

July 26, 2023

ROBERT BATEMAN
CITY OF HALTOM CITY
4200 HOLLIS
Fort Worth, TX 76111
rbateman@haltomcitytx.com

RE: Final Analytical Report Q2324398
Attn: ROBERT BATEMAN

Enclosed are the analytical results for sample(s) received by LCRA Environmental Laboratory Services. Results reported herein conform to the most current NELAP standards, where applicable, unless otherwise narrated in the body of the report. This final report provides results related only to the sample(s) as received for the above referenced work order.

Thank you for selecting ELS for your analytical needs. If you have any questions regarding this report, please contact us at (512) 730-6022 or environmental.lab@lcra.org. We look forward to assisting you again.

Authorized for release by:



Jason Woods
Account Manager
jason.woods@lcra.org



Enclosures:
CC:DAVID CUMMINGS

Workorder: Q2324398
Workorder Description: TX2200014_UCMR5
Client: CITY OF HALTOM CITY
Profile: UCMR5

Report To: ROBERT BATEMAN
CITY OF HALTOM CITY
4200 HOLLIS
Fort Worth, TX 76111

Sampled By: JEFF SHIFLET

Sample Summary

Lab ID	Sample ID	Matrix	Method	Date Collected	Date Received	Analytes Reported
Q2324398001	EP001	DW	E200.7, ICP-MS UCMR	06/26/2023 13:20	06/27/2023 09:30	1
Q2324398001	EP001	DW	E533 Perfluor Alkyl Acid	06/26/2023 13:20	06/27/2023 09:30	25
Q2324398001	EP001	DW	E537.1 Perfluorinated UCMR	06/26/2023 13:20	06/27/2023 09:30	4
Q2324398002	EP001 FIELD BLANK	DW	E533 Perfluor Alkyl Acid	06/26/2023 13:20	06/27/2023 09:30	25
Q2324398003	EP002	DW	E200.7, ICP-MS UCMR	06/26/2023 13:00	06/27/2023 09:30	1
Q2324398003	EP002	DW	E533 Perfluor Alkyl Acid	06/26/2023 13:00	06/27/2023 09:30	25
Q2324398003	EP002	DW	E537.1 Perfluorinated UCMR	06/26/2023 13:00	06/27/2023 09:30	4
Q2324398004	EP002 FIELD BLANK	DW	E533 Perfluor Alkyl Acid	06/26/2023 13:00	06/27/2023 09:30	25

Report Definitions

MRL - Minimum Reporting Limit
LOD - Limit of Detection
ML - Maximum Limit - Client Specified
MCL - Maximum Contaminant Level
LOQ - Limit of Quantitation - Client Specified
DF - Dilution Factor
(S) - Surrogate Spike
MDL - Method Detection Limit
RPD - Relative Percent Difference

Qualifier Definitions

J - Analyte detected below quantitation limit
R - RPD outside duplicate precision limit
S - Spike recovery outside limit
B - Analyte detected in method blank
N - Not Accredited
M - Analyte Detected Above Maximum Contaminant Level
SL - Spike Recovery Low
SH - Spike Recovery High
H - Analyzed Past Hold Time
CR - Confirmed Result
CH - Result confirmed by historical data

Workorder Summary

Analytical Results

Client ID: TX2200014	Date Collected: 06/26/2023 13:20	Matrix: Drinking Water
Lab ID: Q2324398001	Date Received: 06/27/2023 09:30	Sample Type: SAMPLE
Sample ID: EP001	Location:	
Project ID: UCMR5	Facility:	
	Sample Point:	

INORGANICS (E200.7, ICP-MS Prep/E200.7, ICP-MS UCMR)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Lithium Total	<9.0	ug/L	9.0	7.0		2.5	06/28/2023 09:51	FM	06/29/2023 12:22	FM	N

Perfluorinated Alkyl Acids (E533 Perfluor Alkyl Acid)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
PFBA (CAS 375-22-4)	0.00548	ug/L	0.00486	0.00486		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFMPA (CAS 377-73-1)	<0.00389	ug/L	0.00389	0.00389		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFPeA (CAS 2706-90-3)	<0.00291	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFBS (CAS 375-73-5)	<0.00291	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFMBA (CAS 863090-89-5)	<0.00291	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFEESA (CAS 113507-82-7)	<0.00291	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
NFDHA (CAS 151772-58-6)	<0.0194	ug/L	0.0194	0.0194		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
4:2FTS (CAS 757124-72-4)	<0.00291	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFHxA (CAS 307-24-4)	0.00342	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFPeS (CAS 2706-91-4)	<0.00389	ug/L	0.00389	0.00389		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
HFPO-DA (CAS 13252-13-6)	<0.00486	ug/L	0.00486	0.00486		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFHpA (CAS 375-85-9)	<0.00291	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFHxS (CAS 355-46-4)	<0.00291	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
ADONA (CAS 919005-14-4)	<0.00291	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
6:2FTS (CAS 27619-97-2)	<0.00389	ug/L	0.00389	0.00389		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFOA (CAS 335-67-1)	<0.00389	ug/L	0.00389	0.00389		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFHpS (CAS 375-92-8)	<0.00291	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFNA (CAS 375-95-1)	<0.00389	ug/L	0.00389	0.00389		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFOS (CAS 1763-23-1)	<0.00389	ug/L	0.00389	0.00389		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
9Cl-PF3ONS (CAS 756426-58-1)	<0.00194	ug/L	0.00194	0.00194		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
8:2FTS (CAS 39108-34-4)	<0.00486	ug/L	0.00486	0.00486		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFDA (CAS 335-76-2)	<0.00291	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFUnA (CAS 2058-94-8)	<0.00194	ug/L	0.00194	0.00194		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
11Cl-PF3OUdS (CAS 763051-92-9)	<0.00486	ug/L	0.00486	0.00486		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N
PFDoA (CAS 307-55-1)	<0.00291	ug/L	0.00291	0.00291		1	07/17/2023 07:47	KMK	07/19/2023 19:10	KRD	N

Analytical Results

Client ID: TX2200014	Date Collected: 06/26/2023 13:20	Matrix: Drinking Water
Lab ID: Q2324398001	Date Received: 06/27/2023 09:30	Sample Type: SAMPLE
Sample ID: EP001	Location:	
Project ID: UCMR5	Facility:	
	Sample Point:	

Perfluorinated Alkyl Acids (E533 Perfluor Alkyl Acid)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Surrogates											
Parameter	Units		%Spike Recovery		Control Limits %		Qualifier				
13C2-4:2FTS (S)	%		85.4		50 - 200						
13C2-6:2FTS (S)	%		91.7		50 - 200						
13C2-8:2FTS (S)	%		90.3		50 - 200						
13C2-PFDoA (S)	%		78.6		50 - 200						
13C3-HFPO-DA (S)	%		82.4		50 - 200						
13C3-PFBS (S)	%		79.2		50 - 200						
13C3-PFHxS (S)	%		85.9		50 - 200						
13C4-PFBA (S)	%		88.0		50 - 200						
13C4-PFHpA (S)	%		83.9		50 - 200						
13C5-PFHxA (S)	%		80.4		50 - 200						
13C5-PFPeA (S)	%		84.2		50 - 200						
13C6-PFDA (S)	%		83.0		50 - 200						
13C7-PFUnA (S)	%		80.2		50 - 200						
13C8-PFOA (S)	%		84.8		50 - 200						
13C8-PFOS (S)	%		86.2		50 - 200						
13C9-PFNA (S)	%		83.4		50 - 200						

Perfluorinated Alkyl Acids (E537 Perfluor Alkyl Acid FULL/E537.1 Perfluorinated UCMR)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
NMeFOSAA (CAS 2355-31-9)	<0.00579	ug/L	0.00579	0.00579		1	07/10/2023 07:36	KMK	07/11/2023 00:02	KRD	N
NEtFOSAA (CAS 2991-50-6)	<0.00482	ug/L	0.00482	0.00482		1	07/10/2023 07:36	KMK	07/11/2023 00:02	KRD	N
PFTTrDa (CAS 72629-94-8)	<0.00675	ug/L	0.00675	0.00675		1	07/10/2023 07:36	KMK	07/11/2023 00:02	KRD	N
PFTTeDA (CAS 376-06-7)	<0.00772	ug/L	0.00772	0.00772		1	07/10/2023 07:36	KMK	07/11/2023 00:02	KRD	N

Surrogates

Parameter	Units	%Spike Recovery	Control Limits %	Qualifier
13C3-HFPO-DA (S)	%	97.8	70 - 130	
13C-PFDA (S)	%	87.9	70 - 130	
13C-PFHxA (S)	%	97.0	70 - 130	
d5-N-EtFOSAA (S)	%	80.9	70 - 130	

Analytical Results

Client ID: TX2200014
Lab ID: Q2324398002
Sample ID: EP001 FIELD BLANK
Project ID: UCMR5

Date Collected: 06/26/2023 13:20
Date Received: 06/27/2023 09:30
Location:
Facility:
Sample Point:

