ng/g	1.0	95	66	139				
PFTA	45	ng/g	1.0	111	69	133				
PFBS	43	ng/g	1.0	89	72	128				
PFPeS	43	ng/g	1.0	113	73	123				
PFHxS	40	ng/g	1.0	109	67	130				
PFHpS	40	ng/g	1.0	106	70	132				
PFOS	45	ng/g	1.0	89	68	136				
PFNS	42	ng/g	1.0	108	69	125				
PFDS	39	ng/g	1.0	98	59	134				
FOSA	46	ng/g	1.0	113	67	137				
NEtFOSAA	49	ng/g	1.0	114	61	139				
NMeFOSAA	53	ng/g	1.0	112	63	144				
8:2 FTS	48	ng/g	1.0	122	65	137				
4:2 FTS	39	ng/g	1.0	104	62	145				
6:2 FTS	44	ng/g	1.0	112	64	140				
11Cl-PF3OUdS	39	ng/g	1.0	104	70	130				
ADONA	41	ng/g	1.0	109	70	130				
9Cl-PF3ONS	41	ng/g	1.0	111	70	130				
HFPO-DA	47	ng/g	1.0	117	70	130				

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: City of Missoula

Work Order: B23121814

Report Date: 01/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E537M										Batch: 186168
Lab ID: B23121814-004AMSD	28	Sample Matrix Spike Duplicate				Run: SCIEX 4500_240105A			01/05/24 20:05	
PFBA	46	ng/g	1.0	99	71	135	5.6	30		
PFPeA	46	ng/g	1.0	94	69	132	6.5	30		
PFHxA	62	ng/g	1.0	57	70	132	3.6	30		S
PFHpA	45	ng/g	1.0	105	71	131	6.6	30		
PFOA	54	ng/g	1.0	83	69	133	7.3	30		
PFNA	43	ng/g	1.0	101	72	129	2.2	30		
PFDA	47	ng/g	1.0	100	69	133	8.9	30		
PFUnA	44	ng/g	1.0	108	64	136	4.7	30		
PFDoA	42	ng/g	1.0	101	69	135	4.7	30		
PFTTrDA	34	ng/g	1.0	86	66	139	11	30		
PFTA	43	ng/g	1.0	107	69	133	5.0	30		
PFBS	43	ng/g	1.0	89	72	128	0.5	30		
PFPeS	42	ng/g	1.0	112	73	123	2.3	30		
PFHxS	37	ng/g	1.0	101	67	130	8.2	30		
PFHpS	37	ng/g	1.0	100	70	132	7.4	30		
PFOS	41	ng/g	1.0	81	68	136	7.8	30		
PFNS	38	ng/g	1.0	99	69	125	9.7	30		
PFDS	37	ng/g	1.0	93	59	134	6.7	30		
FOSA	43	ng/g	1.0	105	67	137	7.6	30		
NEtFOSAA	45	ng/g	1.0	104	61	139	9.7	30		
NMeFOSAA	41	ng/g	1.0	84	63	144	25	30		
8:2 FTS	38	ng/g	1.0	97	65	137	23	30		
4:2 FTS	35	ng/g	1.0	95	62	145	9.5	30		
6:2 FTS	42	ng/g	1.0	108	64	140	4.1	30		
11Cl-PF3OUdS	36	ng/g	1.0	97	70	130	7.7	30		
ADONA	40	ng/g	1.0	108	70	130	2.0	30		
9Cl-PF3ONS	38	ng/g	1.0	104	70	130	7.1	30		
HFPO-DA	40	ng/g	1.0	102	70	130	15	30		