Matrix: Drinking Water
Sample Type: FB

Perfluorinated Alkyl Acids (E533 Perfluor Alkyl Acid)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
PFBA (CAS 375-22-4)	<0.00463	ug/L	0.00463	0.00463		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFMPA (CAS 377-73-1)	<0.00370	ug/L	0.00370	0.00370		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFPeA (CAS 2706-90-3)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFBS (CAS 375-73-5)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFMBA (CAS 863090-89-5)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFEESA (CAS 113507-82-7)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
NFDHA (CAS 151772-58-6)	<0.0185	ug/L	0.0185	0.0185		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
4:2FTS (CAS 757124-72-4)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFHxA (CAS 307-24-4)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFPeS (CAS 2706-91-4)	<0.00370	ug/L	0.00370	0.00370		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
HFPO-DA (CAS 13252-13-6)	<0.00463	ug/L	0.00463	0.00463		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFHpA (CAS 375-85-9)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFHxS (CAS 355-46-4)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
ADONA (CAS 919005-14-4)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
6:2FTS (CAS 27619-97-2)	<0.00370	ug/L	0.00370	0.00370		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFOA (CAS 335-67-1)	<0.00370	ug/L	0.00370	0.00370		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFHpS (CAS 375-92-8)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFNA (CAS 375-95-1)	<0.00370	ug/L	0.00370	0.00370		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFOS (CAS 1763-23-1)	<0.00370	ug/L	0.00370	0.00370		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
9CI-PF3ONS (CAS 756426-58-1)	<0.00185	ug/L	0.00185	0.00185		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
8:2FTS (CAS 39108-34-4)	<0.00463	ug/L	0.00463	0.00463		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFDA (CAS 335-76-2)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFUnA (CAS 2058-94-8)	<0.00185	ug/L	0.00185	0.00185		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
11CI-PF3OUdS (CAS 763051-92-9)	<0.00463	ug/L	0.00463	0.00463		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N
PFDoA (CAS 307-55-1)	<0.00278	ug/L	0.00278	0.00278		1	07/24/2023 08:05	KMK	07/24/2023 22:16	KRD	N

Analytical Results

Client ID: TX2200014	Date Collected: 06/26/2023 13:20	Matrix: Drinking Water
Lab ID: Q2324398002	Date Received: 06/27/2023 09:30	Sample Type: FB
Sample ID: EP001 FIELD BLANK	Location:	
Project ID: UCMR5	Facility:	
	Sample Point:	

Perfluorinated Alkyl Acids (E533 Perfluor Alkyl Acid)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Surrogates											
Parameter	Units		%Spike Recovery		Control Limits %		Qualifier				
13C2-4:2FTS (S)	%		102.0		50 - 200						
13C2-6:2FTS (S)	%		98.9		50 - 200						
13C2-8:2FTS (S)	%		90.0		50 - 200						
13C2-PFDoA (S)	%		74.3		50 - 200						
13C3-HFPO-DA (S)	%		91.2		50 - 200						
13C3-PFBS (S)	%		93.3		50 - 200						
13C3-PFHxS (S)	%		91.9		50 - 200						
13C4-PFBA (S)	%		93.0		50 - 200						
13C4-PFHpA (S)	%		91.8		50 - 200						
13C5-PFHxA (S)	%		91.1		50 - 200						
13C5-PFPeA (S)	%		93.4		50 - 200						
13C6-PFDA (S)	%		81.5		50 - 200						
13C7-PFUnA (S)	%		75.4		50 - 200						
13C8-PFOA (S)	%		92.0		50 - 200						
13C8-PFOS (S)	%		84.6		50 - 200						
13C9-PFNA (S)	%		89.1		50 - 200						

Analytical Results

Client ID: TX2200014	Date Collected: 06/26/2023 13:00	Matrix: Drinking Water
Lab ID: Q2324398003	Date Received: 06/27/2023 09:30	Sample Type: SAMPLE
Sample ID: EP002	Location:	
Project ID: UCMR5	Facility:	
	Sample Point:	

INORGANICS (E200.7, ICP-MS Prep/E200.7, ICP-MS UCMR)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Lithium Total	<9.0	ug/L	9.0	7.0		2.5	06/28/2023 09:51	FM	06/29/2023 12:26	FM	N

Perfluorinated Alkyl Acids (E533 Perfluor Alkyl Acid)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
PFBA (CAS 375-22-4)	0.00813	ug/L	0.00477	0.00477		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFMPA (CAS 377-73-1)	<0.00382	ug/L	0.00382	0.00382		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFPeA (CAS 2706-90-3)	0.00400	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFBS (CAS 375-73-5)	0.00385	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFMBA (CAS 863090-89-5)	<0.00286	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFEESA (CAS 113507-82-7)	<0.00286	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
NFDHA (CAS 151772-58-6)	<0.0191	ug/L	0.0191	0.0191		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
4:2FTS (CAS 757124-72-4)	<0.00286	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFHxA (CAS 307-24-4)	0.00703	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFPeS (CAS 2706-91-4)	<0.00382	ug/L	0.00382	0.00382		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
HFPO-DA (CAS 13252-13-6)	<0.00477	ug/L	0.00477	0.00477		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFHpA (CAS 375-85-9)	<0.00286	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFHxS (CAS 355-46-4)	0.0155	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
ADONA (CAS 919005-14-4)	<0.00286	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
6:2FTS (CAS 27619-97-2)	<0.00382	ug/L	0.00382	0.00382		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFOA (CAS 335-67-1)	0.00506	ug/L	0.00382	0.00382		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFHpS (CAS 375-92-8)	<0.00286	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFNA (CAS 375-95-1)	<0.00382	ug/L	0.00382	0.00382		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFOS (CAS 1763-23-1)	0.00766	ug/L	0.00382	0.00382		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
9Cl-PF3ONS (CAS 756426-58-1)	<0.00191	ug/L	0.00191	0.00191		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
8:2FTS (CAS 39108-34-4)	<0.00477	ug/L	0.00477	0.00477		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFDA (CAS 335-76-2)	<0.00286	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFUnA (CAS 2058-94-8)	<0.00191	ug/L	0.00191	0.00191		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
11Cl-PF3OUdS (CAS 763051-92-9)	<0.00477	ug/L	0.00477	0.00477		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N
PFDoA (CAS 307-55-1)	<0.00286	ug/L	0.00286	0.00286		1	07/17/2023 07:47	KMK	07/19/2023 19:26	KRD	N

Analytical Results

Client ID: TX2200014	Date Collected: 06/26/2023 13:00	Matrix: Drinking Water
Lab ID: Q2324398003	Date Received: 06/27/2023 09:30	Sample Type: SAMPLE
Sample ID: EP002	Location:	
Project ID: UCMR5	Facility:	
	Sample Point:	

Perfluorinated Alkyl Acids (E533 Perfluor Alkyl Acid)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Surrogates											
Parameter	Units	%Spike Recovery		Control Limits %		Qualifier					
13C2-4:2FTS (S)	%	80.1		50 - 200							
13C2-6:2FTS (S)	%	90.1		50 - 200							
13C2-8:2FTS (S)	%	80.8		50 - 200							
13C2-PFDoA (S)	%	68.4		50 - 200							
13C3-HFPO-DA (S)	%	76.1		50 - 200							
13C3-PFBS (S)	%	74.3		50 - 200							
13C3-PFHxS (S)	%	83.8		50 - 200							
13C4-PFBA (S)	%	85.0		50 - 200							
13C4-PFHpA (S)	%	80.4		50 - 200							
13C5-PFHxA (S)	%	72.6		50 - 200							
13C5-PFPeA (S)	%	72.1		50 - 200							
13C6-PFDA (S)	%	75.2		50 - 200							
13C7-PFUnA (S)	%	67.9		50 - 200							
13C8-PFOA (S)	%	83.0		50 - 200							
13C8-PFOS (S)	%	79.2		50 - 200							
13C9-PFNA (S)	%	80.9		50 - 200							

Perfluorinated Alkyl Acids (E537 Perfluor Alkyl Acid FULL/E537.1 Perfluorinated UCMR)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
NMeFOSAA (CAS 2355-31-9)	<0.00588	ug/L	0.00588	0.00588		1	07/10/2023 07:36	KMK	07/11/2023 01:10	KRD	N
NEtFOSAA (CAS 2991-50-6)	<0.00490	ug/L	0.00490	0.00490		1	07/10/2023 07:36	KMK	07/11/2023 01:10	KRD	N
PFTTrDa (CAS 72629-94-8)	<0.00686	ug/L	0.00686	0.00686		1	07/10/2023 07:36	KMK	07/11/2023 01:10	KRD	N
PFTTeDA (CAS 376-06-7)	<0.00784	ug/L	0.00784	0.00784		1	07/10/2023 07:36	KMK	07/11/2023 01:10	KRD	N

Surrogates

Parameter	Units	%Spike Recovery	Control Limits %	Qualifier
13C3-HFPO-DA (S)	%	96.6	70 - 130	
13C-PFDA (S)	%	90.2	70 - 130	
13C-PFHxA (S)	%	96.6	70 - 130	
d5-N-EtFOSAA (S)	%	84.1	70 - 130	

Analytical Results

Client ID: TX2200014
Lab ID: Q2324398004
Sample ID: EP002 FIELD BLANK
Project ID: UCMR5

Date Collected: 06/26/2023 13:00
Date Received: 06/27/2023 09:30
Location:
Facility:
Sample Point:

Matrix: Drinking Water
Sample Type: FB

Perfluorinated Alkyl Acids (E533 Perfluor Alkyl Acid)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
PFBA (CAS 375-22-4)	<0.00473	ug/L	0.00473	0.00473		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFMPA (CAS 377-73-1)	<0.00379	ug/L	0.00379	0.00379		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFPeA (CAS 2706-90-3)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFBS (CAS 375-73-5)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFMBA (CAS 863090-89-5)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFEESA (CAS 113507-82-7)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
NFDHA (CAS 151772-58-6)	<0.0189	ug/L	0.0189	0.0189		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
4:2FTS (CAS 757124-72-4)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFHxA (CAS 307-24-4)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFPeS (CAS 2706-91-4)	<0.00379	ug/L	0.00379	0.00379		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
HFPO-DA (CAS 13252-13-6)	<0.00473	ug/L	0.00473	0.00473		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFHpA (CAS 375-85-9)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFHxS (CAS 355-46-4)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
ADONA (CAS 919005-14-4)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
6:2FTS (CAS 27619-97-2)	<0.00379	ug/L	0.00379	0.00379		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFOA (CAS 335-67-1)	<0.00379	ug/L	0.00379	0.00379		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFHpS (CAS 375-92-8)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFNA (CAS 375-95-1)	<0.00379	ug/L	0.00379	0.00379		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFOS (CAS 1763-23-1)	<0.00379	ug/L	0.00379	0.00379		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
9CI-PF3ONS (CAS 756426-58-1)	<0.00189	ug/L	0.00189	0.00189		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
8:2FTS (CAS 39108-34-4)	<0.00473	ug/L	0.00473	0.00473		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFDA (CAS 335-76-2)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFUnA (CAS 2058-94-8)	<0.00189	ug/L	0.00189	0.00189		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
11CI-PF3OUdS (CAS 763051-92-9)	<0.00473	ug/L	0.00473	0.00473		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N
PFDoA (CAS 307-55-1)	<0.00284	ug/L	0.00284	0.00284		1	07/24/2023 08:05	KMK	07/24/2023 23:05	KRD	N

Analytical Results

Client ID: TX2200014	Date Collected: 06/26/2023 13:00	Matrix: Drinking Water
Lab ID: Q2324398004	Date Received: 06/27/2023 09:30	Sample Type: FB
Sample ID: EP002 FIELD BLANK	Location:	
Project ID: UCMR5	Facility:	
	Sample Point:	

Perfluorinated Alkyl Acids (E533 Perfluor Alkyl Acid)

Parameter	Results	Units	MRL	LOD	ML	DF	Prepared	By	Analyzed	By	Qualifier
Surrogates											
Parameter	Units		%Spike Recovery		Control Limits %		Qualifier				
13C2-4:2FTS (S)	%		96.7		50 - 200						
13C2-6:2FTS (S)	%		92.8		50 - 200						
13C2-8:2FTS (S)	%		82.3		50 - 200						
13C2-PFDoA (S)	%		68.8		50 - 200						
13C3-HFPO-DA (S)	%		84.6		50 - 200						
13C3-PFBS (S)	%		88.5		50 - 200						
13C3-PFHxS (S)	%		82.4		50 - 200						
13C4-PFBA (S)	%		86.1		50 - 200						
13C4-PFHpA (S)	%		86.9		50 - 200						
13C5-PFHxA (S)	%		89.2		50 - 200						
13C5-PFPeA (S)	%		87.9		50 - 200						
13C6-PFDA (S)	%		74.4		50 - 200						
13C7-PFUnA (S)	%		68.2		50 - 200						
13C8-PFOA (S)	%		87.7		50 - 200						
13C8-PFOS (S)	%		77.2		50 - 200						
13C9-PFNA (S)	%		83.4		50 - 200						

Quality Control Results

QC Batch: MET/9848
Preparation Method: E200.7, ICP-MS Prep
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E200.7, ICP-MS UCMR

Laboratory Fortified Blank (1921986)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Lithium Total	ug/L	7.0	7.6	108.0	50 - 150	

LFSM-M (1921987); LFSMDM (1921988); Original: Q2323839001

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
Lithium Total	ug/L	100.0	108.4	108.0		110.6	111.0	2.74		

Laboratory Reagent Blank(1921985)

Parameter	Units	Results	MRL	LOD	Qualifier
Lithium Total	ug/L	<9.0	9.0	7.0	

Quality Control Results

QC Batch: MET/9848
Preparation Method: E200.7, ICP-MS UCMR
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E200.7, ICP-MS UCMR

Continuing Calibration Check-M (1922828)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Lithium Total	ug/L	100.0	103.3	103.0	90 - 110	

Continuing Calibration Check-L (1922823)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Lithium Total	ug/L	7.0	7.0	99.8	50 - 150	

Continuing Calibration Check-H (1922830)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
Lithium Total	ug/L	250.0	257.8	103.0	90 - 110	

Quality Control Results

QC Batch: ORG/11833
Preparation Method: E537 Perfluor Alkyl Acid FULL
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E537.1 Perfluorinated UCMR

Laboratory Fortified Blank Low (1927911)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
NMeFOSAA (CAS 2355-31-9)	ug/L	0.004	0.0043	106.0	50 - 150	
NEtFOSAA (CAS 2991-50-6)	ug/L	0.004	0.0041	102.0	50 - 150	
PFTTrDa (CAS 72629-94-8)	ug/L	0.004	0.0034	85.1	50 - 150	
PFTeDA (CAS 376-06-7)	ug/L	0.004	0.0037	92.1	50 - 150	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C3-HFPO-DA (S)	%	83.60	70 - 130	
13C-PFDA (S)	%	103	70 - 130	
13C-PFHxA (S)	%	82.20	70 - 130	
d5-N-EtFOSAA (S)	%	101	70 - 130	

LFSM-M (1927912); LFSMDM (1927913); Original: Q2324398001

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
NMeFOSAA (CAS 2355-31-9)	ug/L	0.0289	0.0216	75.0		0.0237	81.8	8.7		
NEtFOSAA (CAS 2991-50-6)	ug/L	0.0289	0.0209	72.5		0.0224	77.4	6.5		
PFTTrDa (CAS 72629-94-8)	ug/L	0.0289	0.0189	65.6		0.0205	70.8	7.62		
PFTeDA (CAS 376-06-7)	ug/L	0.0289	0.0209	72.4		0.0214	74.2	2.46		

Laboratory Reagent Blank(1927910)

Parameter	Units	Results	MRL	LOD	Qualifier
NMeFOSAA (CAS 2355-31-9)	ug/L	<0.00600	0.006	0.006	
NEtFOSAA (CAS 2991-50-6)	ug/L	<0.00500	0.005	0.005	
PFTTrDa (CAS 72629-94-8)	ug/L	<0.00700	0.007	0.007	
PFTeDA (CAS 376-06-7)	ug/L	<0.00800	0.008	0.008	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C3-HFPO-DA (S)	%	86.30	70 - 130	
13C-PFDA (S)	%	96.50	70 - 130	
13C-PFHxA (S)	%	85.40	70 - 130	
d5-N-EtFOSAA (S)	%	95.70	70 - 130	

Quality Control Results

QC Batch: ORG/11833
Preparation Method: E537.1 Perfluorinated UCMR
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E537.1 Perfluorinated UCMR

Continuing Calibration Check-L (1928651)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
NMeFOSAA (CAS 2355-31-9)	ug/L	1.0	0.865	86.5	50 - 150	
NEtFOSAA (CAS 2991-50-6)	ug/L	1.0	0.904	90.4	50 - 150	
PFTTrDa (CAS 72629-94-8)	ug/L	1.0	0.767	76.7	50 - 150	
PFTeDA (CAS 376-06-7)	ug/L	1.0	0.779	77.9	50 - 150	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C3-HFPO-DA (S)	%	98.60	70 - 130	
13C-PFDA (S)	%	98.80	70 - 130	
13C-PFHxA (S)	%	99.60	70 - 130	
d5-N-EtFOSAA (S)	%	101	70 - 130	

Continuing Calibration Check-M (1928653)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
NMeFOSAA (CAS 2355-31-9)	ug/L	7.5	7.63	102.0	70 - 130	
NEtFOSAA (CAS 2991-50-6)	ug/L	7.5	7.4	98.7	70 - 130	
PFTTrDa (CAS 72629-94-8)	ug/L	7.5	7.37	98.2	70 - 130	
PFTeDA (CAS 376-06-7)	ug/L	7.5	7.41	98.9	70 - 130	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C3-HFPO-DA (S)	%	102	70 - 130	
13C-PFDA (S)	%	100	70 - 130	
13C-PFHxA (S)	%	100	70 - 130	
d5-N-EtFOSAA (S)	%	99.20	70 - 130	

Quality Control Results

QC Batch: ORG/11862
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E533 Perfluor Alkyl Acid