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Lab ID: MB-186168	20	Method Blank				Run: SCIEX 4500_240105A			01/05/24 18:13	
IS: M4PFBA	0.77	% recovery	77	50	150					
IS: M3PFHxS	0.78	% recovery	78	50	150					
IS: M4PFHpA	0.73	% recovery	73	50	150					
IS: M8PFOA	0.72	% recovery	72	50	150					
IS: M9PFNA	0.77	% recovery	77	50	150					
IS: M6PFDA	0.72	% recovery	72	50	150					
IS: M7PFUnA	0.74	% recovery	74	50	150					
IS: M2PFDoA	0.74	% recovery	74	50	150					
IS: M2PFTeDA	0.71	% recovery	71	50	150					
IS: M3PFBS	0.76	% recovery	76	50	150					
IS: M5PFPeA	0.78	% recovery	78	50	150					
IS: M5PFHxA	0.80	% recovery	80	50	150					
IS: M8PFOS	0.70	% recovery	70	50	150					
IS: M8FOSA	0.74	% recovery	74	50	150					
IS: d5-N-EtFOSAA	0.65	% recovery	65	50	150					

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: City of Missoula

Work Order: B23121814

Report Date: 01/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E537M										Batch: 186168
Lab ID: MB-186168	20	Method Blank		Run: SCIEX 4500_240105A			01/05/24 18:13			
IS: d3-N-MeFOSAA		0.70	% recovery	70		50	150			
IS: M2-8:2FTS		0.78	% recovery	78		50	150			
IS: M2-4:2FTS		0.71	% recovery	71		50	150			
IS: M2-6:2FTS		0.66	% recovery	66		50	150			
IS: M3HFPO-DA		0.83	% recovery	83		50	150			
Lab ID: LCS-186168	20	Laboratory Control Sample		Run: SCIEX 4500_240105A			01/05/24 19:09			
IS: M4PFBA		0.72	% recovery	72		50	150			
IS: M3PFHxS		0.74	% recovery	74		50	150			
IS: M4PFHpA		0.71	% recovery	71		50	150			
IS: M8PFOA		0.70	% recovery	70		50	150			
IS: M9PFNA		0.74	% recovery	74		50	150			
IS: M6PFDA		0.68	% recovery	68		50	150			
IS: M7PFUnA		0.65	% recovery	65		50	150			
IS: M2PFDaA		0.77	% recovery	77		50	150			
IS: M2PFTeDA		0.71	% recovery	71		50	150			
IS: M3PFBS		0.71	% recovery	71		50	150			
IS: M5PFPeA		0.75	% recovery	75		50	150			
IS: M5PFHxA		0.77	% recovery	77		50	150			
IS: M8PFOS		0.68	% recovery	68		50	150			
IS: M8FOSA		0.65	% recovery	65		50	150			
IS: d5-N-EtFOSAA		0.66	% recovery	66		50	150			
IS: d3-N-MeFOSAA		0.67	% recovery	67		50	150			
IS: M2-8:2FTS		0.74	% recovery	74		50	150			
IS: M2-4:2FTS		0.85	% recovery	85		50	150			
IS: M2-6:2FTS		0.68	% recovery	68		50	150			
IS: M3HFPO-DA		0.76	% recovery	76		50	150			
Lab ID: B23121814-004AMS	20	Sample Matrix Spike		Run: SCIEX 4500_240105A			01/05/24 19:46			
IS: M4PFBA		0.47	% recovery	47		50	150			S
IS: M3PFHxS		0.55	% recovery	55		50	150			
IS: M4PFHpA		0.56	% recovery	56		50	150			
IS: M8PFOA		0.53	% recovery	53		50	150			
IS: M9PFNA		0.62	% recovery	62		50	150			
IS: M6PFDA		0.54	% recovery	54		50	150			
IS: M7PFUnA		0.48	% recovery	48		50	150			S
IS: M2PFDaA		0.48	% recovery	48		50	150			S
IS: M2PFTeDA		0.41	% recovery	41		50	150			S
IS: M3PFBS		0.57	% recovery	57		50	150			
IS: M5PFPeA		0.55	% recovery	55		50	150			
IS: M5PFHxA		0.53	% recovery	53		50	150			
IS: M8PFOS		0.53	% recovery	53		50	150			
IS: M8FOSA		0.38	% recovery	38		50	150			S
IS: d5-N-EtFOSAA		0.32	% recovery	32		50	150			S
IS: d3-N-MeFOSAA		0.33	% recovery	33		50	150			S