Continuing Calibration Check-L (1933677)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
PFBA (CAS 375-22-4)	ug/L	1.25	1.28	102.0	50 - 150	
PFMPA (CAS 377-73-1)	ug/L	1.0	1.12	112.0	50 - 150	
PFPeA (CAS 2706-90-3)	ug/L	0.75	0.689	91.9	50 - 150	
PFBS (CAS 375-73-5)	ug/L	0.666	0.681	102.0	50 - 150	
PFMBA (CAS 863090-89-5)	ug/L	0.75	0.777	104.0	50 - 150	
PFEESA (CAS 113507-82-7)	ug/L	0.669	0.664	99.3	50 - 150	
NFDHA (CAS 151772-58-6)	ug/L	5.0	5.14	103.0	50 - 150	
4:2FTS (CAS 757124-72-4)	ug/L	0.703	0.75	107.0	50 - 150	
PFHxA (CAS 307-24-4)	ug/L	0.75	0.77	103.0	50 - 150	
PFPeS (CAS 2706-91-4)	ug/L	0.941	0.991	105.0	50 - 150	
HFPO-DA (CAS 13252-13-6)	ug/L	1.25	1.29	103.0	50 - 150	
PFHpA (CAS 375-85-9)	ug/L	0.75	0.759	101.0	50 - 150	
PFHxS (CAS 355-46-4)	ug/L	0.684	0.74	108.0	50 - 150	
ADONA (CAS 919005-14-4)	ug/L	0.709	0.698	98.4	50 - 150	
6:2FTS (CAS 27619-97-2)	ug/L	1.19	1.23	104.0	50 - 150	
PFOA (CAS 335-67-1)	ug/L	1.0	1.03	103.0	50 - 150	
PFHpS (CAS 375-92-8)	ug/L	0.715	0.743	104.0	50 - 150	
PFNA (CAS 375-95-1)	ug/L	1.0	1.05	105.0	50 - 150	
PFOS (CAS 1763-23-1)	ug/L	0.928	1.02	110.0	50 - 150	
9CI-PF3ONS (CAS 756426-58-1)	ug/L	0.467	0.455	97.4	50 - 150	
8:2FTS (CAS 39108-34-4)	ug/L	1.2	1.29	107.0	50 - 150	
PFDA (CAS 335-76-2)	ug/L	0.75	0.763	102.0	50 - 150	
PFUnA (CAS 2058-94-8)	ug/L	0.5	0.521	104.0	50 - 150	
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	1.18	1.18	100.0	50 - 150	
PFDaA (CAS 307-55-1)	ug/L	0.75	0.793	106.0	50 - 150	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-4:2FTS (S)	%	107	70 - 130	
13C2-6:2FTS (S)	%	107	70 - 130	
13C2-8:2FTS (S)	%	105	70 - 130	
13C2-PFDaA (S)	%	96.60	70 - 130	
13C3-HFPO-DA (S)	%	98	70 - 130	
13C3-PFBS (S)	%	98.20	70 - 130	

Quality Control Results

QC Batch: ORG/11862
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E533 Perfluor Alkyl Acid

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C3-PFHxS (S)	%	99.30	70 - 130	
13C4-PFBA (S)	%	98.80	70 - 130	
13C4-PFHpA (S)	%	97.20	70 - 130	
13C5-PFHxA (S)	%	98.20	70 - 130	
13C5-PFPeA (S)	%	101	70 - 130	
13C6-PFDA (S)	%	97.40	70 - 130	
13C7-PFUnA (S)	%	95	70 - 130	
13C8-PFOA (S)	%	97.80	70 - 130	
13C8-PFOS (S)	%	99.40	70 - 130	
13C9-PFNA (S)	%	97	70 - 130	

Laboratory Reagent Blank(1932231)

Parameter	Units	Results	MRL	LOD	Qualifier
PFBA (CAS 375-22-4)	ug/L	<0.00500	0.005	0.005	
PFMPA (CAS 377-73-1)	ug/L	<0.00400	0.004	0.004	
PFPeA (CAS 2706-90-3)	ug/L	<0.00300	0.003	0.003	
PFBS (CAS 375-73-5)	ug/L	<0.00300	0.003	0.003	
PFMBA (CAS 863090-89-5)	ug/L	<0.00300	0.003	0.003	
PFEESA (CAS 113507-82-7)	ug/L	<0.00300	0.003	0.003	
NFDHA (CAS 151772-58-6)	ug/L	<0.0200	0.02	0.02	
4:2FTS (CAS 757124-72-4)	ug/L	<0.00300	0.003	0.003	
PFHxA (CAS 307-24-4)	ug/L	<0.00300	0.003	0.003	
PFPeS (CAS 2706-91-4)	ug/L	<0.00400	0.004	0.004	
HFPO-DA (CAS 13252-13-6)	ug/L	<0.00500	0.005	0.005	
PFHpA (CAS 375-85-9)	ug/L	<0.00300	0.003	0.003	
PFHxS (CAS 355-46-4)	ug/L	<0.00300	0.003	0.003	
ADONA (CAS 919005-14-4)	ug/L	<0.00300	0.003	0.003	
6:2FTS (CAS 27619-97-2)	ug/L	<0.00400	0.004	0.004	
PFOA (CAS 335-67-1)	ug/L	<0.00400	0.004	0.004	
PFHpS (CAS 375-92-8)	ug/L	<0.00300	0.003	0.003	
PFNA (CAS 375-95-1)	ug/L	<0.00400	0.004	0.004	
PFOS (CAS 1763-23-1)	ug/L	<0.00400	0.004	0.004	
9CI-PF3ONS (CAS 756426-58-1)	ug/L	<0.00200	0.002	0.002	
8:2FTS (CAS 39108-34-4)	ug/L	<0.00500	0.005	0.005	
PFDA (CAS 335-76-2)	ug/L	<0.00300	0.003	0.003	

Quality Control Results

QC Batch: ORG/11862
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E533 Perfluor Alkyl Acid

Parameter	Units	Results	MRL	LOD	Qualifier
PFUnA (CAS 2058-94-8)	ug/L	<0.00200	0.002	0.002	
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	<0.00500	0.005	0.005	
PFDaA (CAS 307-55-1)	ug/L	<0.00300	0.003	0.003	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-4:2FTS (S)	%	90.70	50 - 200	
13C2-6:2FTS (S)	%	89.80	50 - 200	
13C2-8:2FTS (S)	%	86.70	50 - 200	
13C2-PFDaA (S)	%	76.30	50 - 200	
13C3-HFPO-DA (S)	%	80.40	50 - 200	
13C3-PFBS (S)	%	82.20	50 - 200	
13C3-PFHxS (S)	%	81.70	50 - 200	
13C4-PFBA (S)	%	82.40	50 - 200	
13C4-PFHpA (S)	%	82.80	50 - 200	
13C5-PFHxA (S)	%	83	50 - 200	
13C5-PFPeA (S)	%	83.30	50 - 200	
13C6-PFDA (S)	%	80.50	50 - 200	
13C7-PFUnA (S)	%	76.50	50 - 200	
13C8-PFOA (S)	%	84.30	50 - 200	
13C8-PFOS (S)	%	81.40	50 - 200	
13C9-PFNA (S)	%	83.90	50 - 200	

Continuing Calibration Check-H (1933680)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
PFBA (CAS 375-22-4)	ug/L	31.2	34.5	110.0	70 - 130	
PFMPA (CAS 377-73-1)	ug/L	25.0	28.3	113.0	70 - 130	
PFPeA (CAS 2706-90-3)	ug/L	18.8	19.6	104.0	70 - 130	
PFBS (CAS 375-73-5)	ug/L	16.6	18.6	112.0	70 - 130	
PFMBA (CAS 863090-89-5)	ug/L	18.8	20.4	109.0	70 - 130	
PFEESA (CAS 113507-82-7)	ug/L	16.7	18.2	109.0	70 - 130	
NFDHA (CAS 151772-58-6)	ug/L	125.0	128.0	102.0	70 - 130	
4:2FTS (CAS 757124-72-4)	ug/L	17.6	19.5	111.0	70 - 130	
PFHxA (CAS 307-24-4)	ug/L	18.8	20.7	111.0	70 - 130	
PFPeS (CAS 2706-91-4)	ug/L	23.5	25.2	107.0	70 - 130	
HFPO-DA (CAS 13252-13-6)	ug/L	31.2	33.5	107.0	70 - 130	

Quality Control Results

QC Batch: ORG/11862
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E533 Perfluor Alkyl Acid

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
PFHpA (CAS 375-85-9)	ug/L	18.8	20.6	110.0	70 - 130	
PFHxS (CAS 355-46-4)	ug/L	17.1	18.3	107.0	70 - 130	
ADONA (CAS 919005-14-4)	ug/L	17.7	19.7	111.0	70 - 130	
6:2FTS (CAS 27619-97-2)	ug/L	29.8	33.1	111.0	70 - 130	
PFOA (CAS 335-67-1)	ug/L	25.0	27.2	109.0	70 - 130	
PFHpS (CAS 375-92-8)	ug/L	17.9	19.8	111.0	70 - 130	
PFNA (CAS 375-95-1)	ug/L	25.0	27.4	109.0	70 - 130	
PFOS (CAS 1763-23-1)	ug/L	23.2	25.4	109.0	70 - 130	
9CI-PF3ONS (CAS 756426-58-1)	ug/L	11.7	12.6	108.0	70 - 130	
8:2FTS (CAS 39108-34-4)	ug/L	30.0	33.6	112.0	70 - 130	
PFDA (CAS 335-76-2)	ug/L	18.8	20.8	111.0	70 - 130	
PFUnA (CAS 2058-94-8)	ug/L	12.5	13.5	108.0	70 - 130	
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	29.5	32.3	110.0	70 - 130	
PFDaA (CAS 307-55-1)	ug/L	18.8	20.8	111.0	70 - 130	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-4:2FTS (S)	%	96.90	70 - 130	
13C2-6:2FTS (S)	%	96.90	70 - 130	
13C2-8:2FTS (S)	%	96	70 - 130	
13C2-PFDoA (S)	%	103	70 - 130	
13C3-HFPO-DA (S)	%	101	70 - 130	
13C3-PFBS (S)	%	101	70 - 130	
13C3-PFHxS (S)	%	104	70 - 130	
13C4-PFBA (S)	%	101	70 - 130	
13C4-PFHpA (S)	%	102	70 - 130	
13C5-PFHxA (S)	%	101	70 - 130	
13C5-PFPeA (S)	%	101	70 - 130	
13C6-PFDA (S)	%	101	70 - 130	
13C7-PFUnA (S)	%	104	70 - 130	
13C8-PFOA (S)	%	102	70 - 130	
13C8-PFOS (S)	%	102	70 - 130	
13C9-PFNA (S)	%	99.40	70 - 130	

LFSM-L (1932233); LFSMDL (1932234); Original: Q2324398001

Quality Control Results

QC Batch: ORG/11862
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E533 Perfluor Alkyl Acid

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
PFBA (CAS 375-22-4)	ug/L	0.0051	0.0111	110.0		0.0116	124.0	12.0		
PFMPA (CAS 377-73-1)	ug/L	0.0039	0.0017	42.9		0.0014	36.9	15.0		
PFPeA (CAS 2706-90-3)	ug/L	0.0029	0.0069	234.0		0.0058	201.0	15.2		
PFBS (CAS 375-73-5)	ug/L	0.0026	0.0052	198.0		0.0051	200.0	1.01		
PFMBA (CAS 863090-89-5)	ug/L	0.0029	0.0033	112.0		0.003	105.0	6.45		
PFEESA (CAS 113507-82-7)	ug/L	0.0026	0.0028	106.0		0.0025	98.5	7.33		
NFDHA (CAS 151772-58-6)	ug/L	0.0195	0.0183	94.0		0.0177	92.9	1.18		
4:2FTS (CAS 757124-72-4)	ug/L	0.0027	0.003	110.0		0.0027	103.0	6.57		
PFHxA (CAS 307-24-4)	ug/L	0.0029	0.0067	112.0		0.0059	88.1	23.9		
PFPeS (CAS 2706-91-4)	ug/L	0.0037	0.0041	111.0		0.004	110.0	0.90 5		
HFPO-DA (CAS 13252-13-6)	ug/L	0.0051	0.0054	106.0		0.0048	96.5	9.38		
PFHpA (CAS 375-85-9)	ug/L	0.0029	0.005	171.0		0.0047	164.0	4.18		
PFHxS (CAS 355-46-4)	ug/L	0.0027	0.0047	176.0		0.0043	166.0	5.85		
ADONA (CAS 919005-14-4)	ug/L	0.0028	0.0027	96.5		0.0023	84.8	12.9		
6:2FTS (CAS 27619-97-2)	ug/L	0.0047	0.0052	111.0		0.0048	105.0	5.56		
PFOA (CAS 335-67-1)	ug/L	0.0039	0.0059	151.0		0.0055	143.0	5.44		
PFHpS (CAS 375-92-8)	ug/L	0.0028	0.003	107.0		0.0027	99.3	7.46		
PFNA (CAS 375-95-1)	ug/L	0.0039	0.0048	124.0		0.0044	114.0	8.4		
PFOS (CAS 1763-23-1)	ug/L	0.0036	0.0063	175.0		0.0059	166.0	5.28		
9CI-PF3ONS (CAS 756426-58-1)	ug/L	0.0018	0.0018	95.3		0.0016	87.4	8.65		
8:2FTS (CAS 39108-34-4)	ug/L	0.0047	0.0051	109.0		0.0047	102.0	6.64		
PFDA (CAS 335-76-2)	ug/L	0.0029	0.0033	111.0		0.0029	101.0	9.43		
PFUnA (CAS 2058-94-8)	ug/L	0.002	0.0021	106.0		0.0018	96.0	9.9		
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	0.0047	0.004	85.4		0.0032	70.4	19.3		
PFDaA (CAS 307-55-1)	ug/L	0.0029	0.003	101.0		0.0026	91.9	9.43		

Continuing Calibration Check-M (1933679)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
PFBA (CAS 375-22-4)	ug/L	6.25	5.89	94.3	70 - 130	
PFMPA (CAS 377-73-1)	ug/L	5.0	5.06	101.0	70 - 130	
PFPeA (CAS 2706-90-3)	ug/L	3.75	3.12	83.3	70 - 130	
PFBS (CAS 375-73-5)	ug/L	3.33	3.1	93.1	70 - 130	
PFMBA (CAS 863090-89-5)	ug/L	3.75	3.48	92.7	70 - 130	
PFEESA (CAS 113507-82-7)	ug/L	3.34	2.95	88.1	70 - 130	

Quality Control Results

QC Batch: ORG/11862
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E533 Perfluor Alkyl Acid

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
NFDHA (CAS 151772-58-6)	ug/L	25.0	22.6	90.6	70 - 130	
4:2FTS (CAS 757124-72-4)	ug/L	3.52	3.38	96.1	70 - 130	
PFHxA (CAS 307-24-4)	ug/L	3.75	3.52	93.8	70 - 130	
PFPeS (CAS 2706-91-4)	ug/L	4.7	4.38	93.0	70 - 130	
HFPO-DA (CAS 13252-13-6)	ug/L	6.25	5.72	91.6	70 - 130	
PFHpA (CAS 375-85-9)	ug/L	3.75	3.5	93.4	70 - 130	
PFHxS (CAS 355-46-4)	ug/L	3.42	3.17	92.8	70 - 130	
ADONA (CAS 919005-14-4)	ug/L	3.54	3.29	92.7	70 - 130	
6:2FTS (CAS 27619-97-2)	ug/L	5.95	5.75	96.7	70 - 130	
PFOA (CAS 335-67-1)	ug/L	5.0	4.61	92.2	70 - 130	
PFHpS (CAS 375-92-8)	ug/L	3.58	3.24	90.6	70 - 130	
PFNA (CAS 375-95-1)	ug/L	5.0	4.7	93.9	70 - 130	
PFOS (CAS 1763-23-1)	ug/L	4.64	4.31	92.8	70 - 130	
9CI-PF3ONS (CAS 756426-58-1)	ug/L	2.34	2.05	88.0	70 - 130	
8:2FTS (CAS 39108-34-4)	ug/L	6.0	5.85	97.4	70 - 130	
PFDA (CAS 335-76-2)	ug/L	3.75	3.5	93.3	70 - 130	
PFUnA (CAS 2058-94-8)	ug/L	2.5	2.33	93.1	70 - 130	
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	5.9	5.4	91.6	70 - 130	
PFDaA (CAS 307-55-1)	ug/L	3.75	3.52	93.8	70 - 130	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-4:2FTS (S)	%	105	70 - 130	
13C2-6:2FTS (S)	%	104	70 - 130	
13C2-8:2FTS (S)	%	103	70 - 130	
13C2-PFDaA (S)	%	101	70 - 130	
13C3-HFPO-DA (S)	%	102	70 - 130	
13C3-PFBS (S)	%	102	70 - 130	
13C3-PFHxS (S)	%	101	70 - 130	
13C4-PFBA (S)	%	101	70 - 130	
13C4-PFHpA (S)	%	101	70 - 130	
13C5-PFHxA (S)	%	101	70 - 130	
13C5-PFPeA (S)	%	103	70 - 130	
13C6-PFDA (S)	%	100	70 - 130	
13C7-PFUnA (S)	%	99.60	70 - 130	

Quality Control Results

QC Batch: ORG/11862
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E533 Perfluor Alkyl Acid

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C8-PFOA (S)	%	102	70 - 130	
13C8-PFOS (S)	%	102	70 - 130	
13C9-PFNA (S)	%	100	70 - 130	

Laboratory Fortified Blank Low (1932232)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
PFBA (CAS 375-22-4)	ug/L	0.0052	0.0049	94.2	50 - 150	
PFMPA (CAS 377-73-1)	ug/L	0.004	0.0039	97.6	50 - 150	
PFPeA (CAS 2706-90-3)	ug/L	0.003	0.0026	86.3	50 - 150	
PFBS (CAS 375-73-5)	ug/L	0.0027	0.0025	92.2	50 - 150	
PFMBA (CAS 863090-89-5)	ug/L	0.003	0.0027	88.8	50 - 150	
PFEESA (CAS 113507-82-7)	ug/L	0.0027	0.0025	93.1	50 - 150	
NFDHA (CAS 151772-58-6)	ug/L	0.02	0.0191	95.3	50 - 150	
4:2FTS (CAS 757124-72-4)	ug/L	0.0028	0.0027	96.3	50 - 150	
PFHxA (CAS 307-24-4)	ug/L	0.003	0.0028	93.9	50 - 150	
PFPeS (CAS 2706-91-4)	ug/L	0.0038	0.0035	93.7	50 - 150	
HFPO-DA (CAS 13252-13-6)	ug/L	0.0052	0.0044	85.0	50 - 150	
PFHpA (CAS 375-85-9)	ug/L	0.003	0.0029	96.0	50 - 150	
PFHxS (CAS 355-46-4)	ug/L	0.0027	0.0026	96.6	50 - 150	
ADONA (CAS 919005-14-4)	ug/L	0.0028	0.0025	89.0	50 - 150	
6:2FTS (CAS 27619-97-2)	ug/L	0.0048	0.0047	97.8	50 - 150	
PFOA (CAS 335-67-1)	ug/L	0.004	0.0037	92.4	50 - 150	
PFHpS (CAS 375-92-8)	ug/L	0.0029	0.0027	93.1	50 - 150	
PFNA (CAS 375-95-1)	ug/L	0.004	0.0037	93.0	50 - 150	
PFOS (CAS 1763-23-1)	ug/L	0.0037	0.0036	97.0	50 - 150	
9CI-PF3ONS (CAS 756426-58-1)	ug/L	0.0019	0.0016	87.4	50 - 150	
8:2FTS (CAS 39108-34-4)	ug/L	0.0048	0.0047	97.5	50 - 150	
PFDA (CAS 335-76-2)	ug/L	0.003	0.0028	92.7	50 - 150	
PFUnA (CAS 2058-94-8)	ug/L	0.002	0.0019	92.6	50 - 150	
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	0.0048	0.0041	86.3	50 - 150	
PFDaA (CAS 307-55-1)	ug/L	0.003	0.0028	92.3	50 - 150	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-4:2FTS (S)	%	99	50 - 200	