Qualifiers:

RL - Analyte Reporting Limit

S - Spike recovery outside of advisory limits

ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: City of Missoula

Work Order: B23121814

Report Date: 01/16/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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Method: E537M

Batch: 186168

Lab ID: B23121814-004AMS 20 Sample Matrix Spike Run: SCIEX 4500_240105A 01/05/24 19:46

IS: M2-8:2FTS	0.42	% recovery	42	50	150	S
IS: M2-4:2FTS	0.73	% recovery	73	50	150	
IS: M2-6:2FTS	0.66	% recovery	66	50	150	
IS: M3HFPO-DA	0.47	% recovery	47	50	150	S

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Lab ID: B23121814-004AMSD 20 Sample Matrix Spike Duplicate Run: SCIEX 4500_240105A 01/05/24 20:05

IS: M4PFBA	0.55	% recovery	55	50	150	
IS: M3PFHxS	0.61	% recovery	61	50	150	
IS: M4PFHpA	0.62	% recovery	62	50	150	
IS: M8PFOA	0.59	% recovery	59	50	150	
IS: M9PFNA	0.64	% recovery	64	50	150	
IS: M6PFDA	0.56	% recovery	56	50	150	
IS: M7PFUnA	0.50	% recovery	50	50	150	
IS: M2PFDoA	0.54	% recovery	54	50	150	
IS: M2PFTeDA	0.45	% recovery	45	50	150	S
IS: M3PFBS	0.63	% recovery	63	50	150	
IS: M5PFPeA	0.63	% recovery	63	50	150	
IS: M5PFHxA	0.62	% recovery	62	50	150	
IS: M8PFOS	0.58	% recovery	58	50	150	
IS: M8FOSA	0.40	% recovery	40	50	150	S
IS: d5-N-EtFOSAA	0.33	% recovery	33	50	150	S
IS: d3-N-MeFOSAA	0.38	% recovery	38	50	150	S
IS: M2-8:2FTS	0.41	% recovery	41	50	150	S
IS: M2-4:2FTS	0.69	% recovery	69	50	150	
IS: M2-6:2FTS	0.53	% recovery	53	50	150	
IS: M3HFPO-DA	0.59	% recovery	59	50	150	

-The mass labeled isotope dilution standards that are outside of quality control limits are attributed to the sample matrix. Repeat analysis produced similar results.

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: City of Missoula				Work Order: B23121814				Report Date: 01/16/24			
Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method:	SW3550C								Batch: 186208		
Lab ID:	B23121814-004A DUP		Sample Duplicate			Run: BAL #32_240110A			01/08/24 14:56		
Moisture		41	wt%	0.20				12	20		

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



Work Order Receipt Checklist

City of Missoula

B23121814

Login completed by: Addison A. Gilbert

Date Received: 12/29/2023

Reviewed by: lleprorowse

Received by: CMJ

Reviewed Date: 1/2/2024

Carrier name: Return-FedEx Ground

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	2.0°C On Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☒

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

Three containers for the Field Reagent Blank were received. Only one Field Reagent Blank is needed per sampling event per Jacob Morris, Energy Laboratories Organics Supervisor.



Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing Information)

Company/Name City of Missoula Wastewater			
Contact	Nate Gordon		
Phone	(406) 552-6606		
Mailing Address 435 Ryman			
City, State, Zip	Missoula, MT, 59802		
Email	gordonn@ci.missoula.mt.us		
Receive Invoice	☐ Hard Copy	☐ Email	☒ Email
Purchase Order	Quote	Receive Report	☐ Hard Copy ☒ Email
		Bottle Order	166061

Report Information (if different than Account Information)

Company/Name City of Missoula WW			
Contact	Nate Gordon		
Phone	(406) 552-6606		
Mailing Address 435 Ryman			
City, State, Zip	Missoula, MT 59802		
Email	gordonn@ci.missoula.mt.us		
Receive Report	☐ Hard Copy	☒ Email	
Special Report/Formats:			
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other			

Comments

Please send a copy to :
gordonn@ci.missoula.mt.us

Project Information

Project Name, PWSID, Permit, etc. PFAS	
Sampler Name Nate Gordon	Sampler Phone (406) 552-6606
Sample Origin State Montana	EPA/State Compliance ☐ Yes ☒ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes

- A - Air
- W - Water
- S - Solids
- V - Vegetation
- B - Bioassay
- O - Other
- DW - Drinking Water

Analysis Requested

PFAS Compounds	☒
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All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling - See Instructions Page

Sample Identification (Name, Location, Interval, etc.)	Collection		Number of Containers	Matrix (See Codes Above)	PFAS Compounds	See Attached		RUSH TAT	ELI LAB ID Laboratory Use Only
	Date	Time							
1 Landfill leachate	12/28/23	11:30 am	3	W	☒				12/28/23
2 Influent, WW	12/28/23	8:00 am	3	W	☒				
3 Effluent, WW	12/28/23	8:00 am	3	W	☒				
4 Compost, finished	12/28/23	9:00 am	1	S	☒				
5 Dewatered Sludge	12/28/23	9:00 am	1	S	☒				
6 Field Page-A Blank	12/28/23		3						
7									
8									
9									
10									

Custody Record MUST be signed	Relinquished by (print)	Signature	Date/Time	Received by (print)	Signature	Date/Time			
	Relinquished by (print)	Signature	Date/Time	Received by Laboratory (print)	Signature	Date/Time			
Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp °C	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
		Y N C B	Y N		Y N	Y N	Cash Check	\$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.



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www.energylab.com

Billings, MT 406.252.6325 • Casper, WY 307.235.0515 • Gillette, WY 307.686.7175 • Helena, MT 406.442.0711

BOTTLE ORDER 166061



SHIPPED TO: City of Missoula

To report an issue with this order, view Safety Data Sheets, or let us know how we are doing, scan here or go to energylab.com/contact-us



Contact: Nate Gordon
1100 Clark Fork Ln
Missoula MT 59808-5102
Phone: (406) 552-6606

Order Created by: Darcy Chirrick
Shipped From: Billings, MT
Ship Date: 8/11/2022
VIA: FedEx Ground Service

Project: PFAS

Bottle Size/Type	Bottles Per Samp	Method	Tests	Critical Hold Time	Preservative	Notes	Num of Samp
Wastewater Influent							
250 mL Polypropylene Wide Mouth	3	E537M	PFAS Compounds in Aqueous Matrices			Special Sampling Instructions - See Brochure	1
Wastewater Effluent							
250 mL Polypropylene Wide Mouth	3	E537M	PFAS Compounds in Aqueous Matrices			Special Sampling Instructions - See Brochure	1
Landfill Leachate							
250 mL Polypropylene Wide Mouth	3	E537M	PFAS Compounds in Aqueous Matrices			Special Sampling Instructions - See Brochure	1
Finished Compost							
4 oz Polypropylene Wide Mouth	1	E537M	PFAS Compounds in Soil			Special Sampling Instructions - See Brochure	1
Field Blank							
250 mL Polypropylene Wide Mouth	2	E537M	PFAS Compounds in Aqueous Matrices			Special Sampling Instructions - See Brochure	1

BO#: 166061

1 of 2

Comments

☒	HNO3 - Nitric Acid	☒	H2SO4 - Sulfuric Acid	☒	NaOH - Sodium Hydroxide	We strongly suggest that the samples are shipped the same day as they are collected.
☒	ZnAc - Zinc Acetate	☒	HCl - Hydrochloric Acid	☐	H3PO4 - Phosphoric Acid	
Material Safety Data Sheets(MSDS) Available @ EnergyLab.com ->Services -> MSDS Sheets						
Corrosive Chemicals: Nitric, Sulfuric, Phosphoric, Hydrochloric Acids and Sodium Hydroxide. Zinc Acetate is a skin irritant.						
Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.						

BO#: 166061

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