Quality Control Results

QC Batch: ORG/11862
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398001, Q2324398003

Analysis Method: E533 Perfluor Alkyl Acid

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-6:2FTS (S)	%	98.10	50 - 200	
13C2-8:2FTS (S)	%	96.10	50 - 200	
13C2-PFDoA (S)	%	86.10	50 - 200	
13C3-HFPO-DA (S)	%	89.30	50 - 200	
13C3-PFBS (S)	%	90.90	50 - 200	
13C3-PFHxS (S)	%	91.40	50 - 200	
13C4-PFBA (S)	%	90.40	50 - 200	
13C4-PFHpA (S)	%	89.60	50 - 200	
13C5-PFHxA (S)	%	90.70	50 - 200	
13C5-PFPeA (S)	%	91.90	50 - 200	
13C6-PFDA (S)	%	88.50	50 - 200	
13C7-PFUnA (S)	%	85	50 - 200	
13C8-PFOA (S)	%	91.60	50 - 200	
13C8-PFOS (S)	%	89.40	50 - 200	
13C9-PFNA (S)	%	89	50 - 200	

Quality Control Results

QC Batch: ORG/11881
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398002, Q2324398004

Analysis Method: E533 Perfluor Alkyl Acid

LFSM-M (1936208); LFSMDM (1936209); Original: Q2327308001

Parameter	Units	Spiked Amount	Spike Result	%Spike Recovery	Control Limits %	Duplicate Result	%Duplicate Recovery	RPD	RPD Limit	Qualifier
PFBA (CAS 375-22-4)	ug/L	0.0254	0.0328	129.0		0.0315	124.0	3.95		
PFMPA (CAS 377-73-1)	ug/L	0.0195	0.0095	48.5		0.0092	46.9	3.35		
PFPeA (CAS 2706-90-3)	ug/L	0.0146	0.0181	124.0		0.0171	117.0	5.8		
PFBS (CAS 375-73-5)	ug/L	0.0131	0.0159	122.0		0.0154	118.0	3.33		
PFMBA (CAS 863090-89-5)	ug/L	0.0146	0.0186	127.0		0.0176	120.0	5.67		
PFEESA (CAS 113507-82-7)	ug/L	0.0131	0.016	122.0		0.0151	115.0	5.91		
NFDHA (CAS 151772-58-6)	ug/L	0.0976	0.121	124.0		0.118	120.0	3.28		
4:2FTS (CAS 757124-72-4)	ug/L	0.0137	0.0164	120.0		0.0159	116.0	3.39		
PFHxA (CAS 307-24-4)	ug/L	0.0146	0.0181	124.0		0.0174	118.0	4.96		
PFPeS (CAS 2706-91-4)	ug/L	0.0183	0.0212	116.0		0.0204	111.0	4.41		
HFPO-DA (CAS 13252-13-6)	ug/L	0.0254	0.0288	114.0		0.028	110.0	3.57		
PFHpA (CAS 375-85-9)	ug/L	0.0146	0.0179	122.0		0.0171	116.0	5.04		
PFHxS (CAS 355-46-4)	ug/L	0.0133	0.0161	122.0		0.0156	118.0	3.33		
ADONA (CAS 919005-14-4)	ug/L	0.0139	0.0158	114.0		0.0151	109.0	4.48		
6:2FTS (CAS 27619-97-2)	ug/L	0.0234	0.0286	122.0		0.0279	119.0	2.49		
PFOA (CAS 335-67-1)	ug/L	0.0195	0.0234	120.0		0.0222	113.0	6.01		
PFHpS (CAS 375-92-8)	ug/L	0.014	0.0161	114.0		0.0153	109.0	4.48		
PFNA (CAS 375-95-1)	ug/L	0.0195	0.0232	119.0		0.0223	114.0	4.29		
PFOS (CAS 1763-23-1)	ug/L	0.0181	0.0218	120.0		0.021	115.0	4.26		
9CI-PF3ONS (CAS 756426-58-1)	ug/L	0.0092	0.0101	110.0		0.0097	106.0	3.7		
8:2FTS (CAS 39108-34-4)	ug/L	0.0234	0.0292	124.0		0.0282	120.0	3.28		
PFDA (CAS 335-76-2)	ug/L	0.0146	0.0175	120.0		0.0168	114.0	5.13		
PFUnA (CAS 2058-94-8)	ug/L	0.0098	0.0116	119.0		0.011	112.0	6.06		
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	0.0234	0.0243	104.0		0.0237	101.0	2.93		
PFDoA (CAS 307-55-1)	ug/L	0.0146	0.0173	118.0		0.0165	113.0	4.33		

Continuing Calibration Check-L (1936696)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
PFBA (CAS 375-22-4)	ug/L	1.25	1.29	103.0	50 - 150	
PFMPA (CAS 377-73-1)	ug/L	1.0	1.1	110.0	50 - 150	
PFPeA (CAS 2706-90-3)	ug/L	0.75	0.748	99.7	50 - 150	
PFBS (CAS 375-73-5)	ug/L	0.666	0.658	98.8	50 - 150	
PFMBA (CAS 863090-89-5)	ug/L	0.75	0.795	106.0	50 - 150	

Quality Control Results

QC Batch: ORG/11881
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398002, Q2324398004

Analysis Method: E533 Perfluor Alkyl Acid

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
PFEESA (CAS 113507-82-7)	ug/L	0.669	0.669	100.0	50 - 150	
NFDHA (CAS 151772-58-6)	ug/L	5.0	5.39	108.0	50 - 150	
4:2FTS (CAS 757124-72-4)	ug/L	0.703	0.734	104.0	50 - 150	
PFHxA (CAS 307-24-4)	ug/L	0.75	0.786	105.0	50 - 150	
PFPeS (CAS 2706-91-4)	ug/L	0.941	1.01	107.0	50 - 150	
HFPO-DA (CAS 13252-13-6)	ug/L	1.25	1.34	108.0	50 - 150	
PFHpA (CAS 375-85-9)	ug/L	0.75	0.753	100.0	50 - 150	
PFHxS (CAS 355-46-4)	ug/L	0.684	0.741	108.0	50 - 150	
ADONA (CAS 919005-14-4)	ug/L	0.709	0.703	99.2	50 - 150	
6:2FTS (CAS 27619-97-2)	ug/L	1.19	1.28	108.0	50 - 150	
PFOA (CAS 335-67-1)	ug/L	1.0	1.02	102.0	50 - 150	
PFHpS (CAS 375-92-8)	ug/L	0.715	0.718	100.0	50 - 150	
PFNA (CAS 375-95-1)	ug/L	1.0	1.03	103.0	50 - 150	
PFOS (CAS 1763-23-1)	ug/L	0.928	0.947	102.0	50 - 150	
9CI-PF3ONS (CAS 756426-58-1)	ug/L	0.467	0.45	96.4	50 - 150	
8:2FTS (CAS 39108-34-4)	ug/L	1.2	1.3	108.0	50 - 150	
PFDA (CAS 335-76-2)	ug/L	0.75	0.773	103.0	50 - 150	
PFUnA (CAS 2058-94-8)	ug/L	0.5	0.521	104.0	50 - 150	
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	1.18	1.16	98.5	50 - 150	
PFDaA (CAS 307-55-1)	ug/L	0.75	0.771	103.0	50 - 150	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-4:2FTS (S)	%	106	70 - 130	
13C2-6:2FTS (S)	%	104	70 - 130	
13C2-8:2FTS (S)	%	101	70 - 130	
13C2-PFDaA (S)	%	97.50	70 - 130	
13C3-HFPO-DA (S)	%	100	70 - 130	
13C3-PFBS (S)	%	98.70	70 - 130	
13C3-PFHxS (S)	%	96.80	70 - 130	
13C4-PFBA (S)	%	99.50	70 - 130	
13C4-PFHpA (S)	%	98	70 - 130	
13C5-PFHxA (S)	%	98.10	70 - 130	
13C5-PFPeA (S)	%	99.30	70 - 130	
13C6-PFDA (S)	%	97.50	70 - 130	

Quality Control Results

QC Batch: ORG/11881
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398002, Q2324398004

Analysis Method: E533 Perfluor Alkyl Acid

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C7-PFUnA (S)	%	95.60	70 - 130	
13C8-PFOA (S)	%	99.10	70 - 130	
13C8-PFOS (S)	%	98.60	70 - 130	
13C9-PFNA (S)	%	99.60	70 - 130	

Continuing Calibration Check-M (1936698)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
PFBA (CAS 375-22-4)	ug/L	6.25	5.8	92.7	70 - 130	
PFMPA (CAS 377-73-1)	ug/L	5.0	5.03	101.0	70 - 130	
PFPeA (CAS 2706-90-3)	ug/L	3.75	3.11	83.0	70 - 130	
PFBS (CAS 375-73-5)	ug/L	3.33	3.06	91.9	70 - 130	
PFMBA (CAS 863090-89-5)	ug/L	3.75	3.47	92.6	70 - 130	
PFEESA (CAS 113507-82-7)	ug/L	3.34	3.04	90.8	70 - 130	
NFDHA (CAS 151772-58-6)	ug/L	25.0	26.2	105.0	70 - 130	
4:2FTS (CAS 757124-72-4)	ug/L	3.52	3.34	94.9	70 - 130	
PFHxA (CAS 307-24-4)	ug/L	3.75	3.49	93.1	70 - 130	
PFPeS (CAS 2706-91-4)	ug/L	4.7	4.37	92.9	70 - 130	
HFPO-DA (CAS 13252-13-6)	ug/L	6.25	5.78	92.4	70 - 130	
PFHpA (CAS 375-85-9)	ug/L	3.75	3.46	92.3	70 - 130	
PFHxS (CAS 355-46-4)	ug/L	3.42	3.12	91.1	70 - 130	
ADONA (CAS 919005-14-4)	ug/L	3.54	3.32	93.5	70 - 130	
6:2FTS (CAS 27619-97-2)	ug/L	5.95	5.95	100.0	70 - 130	
PFOA (CAS 335-67-1)	ug/L	5.0	4.56	91.3	70 - 130	
PFHpS (CAS 375-92-8)	ug/L	3.58	3.33	93.1	70 - 130	
PFNA (CAS 375-95-1)	ug/L	5.0	4.61	92.2	70 - 130	
PFOS (CAS 1763-23-1)	ug/L	4.64	4.24	91.5	70 - 130	
9CI-PF3ONS (CAS 756426-58-1)	ug/L	2.34	2.08	89.0	70 - 130	
8:2FTS (CAS 39108-34-4)	ug/L	6.0	5.87	97.8	70 - 130	
PFDA (CAS 335-76-2)	ug/L	3.75	3.48	92.7	70 - 130	
PFUnA (CAS 2058-94-8)	ug/L	2.5	2.31	92.4	70 - 130	
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	5.9	5.31	90.0	70 - 130	
PFDaA (CAS 307-55-1)	ug/L	3.75	3.52	93.7	70 - 130	

Quality Control Results

QC Batch: ORG/11881
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398002, Q2324398004

Analysis Method: E533 Perfluor Alkyl Acid

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-4:2FTS (S)	%	106	70 - 130	
13C2-6:2FTS (S)	%	104	70 - 130	
13C2-8:2FTS (S)	%	104	70 - 130	
13C2-PFDoA (S)	%	99	70 - 130	
13C3-HFPO-DA (S)	%	99.40	70 - 130	
13C3-PFBS (S)	%	101	70 - 130	
13C3-PFHxS (S)	%	102	70 - 130	
13C4-PFBA (S)	%	101	70 - 130	
13C4-PFHpA (S)	%	98.30	70 - 130	
13C5-PFHxA (S)	%	100	70 - 130	
13C5-PFPeA (S)	%	105	70 - 130	
13C6-PFDA (S)	%	99.60	70 - 130	
13C7-PFUnA (S)	%	99.80	70 - 130	
13C8-PFOA (S)	%	102	70 - 130	
13C8-PFOS (S)	%	102	70 - 130	
13C9-PFNA (S)	%	99.80	70 - 130	

Continuing Calibration Check-H (1936699)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
PFBA (CAS 375-22-4)	ug/L	31.2	34.1	109.0	70 - 130	
PFMPA (CAS 377-73-1)	ug/L	25.0	29.0	116.0	70 - 130	
PFPeA (CAS 2706-90-3)	ug/L	18.8	19.5	104.0	70 - 130	
PFBS (CAS 375-73-5)	ug/L	16.6	18.2	109.0	70 - 130	
PFMBA (CAS 863090-89-5)	ug/L	18.8	20.6	110.0	70 - 130	
PFEESA (CAS 113507-82-7)	ug/L	16.7	18.5	110.0	70 - 130	
NFDHA (CAS 151772-58-6)	ug/L	125.0	124.0	99.4	70 - 130	
4:2FTS (CAS 757124-72-4)	ug/L	17.6	19.2	109.0	70 - 130	
PFHxA (CAS 307-24-4)	ug/L	18.8	20.9	111.0	70 - 130	
PFPeS (CAS 2706-91-4)	ug/L	23.5	25.6	109.0	70 - 130	
HFPO-DA (CAS 13252-13-6)	ug/L	31.2	34.3	110.0	70 - 130	
PFHpA (CAS 375-85-9)	ug/L	18.8	20.9	111.0	70 - 130	
PFHxS (CAS 355-46-4)	ug/L	17.1	18.7	110.0	70 - 130	
ADONA (CAS 919005-14-4)	ug/L	17.7	19.6	110.0	70 - 130	
6:2FTS (CAS 27619-97-2)	ug/L	29.8	34.0	114.0	70 - 130	
PFOA (CAS 335-67-1)	ug/L	25.0	26.9	108.0	70 - 130	

Quality Control Results

QC Batch: ORG/11881
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398002, Q2324398004

Analysis Method: E533 Perfluor Alkyl Acid

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
PFHpS (CAS 375-92-8)	ug/L	17.9	19.5	109.0	70 - 130	
PFNA (CAS 375-95-1)	ug/L	25.0	27.5	110.0	70 - 130	
PFOS (CAS 1763-23-1)	ug/L	23.2	25.4	109.0	70 - 130	
9CI-PF3ONS (CAS 756426-58-1)	ug/L	11.7	12.7	109.0	70 - 130	
8:2FTS (CAS 39108-34-4)	ug/L	30.0	33.9	113.0	70 - 130	
PFDA (CAS 335-76-2)	ug/L	18.8	20.6	110.0	70 - 130	
PFUnA (CAS 2058-94-8)	ug/L	12.5	13.6	109.0	70 - 130	
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	29.5	32.1	109.0	70 - 130	
PFDaA (CAS 307-55-1)	ug/L	18.8	20.6	110.0	70 - 130	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-4:2FTS (S)	%	97	70 - 130	
13C2-6:2FTS (S)	%	97.80	70 - 130	
13C2-8:2FTS (S)	%	98.70	70 - 130	
13C2-PFDoA (S)	%	102	70 - 130	
13C3-HFPO-DA (S)	%	99.40	70 - 130	
13C3-PFBS (S)	%	102	70 - 130	
13C3-PFHxS (S)	%	103	70 - 130	
13C4-PFBA (S)	%	103	70 - 130	
13C4-PFHpA (S)	%	99.60	70 - 130	
13C5-PFHxA (S)	%	98.60	70 - 130	
13C5-PFPeA (S)	%	103	70 - 130	
13C6-PFDA (S)	%	102	70 - 130	
13C7-PFUnA (S)	%	104	70 - 130	
13C8-PFOA (S)	%	102	70 - 130	
13C8-PFOS (S)	%	101	70 - 130	
13C9-PFNA (S)	%	99.30	70 - 130	

Laboratory Reagent Blank(1936206)

Parameter	Units	Results	MRL	LOD	Qualifier
PFBA (CAS 375-22-4)	ug/L	<0.00500	0.005	0.005	
PFMPA (CAS 377-73-1)	ug/L	<0.00400	0.004	0.004	
PFPeA (CAS 2706-90-3)	ug/L	<0.00300	0.003	0.003	
PFBS (CAS 375-73-5)	ug/L	<0.00300	0.003	0.003	
PFMBA (CAS 863090-89-5)	ug/L	<0.00300	0.003	0.003	

Quality Control Results

QC Batch: ORG/11881
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398002, Q2324398004

Analysis Method: E533 Perfluor Alkyl Acid

Parameter	Units	Results	MRL	LOD	Qualifier
PFEESA (CAS 113507-82-7)	ug/L	<0.00300	0.003	0.003	
NFDHA (CAS 151772-58-6)	ug/L	<0.0200	0.02	0.02	
4:2FTS (CAS 757124-72-4)	ug/L	<0.00300	0.003	0.003	
PFHxA (CAS 307-24-4)	ug/L	<0.00300	0.003	0.003	
PFPeS (CAS 2706-91-4)	ug/L	<0.00400	0.004	0.004	
HFPO-DA (CAS 13252-13-6)	ug/L	<0.00500	0.005	0.005	
PFHpA (CAS 375-85-9)	ug/L	<0.00300	0.003	0.003	
PFHxS (CAS 355-46-4)	ug/L	<0.00300	0.003	0.003	
ADONA (CAS 919005-14-4)	ug/L	<0.00300	0.003	0.003	
6:2FTS (CAS 27619-97-2)	ug/L	<0.00400	0.004	0.004	
PFOA (CAS 335-67-1)	ug/L	<0.00400	0.004	0.004	
PFHpS (CAS 375-92-8)	ug/L	<0.00300	0.003	0.003	
PFNA (CAS 375-95-1)	ug/L	<0.00400	0.004	0.004	
PFOS (CAS 1763-23-1)	ug/L	<0.00400	0.004	0.004	
9CI-PF3ONS (CAS 756426-58-1)	ug/L	<0.00200	0.002	0.002	
8:2FTS (CAS 39108-34-4)	ug/L	<0.00500	0.005	0.005	
PFDA (CAS 335-76-2)	ug/L	<0.00300	0.003	0.003	
PFUnA (CAS 2058-94-8)	ug/L	<0.00200	0.002	0.002	
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	<0.00500	0.005	0.005	
PFDaA (CAS 307-55-1)	ug/L	<0.00300	0.003	0.003	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-4:2FTS (S)	%	106	50 - 200	
13C2-6:2FTS (S)	%	103	50 - 200	
13C2-8:2FTS (S)	%	100	50 - 200	
13C2-PFDaA (S)	%	86	50 - 200	
13C3-HFPO-DA (S)	%	99.10	50 - 200	
13C3-PFBS (S)	%	96.50	50 - 200	
13C3-PFHxS (S)	%	98.40	50 - 200	
13C4-PFBA (S)	%	99.70	50 - 200	
13C4-PFHpA (S)	%	99.60	50 - 200	
13C5-PFHxA (S)	%	100	50 - 200	
13C5-PFPeA (S)	%	100	50 - 200	
13C6-PFDA (S)	%	96	50 - 200	
13C7-PFUnA (S)	%	91	50 - 200	

Quality Control Results

QC Batch: ORG/11881
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398002, Q2324398004

Analysis Method: E533 Perfluor Alkyl Acid

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C8-PFOA (S)	%	102	50 - 200	
13C8-PFOS (S)	%	99.20	50 - 200	
13C9-PFNA (S)	%	101	50 - 200	

Laboratory Fortified Blank Low (1936207)

Parameter	Units	Spiked Amount	Spike Result	Spike Recovery%	Control Limits %	Qualifier
PFBA (CAS 375-22-4)	ug/L	0.0052	0.0055	105.0	50 - 150	
PFMPA (CAS 377-73-1)	ug/L	0.004	0.0044	110.0	50 - 150	
PFPeA (CAS 2706-90-3)	ug/L	0.003	0.0031	104.0	50 - 150	
PFBS (CAS 375-73-5)	ug/L	0.0027	0.0027	102.0	50 - 150	
PFMBA (CAS 863090-89-5)	ug/L	0.003	0.0031	103.0	50 - 150	
PFEESA (CAS 113507-82-7)	ug/L	0.0027	0.0027	101.0	50 - 150	
NFDHA (CAS 151772-58-6)	ug/L	0.02	0.0208	104.0	50 - 150	
4:2FTS (CAS 757124-72-4)	ug/L	0.0028	0.0031	109.0	50 - 150	
PFHxA (CAS 307-24-4)	ug/L	0.003	0.0031	104.0	50 - 150	
PFPeS (CAS 2706-91-4)	ug/L	0.0038	0.0041	110.0	50 - 150	
HFPO-DA (CAS 13252-13-6)	ug/L	0.0052	0.0051	98.4	50 - 150	
PFHpA (CAS 375-85-9)	ug/L	0.003	0.003	100.0	50 - 150	
PFHxS (CAS 355-46-4)	ug/L	0.0027	0.003	109.0	50 - 150	
ADONA (CAS 919005-14-4)	ug/L	0.0028	0.0029	101.0	50 - 150	
6:2FTS (CAS 27619-97-2)	ug/L	0.0048	0.0054	113.0	50 - 150	
PFOA (CAS 335-67-1)	ug/L	0.004	0.0041	103.0	50 - 150	
PFHpS (CAS 375-92-8)	ug/L	0.0029	0.003	103.0	50 - 150	
PFNA (CAS 375-95-1)	ug/L	0.004	0.004	101.0	50 - 150	
PFOS (CAS 1763-23-1)	ug/L	0.0037	0.0038	102.0	50 - 150	
9CI-PF3ONS (CAS 756426-58-1)	ug/L	0.0019	0.0018	94.7	50 - 150	
8:2FTS (CAS 39108-34-4)	ug/L	0.0048	0.0052	109.0	50 - 150	
PFDA (CAS 335-76-2)	ug/L	0.003	0.0031	103.0	50 - 150	
PFUnA (CAS 2058-94-8)	ug/L	0.002	0.002	102.0	50 - 150	
11CI-PF3OUdS (CAS 763051-92-9)	ug/L	0.0048	0.0045	93.0	50 - 150	
PFDaA (CAS 307-55-1)	ug/L	0.003	0.003	99.7	50 - 150	

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-4:2FTS (S)	%	102	50 - 200	

Quality Control Results

QC Batch: ORG/11881
Preparation Method: E533 Perfluor Alkyl Acid
Associated Lab IDs: Q2324398002, Q2324398004

Analysis Method: E533 Perfluor Alkyl Acid

Surrogates

Parameter	Units	Spike Recovery%	Control Limits %	Qualifier
13C2-6:2FTS (S)	%	101	50 - 200	
13C2-8:2FTS (S)	%	97	50 - 200	
13C2-PFDoA (S)	%	87.20	50 - 200	
13C3-HFPO-DA (S)	%	94.10	50 - 200	
13C3-PFBS (S)	%	93.60	50 - 200	
13C3-PFHxS (S)	%	93.20	50 - 200	
13C4-PFBA (S)	%	94.40	50 - 200	
13C4-PFHpA (S)	%	93.60	50 - 200	
13C5-PFHxA (S)	%	94.40	50 - 200	
13C5-PFPeA (S)	%	95.40	50 - 200	
13C6-PFDA (S)	%	89.70	50 - 200	
13C7-PFUnA (S)	%	87.80	50 - 200	
13C8-PFOA (S)	%	95	50 - 200	
13C8-PFOS (S)	%	93.40	50 - 200	
13C9-PFNA (S)	%	93.30	50 - 200	

QC Cross Reference

Lab ID	Sample ID	Prep Batch	Prep Method
<i>MET/9848 - E200.7, ICP-MS UCMR</i>			
Q2324398001	EP001	MEP/12878	E200.7, ICP-MS Prep
Q2324398003	EP002	MEP/12878	E200.7, ICP-MS Prep
<i>ORG/11833 - E537.1 Perfluorinated UCMR</i>			
Q2324398001	EP001	OEXT/10102	E537 Perfluor Alkyl Acid FULL
Q2324398003	EP002	OEXT/10102	E537 Perfluor Alkyl Acid FULL
<i>ORG/11862 - E533 Perfluor Alkyl Acid</i>			
Q2324398001	EP001	OEXT/10130	E533 Perfluor Alkyl Acid
Q2324398003	EP002	OEXT/10130	E533 Perfluor Alkyl Acid
<i>ORG/11881 - E533 Perfluor Alkyl Acid</i>			
Q2324398002	EP001 FIELD BLANK	OEXT/10158	E533 Perfluor Alkyl Acid
Q2324398004	EP002 FIELD BLANK	OEXT/10158	E533 Perfluor Alkyl Acid

**LCRA Environmental Laboratory Services
Request for Analysis Chain-of-Custody Record**

02324398

LCRA - Environmental Lab Phone: (512) 730-6022 or 1-800-776-5272
3505 Montopolis Dr Fax: (512) 730-6021
Austin, TX 78744 https://els.lcra.org



Project:	UCRMS - CITY OF HALTOM CITY	Client:	CITY OF HALTOM CITY
Collector:	Jeff Snider	Contact:	Robert Bateman
Event#:	1657951	Phone:	

Report to: ROBERT BATEMAN
CITY OF HALTOM CITY
4200 HOLLIS
FORT WORTH, TX 76111

Lab ID#:	
Client PO:	TX2200014 - UCMR5
Invoice to:	ACCOUNTS PAYABLE CITY OF HALTOM CITY 5024 BROADWAY AVE Haltom City, TX 76117

	Sample ID *	Collected		Matrix: AQ = Aqueous DW = Drinking Water S = Solid T = Tissue	COMPOSITE Y/N	FILTERED Y/N	Containers							Requested Analysis *									
		Date*	Time HH:MM*				250P533	250P537	250PHNO3					200.7DU-UC	533-DU-UC	537.1 UCMR	SAMPTEXT						
1	EP001 FORT WORTH WATER INT	6-26-23	13:20	DW			6	6	1					X	X	X	X						
2	EP001 FIELD BLANK FORT WORTH WATER INT		13:20	DW			1	1							X	X							
3	EP002 FORT WORTH HOLLIS PU		13:00	DW			2	2	1					X	X	X							
4	EP002 FIELD BLANK FORT WORTH HOLLIS PU		13:00	DW			1	1							X	X							

Transfers	Relinquished By	Date/Time	Received By	Date/Time	Cooler Temp:				Client Special Instructions:
1	Jeff Snider	6-26-23/1350			T#	Obs	CF	Corr	
2					1243-2	0.1	33		
3			8-01-23	6/27/23 7:30					

Note: Relinquishing sample(s) and signing the COC, client agrees to accept and is bound by the ELS Standard Terms and Conditions. All fields with an asterisk (*) are required to be completed.



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End of Report